



River Torrens Linear Park - Eastern Section

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Draft Management Plan



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Contents

Contents	2
Executive Summary	4
1.0 Introduction	10
1.1. Background to the Project	10
1.2. Project Process	11
2.0 Objectives	13
3.0 Vision and Guiding Principles	14
4.0 Management Directions	16
5.0 The Role of the River Torrens Linear Park	17
5.1. Background Discussion	17
5.2. Feedback	19
5.3. Management Directions	20
6.0 The Management Framework	22
6.1. Background Discussion	22
6.2. Feedback	25
6.3. Management Directions	26
7.0 Safety and Risk Management	29
7.1. Background Discussion	29
7.2. Feedback	29
7.3. Management Directions	30
8.0 Meeting Recreation Needs	32
8.1. Background Discussion	32
8.2. Feedback	35
8.3. Management Directions and Strategies	36
9.0 Maximising Environmental Performance	41
9.1. Background Discussion	41
9.2. Feedback	47
9.3. Management Directions and Strategies	48

10.0	Acknowledging Cultural Values	53
10.1.	Background Discussion	53
10.2.	Feedback	54
10.3.	Management Directions	54
11.0	Development Within/Adjacent to the Linear Park	55
11.1.	Background Discussion	55
11.2.	Feedback	57
11.3.	Management Directions	57
12.0	Implementation and Priority Actions	59
13.0	Bibliography	61
14.0	Appendices	62
	Appendix A	63
	Appendix B	65

Executive Summary

The Vision for the eastern section of the River Torrens Linear Park is:

The River Torrens Linear Park is a multi-functional, regional open space corridor. Its role in flood mitigation and stormwater management blends seamlessly with its function as a recreational asset and network for biodiversity. It provides respite from the otherwise highly developed urban environment, with ease of access to a range of recreational experiences at different points along its length. The shared use path will be a prominent and well used recreational element, encouraging people to travel longer distances and enjoy the resultant health benefits without compromising key areas of biodiversity value. Biodiversity will improve as a result of weed removal, revegetation, more consistent water flow and pollutant minimisation.

The Guiding Principles underpinning the vision are:

- Partnerships and Collaboration – this principle is fundamental to the management of the Linear Park and involves public and private agencies, volunteers and the wider community.
- Diversity – the Linear Park provides diverse opportunities for its users in a variety of environments and landscapes.
- Equity – the Linear Park will be managed to ensure, where practical, that it is accessible to all parts of the community and managed for inclusive use.
- Flexibility and Responsiveness – it is important that management of the Linear Park responds to changing and emerging community needs and trends, but in keeping with its key roles.
- Sustainability – it is important for future generations that the Linear Park be managed sustainably in respect to environmental, recreation and financial considerations.

The Management Directions are divided into seven key areas:

1. The Role of the River Torrens Linear Park

The primary role of the River Torrens Linear Park is for flood/stormwater management, ensuring that personal and property safety from flood events is maximised. The Linear Park also has three subsidiary but important functions:

- As a recreation asset, providing for a range of predominantly unstructured recreation activities (e.g. walking and cycling).
- As a linear network for biodiversity, enhanced through improvements in water quality, weed eradication and careful vegetation species selection tailored to the stormwater and recreation functions of different sections of the Linear Park.

- As part of the transport network, accommodating more sustainable modes of transport than the private motor vehicle such as the O-Bahn bus service, together with formalised off-road walking and bicycle paths.

In line with the primary role of the Linear Park being for flood/stormwater management, it also has a role to play in Total Water Management. That is, making best use of water through a range of initiatives such as wetlands to improve water quality and water harvesting to supplement water resources.

The features of the three landscape character reaches identified along the eastern section of the River Torrens Linear Park in Map 1A in Appendix A will be reinforced and enhanced.

2. *The Management Framework*

A 'coordinating committee' will be created specifically with the aim of guiding the implementation of this Management Plan by improving collaboration and coordination between the key stakeholders, while also ensuring accountability between them.

This coordinating committee will be comprised of representatives of:

- a) Key State Government agencies (e.g. SA Water, Department of Planning & Local Government, Adelaide Mount Lofty Ranges Region Natural Resources Management Board, Department of Water, Department of Environment and Natural Resources, Environment Protection Authority, Stormwater Management Authority).
- b) Local Government (Cities of Adelaide, Walkerville, Norwood Payneham & St Peters, Port Adelaide Enfield, Tea Tree Gully and Campbelltown).

The State Government will be responsible for the development and agreement to a Memorandum Of Understanding (MOU) between the representative organisations.

The MOU will, firstly, clarify the roles of the different tiers of government and agencies with responsibility for the River Torrens Linear Park in terms of the following key areas:

- Flood/stormwater management (including total water management);
- Recreation facilities management (including the shared use path and signage);
- Flora and fauna management (including weed control and revegetation).

The clarification of these roles and responsibilities will establish the basis for financial responsibility, providing flexibility for any future change in responsibilities based on agreed cost shifting between representative organisations.

The MOU will also guide the operation of this coordinating committee, including how it will be Chaired and administered. Other elements of the MOU will include:

1. Each signatory will nominate a representative and a proxy.
2. The Coordinating Committee will meet at least once per year, and additional meetings as required.

3. The Coordinating Committee will ensure input into matters identified in the overarching Management Plan and make decisions on such matters.
4. The Coordinating Committee will consider and agree on priorities for joint applications for grant funding.

The targeted membership of this committee will ensure effective input to management decisions and political will to act on the decisions of the group. This committee will also pursue higher level funding opportunities in a coordinated manner.

This management model is also applicable to the western section of the Linear Park, with appropriate Council involvement.

3. Safety & Risk Management

The Linear Park environment is recognised as one that cannot reasonably be redesigned or engineered to fully mitigate risks to all users. The River Torrens Linear Park Trail Assessment prepared for the State Government and the Local Government Association of SA (December 2007), provides clear guidance on the safety standards which Park infrastructure should adhere to.

Priority will be given to the flood/stormwater management function of the Linear Park in terms of safety and risk management. This means infrastructure such as paths and bridges will be designed to withstand the impact of flooding, as much as is reasonably practical. At the same time, infrastructure and landscaping should also not unreasonably impede the flow of flood waters.

That the Coordinating Committee, in consultation with the LGA Mutual Liability Scheme and the South Australian Government Captive Insurance Corporation (SAICORP), will determine how insurance claims arising from use of the Linear Park should be handled.

A major review of the maintenance of the assets within the Linear Park to minimise the risk to users be undertaken every 10 years. However, more regular monitoring of infrastructure, by the member organisations of the Coordinating Committee, will also occur (intervals of inspection to be determined by the Coordinating Committee in consultation with insurance companies). Typically, this monitoring should occur on an annual or biennial basis.

4. Meeting Recreation Needs

The Linear Park will provide for a range of predominantly unstructured recreation activities (e.g. walking, cycling, children's play and quiet reflection), that also provide respite from the otherwise highly developed urban environment.

There will be ease of access to a range of recreational experiences at different points along its length, facilitated by effective infrastructure such as entry treatments, signage and ramps.

Facilities such as playgrounds, picnic grounds and informal areas of open space will be provided. The design of these facilities will reflect a connection to the semi-

natural environment of the Linear Park. Larger recreational facilities more suited to structured activities such as ovals and tennis courts may occur nearby, but will not be developed in the Linear Park.

The shared-use trail will be the primary recreation facility for a wide range of users (main role), rather than a commuter cyclist corridor (secondary role), performing a regional function for walkers, runners, and recreational cyclists.

In accordance with recognised traffic engineering standards, the shared-use path will be progressively upgraded to cater for a range of recreational user groups, provide a reasonable level of access for those with disabilities and improve the safety of all users.

5. Maximising Environmental Performance

The biodiversity of the River Torrens Linear Park will be enhanced through improvements in:

- Coordinated control and eradication of priority weed species throughout the Linear Park.
- Reintroduction of local indigenous flora species suitable for specific ecological zones through revegetation activities to enhance biodiversity.
- Stormwater management, reducing the speed of water to promote percolation and water filtration which improves water quality, without unreasonably impacting on the primary stormwater management function of the Linear Park.
- Stormwater management, minimising the amount of pollutants entering the River Torrens, to improve water quality.

6. Acknowledging Cultural Values

Councils should continue to identify places and sites within the Linear Park when they are undertaking heritage surveys and preparing Development Plan Amendments to amend local heritage lists. However, this will not be a primary mechanism for the recognition of cultural heritage values.

The Coordinating Committee and member Councils will work together with their communities and representatives of the Kaurna people to use existing cultural records, histories and local knowledge to better tell the stories associated with the River Torrens (e.g. through signage, markers, brochures, audio technology, tours, public art and children's play installations). The means of interpretation should combine learning and play in ways that are purposeful and engaging for people of all ages.

Funding this collaborative approach to collecting, collating and interpreting this research should not be the sole responsibility of the member Councils, and may be obtained through a range of prospective funding partners (e.g. Department of Planning and Local Government, Heritage SA and Arts SA).

7. Managing Development Within & Adjacent to the Linear Park

The East Torrens Lake Reach, which encompasses that section of the Linear Park which passes through the Adelaide Park Lands (from Port Road to Hackney Road), should be developed in accordance with the management directions contained within the Adelaide Park Lands Management Strategy. The Strategy requires “enhancing the River Torrens/Karrawirra Parri destination appeal (usability of spaces, landscapes and facilities), without over-developing it” and nominates Elder Park and Bonython Park as major event spaces. It also envisages the “Creation of an integrated heritage and cultural hub around the Adelaide Gaol, Olive Grove and the riverfront”. Commercial activities may be permitted where they “provide community benefit and support outdoor recreational use”.

The Central Sub-Urban Plains Reach of the Linear Park between Hackney Road and Lower North East Road has a stronger focus on unstructured recreation that meets the daily needs of those who live nearby for walking, exercising the dog and informal socialisation such as picnics and BBQs. It is less suitable for commercial activities, and park users will be directed by signage to such facilities (e.g. food and beverage outlets), in nearby areas, including those provided by sports and community clubs. Recreation and access infrastructure within the Reach (between Hackney Road and Paradise) should be designed in anticipation of higher levels of use given the likelihood of increasing residential densities close to the Linear Park. Residential development immediately adjacent to the Linear Park should also optimise safety and aesthetic amenity by having some frontage to the Linear Park and minimising the amount of solid fencing at the interface.

The Eastern Sub-Urban Open Reach of the Linear Park between Lower North East Road and Black Hill Conservation Park provides generally a more open landscape that is surrounded by less dense development and is subject to less intensive use, thereby limiting the demand for commercial development. However, limited commercial development within and immediately adjacent to the Linear Park designed to minimise negative impacts associated with signage, rubbish and general built form will also be appropriate (e.g. bike hire facilities, kiosks).

Any development within the Linear Park should not compromise its primary role for flood mitigation/stormwater management.

The Priority Actions for Implementation respond to the key issues that require action in the short to medium term as follows:

1. Establish an overarching ‘coordinating committee’ as a joint State/Local Government Committee and develop an MOU that clearly articulates the roles and responsibilities of the different tiers of government and agencies.
2. Confirm that a safety audit of all parts of the Linear Park has occurred in the last 12 months to ensure that the safety guidelines in the River Torrens Linear Park Trail Assessment prepared by the Local Government Association of SA are being adhered to.
3. Upgrade the shared use trail as the primary recreation facility for a wide range of users to meet a number of design criteria, including (but not limited to) a minimum width of 3 metres, consistent markings to separate users travelling in

opposite directions, reinforcing the 'Share the Trail' message through new signage, and improved 'blind corners' where views of oncoming, fast-moving cyclists can be obscured.

4. Target six priority areas along the Linear Park as "High Biodiversity Priority Areas", based on locations where previous environmental interventions have been undertaken, restoring and improving habitat corridors within the Linear Park.
5. Ensure that there is coordinated annual weed control/eradication undertaken as part of a weed control program, targeting priority species which may cross local government boundaries.
6. Undertake a range of activities that will assist in improving water quality in the River Torrens, including installing litter and debris management systems to cover significant stormwater discharges, establishing wetlands in strategic locations and investigating creating detention basins within areas of public open space along the tributaries and main stream of the River Torrens, as well as retro-fitting the urban catchment with water sensitive urban design features that will slow waters and help to deal with stormwater quality/quantity at the source.
7. Work with representatives of the Kurna people to use existing cultural records, histories and local knowledge to better 'tell the stories' associated with the River Torrens.

1.0 Introduction

1.1. Background to the Project

In 2009, the Cities of Adelaide, Campbelltown, Norwood Payneham & St Peters, Port Adelaide Enfield, Tea Tree Gully and Walkerville partnered with the Department of Planning & Local Government to prepare a Management Plan for the eastern section of the River Torrens Linear Park.

The preparation of this Management Plan has been overseen by a Steering Group comprising representatives from each of the partner Councils, the Department of Planning & Local Government, and the Adelaide & Mount Lofty Ranges Natural Resources Management Board. The Plan represents the Councils' ongoing commitment to work jointly with the State Government on the future of the Linear Park, recognising that there are significant benefits in the Councils and the State Government having agreed management strategies and actions for this significant public asset.

While the study area for the eastern section of the Linear Park extends from the Adelaide Park Lands (Port Road) to the western boundary of the Adelaide Hills Council (see over page for River Torrens Study Area map), it should be noted that the land along the River Torrens within the Adelaide City Council area is not within the legally defined area of the Linear Park. This portion of the River Torrens is located within the Adelaide Park Lands and is subject to the *Adelaide Park Lands Act 2005* which requires the preparation of its own "Adelaide Park Lands Management Strategy". None-the-less, given the importance of this section of the River Torrens in providing the connecting link between the 'eastern' and 'western' sections of the defined Linear Park, this Management Plan does provide some general comment on this area. A Management Plan for the western section of the Linear Park (from the Hindmarsh Bridge to the River Mouth) was previously prepared for the Cities of West Torrens and Charles Sturt.

The development of the Linear Park commenced in the early 1980s and connects the Adelaide Hills to the coast. Primarily designed for flood mitigation, it has developed into a significant open space and recreational asset used by a broad cross-section of the community. Walking, cycling and jogging are popular recreational activities along the Linear Park. The Linear Park also provides opportunity for a range of environmental initiatives, including water quality improvement and increased biodiversity.

Pressures on the Linear Park are intensifying, with an increase in commuter cyclist traffic, as well as an increase in general use by nearby residents. In some instances, it is the popularity of the Linear Park that also threatens it, creating tensions between its competing roles for flood/stormwater management, recreation and as an environmental asset. With these increasing pressures comes increasing pressure to manage the asset effectively. To date, there has been a lack of clarity around management responsibility for the Linear Park - this Management Plan provides the necessary management clarity.

1.2. Project Process

The Management Plan is founded in detailed background research and field surveys of recreational assets, infrastructure, biodiversity and landscape character within the Linear Park.

Consultation was also fundamental to the preparation of the Management Plan. Initially this occurred with relevant Government agencies, key interest groups and staff from each Council area. The feedback from this initial consultation was then used, in conjunction with the background research, to form an "Issues Paper".

The Issues Paper summarised the key management issues/challenges associated with the eastern section of the River Torrens Linear Park, provided some background discussion to each issue and followed this with questions and options for consideration in addressing the issues. The nine key issues identified in the Issues Paper were:

- Role of the River Torrens Linear Park
- Management Responsibilities
- Managing Shared-Use
- Legibility and Way-Finding
- Safety and Risk Management
- Environmental Performance
- Balancing Commercial Opportunities and Community Use and Access
- Cultural Values Associated with the River Torrens
- Managing the Impacts of Increasing Residential Densities

This Issues Paper was then examined and debated at an Elected Members workshop and, subsequently, at a Community workshop attended by community groups invited by the Councils and also the general public. The feedback from these workshops and comments from the public have informed the content of the Management Plan.

2.0 Objectives

The objectives of this Management Plan are as follows:

1. To provide a clear strategic direction for the River Torrens Linear Park that:
 - Clarifies the role of the Linear Park as an important tool in ongoing decision making;
 - Clarifies the decision making and financial responsibilities of various stakeholders in terms of land ownership, infrastructure and upgrading initiatives within the Linear Park;
 - Ensures that risk is appropriately managed; and
 - Achieves better coordination of effort across Council boundaries.
2. To provide management directions and implementation/priority plan regarding:
 - Flood and stormwater management;
 - Biodiversity enhancement, including improvements in water quality; and
 - Maximisation of the recreational potential of the Linear Park, including access and use by a diversity of people.



Clarifying and managing the various roles of the Linear Park is fundamental to its success

3.0 Vision and Guiding Principles

Establishing a 'vision' for the future of the River Torrens Linear Park is an important initial step in effectively managing this important public asset. In this way, actions proposed for the Linear Park can continually be measured against the broader vision to ensure that the strategic directions for the Linear Park are being achieved. The vision is also supported by a series of broad guiding principles.

While this Management Plan focuses on the 'eastern' section of the River Torrens Linear Park, regard has also been given to the Management Plan applying to the western section of the Linear Park (*River Torrens Linear Park Management Plan – Hindmarsh Bridge to the River Mouth*) and the *Adelaide Park Lands Management Strategy 'Towards 2020'*, to ensure congruency of aims and recommendations. In this context, the vision established in this Management Plan could also be applied to the remainder of the River Torrens Linear Park.

In forming a vision for the eastern section of the Linear Park, regard has been given to the relevant directions set in the 30-Year Plan for Greater Adelaide. The 30 Year Plan recognises the Linear Park as a significant east-west component of the Metropolitan Open Space System (MOSS), and includes the River Torrens in its target of developing and enhancing waterway linear parks as open-space greenways and biodiversity corridors.

While the 30-Year Plan for Greater Adelaide indicates the Linear Park as being of significance to the Greater Adelaide region, the *Linear Parks Act 2006* provides 'for the protection of the River Torrens Linear Park, and other linear parks, as **world-class** assets to be preserved as public parks for the benefit of present and future generations'

The **vision** for the eastern section of the River Torrens Linear Park is as follows:

The River Torrens Linear Park is a multi-functional, regional open space corridor. Its role in flood mitigation and stormwater management blends seamlessly with its function as a recreational asset and network for biodiversity. It provides respite from the otherwise highly developed urban environment, with ease of access to a range of recreational experiences at different points along its length. The shared use path will be a prominent and well used recreational element, encouraging people to travel longer distances and enjoy the resultant health benefits without compromising key areas of biodiversity value. Biodiversity will improve as a result of weed removal, revegetation, more consistent water flow and pollutant minimisation.

The following **guiding principles** underpin the vision for the River Torrens Linear Park:

- Partnerships and Collaboration – this principle is fundamental to the management of the Linear Park and involves public and private agencies, volunteers and the wider community
- Diversity – the Linear Park provides diverse opportunities for its users in a variety of environments and landscapes
- Equity – the Linear Park will be managed to ensure, where practical, that it is accessible to all parts of the community and managed for inclusive use
- Flexibility and Responsiveness – it is important that management of the Linear Park responds to changing and emerging community needs and trends, but in keeping with its key roles
- Sustainability – it is important for future generations that the Linear Park be managed sustainably in respect to environmental, recreation and financial considerations.



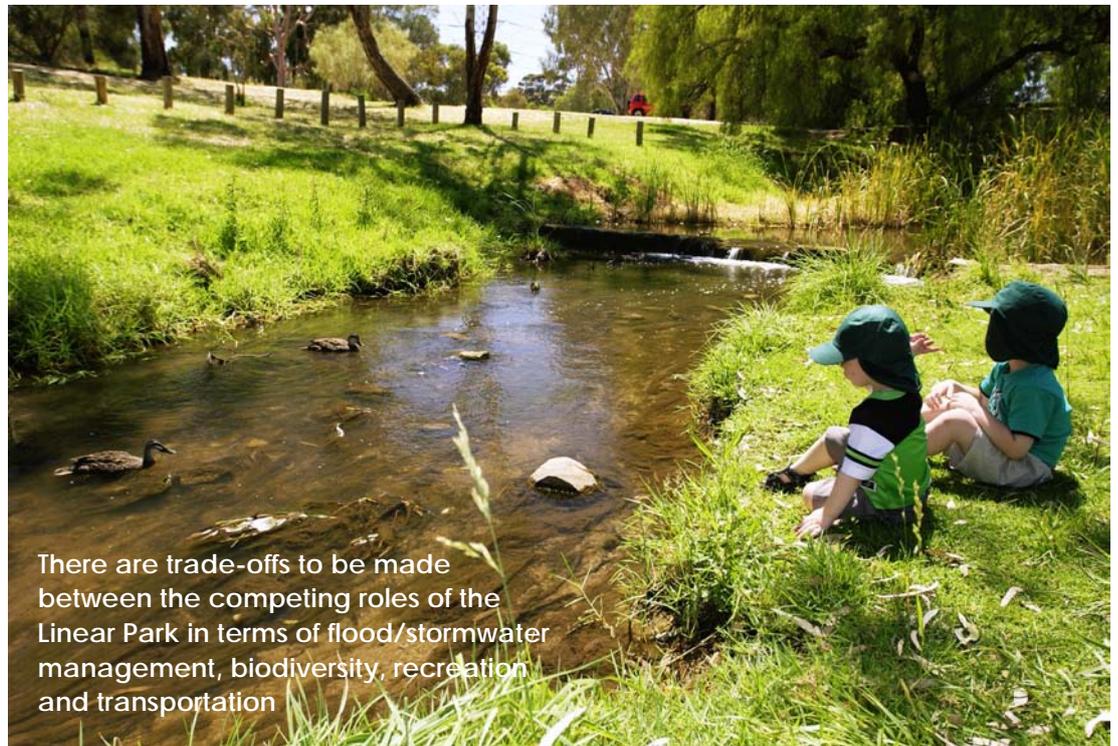
The Linear Park provides respite from the adjacent highly development urban environment

4.0 Management Directions

Having considered the objectives of the Management Plan, together with the vision and guiding principles for the River Torrens Linear Park, this section of the Management Plan provides the detailed management directions and strategies under the following topic headings:

1. The Role of the River Torrens Linear Park
2. Allocating Management Responsibilities
3. Safety & Risk Management
4. Meeting Recreation Needs
5. Maximising Environmental Performance
6. Acknowledging Cultural Values
7. Managing Development Within & Adjacent to the Linear Park

The discussion under each of the topics details background issues, as well as feedback from stakeholders including state agencies, before listing the key management direction and strategies that result.



There are trade-offs to be made between the competing roles of the Linear Park in terms of flood/stormwater management, biodiversity, recreation and transportation

5.0 The Role of the River Torrens Linear Park

5.1. Background Discussion

The River Torrens Linear Park has four main roles at present:

1. Flood/Stormwater Management	Taking stormwater to the sea while minimising flooding impact on the urbanised floodplain area adjoining the river.
2. Environmental Biodiversity	A refuge for flora and fauna of limited integrity due to urban impacts such as weed infestation and household pets.
3. Recreation	Providing a range of predominantly unstructured, passive and active recreation activities.
4. Transportation	Accommodating the O-Bahn bus service, together with structured walking and bicycle paths.

Pre-human occupation, the primary function of the riverine corridor was to channel water running from the hills to the sea. This movement of water through the landscape, in turn, created biodiversity around it. The Kaurna people came to know this land as a place of significance, beyond simply a source of food and water. The introduction of European settlement to the Adelaide Plains emphasised the role of the river as a source of water for domestic, agricultural and industrial use, and more recently as a tool for stormwater/flood management at times of heavy rainfall.

As a largely undeveloped corridor, it has also come to provide significant opportunities for predominantly unstructured recreation for the residents in surrounding urbanised areas, as well as providing an important transport corridor for relatively sustainable modes of transport, namely the O-Bahn together with off-road walking and cycling.

These different functions of the Linear Park are sometimes complementary, but may be conflicting. For example, some stormwater management solutions and shared-use paths may require the disturbance of areas of sensitive habitat. Or the desire to maximise water quality may limit the recreational use of the waterway which may otherwise create bank erosion and water turbidity.

The Linear Park crosses many Local Government boundaries. While infrastructure supporting the various functions of the Linear Park can be constructed by individual Councils, the ramifications of such works are often felt at the regional level (e.g. stormwater culverts create less flooding at 'pinch points' downstream, and shared-use path upgrades lead to longer recreational and commuter cycling). The Linear Park is also identified as part of the Metropolitan Open Space System in the *30-Year Plan for Greater Adelaide*, confirming its metropolitan recreational and environmental significance.

Clarifying the fundamental role of the Linear Park, which may be different at various points along its length, and balancing the differing objectives, is vital to the establishment of a consistent and implementable management framework that is effectively resourced.



An analysis of the existing landscape character of the eastern section of the River Torrens Linear Park indicates that the character of the Linear Park varies significantly from the City end to the foothills at Tea Tree Gully/Campbelltown (see Appendix 1). These character "reaches" are as follows:

1. East Torrens Lake Reach (through the Adelaide Park Lands) – extensive areas of formal public open space (e.g. manicured gardens and open areas that are highly maintained), immediately adjacent to Adelaide CBD with expansive views of prominent buildings, numerous sites of cultural significance particularly for public events, high levels of usage, large expanses of open water, close proximity to sports facilities.
2. Central Sub-Urban Plains Reach (Hackney Road, Hackney to Lower North East Road, Paradise) – diverse landscape types ranging from steep embankments and dense vegetation to wetlands/billabong/revegetation areas and open unstructured recreation areas generally further away from the City, adjacent sports facilities/caravan parks/residential stock of varying age with older houses generally closer to the city, substantial backyard fencing fronting the Linear Park.
3. Eastern Sub-Urban Open Reach (Lower North East Road, Paradise to Black Hill Conservation Park) – expansive open irrigated grassed areas (suitable for unstructured recreation) with pockets of revegetation, wide corridors with views to the Adelaide Hills, ephemeral basins and stormwater treatment/detention basins, adjacent newer housing stock, views and links into Black Hill Conservation Park at the eastern end.

The differing landscape characters in existence reflect long established patterns of usage, management regimes and the physical profile of the Linear Park.



5.2. Feedback

Different State Government agencies had different views about the role of the Linear Park. Not surprisingly, most agencies had a focus on their areas of expertise/management responsibility, while acknowledging the other roles that the Linear Park performs. However, it is worth noting the emphasis given by SA Water, the Stormwater Management Authority and the Department of Transport, Energy & Infrastructure to the initial reason the Linear Park was established – flood/stormwater management.

The Elected Member representatives from the various Councils along the River were predominantly of the view that the primary role of the Linear Park is for recreation, providing a range of structured and unstructured recreation activities. Many also acknowledged the multiple functions of the Linear Park, while some felt that its primary role was for stormwater management, ensuring that nearby people and property remain safe from flood damage, both from a personal risk perspective and in terms of property damage.

A large proportion of the community members who attended the Community workshop during the preparation of the Management Plan were of the view that the primary role of the Linear Park was for environmental biodiversity, acting as a refuge and corridor for flora and fauna through metropolitan Adelaide. A smaller proportion of people felt that its primary role was for stormwater management, recreation or transport.

This consultation feedback suggests that there is division between different stakeholders as to the primary role of the Linear Park.

5.3. Management Directions

The function of the Linear Park for stormwater/flood management has significant implications for public safety. Ensuring a reasonable degree of personal and property safety should be fundamental to the management of any public asset, despite the fact that many people rate the recreational and biodiversity functions of the Linear Park as more important. It is considered that the four roles of the Linear Park – flood /stormwater management, recreation, biodiversity and transport - can be weighted and balanced differently for different parts of the Linear Park.



The River Torrens Linear Park is largely an engineered environment for flood/stormwater management. This has significantly influenced its character. At the same time, there are three identifiable reaches of differing landscape character along the Linear Park which have evolved. It is considered pragmatic from a resource management perspective to acknowledge and expand upon the positive character elements of these existing landscape reaches. The extent of existing works and associated investment should not be ignored. For example, the extensive areas of formal public open space (e.g. manicured gardens and open areas that are highly maintained) in the East Torrens Lake Reach (through the Park Lands) are successfully fulfilling a public need and should be reinforced.

In this context, the **overall role** of the Linear Park is summarised as follows.

The primary role of the River Torrens Linear Park is for flood/stormwater management, ensuring that personal and property safety from flood events is maximised. The Linear Park also has three subsidiary but important functions:

- **As a recreation asset, providing for a range of predominantly unstructured recreation activities (e.g. walking and cycling).**

- As a linear network for biodiversity, enhanced through improvements in water quality, weed eradication and careful vegetation species selection tailored to the stormwater and recreation functions of different sections of the Linear Park.
- As part of the transport network, accommodating more sustainable modes of transport than the private motor vehicle such as the O-Bahn bus service, together with formalised off-road walking and bicycle paths.

In line with the primary role of the Linear Park being for flood/stormwater management, it also has a role to play in Total Water Management. That is, making best use of water through a range of initiatives such as wetlands to improve water quality and water harvesting to supplement water resources.

The features of the three landscape character reaches identified along the eastern section of the River Torrens Linear Park will be reinforced and enhanced.

6.0 The Management Framework

6.1. Background Discussion

Since the construction of the River Torrens Linear Park commenced in 1982, there has been no formal management structure governing the Linear Park providing clarity of management responsibilities. It is understood that, in the intervening years, there has been some correspondence between previous State Government Ministers and the various local Councils along the Linear Park endeavouring to clarify roles and responsibilities.

The creation of the River Torrens Linear Park was a joint State and Local Government venture, with the former E&WS Department (now SA Water) being responsible for the State's commitment to the scheme. The local councils along the Linear Park were responsible for cost sharing and construction of the path network, signage, lighting and bridges.

The various parcels of land that make up the Linear Park are owned either by the State Government (approximately 60%) or various Councils (approximately 40%). However, there is rarely clear delineation between land in different ownership 'on the ground'.

SA Water has traditionally maintained the 'bed and banks', acting as the "Government agent" in relation to certain maintenance activities consistent with the *Metropolitan Drainage Act 1935*. These activities are limited to maintenance of the "River pool level" and not the Linear Park as a whole. Maintenance includes activities such as stabilisation of critical areas of riverbank and removal of significant tree branches, silt deposits and substantial rubbish (e.g. car bodies), from the river bed. SA Water generally relies on notification of issues from the Natural Resource Management Board, local councils or members of the public to initiate a particular maintenance activity.

The River Torrens running through the eastern section of the Linear Park does not fall within the ambit of the *Metropolitan Drainage Act*. However, SA Water has undertaken maintenance for this section of the river consistent with its obligations for the western section of the Linear Park. In this context, it appears that SA Water is acting beyond its statutory requirements in managing the river bed within this area. This may partly explain SA Water's generally reactive approach to the management of the river bed, rather than a more pro-active role. While SA Water's effort in managing the river bed beyond what appears to be its statutory responsibilities is acknowledged, this management approach is considered unlikely to yield the best possible outcomes for a Linear Park of significance to greater metropolitan Adelaide.

It should also be noted that the section of the River Torrens Linear Park which runs through the Adelaide City Council area falls under the control of the Park Lands Management Act 2005, adding an additional layer of management complexity.

Councils have been managing and maintaining the bulk of the Linear Park, including the path network, landscaping, and the provision of recreation and other facilities. This work generally occurs in accordance with the often differing

management/maintenance standards of the individual Councils, rather than to regionally agreed guidelines that might otherwise be expected for a public asset of metropolitan significance.



A number of State Government bodies, including the Adelaide & Mount Lofty Ranges Natural Resources Management Board, the Environment Protection Authority and the Department of Water Land and Biodiversity Conservation also have had, and continue to have, a role to play in the management of aspects of the Linear Park through the implementation of programs undertaken to meet their legislative responsibilities. As an example, these three bodies, in partnership with SA Water, are involved in the “Healthy Waters” project focussing on the issue of water quality. While the study area for the Healthy Waters project encompasses the wider Adelaide & Mount Lofty Ranges region, it has implications for the River Torrens Linear Park as it will set water quality objectives, or targets, needed to make sure the water is fit-for-an-agreed-purpose (i.e. in the case of Linear Park - for recreation, to support aquatic ecosystems, to meet aesthetic values etc).

Both the Torrens Taskforce Report of 2007 (focused on water quality), and the River Torrens Linear Park Trail Assessment Report 2007 (focused on risk management associated with paths and other infrastructure), commented on the need to establish a coordinated management mechanism for land management responsibilities and a clear funding regime for the Linear Park. These reports also indicated that in the absence of a coordinating body, there has been a lack of uniformity in the development of the shared-use trail and associated infrastructure, and plans for works that will improve water quality may be difficult to progress.

Various other reports have commented to the effect that there is no legislation that imposes overall control and/or management responsibility for the Linear Park on any particular entity.

It is acknowledged that the State Government and the Councils have maintained the Linear Park to a reasonable standard, albeit with some inconsistencies in focus areas depending upon the political imperatives of each body at any given point in time. For example, there are inconsistencies in the standard of the shared-use path and other infrastructure at various points along the Linear Park. At the same time, there is general agreement that the Linear Park is an open space asset of metropolitan significance.

In this context, it is considered that the risk of having no agreed management framework in place relates largely to opportunity cost – that is, infrastructure provision and maintenance regimes will continue in a piecemeal fashion and the metropolitan value of this significant public asset will never be fully realised.

The aim of any new management framework would be threefold:

- Clarification of the roles of the different tiers of government and agencies with responsibility for the River Torrens Linear Park.
- Improved collaboration and coordination between these key stakeholders.
- Accountability between these stakeholders.

With the establishment of any overarching management framework, it is necessary that appropriate funding mechanisms are put in place to enable the fulfilment of the agreed aims for the Linear Park. It is also anticipated that such a management framework would be applicable to the western end of the River Torrens Linear Park from Port Road to the Gulf St Vincent.

Alternative management frameworks take five main forms:

1. Specific Legislation	Establishing a Management Body that operates in accordance with legislative requirements (similar to the Adelaide Park Lands Act and its operation).
2. Regional Subsidiary	Of local councils and state agencies under Section 43 of Local Government Act (similar to the Eastern Waste Management Authority).
3. Joint State/Local Government Committee	Administered by a dedicated State agency with local council and other State agency membership.
4. Joint Local Government Committee	Administered by a chairing local council with other local council membership and State agency input.
5. Coordinating Committee	Informal collaborative arrangement between State agencies and local Councils.

While some protection against the sale of land is afforded through the *Linear Parks Act 2006*, this Act does not provide for the establishment of a management 'authority'. Therefore, a legislative approach would require substantial modification to the existing Linear Parks Act 2006 or new legislation that details the roles and responsibilities of the Management Body and member organisations.

A regional subsidiary must have a charter detailing the purpose, powers and functions of the management authority (a board of management). Subject to the charter, membership is determined by the constituent councils and may include persons who are not members of a council.

For the joint committee options, as well as the less formal coordinating committee, it is anticipated that a detailed Memorandum Of Understanding (MOU) between the member organisations would be essential to clarify the operation of such committees.

6.2. Feedback

The need for a formal management structure has been a consistent theme in the feedback from various State agencies and Council staff consulted during this project. Significantly, no one organisation 'put up its hand' as taking a lead role in managing the Linear Park during the consultation process, highlighting concerns regarding a lack of coordination in the management approach.

During the consultation with Elected Members, key stakeholders and the community for this project, the fundamental question was asked of people whether "a formal management structure is required with ongoing responsibility for the Linear Park?" Feedback from Elected Members and the community was overwhelming in its support for specific legislation to be enacted for the River Torrens Linear Park to achieve consistency in the management approach.

Detailed discussions regarding the management structure for the River Torrens Linear Park were also held with representatives of the Department of Planning & Local Government and the Chair of the Public Space Advisory Committee (in releasing the funding for this Management Plan, the Minister for Urban Development and Planning envisaged a role by PSAC in the preparation of the Plan).

PSAC is an unincorporated body comprised of five members appointed by the Minister for Urban Development and Planning. Its role is to advise the Minister on grant funding applications made on the *Planning and Development Fund* by councils seeking assistance to provide and develop public land for conservation and recreation purposes. The Committee can also advise the Minister on any matter relating to open space and urban design, or perform any other functions assigned to it by the Minister.

In the discussions regarding the desire for legislative change to facilitate a new management structure for the Linear Park, it was highlighted that a management body created via legislation is unlikely to have an independent source of funding from Parliament. Without appropriate funding, there is often little point in having decision making powers. The creation of such a management body would also create another

layer of bureaucracy, which is 'at odds' with the State Government's desire for a 'reduction of red tape'. A legislative approach would also logically incorporate the western end of the River Torrens Linear Park for consistency, and the Cities of West Torrens and Charles Sturt have not been involved in the drafting of this Management Plan. The interaction between this new legislation and the Park Lands Management Act also presents a further challenge to this approach.

Some of the Council's involved in the development of this Management Plan expressed reservations about the creation of a regional subsidiary given the level of bureaucracy and associated costs this would introduce.

Some of the Steering Committee members from the local councils also highlighted concerns with the bureaucracy and costs often associated with regional subsidiaries under Section 43 of the Local Government Act. A joint local government committee would also require the nomination of a chairing council which may lead to concerns around parity of workload and power.

Yet another alternative management option proposed was that the Public Space Advisory Committee, or a sub-committee thereof, could undertake a more formal consultative and coordinating role in managing the Linear Park. However, DPLG has advised that PSAC is a construct of the current State Government and while there is no evidence of any intent to fold this body, its longevity in the political cycle is not guaranteed.

Local Government representatives on the Steering Committee strongly emphasised that, whatever form the management framework ultimately takes, ensuring that there is an appropriate balance between the responsibilities of Local and State Government is important.

The Department of Planning & Local Government has advised of a positive framework in existence for the Sturt River Linear Park, which is confronted by many similar issues to the River Torrens Linear Park. Since the adoption of a Master Plan for the Sturt River Linear Park in 2005, the City of Marion has facilitated a Sturt River Linear Park Working Group which meets on an 'as-needs' basis (usually 2 - 4 times per year). The group consists of the relevant local Councils and DEH, DPLG, DTEI. Natural Resources Management Boards also attend as required. The primary function of the group is to share information between councils to ensure consistency throughout the implementation of the Master Plan. The group has also worked together in developing a signage strategy and joint submissions for Federal and State Government funding (with a greater chance of funding success given the coordination of effort).

6.3. Management Directions

No formal management framework has been in existence since the Linear Park was created in 1982. The various parcels of land that make up the Linear Park are owned by the State Government or various Councils and there is rarely clear delineation between lands in different ownership. SA Water has traditionally maintained the 'bed and banks' of the River Torrens, while the individual Councils have managed and maintained the rest of the Linear Park. Various other State

Government bodies (e.g. A&MLRNRM Board, EPA and DWLBC) have also contributed to the management of the Linear Park at different times, largely in terms of improvements to water quality and biodiversity.

In the absence of a coordinated management framework, there has been a lack of uniformity in the development of infrastructure such as the shared-use trail, and plans for works that will improve water quality have been difficult to progress.

For the Linear Park to realise its potential as an open space asset of metropolitan significance, a management framework that clarifies the roles of the different tiers of government, while also improving collaboration, coordination and accountability between these key stakeholders is essential. It is also anticipated that such a management framework would be applicable to the western end of the River Torrens Linear Park from Port Road to the Gulf St Vincent.

Many stakeholders share the view that new legislation should be enacted to provide such clarity and power, while also ensuring longevity for the resultant management body. While concerns around an extra level of bureaucracy and the incorporation of the western end of River Torrens Linear Park are valid, the fundamental concern with such an approach is that Parliament will need to fund such a management body and this is far from certain. The longevity of the Public Space Advisory Committee is not certain, and concerns are held around the bureaucracy and costs associated with the establishment and operation of a regional subsidiary under Section 43 of the Local Government Act.

In this context, it is considered that the most effective management structure is a coordinating committee that is established to achieve the desired clarity of roles, collaboration/coordination and accountability over this significant regional asset, while also ensuring parity between the member organisations/Councils in decision making.

In this context, the approach to the **management framework** for the Linear Park is as follows.

A 'coordinating committee' will be created specifically with the aim of guiding the implementation of this Management Plan by improving collaboration and coordination between the key stakeholders, while also ensuring accountability between them.

This coordinating committee will be comprised of representatives of:

- c) Key State Government agencies (e.g. SA Water, Department of Planning & Local Government, Adelaide Mount Lofty Ranges Region Natural Resources Management Board, Department of Water, Department of Environment and Natural Resources, Environment Protection Authority, Stormwater Management Authority).**
- d) Local Government (Cities of Adelaide, Walkerville, Norwood Payneham & St Peters, Port Adelaide Enfield, Tea Tree Gully and Campbelltown).**

The State Government will be responsible for the development and agreement to a Memorandum Of Understanding (MOU) between the representative organisations.

The MOU will, firstly, clarify the roles of the different tiers of government and agencies with responsibility for the River Torrens Linear Park in terms of the following key areas:

- Flood/stormwater management (including total water management)
- Recreation facilities management(including the shared use path and signage)
- Flora and fauna management (including weed control and revegetation)

The clarification of these roles and responsibilities will establish the basis for financial responsibility, providing flexibility for any future change in responsibilities based on agreed cost shifting between representative organisations.

The MOU will also guide the operation of this coordinating committee, including how it will be Chaired and administered. Other elements of the MOU will include:

1. Each signatory will nominate a representative and a proxy.
2. The Coordinating Committee will meet at least once per year, and additional meetings as required.
3. The Coordinating Committee will ensure input into matters identified in the over-arching Management Plan and make decisions on such matters.
4. The Coordinating Committee will consider and agree on priorities for joint applications for grant funding.

The targeted membership of this committee will ensure effective input to management decisions and political will to act on the decisions of the group. This committee will also pursue higher level funding opportunities in a coordinated manner.

This management model is also applicable to the western section of the Linear Park, with appropriate Council involvement.

7.0 Safety and Risk Management

7.1. Background Discussion

In 2007, the Local Government Association (LGA) of South Australia (on behalf of the State Government and the nine relevant councils), commissioned consultants to undertake a general safety and risk assessment of the River Torrens Linear Park.

The resultant report, the *River Torrens Linear Park Trail Assessment*, provided a broad overview of the general safety concerns/issues associated with the trail and identified locations that might require subsequent and more detailed investigation. It is understood that the councils have since addressed many of the issues raised.

The report also recommended:

- That State and Local Government and community stakeholders note that the Linear Park is a “natural environment”, which cannot reasonably be redesigned or engineered to fully mitigate risks associated with accessing or interacting with the Park.
- The Minister, LGA and relevant councils conduct a similar review of the Linear Park every 10 years to ensure that stages of the Park are not allowed to become run-down or overgrown to the detriment of the Park as a whole.

7.2. Feedback

Issues identified in the preliminary consultation stages in relation to safety and risk management in the Linear Park included:

- User conflict, primarily between cyclists and pedestrians, as well as people with dogs
- Night-time use/surveillance and lighting
- Flooding
- Activity adjacent to the water and water quality
- Path design/construction/maintenance
- Vegetation types that impede movement and sightlines
- How should insurance claims be dealt with?

Some of these issues are discussed in other sections of this Management Plan (e.g. path design and maintenance in Section 4.4).

Feedback from the Elected Members and Community workshops provided strong support for the premise that the Linear Park could not reasonably be redesigned to

fully mitigate risks. There was also support for determining the priority role of the Linear Park (i.e. flood/stormwater management/recreation/biodiversity/transport), and ensuring that development of the Linear Park be undertaken in light of that primary role.



Overall, there was strong support for deciding the level of standard to be applied and where. It was recognised that in some locations a 'do nothing' approach may be applied.

From discussions with Council staff it became apparent there were some variations in the approach to risk assessment. While all Councils appear to undertake risk assessment as part of the initial project management processes and on an 'as needs' basis, not all appeared to undertake risk assessment audits on a regular basis. Risk management audits should be undertaken on a regular basis, preferably annually, or at least biennially. Staff resources were identified as a key impediment in undertaking regular audits.

7.3. Management Directions

There is strong recognition that the Linear Park cannot be reasonably redesigned to fully mitigate risks for all users. It was also recognised that, in terms of designing for safety and risk management, the primary role of the Linear Park should be paramount.

This would not preclude the design of the Linear Park from also catering for other identified functions, but that they should not impede the achievement of the primary role.

While some feedback strongly supported the role of the Linear Park for recreation or biodiversity purposes, it is considered the role of the Linear Park as a flood/stormwater management mechanism should take priority.

The approach to **safety and risk management** within the Linear Park should be as follows.

The Linear Park environment is recognised as one that cannot reasonably be redesigned or engineered to fully mitigate risks to all users. The River Torrens Linear Park Trail Assessment prepared by the Local Government Association of SA (December 2007), provides clear guidance on the safety standards which Park infrastructure should adhere to.

Priority will be given to the flood/stormwater management function of the Linear Park in terms of safety and risk management. This means infrastructure such as paths and bridges will be designed to withstand the impact of flooding, as much as is reasonably practical. At the same time, infrastructure and landscaping should also not unreasonably impede the flow of flood waters.

The Coordinating Committee (see Section 6.3), in consultation with the LGA Mutual Liability Scheme and the South Australian Government Captive Insurance Corporation (SAICORP), will determine how insurance claims arising from use of the Linear Park should be handled.

A major review of the maintenance of the assets within the Linear Park to minimise the risk to users be undertaken every 10 years. However, more regular monitoring of infrastructure, by the member organisations of the Coordinating Committee, will also occur (intervals of inspection to be determined by the Coordinating Committee, in consultation with insurance companies). Typically, this monitoring should occur on an annual or biennial basis.

8.0 Meeting Recreation Needs

8.1. Background Discussion

Broad Recreation Trends

Open space plays an important role in meeting people's recreational needs, both structured (through clubs and schools) and unstructured. It provides opportunity for relaxation, community interaction, health and fitness, children's play and social development. However, it is important to understand that open space is not only about recreation and sporting facilities. Rather, open space provides a range of functions that enhance people's sense of well-being and 'quality of life', including:

- Conservation and biodiversity – protection of natural features and cultural sites, and development of natural habitats.
- Amenity – greening the urban environment and providing increased aesthetic value and a balanced mix of land uses.
- Utility – stormwater management.
- Transport and Access – pedestrian and cycle linkages and networks.
- Tourism – tourist destinations and attractions and off-road routes/linkages between attractions.

The quality and 'useability' of open space is becoming an important planning consideration and there is increasing recognition of the need to provide a range and mix of recreational opportunities, settings and experiences to cater for a variety of community needs.

The following trends in the way people recreate are particularly relevant to this Management Plan:

- The demand for recreational trails is growing. National physical activity trends indicate that participation in unstructured recreational activities is increasing. In addition, trail research undertaken by Market Equity in 2004 found that trails provide a strong incentive to exercise (up to 85% of users), and were used by many as a means to spend time with family and friends (up to 89%).
- Both nationally and in South Australia, walking is the most popular and cycling the fourth most popular of fifty different recreational activities. 2006 data indicates that, in South Australia, there were over 120,000 cyclists and 476,000 walkers. Almost 54,000 South Australians specifically reported that they bush-walked for exercise or recreation in their leisure time¹.

¹ Statistics from ERASS Surveys 2001-2006

- Many people, particularly young people, prefer to participate in individual and unstructured/informal activities such as walking, exercising the dog and cycling, rather than structured team or group activities. One reason for this is that flexibility in participation is more attractive for many people than being committed to a club or team.
- People are increasingly looking for the provision of public areas to exercise dogs off their leashes.
- People are increasingly looking to use alternative travel corridors away from roads, and preferably in 'green' and attractive surroundings. Linear parks along creek lines play an important role in providing these travel corridors, combined with biodiversity conservation opportunities.



- Australia is an ageing society and this is likely to shift the priorities in leisure and recreation provision. As a result, older people may increase their range of 'at home' recreation activities rather than 'away from home' activities. However, it is important that access is provided to activities where older people feel safe and able to participate, offering them continued social contact with other members of the community.
- There is increasing recognition by the general public of the benefits of recreation and sport in improving quality of life, general health and enjoyment. This has led to higher expectations regarding the standard of recreation and sport facilities that are provided.

- There is growing flexibility in the working arrangements of many people, including working on any of the seven days of the week at any time. Therefore, recreational spaces need to be accessible and available for use at all times of the week (including evenings).
- A significant proportion of the South Australian population have some degree of disability. This creates challenges for the provision of recreation facilities that are accessible to those with mobility impairments or other disabilities.
- There is increasing concern amongst the community about the conservation of 'green space', not only to satisfy recreation needs but also to satisfy environmental sustainability and biodiversity conservation objectives.

Existing Recreational Usage of the Linear Park

Currently, the Linear Park contains a primary recreational trail which is utilised by a number of different user groups. These include recreational and commuter cyclists, walkers, runners and skate boarders. In addition, the trail is used to access other recreational facilities and services within and immediately adjacent to the Linear Park such as playgrounds, BBQs, playing fields and O-Bahn stations.

While the Linear Park is utilised by a range of user groups, there are sections of the recreational trail which do not meet current standards for shared-use facilities. In particular, some of the older sections of the trail within the City of Norwood Payneham & St Peters are quite narrow which, when combined with a relatively high rate of usage, has resulted in increased conflict between user groups (particularly cyclists and pedestrians).

Conflict on the recreational trail can also result from user groups who use the trail for different purposes. For example, surveys indicate that the trail is used extensively by commuter cyclists who travel to and from the City for work. Typically, this group travels much faster along the trail than recreational cyclists and has a greater potential to 'clash' with other users such as walkers. Similarly, those who use the trail to exercise their dogs may have a greater potential to 'clash' with other users if their dog is not under effective control or if the leash obstructs the path of cyclists. It should also be noted that a significant proportion of users of the trail do so to be 'by themselves'.

While the recreational trail within the River Torrens Linear Park is currently a shared-use facility, it appears that this usage has evolved in a relatively ad-hoc manner with little thought given to the types of user groups desired on the trail. In particular, there does not appear to have been an attempt to address the potential for conflict between commuter cyclists and other users nor does there appear to be a consistent approach to the management of dogs along the trail. In addition, it is not clear how people with different levels of mobility impairments can readily access the trail.

The Office for Recreation and Sport has made substantial progress in implementing its Trail Signage Plan. This Plan has resulted in greater consistency of directional signage, as well as improvements in way finding, safety, aesthetics and promotion of the Linear Park. It has led to the consolidation of the number of signs, lowering of maintenance costs, creating an improved park environment and improved linkages between the councils.



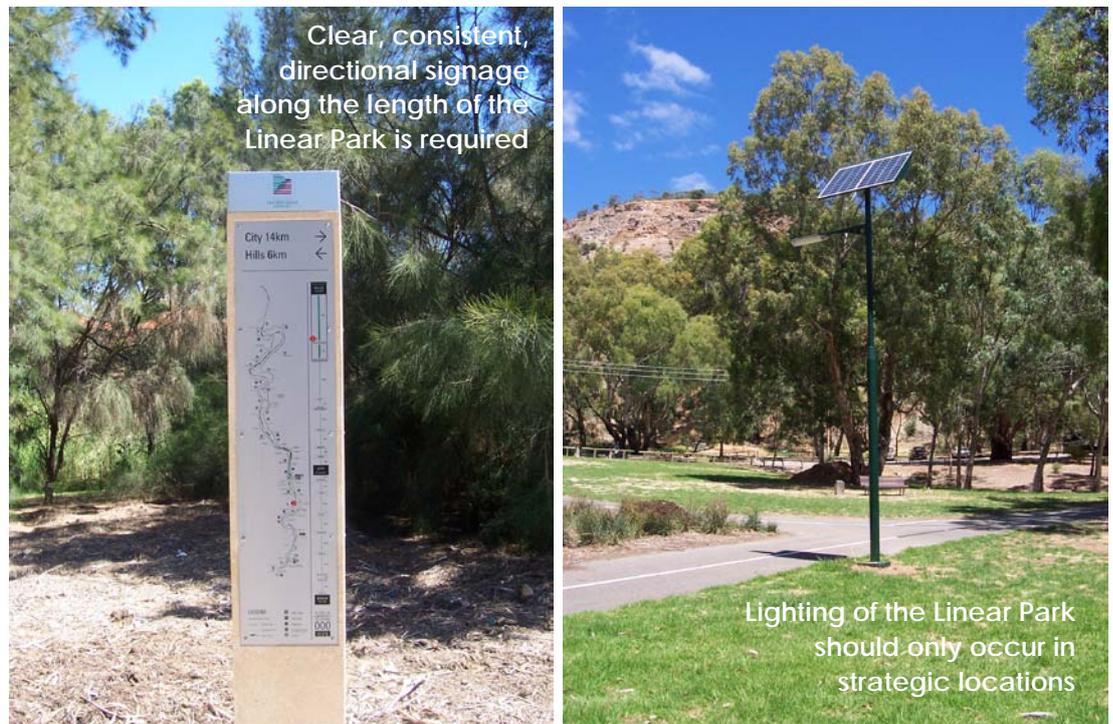
8.2. Feedback

Feedback from the Elected Members and Community workshops identified strong support for the current 'informal', shared-use of the Linear Park and trail to continue. Strong support was also given to identifying a 'desired' range of user groups of the Linear Park and establishing a works program to upgrade the facilities in the Linear Park to meet the requirements of these groups.

While acknowledging the improvement in signage in the Linear Park, feedback from the initial consultation and the later workshops suggested still more needed to be done, particularly to ensure users were on the right track. Support was given to a user survey to gain feedback on issues associated with signage and way-finding (any remaining 'black spots'), and strong support was given to reviewing works undertaken to date to ensure appropriate location and positioning of trail markers. Lack of internal signage to indicate access to surrounding streets and adjoining facilities was also raised as an issue.

From discussions with Council staff it became apparent there are varied approaches to dog control within the Linear Park. Some Councils allowing dogs 'off leash' in all, or parts of the Linear Park, while others require dogs to be leashed except in 'dog parks' which are in confined or fenced areas. While dog 'waste dispensers' and disposal bins were provided, it was pointed out that it was the owner's responsibility to clean up after their dog regardless of whether such facilities are provided.

The issue of the extent and standard of lighting along the Linear Park was also considered during the initial consultation process, with no clear consensus reached. However, given the primarily unstructured recreational role of the Linear Park and the potential for increased risk for users during night time hours, it is not considered necessary or desirable that the bulk of the Linear Park be lit for night time use.



8.3. Management Directions and Strategies

The Linear Park is heavily utilised and valued by a variety of user groups for a range of reasons. The recreational trail within the Linear Park is a facility of regional (and possibly State) significance and provides inter-suburban travel opportunities for recreational, commuter or tourism purposes. It also plays an important role by providing access for local users on shorter trips for a variety of reasons.

While the Linear Park provides an alternative mode of transport for those wishing to commute to work, this is not its main role and should not be promoted at the expense of more 'sedate' recreational users. For this reason, this Management Plan places greater emphasis on the Linear Park as a recreational facility, rather than as a transport corridor.

Given the range, differing fitness levels and number of users that are attracted to the Linear Park, safety considerations take on greater importance. Similarly, access for a wider range of user groups, including those with mobility impairments, will have a greater influence on the design of upgrades to the trail than would be the case in a rural area.

While the recreational trail will continue to be the predominant recreation facility within the Linear Park, complementary facilities such as playgrounds, picnic grounds and informal areas of open space will be provided. The design of these smaller facilities will reflect a connection to the semi-natural environment of the Linear Park. Given the emerging trends in recreation and the desire for improved environmental performance within the Linear Park, larger recreational facilities more suited to structured activities such as ovals and tennis courts are not envisaged.

In this context, the approach to the **management of recreational activities** within the Linear Park is as follows.

The Linear Park will provide for a range of predominantly unstructured recreation activities (e.g. walking, cycling, children’s play and quiet reflection), that also provide respite from the otherwise highly developed urban environment.

There will be ease of access to a range of recreational experiences at different points along its length, facilitated by effective infrastructure such as entry treatments, signage and ramps.

Facilities such as playgrounds, picnic grounds and informal areas of open space will be provided. The design of these facilities will reflect a connection to the semi-natural environment of the Linear Park. Larger recreational facilities more suited to structured activities such as ovals and tennis courts may occur nearby, but will not be developed in the Linear Park.

The shared-use trail will be the primary recreation facility for a wide range of users (main role), rather than a commuter cyclist corridor (secondary role), performing a regional function for walkers, runners, and recreational cyclists.

In accordance with recognised traffic engineering standards², the shared-use path will be progressively upgraded to cater for a range of recreational user groups, provide a reasonable level of access for those with disabilities and improve the safety of all users.

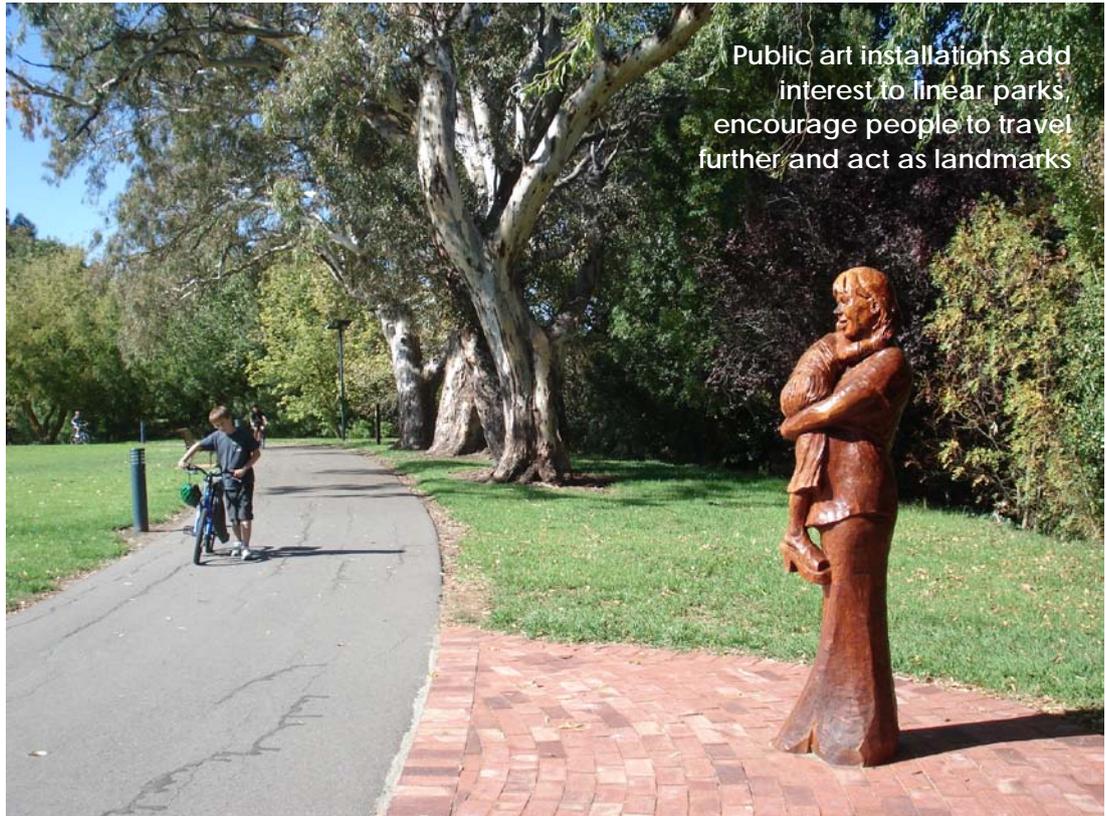
Strategy 1:	Create opportunities for children to play in a semi-natural environment associated with the River in areas where the water level is generally shallow, bank slopes are gentle, there are few reeds and the water’s edge can be suitably treated to accommodate increased activity (e.g. stone edge). Signage and other media will be used to warn of times of heavy pollution when access to the water should be minimised.
Strategy 2:	Promote the use of natural materials such as timber, stone and sand in the development of playgrounds and encourage designs which reflect and interact with the semi-natural landscape of the Linear Park.

² For example: *Relevant Austroads Guides*

Strategy 3:	When the replacement of park furniture is required, ensure that it is of hard wearing and low maintenance materials such as timber and steel, while ensuring that designs are simple and complementary to the semi-natural setting of the Linear Park.
Strategy 4:	Mountain bike tracks should not generally be established in the Linear Park given its role as an 'urban trail network' for predominantly lower intensity recreational activities, and the lack of challenging topography. The exceptions to this are the use of the formed, shared-use trail as part of a sub-trail associated with the Mawson Trail and the existing informal off-road mountain bike track on the southern side of the River in Marden which should be maintained and extended as a 'beginners' facility suitable for children up to the age of 15.
Strategy 5:	Ensure that toilets are provided at regular intervals: in high traffic and pedestrian locations such as picnic areas or other activity generators, in areas with high visibility, well sign-posted, provision for securing of bicycles, avoiding obscuring vegetation, with a water bubbler in close proximity but not requiring entry to the toilet to use. Emphasis will be given to the establishment of new toilets where there is the greatest distance between existing toilet facilities, given the regional function of the shared-use trail. Opportunities to use toilet facilities provided in conjunction with non-Linear Park activities should also be emphasised.
Strategy 6:	Given the desirable 'blurring' of Council boundaries and the associated semi-natural environment, a consistent approach will be adopted to the management of dogs for the length of the Linear Park. Dogs will be kept on-lead, other than in areas clearly identified as appropriate for off-lead activity away from the shared-use path, playgrounds, BBQ areas and areas of biodiversity significance.
Strategy 7:	Install dog waste dispensers/bins at regular intervals along the Linear Park as well as at every picnic area and main entrance.
Strategy 8:	Provide lighting to support the primarily unstructured recreational role of the Linear Park, rather than as a key transport corridor at night. The focus for lighting should be on areas where hazards may be present such as bridge crossings or path intersections, adjacent to areas of increased residential density where increased use of the Linear Park could be expected, and key areas where people recreate into the early evening (e.g. BBQ areas). Intense lighting of the entire Linear Park is inappropriate.

Strategy 9:

Increase the level of interest and use of the trail through the installation of public art such as sculptures and/or murals which highlight the cultural history, recreational value and environmental function of the Linear Park.



Strategy 10:

Ensure the shared-use recreational trail within the Linear Park:

- when undergoing a major upgrade, achieves a minimum width of 3 metres in order to minimise conflict between users
- utilises surface materials and construction techniques (i.e. control joints) appropriate to the local soil conditions on new or upgraded sections to provide an even and durable pathway which can be easily repaired and is resistant to flood impacts
- achieves consistent markings to separate users travelling in opposite directions
- reinforces the 'Share the Trail' message to be introduced through new signage.

<p>Strategy 11:</p>	<p>Ensure that, when upgrading the trail, safety aspects are taken into account, as well as the likely inexperience and vulnerability of some users by:</p> <ul style="list-style-type: none"> • introducing specific design solutions for steeply sloping sections of the trail located near the River • improving 'blind corners', where views of oncoming, fast-moving cyclists can be obscure, by removing or pruning vegetation, widening that section of the trail and installing signs warning users of the potential danger • giving special consideration to the safety aspects of bridges, boardwalks and sections of the trail located on elevated land • ensuring that clearly signed access for emergency services is provided at regular intervals along the trail in agreement with emergency service providers such as police, ambulance and emergency service crews (coordinated and consistently numbered signposting along the trail will help users of the Park to identify their location when contacting emergency services) • removing thick vegetation close to the trail behind which people can hide and by maintaining clear and open lines of sight
<p>Strategy 12:</p>	<p>Improve the accessibility of the shared-use trail by promoting and sign-posting designated public car-parking areas which are located adjacent to the Linear Park. Signage to these parking areas on nearby arterial roads will also be installed</p>
<p>Strategy 13:</p>	<p>Improve the directional signage along the shared-use trail to ensure that key access points from the trail to the surrounding streets are clearly identified</p>
<p>Strategy 14:</p>	<p>Undertake a user survey to confirm the location of 'black spots' where there is consistent pedestrian/cyclist conflict, together with feedback regarding signage, way-finding and the location/positioning of trail markers.</p>

9.0 Maximising Environmental Performance

9.1. Background Discussion

Biodiversity – Flora and Fauna

Biodiversity is commonly known as the variety of all forms of life. It relates to plants, animals and micro-organisms, their genetic composition and the ecosystems they form. The core biodiversity attributes of the River Torrens Linear Park include remnant vegetation, indigenous revegetation and wildlife.

The Adelaide & Mount Lofty Ranges Natural Resources Management Board has developed the concept of ‘Ecological Zones’. This concept is aimed at assisting primarily with weed management and revegetation, relating to the amount of water in the landscape. The zones are distinguished based on ecological features such as elevation, slope, soil type and moisture, as well as frequency of flooding.

The five Ecological Zones (adopted from Pedler & Crompton (2003) *Biodiversity Protection & Management – Review of Torrens Linear Park Maintenance Plan*) are described below:

1. Aquatic	The area within the main channel which remains underwater or waterlogged.
2. Riparian	The area immediately adjacent to the aquatic zone that is influenced by the watercourse and remains moist throughout the year and is subject to seasonal flooding and flooding in storm events.
3. Outer Riparian	The area adjacent to the riparian zone that benefits from the extra root zone moisture provided by proximity to the watercourse, but does not stay waterlogged for long. This area is flooded less frequently than the riparian zone (1 in 5 year flood zone).
4. Upper Slopes	These areas are naturally dry areas with limited subsoil moisture and are very infrequently flooded (above the 1 in 5 year flood zone).
5. Steep Slopes	These steep slopes may be steep banks close to the watercourse or constitute the outer edge of the river valley, some distance from the watercourse. They are elevated sites not subject to flooding whose steep slopes and exposure produce a very dry growing environment.

There is relatively little remnant vegetation within the Linear Park. Most of the existing vegetation is dominated by exotic planted amenity species and weeds. Many of these exotic species have been introduced to the Linear Park environs by means of regeneration from amenity plantings, garden escapees, external soil dumping or via

natural processes. A number of these species are identified as highly invasive due to their ability to rapidly regenerate and colonise areas, vigorously out-competing and, in some cases, smothering indigenous flora. A comprehensive list of problematic introduced exotic flora species that have either been recorded or previously targeted for control within the Linear Park is contained in Appendix 2. Some of these species are declared pest plants under the *Natural Resources Management Act 2004*.

At the same time, *Eucalyptus camaldulensis* var. *camaldulensis* (River Red Gum) are scattered throughout the entire Linear Park. Many of these are large and mature with hollows providing habitat for various native wildlife. Other remnant vegetation includes reeds and rushes which colonise areas within the aquatic ecological zone. It is impossible to determine whether patches of native grasses and scattered shrubs are remnant. However, it is likely that some may have persisted or regenerated from degraded remnant stocks despite large scale modifications to local habitats. Regular mowing of Kikuyu and other exotic grasses within the Linear Park is an ongoing maintenance activity which has the potential to adversely impact upon native grasses. The timing of these activities may be affecting the ability for native grasses to set seed and recruit within some areas.

Overall, the remnant vegetation component of biodiversity along the Linear Park is considered to be in poor condition.



A number of revegetation projects have been undertaken in various locations along the Linear Park with plant species replicating the pre-European vegetation thought to originally dominate the River Torrens environs. The condition of these revegetation areas varies significantly in terms of seedling survival rates. Weed infestation issues are generally low in the majority of revegetation sites, indicating that follow-up weed maintenance activities are occurring. In short, the revegetation component of biodiversity within the Linear Park is considered to be reasonable.



Fauna diversity within the Linear Park is very low due to the lack of habitat and high competition from invasive feral animals. Waterbirds are the dominant fauna species and are generally confined to the waterways or the banks of the River. Native terrestrial birds including Australian Magpies (*Gymnorhina tibicen*), Magpie Larks (*Grallina cyanoleuca*) and Noisy Miners (*Manorina melanocephala*), are common within the Adelaide metropolitan area and have adapted to urban habitats, including the Linear Park. Other native species that are known to utilise the Linear Park include Water Rats (*Hydromys chrysogaster*), Water Skinks (*Eulamprus quoyii*) and Ringtail Possums (*Pseudocheirus peregrines*).

The linear nature of the River Torrens provides a wildlife corridor, linking the Adelaide foothills with the Gulf of St Vincent. It also provides links to a number of other reserves and smaller tributaries flowing into the River Torrens.

There is a wide variety of feral animals within the Linear Park environs. Feral fish, such as the European Carp, are very common preying on, and competing for, resources with native aquatic animals including fish, frogs/tadpoles and

invertebrates. The high numbers of European Carp in the Torrens Lake is also a major contributor to the prevalence of algae in this location in summer periods. Feral bees were observed hiving in tree hollows within Linear Park and are known to reduce the available nesting hollows for native birds, bats and possum species.

Feral birds such as Mallards, Blackbirds and the House Sparrow are common throughout the area, and are known to actively compete with native birds for food and nesting habitat. The Brown Rat (*Rattus norvegicus*) and the Black Rat (*Rattus rattus*) are the two common pest rats found in the metropolitan area. The Black Rat can have an impact on native animals, being a good climber that can predate on the eggs of native bird species. Brown Rats are effective burrowers and can cause damage to the banks of waterways.

Foxes are also likely to utilise the Linear Park for feeding and den sites, and also as an access route within the urban environment. No rabbits were observed during the field survey, however, it is likely rabbits utilise the Linear Park at times. There is the potential that their foraging habits may threaten the recruitment of juvenile native flora and seedling survival within revegetation areas. In summary, the wildlife component of the biodiversity within the Linear Park is considered to be relatively poor.

Despite some reasonably successful revegetation work in specific locations, the overall biodiversity performance of the eastern section of the River Torrens Linear Park is considered to be relatively poor given the low levels of remnant vegetation, minimal suitable wildlife habitat and associated low numbers of native wildlife.

Erosion and Water Quality

Erosion is a problem along part of the River corridor. Within the riparian ecological zone, erosion is exacerbated by a lack of vegetation along the river banks. In addition, excessive reed growth within the channel appears to be leading to the redirection of water flows, resulting in soil shifting. Erosion is also occurring within some parts of the steep slopes ecological zone and appears to be directly related to the lack of vegetative cover.



A number of stormwater outlets exist along the River Torrens which discharge runoff from buildings, footpaths and streets into the river corridor. This type of stormwater runoff can lead to higher inputs of pathogens, nutrients, toxicants and litter. Areas of excessive reed growth also appear to be influencing water flow rates, consequently accumulating sediments, nutrients and rubbish. These pollutants and alterations to water flow rates impact on water quality and lead to algal blooms, sedimentation and a decline in the abundance and diversity of native flora and fauna, primarily within the aquatic and riparian ecological zones. The relatively high velocity of water flow to the sea in some parts of the river corridor also limits the opportunity for natural filtering and decomposition processes. Achieving the right balance in water flow rates is a significant challenge.

Unlike the newer urban areas to the north and south of Adelaide, the River Torrens urban catchment has virtually no water sensitive urban design (WSUD) features such as wetlands and swales. Very little is left of the natural watercourse and a huge organic and pollution load comes from street trees, motor vehicles, roads and a host of diffuse urban sources quickly transmitted through very efficient stormwater systems.

There are approximately 220 stormwater outlets along the River Torrens between the beach and the Black Hill Conservation Park. In 2007, 48 of these were equipped with a Gross Pollutant Trap (GPT). This represents about 62% of the total water catchment of the urban section of the River Torrens. GPTs have generally been installed on the larger outlets, including the creeks (with the exception of First Creek). To provide coverage to 95% of the catchment will require a further investment of \$2.8 million, while coverage to 100% will require \$6.1 million.

The Adelaide & Mount Lofty Ranges Natural Resources Management Board has recently identified priority locations for GPTs in the overall Torrens catchment and is currently investing in three new/replacement GPTs. The Board may assist in the establishment of further GPTs as a co-investor with the relevant Council where clear benefits to water quality will result. Environmental flow issues, including for the River

Torrens, are currently being considered in the Water Allocation Plan (WAP) being prepared for the western Mount Lofty Ranges. Any stormwater harvesting proposed from the River will require a water licence once the WAP is adopted by the relevant Minister.

A study by Tonkin Consulting was undertaken to assess the feasibility of slowing down urban runoff from the catchment by temporarily storing water from rainfall events in the 7-15mm range in available public open space. Stormwater would then be released slowly back into the creeks where natural and biological processes would provide improvements in sediment and nutrient loads to the River system.

The strategy would involve one or two detention basins for each of the creeks feeding into the River Torrens, together with some targeted revegetation along these creeks.



The most practical detention storages represent approximately 150ML of storage and would collectively cost in the region of \$6 Million. The detention basins would impact on the community use of current open space in some areas. The necessary creek rehabilitation would also require widening and careful engineering to ensure flood capacity is not compromised.

Through the Federally funded “Waterproofing Northern Adelaide” project, the City of Tea Tree Gully is proposing to service the Linear Park by a separate main linking the existing wetlands along the River Torrens with park-based ASR injection sites and a series of new underground concrete tanks under construction in the park.

As part of “Waterproofing Eastern Adelaide”, the Eastern Region Alliance of local Councils has also proposed a number of stormwater harvest sites, including wetlands fed from local tributaries, along the River Torrens. These would be interconnected through a network of distribution pipelines across the region. This scheme allows for the possible later connection to the northern scheme.

Feedback

State Government agencies were supportive of a range of environmental initiatives including improvements in biodiversity, water quality and weed management, with no particular emphasis given to one element over another.

The Elected Member representatives from the various Councils along the River Torrens were of the view that enhancement of biodiversity along the Linear Park should be a focus for ongoing management. Many were also of the view that, rather than focusing on a particular environmental initiative, the approach to environmental enhancement should be broad ranging, including water quality improvement, ensuring environmental flows, weed management, feral animal control etc. Programs for environmental enhancement should be coordinated across Council boundaries to be most effective. Clarification regarding water management responsibilities between SA Water, the Natural Resources Management Board and Councils is particularly important.

Ensuring that new infrastructure and facilities make use of renewable resources is also a means of improving the environmental performance of the Linear Park (e.g. solar power for lighting).

The community members who attended the public workshop during the preparation of the Management Plan gave unanimous support to the improvement of biodiversity and water quality through a variety of initiatives as a focus for the management of the Linear Park. Effective weed management was emphasised as an important element in improving biodiversity. The management of organic matter, as well as toxic chemicals, is important also for water quality, along with ensuring the preservation of environmental flows down the River.



9.2. Management Directions and Strategies

Ideally, initiatives that improve biodiversity across the entire Linear Park would be undertaken. However, limited resources prevent this. Therefore, targeting areas for priority biodiversity initiatives is pragmatic. Strategies for action will have the greatest benefit where they enhance previous biodiversity initiatives that have already improved/restored habitat corridors within the Linear Park and adjoining public spaces. These focus areas for biodiversity enhancement can then be expanded in the longer term.

A number of biodiversity activities have previously been undertaken within the majority of these priority areas, largely through community activities and initiatives. Further support to these community groups would greatly enhance biodiversity objectives within these areas.

The detailed Torrens Taskforce Report of 2007 provides a range of initiatives directed to improving water quality in the River Torrens and these have been taken into consideration in this Management Plan. Improved water quality can also assist in improving biodiversity in and along the River.

The approach to the **environmental performance** of the Linear Park is as follows.

The biodiversity of the River Torrens Linear Park will be enhanced through improvements in:

- Coordinated control and eradication of priority weed species throughout the Linear Park
- Reintroduction of local indigenous flora species suitable for specific ecological zones through revegetation activities to enhance biodiversity.
- Stormwater management, reducing the speed of water to promote percolation and water filtration which improves water quality, without unreasonably impacting on the primary stormwater management function of the linear park.
- Stormwater management, minimising the amount of pollutants entering the River Torrens, to improve water quality.

Strategy 1:

Target six priority areas along the Linear Park as “High Biodiversity Priority Areas” (see Appendix 1), based on locations where previous environmental interventions have been undertaken, restoring and improving habitat corridors within the Linear Park. These areas have been determined using the following measurable attributes:

- Area occurs in close proximity to other wildlife corridors or reserves;
- Contain scattered to moderate dense indigenous overstory;
- Contain extensive and/or established revegetation;
- Evidence that revegetation areas are naturally regenerating;
- Weed control actions have been undertaken in the past; &
- Few exotic amenity plantings are present.

High Biodiversity Priority Area 1

Located near Port Road and includes Tuyla Wodli which has incurred extensive revegetation activities in the past within the aquatic, riparian, upper slopes and steep slopes ecological zones. Additional management actions within Area 1 will further enhance the biodiversity of the area, provide follow up to previous management actions and improve habitat linkages into the surrounding park lands.

High Biodiversity Priority Area 2

Area 2 includes St Peters Billabong, Tainmundilla Stage 1 and Stage 2. Extensive revegetation and weed control activities have been undertaken in these areas. Further management actions have the potential to link the Billabong and Tainmundilla providing a habitat corridor within Linear Park, the surrounding Park Lands and First Creek.

	<p><i>High Biodiversity Priority Area 3</i></p> <p>Area 3 includes an existing Our Patch site (Catchment Care) and an Urban Forests One Million Trees site, which have undergone revegetation activities in the past as well as some weed control. Further management actions within Area 3 will improve habitat corridors between Linear Park, Third Creek and the Geoff Heath Golf Course.</p> <p><i>High Biodiversity Priority Area 4</i></p> <p>Management actions within Area 4 could potentially provide a wildlife corridor between Linear Park to Hope Valley Reservoir and possibly extend further into Dry Creek.</p> <p><i>High Biodiversity Priority Area 5</i></p> <p>Management actions within Area 5 could potentially provide a wildlife corridor link between Linear Park and Fourth Creek.</p> <p><i>High Biodiversity Priority Area 6</i></p> <p>Extensive revegetation and weed control activities have occurred within Area 6 in the past. Targeted management actions within this area has the potential to improve the wildlife corridor linking Linear Park, Fifth Creek and the Adelaide Hills.</p>
<p>Strategy 2:</p>	<p>Continue to support activities and initiatives by community groups that assist in improving biodiversity within the Linear Park, particularly within areas identified for 'High Biodiversity Priority'.</p>



Strategy 3:

Undertake a range of activities that will assist in improving water quality in the River Torrens and meeting water quality objectives set under the State's 'Healthy Waters' project, including:

- installing GPTs and/or litter and debris management systems to cover significant stormwater discharges, including First Creek which discharges near the Botanic Gardens
- establishing wetlands in strategic locations, including the Botanic Gardens
- investigating the feasibility of creating detention basins within areas of public open space along the tributaries and main stream of the River Torrens, temporarily storing stormwater and slowly releasing it back into the creeks and River (e.g. Drage Reserve on Third Creek).
- investigating the feasibility and benefits of providing for environmental and/or amenity flows, with flows in the downstream reaches recovered, where feasible, for managed aquifer recharge and irrigation

	<ul style="list-style-type: none"> • retrofitting the urban catchment with water sensitive urban design features that will slow waters and help to deal with stormwater quality/quantity at the source • monitoring of activities to measure progress in attaining the water quality objectives
<p>Strategy 4:</p>	<p>There will be an annual works program determined by the Coordinating Committee for the removal of weeds from areas of infestation utilising the following guiding framework for the weed control program:</p> <ul style="list-style-type: none"> • identify and prioritise values of native vegetation areas; • identify and prioritise exotic weed species; • identify and prioritise infestation sizes; • prioritise management actions that consider the following factors: <ol style="list-style-type: none"> 1. Size of infestation 2. Overall abundance 3. Level of invasiveness 4. Accessibility 5. Listing (Declared under <i>NRM Act, 2004</i>) 6. Prior management 7. Proximity to threatened species

10.0 Acknowledging Cultural Values

10.1. Background Discussion

Places have many layers of cultural meaning and these are rarely reflected in formal heritage registers or even in historical records.

The River Torrens, as with all of their traditional lands, has ongoing significance for the people of the Kaurna Nation.



From its source to the sea, the River Torrens has been identified by Aboriginal Cultural Heritage Management (ACHM) as a potential Aboriginal Heritage Site. The Aboriginal Heritage Branch of the Department of Premier and Cabinet is currently working through the implications of this proposal.

Within the Linear Park there are also sites associated with colonial settlement that reflect early farming practices, the creation of bridges, dams and weirs, and the use of places along the river for social and civic events. The River Torrens continues to play an important role in the economic and social history of Adelaide and its suburbs. Parts of the Linear Park, particularly larger reserves along the river, have been recreational drawcards for generations.

The establishment of the Linear Park in 1982 has contributed to the development of new layers of cultural meaning for those who have been attracted to live in its vicinity, the many thousands who use it daily for walking, cycling, enjoying nature

and relaxing, and thousands more who use it less often as a focus for picnics, BBQs, celebrations, sporting events and entertainment.

There are many stories to be told about the river and its environs. There are many ways in which these stories can be told. Telling the stories is one of the ways to identify, interpret and protect the cultural values associated with the River. There are other ways including formal recognition and statutory protection.

10.2. Feedback

There was strong support expressed at both the Elected Member and Community Workshops for greater identification and interpretation of cultural places, people and stories.

The majority of people preferred this approach to a more 'statutory' response that would involve formal listing of items and places on State and Local Heritage Registers. None the less, there was a significant minority view point that thought a combination of formal recognition through heritage listing and the use of interpretive materials to increase awareness of the heritage value of places within the Linear Park was worthwhile.

The Department for Planning and Local Government has advised that if seeking funding under the "Places For People" Program, the focus should be on redeveloping or creating vibrant public spaces as a precinct in the wider public realm, rather than a more singular element such as a one-off sculpture or interpretive sign that is placed in isolation to prominent public spaces where people gather.

10.3. Management Directions

The management approach to **acknowledging cultural values** within the Linear Park should be as follows.

Councils should continue to identify places and sites within the Linear Park when they are undertaking heritage surveys and preparing Development Plan Amendments to amend local heritage lists. However, this will not be a primary mechanism for the recognition of cultural heritage values.

The Coordinating Committee (see Section 6.3) and member Councils will work together with their communities and representatives of the Kurna people to use existing cultural records, histories and local knowledge to better tell the stories associated with the River Torrens (e.g. through signage, markers, brochures, audio technology, tours, public art and children's play installations). The means of interpretation should combine learning and play in ways that are purposeful and engaging for people of all ages.

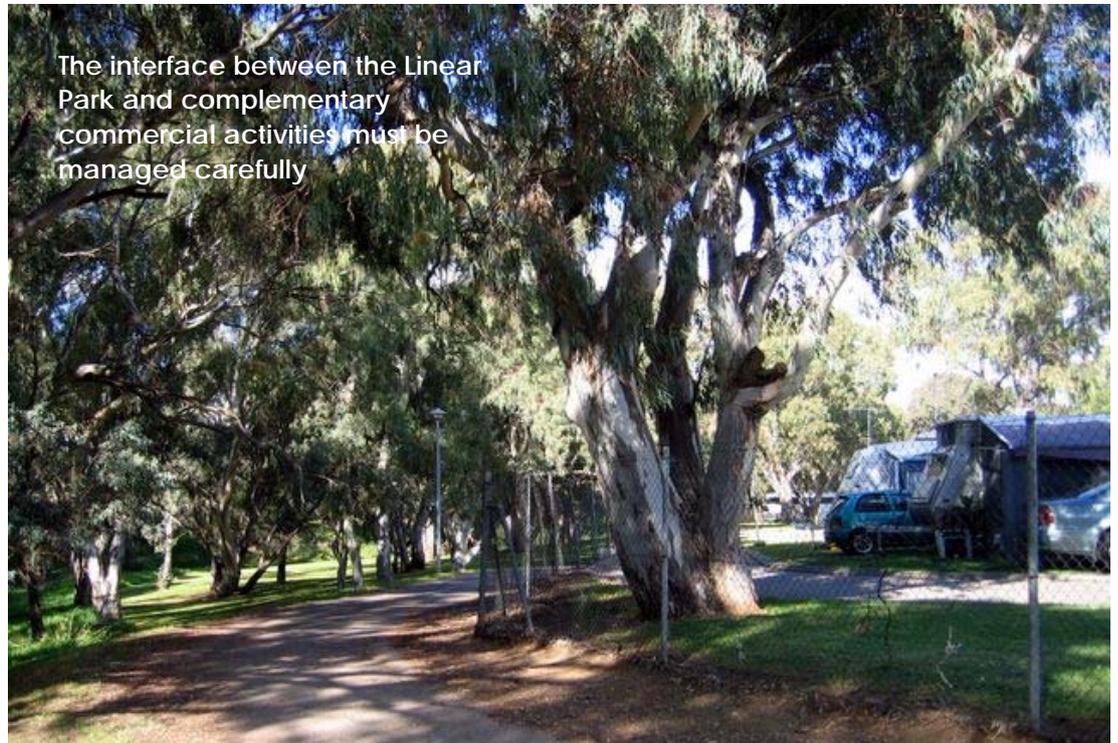
Funding this collaborative approach to collecting, collating and interpreting this research should not be the sole responsibility of the member Councils, and may be obtained through a range of prospective funding partners (e.g. Department of Planning and Local Government, Heritage SA and Arts SA).

11.0 Development Within/Adjacent to the Linear Park

11.1. Background Discussion

Commercial Activities

There are a number of commercial activities operating along the Linear Park including caravan parks and the retail outlets associated with community facilities. It appears that all of these existing commercial activities actually sit on land adjacent to Linear Park, and have varying levels of interaction with the Park.

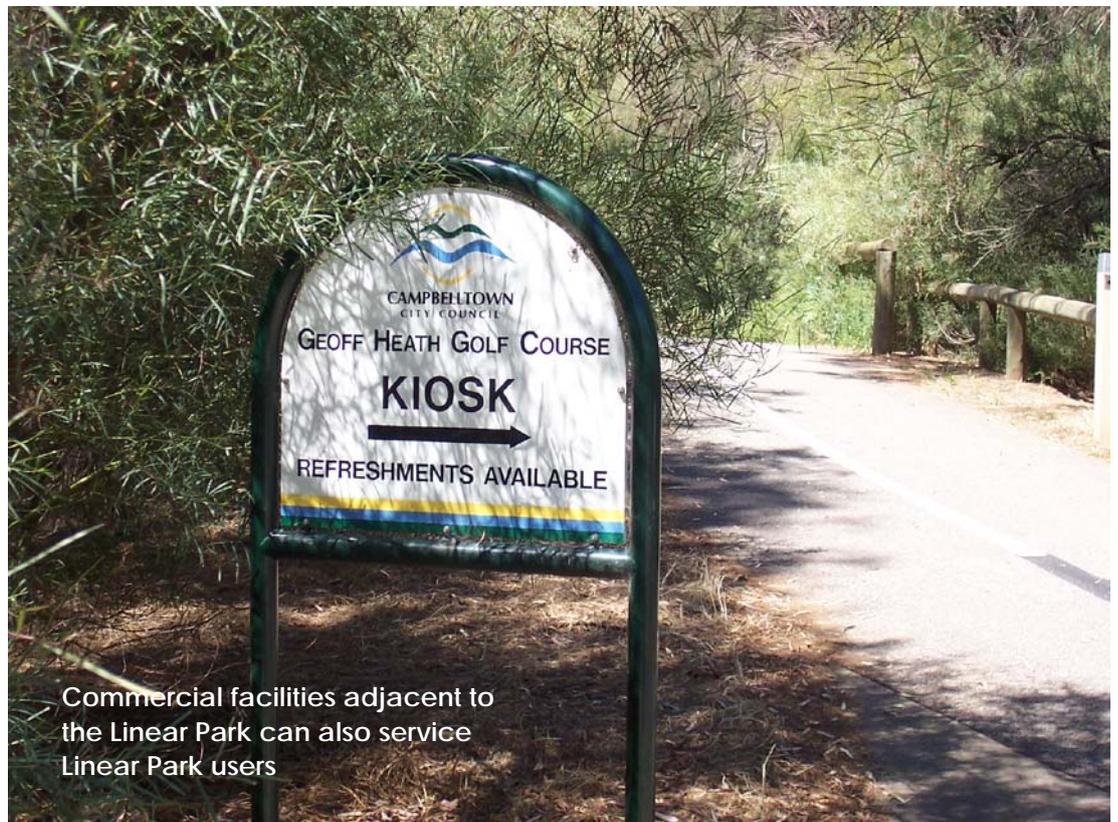


Historically, the development of commercially focussed activities within parks and reserves has been a matter of community debate. The lease or licence that is needed to enable a commercial operator to obtain finance and have confidence in their ability to build a business over time necessarily involves some restrictions on open community access. The scale and nature of the operation potentially impacts on the degree to which community access is limited. For example, mobile vendors selling coffee and ice-cream have minimal impacts, while restaurants, conference facilities or tourist accommodation require significant levels of exclusive access for their customers.

It could be argued that some commercial uses such as kiosks, cafes and sports hire outlets within public open space can provide benefits to the community. New users may be attracted to the Linear Park by these facilities. Existing users may spend

more time using the Linear Park, increase their levels of social interaction or try a new activity such as bike riding or rollerblading if these items were available for hire.

It is likely that, should commercial activities be considered as desirable uses within or adjacent to the Linear Park, there will be some locations that are more appropriate than others due to their existing character, proximity to car parking and the ability to leverage off other facilities for patronage. This needs to be carefully balanced with the vision for the Linear Park which states that it should provide “respite from the otherwise highly developed urban environment”. In addition, any development proposed within the Linear Park will need to ensure it does not adversely impact on the primary role of the Park, that of flood /stormwater management.



Commercial facilities adjacent to the Linear Park can also service Linear Park users

Residential Development

The 30-Year Plan for Greater Adelaide has identified opportunities for infill along the River Torrens and O-Bahn Route between Walkerville and the Paradise Interchange. This infill development is likely to be at increased densities and heights than that which has occurred in recent years i.e. three to five storeys rather than two storeys. There are locations where high-rise apartments may also be considered, such as the DTEI building at Walkerville.

There may be some locations where the level of projected population increase is such that some ‘hardening’ of the Linear Park environment is needed to control access and minimise impacts on slope stability or vegetation. For example steps,

boardwalks and platforms may be necessary to enable more people to access the Linear Park next to housing developments.

There may also be more early morning and evening use, making lighting a more important issue. There may be benefits from the increased use of the Linear Park too, particularly in regard to safety and reducing anti-social behaviour.

It is important that residential development provided to cater for increased densities in proximity to the Linear Park is designed so that it does not increase the amount of run-off, discharge or other pollutants into the Linear Park environment.



11.2. Feedback

There was a strong polarity of views expressed on these issues. Community members were most likely to oppose commercial activity in the park and to be strongly in favour of discouraging higher density development in locations where higher levels of access and use would impact adversely on the Park environment.

Elected Members were more likely to provide qualified support for the introduction of commercial activities to be managed in a regional context (optimising the location of commercial activities so as to minimise impact on the other functions of the linear Park). They were also more likely to express support for increased density residential development adjacent to the Linear Park provided higher levels of infrastructure were introduced to cater for increased demand.

11.3. Management Directions

The Linear Park is a key regional asset with distinct characteristics associated with different reaches of the river. These landscape characteristics have implications for the extent and form of commercial development within and adjacent to the Park.

The effective integration of sensitive commercial activities, whether they are within or adjacent to the Linear Park, with recreational users is considered to be desirable because it is likely to have benefits for both (e.g. park users can hire recreational equipment and this creates income for businesses). This effective integration is also likely to increase usage of the Linear Park. The nature of commercial activity should be carefully managed to minimise the impacts of signage, rubbish and general built form.

Recreation and access infrastructure within the Linear Park should also be designed with higher levels of use in mind given the likelihood of increasing residential densities close to the Linear Park, particularly between the city and Paradise.

The management approach to **development within and adjacent to the Linear Park** should be as follows.

The East Torrens Lake Reach, which encompasses that section of the Linear Park passing through the Adelaide Park Lands (from Port Road to Hackney Road), should be developed in accordance with the management directions contained within the Adelaide Park Lands Management Strategy. The Strategy requires “enhancing the River Torrens/Karrawirra Parri destination appeal (usability of spaces, landscapes and facilities), without over-developing it”, and nominates Elder Park and Bonython Park as major event spaces. It also envisages the “Creation of an integrated heritage and cultural hub around the Adelaide Gaol, Olive Grove and the riverfront”. Commercial activities may be permitted where they “provide community benefit and support outdoor recreational use”.

The Central Sub-Urban Plains Reach of the Linear Park between Hackney and Lower North East Roads has a stronger focus on unstructured recreation that meets the daily needs of those living nearby for walking, dog exercising and informal socialisation (e.g. picnics, BBQs). It is less suitable for commercial activities, and park users will be directed by signage to such facilities (e.g. food and beverage outlets), in nearby areas including those provided by sports and community clubs. Recreation and access infrastructure within the Reach should be designed in anticipation of higher levels of use given the likelihood of increasing residential densities close to the Linear Park. Residential development immediately adjacent to the Linear Park should also optimise safety and aesthetic amenity by having some frontage to the Linear Park & minimising the amount of solid fencing at the interface.

The Eastern Sub-Urban Open Reach of the Linear Park between Lower North East Road and Black Hill Conservation Park provides generally a more open landscape that is surrounded by less dense development and is subject to less intensive use, thereby limiting the demand for commercial development. However, limited commercial development within and immediately adjacent to the Linear Park designed to minimise negative impacts associated with signage, rubbish and general built form will also be appropriate (e.g. bike hire facilities, kiosks).

Any development within the Linear Park should not compromise its primary role for flood mitigation/stormwater management.

12.0 Implementation and Priority Actions

The following actions have been identified in priority order. They are by no means an exhaustive list of initiatives that result from this Management Plan, but rather represent the key areas that require action in the short to medium term to capitalise on the momentum created by the production of this Management Plan.

1. Establish an overarching 'coordinating committee' as a joint State/Local Government Committee and develop an MOU that clearly articulates the roles and responsibilities of the different tiers of government and agencies (see section 6.3 for detail).
2. Confirm that a safety audit of all parts of the Linear Park has occurred in the last 12 months to ensure that the safety guidelines in the River Torrens Linear Park Trail Assessment prepared by the Local Government Association of SA (December 2007), are being adhered to (see section 7.3 for detail).
3. Upgrade the shared use trail as the primary recreation facility for a wide range of users, rather than a commuter cyclist corridor, focusing on achieving:
 - a minimum width of 3 metres in order to minimise conflict between users;
 - surface materials and construction techniques (i.e. control joints) appropriate to the local soil conditions to provide an even and durable pathway which can be easily repaired and is resistant to flood impacts;
 - consistent markings to separate users travelling in opposite directions, reinforcing the 'Share the Trail' message through new signage;
 - specific design solutions for steeply sloping sections of the trail located near the River, as well as bridges, boardwalks and sections of the trail located on elevated land;
 - improved 'blind corners', where views of oncoming, fast-moving cyclists can be obscure, by removing or pruning vegetation, widening that section of the trail and installing signs warning users of the potential danger;
 - giving special consideration to the safety aspects of ensuring that clearly signed access for emergency services is provided at regular intervals along the trail. (see section 8.3 for detail).
4. Target six priority areas along the Linear Park as "High Biodiversity Priority Areas" (see Appendix 1), based on locations where previous environmental interventions have been undertaken, restoring and improving habitat corridors within the Linear Park (see section 9.3 for detail).
5. Ensure that there is coordinated annual weed control/eradication undertaken as part of a weed control program, targeting priority species which may cross local government boundaries (see section 9.3 for detail).

6. Undertake a range of activities that will assist in improving water quality in the River Torrens, including:
 - installing GPTs and/or litter and debris management systems to cover significant stormwater discharges, including First Creek which discharges near the Botanic Gardens;
 - establishing wetlands in strategic locations, including Botanic Park;
 - investigate creating detention basins within areas of public open space along the tributaries and main stream of the River Torrens, temporarily storing stormwater and slowly releasing it back into the creeks and River (e.g. Drage Reserve on Third Creek);
 - investigate the feasibility and benefits of providing for environmental and/or amenity flows, with flows in the downstream reaches recovered, where feasible, for managed aquifer recharge and irrigation;
 - retro-fitting the urban catchment with water sensitive urban design features that will slow waters and help to deal with stormwater quality/quantity at the source (see section 9.3 for detail).
7. Work with representatives of the Kaurna people to use existing cultural records, histories and local knowledge to better tell the stories associated with the River Torrens (e.g. through signage, markers, brochures, audio technology, tours, public art and children's play installations) (see section 10.3 for detail).

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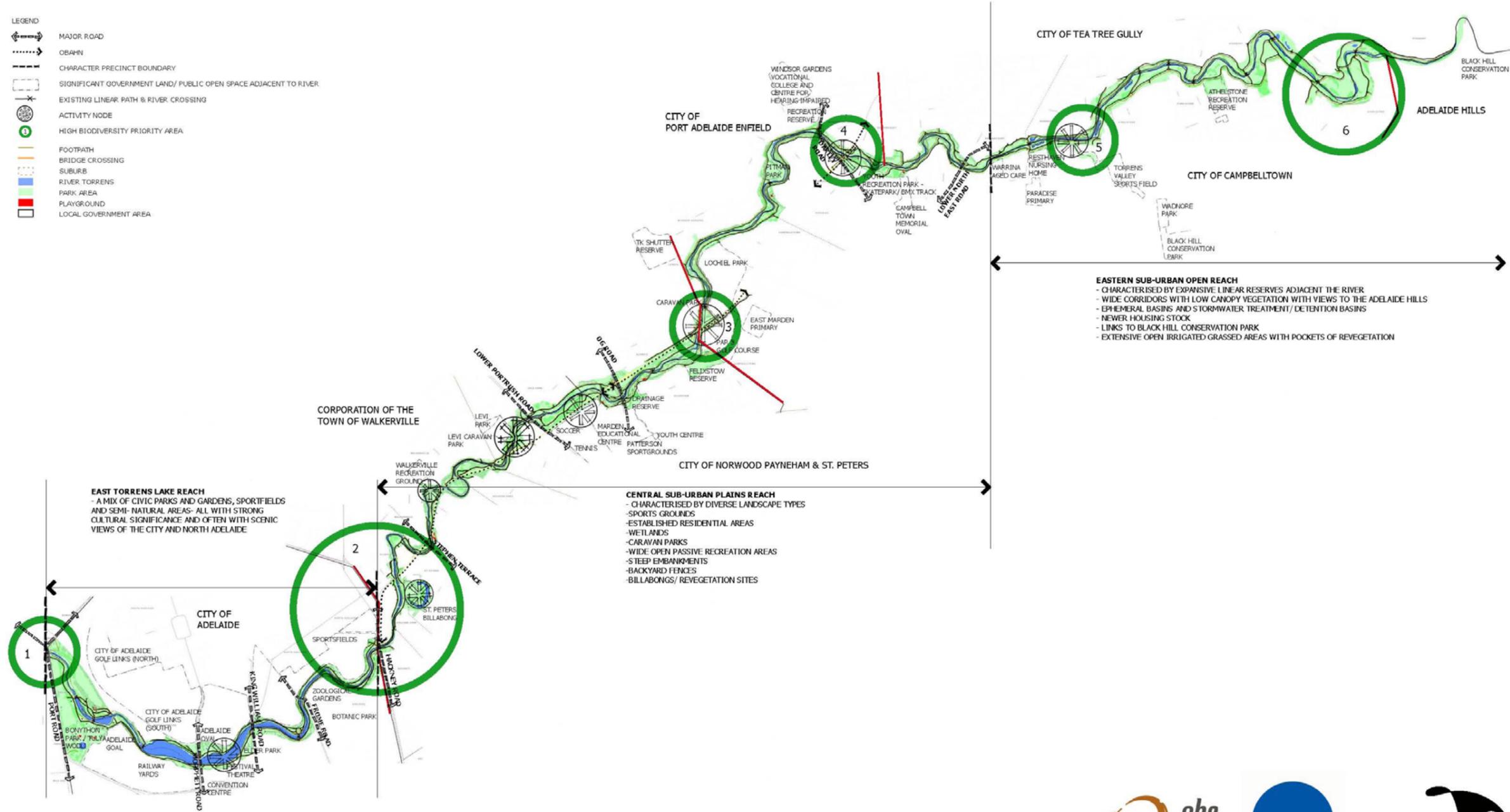
14.0 Appendices

Appendix A

Landscape Character Analysis

LEGEND

- MAJOR ROAD
- OBAHN
- CHARACTER PRECINCT BOUNDARY
- SIGNIFICANT GOVERNMENT LAND/ PUBLIC OPEN SPACE ADJACENT TO RIVER
- EXISTING LINEAR PATH & RIVER CROSSING
- ACTIVITY NODE
- HIGH BIODIVERSITY PRIORITY AREA
- FOOTPATH
- BRIDGE CROSSING
- SUBURB
- RIVER TORRENS
- PARK AREA
- PLAYGROUND
- LOCAL GOVERNMENT AREA



EAST TORRENS LAKE REACH
 - A MIX OF CIVIC PARKS AND GARDENS, SPORTFIELDS AND SEMI-NATURAL AREAS- ALL WITH STRONG CULTURAL SIGNIFICANCE AND OFTEN WITH SCENIC VIEWS OF THE CITY AND NORTH ADELAIDE

CENTRAL SUB-URBAN PLAINS REACH
 - CHARACTERISED BY DIVERSE LANDSCAPE TYPES
 - SPORTS GROUNDS
 - ESTABLISHED RESIDENTIAL AREAS
 - WETLANDS
 - CARAVAN PARKS
 - WIDE OPEN PASSIVE RECREATION AREAS
 - STEEP EMBANKMENTS
 - BACKYARD FENCES
 - BILLABONGS/ REVEGETATION SITES

EASTERN SUB-URBAN OPEN REACH
 - CHARACTERISED BY EXPANSIVE LINEAR RESERVES ADJACENT THE RIVER
 - WIDE CORRIDORS WITH LOW CANOPY VEGETATION WITH VIEWS TO THE ADELAIDE HILLS
 - EPHEMERAL BASINS AND STORMWATER TREATMENT/ DETENTION BASINS
 - NEWER HOUSING STOCK
 - LINKS TO BLACK HILL CONSERVATION PARK
 - EXTENSIVE OPEN IRRIGATED GRASSED AREAS WITH POCKETS OF REVEGETATION



RIVER TORRENS LINEAR PARK - EASTERN SECTION - LANDSCAPE CHARACTER ANALYSIS

CITY OF ADELAIDE, CORPORATION OF THE TOWN OF WALKERVILLE, CITY OF NORWOOD PAYNEHAM & ST PETERS, CITY OF PORT ADELAIDE ENFIELD, CITY OF CAMPBELLTOWN AND CITY OF TEA TREE GULLY

Appendix B

The following table is a comprehensive list of problematic introduced exotic flora species that have either been recorded or previously targeted for control within Linear Park.

Table 1.

Species	Common name	Status	Notes
<i>Acacia baileyana</i>	Cootamundra Wattle	+	
<i>Acacia saligna</i>	Golden Wreath Wattle	+	
<i>Agave americana</i>	Century Plant	*	
<i>Arundo donax</i>	Giant Reed	+	
<i>Asparagus asparagoides</i>	Bridal Creeper	#	
<i>Casuarina glauca</i>	Grey Bulloak	+	
<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i>	Boneseed	#	
<i>Cortaderia selloana</i>	Common Pampas Grass	*	
<i>Cynara cardunculus</i>	Artichoke Thistle	#	
<i>Foeniculum vulgare</i>	Fennel	+	
<i>Fraxinus angustifolia</i>	Desert Ash	+	
<i>Genista monspessulana</i>	Montpellier Broom	#	
<i>Gomphocarpus</i> sp.	Cotton-bush	*	
<i>Lycium ferocissimum</i>	African Boxthorn	#	
<i>Nicotiana glauca</i>	Tree Tobacco	*	
<i>Olea europaea</i>	Olive	#	exception when planted and maintained for domestic or commercial use
<i>Opuntia stricta</i>	Prickly Pear	#	
<i>Pennisetum clandestinum</i>	Kikuyu	+	
<i>Pennisetum setaceum</i>	Fountain Grass		
<i>Pinus halepensis</i>	Aleppo Pine	#	exception when planted and maintained for domestic or commercial use (not listed in any of the council areas)

<i>Populus alba</i>	White Poplar	+	
<i>Populus nigra</i>	Lombardy Poplar	+	
<i>Prunus</i> sp.	Fruit tree	*	
<i>Ricinus communis</i>	Caster Oil Plant	+	
<i>Rosa canina</i>	Dog Rose	#	
<i>Rubus fruticosus</i>	Blackberry	#	
<i>Salix babylonica</i>	Willow	+	
<i>Schinus molle</i>	Pepper-tree	#	
<i>Senecio angulatus</i>	Cape Ivy	*	
<i>Tamarix aphylla</i>	Athel Pine	#	
<i>Tropaeolum majus</i>	Nasturtium	*	
<i>Ulex europaeus</i>	Gorse	#	
<i>Vinca major</i>	Blue Periwinkle	+	
<i>Watsonia meriana</i> var. <i>bulbillifera</i>	Bulbil Watsonia	#	

Key

= Declared plant under the Natural Resource Management Act 2004. Up-dated January 2007 sourced from SA Government Gazette 30 June 2005

+ = Environmental weed species listed with the Department for Transport Energy & Infrastructure, Transport Services Division

* = General weed