

# Kadaltilla

Adelaide Park Lands Authority

## Glen Osmond, Hutt and Park 17 Improvements

Provide overview of the project, and further details on the options considered for the rehabilitation of the existing dilapidated open channel.

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# Key Messages

- A number of concept options were explored to balance traditional stormwater management methods with additional environmental and social benefits, whilst achieving the base objectives of:
  - Providing reliable stormwater management services
  - Conservation of the avenue of significant trees lining Glen Osmond Road
  - Addressing public safety and access issue due to steep and eroding banks of existing open channel.
- The optimal option is to convert the existing open channel to a culvert.
- This presentation will provide Kadaltilla with additional information about the option variations that were explored and compared but subsequently ruled out.



# Implications

Implication	Comment
Adelaide Park Lands Management Strategy 2015-2025	<p>Strategy 2.2 Establish shared walking and cycling paths with safe connections and crossing points linking the City and inner suburbs.</p> <p>Strategy 3.1 Develop an identifiable landscape character for each Park Lands edge.</p>
2023-2028 Strategic Plan	<p><b>Strategic Plan Alignment – Environmental Performance</b> Define, protect and enhance landscape value and design qualities.</p>



# Project Background

## Project objectives

- Rehabilitation of the existing open channel with steep, eroded banks threatening its stability and the performance to convey stormwater flows from upstream.
- Conservation of a prominent row of large gum trees affected by the erosion.
- Access and safety concerns due to the steep banks of the existing open channel

The project also represents an opportunity to renew other ageing assets such as roads, kerbing, street lighting and underground cabling, which have been programmed for renewal and are best undertaken simultaneously due to their proximity to the open channel along Glen Osmond Road and associated culvert beneath Hutt Road.

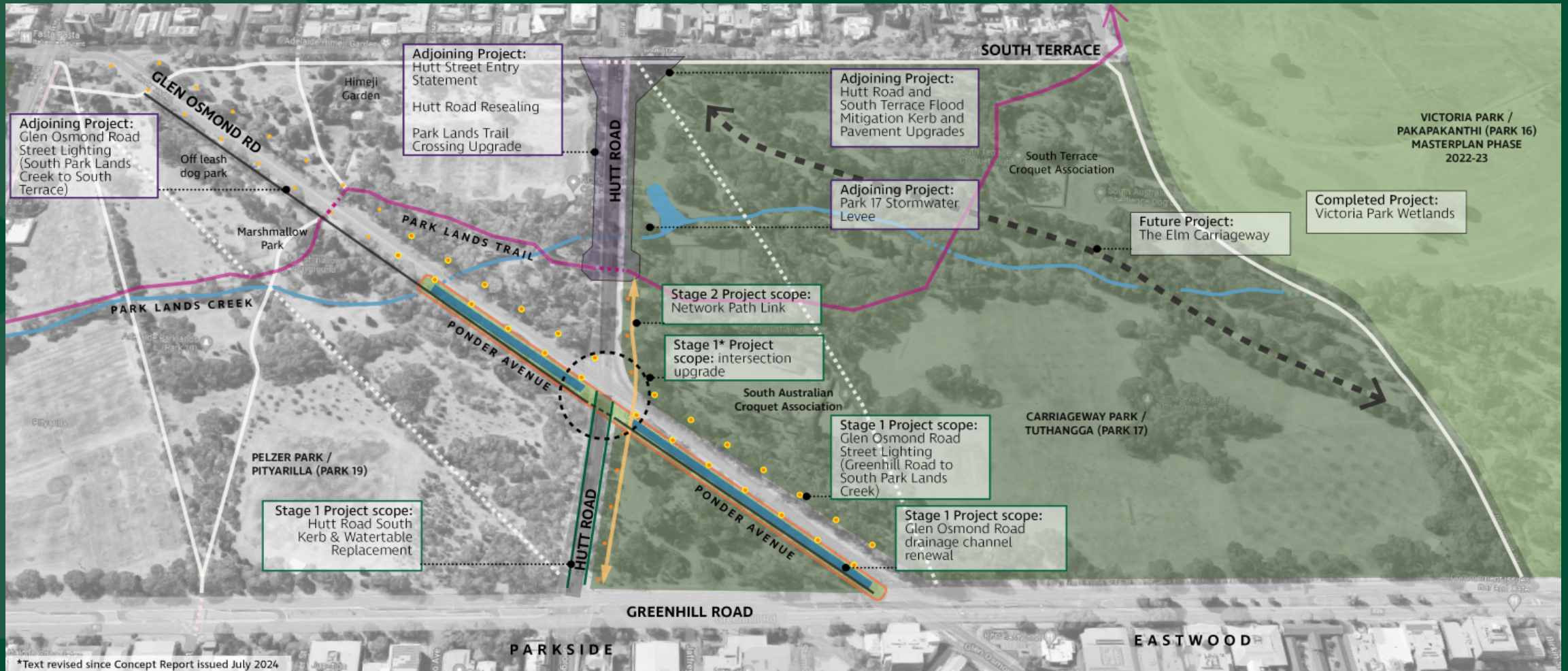
The project also includes construction of a shared-use path extending from the new Hutt Street Entry Project to the Glen Osmond Road shared-use path and Greenhill Road signalised crossing into Parkside, to strengthen the inner southern suburbs access network into the City through the Park Lands.





# Project Overview

## – Scope and Surrounding Projects





# Project Overview - Scope

## Stage 1

- Rehabilitation of open channel and culvert along the southern side of Glen Osmond Road from Greenhill Road to South Park Lands Creek.
- Renewal of lighting and electrical infrastructure on Glen Osmond Road, and renewal of road pavement, kerb and water table on Hutt Road.
- Improvements for vehicular, pedestrian and cycling safety and access along Glen Osmond and Hutt Roads including the intersection.

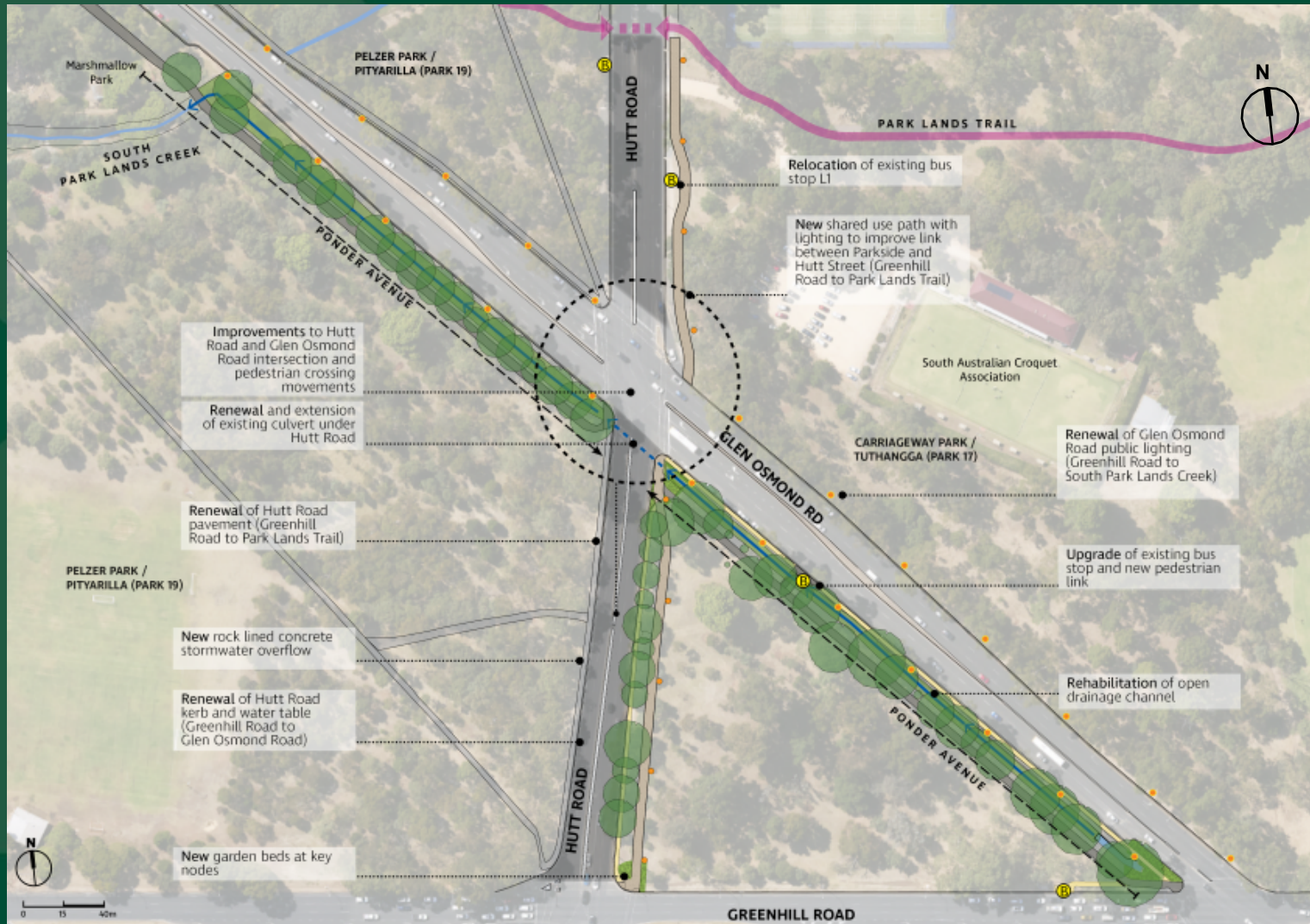
## Stage 2

- New shared-use path with lighting along Hutt Road Park Lands edge linking the newly constructed signalised Park Lands Trail crossing to the Glen Osmond Road shared use path, and to the Greenhill Road crossing point. Requires the removal of up to 8 small, low-retention value trees. The Administration will explore opportunities for planting of new trees within the vicinity to offset the loss of the eight trees proposed to be removed as part of this work.





# Project Overview – Scope





# Open Channel Rehabilitation – Problem Statement

- Existing channel is in increasingly poor condition with severe erosion at the base and along both embankments affecting the stability of the row of gum trees along the southern bank of the channel.
- Drainage assessment indicates the existing channel and culvert beneath the Hutt Road intersection cannot adequately convey the 3m<sup>3</sup>/s of flow from the upstream urban catchment (Unley and Burnside councils).
- Stormwater flows overtop the channel bank and flood the Park Lands and roads in storm events less than 20% AEP (meaning there is 20% chance in any one year), which doesn't meet CoA's desired level of service.





# Open Channel Rehabilitation: Option 1 – Culvert (recommended option)

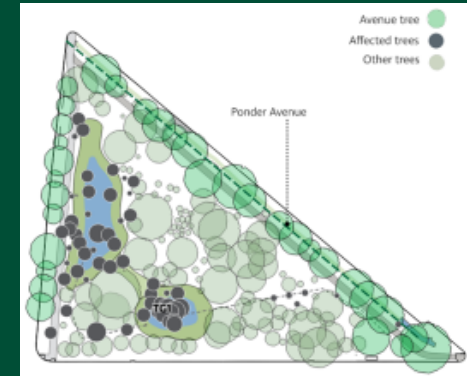
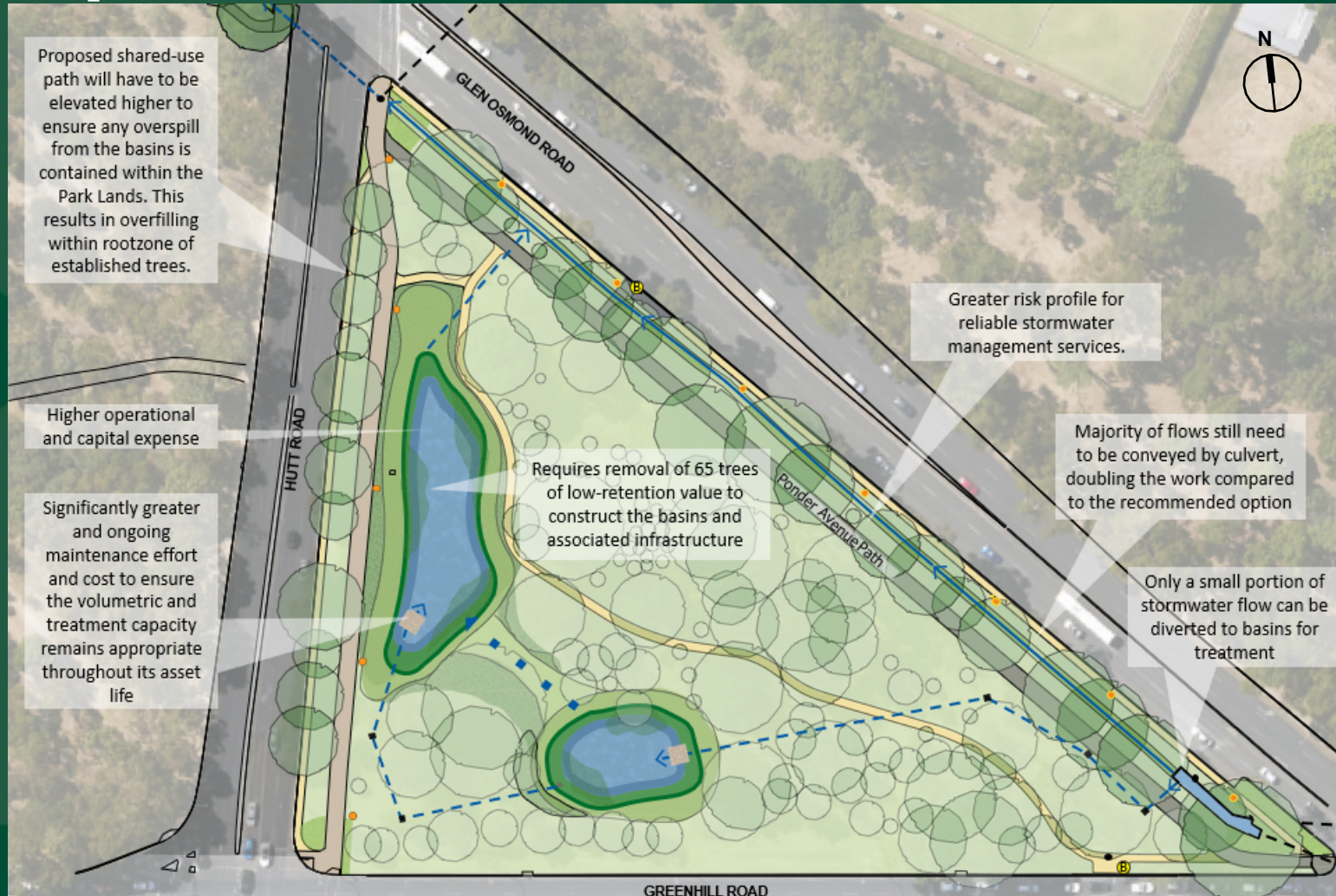
- Install concrete box culvert and a shallow landscaped swale above the culvert to provide:
  - Sufficient hydraulic capacity
  - Stabilised environment for significant trees lining the channel
  - Resolution of current safety and access risk of unfenced, steeply banked, deteriorating, open channel
  - Improved amenity, presentation and safe access through the Park Lands at a significant gateway to the city
- This is the recommended option as the solution meets the project objectives as well as managing disruption to Park Lands trees, minimising visual impact and maintaining the Park Lands character.

# Open Channel Rehabilitation: Option 2 - Basins and Culvert

- Install a smaller concrete box culvert and a shallow landscaped swale
- Divert a portion of incoming flow ( $0.5\text{m}^3/\text{s}$ ) through two new basins in the Park Lands with the basins' outlet pipe connected back into the culvert.
- Utilises WSUD principles and provides some water quality improvement benefits. The creation of basins also improves biodiversity and greening. There is also a lesser risk to existing trees during construction due to installation of a slightly smaller culvert.
- Noting the additional environmental benefits, this is not the preferred solution due to the combination of:
  - Financial implications for construction and ongoing maintenance
  - Less assurance of providing a reliable stormwater management solution
  - Removal of a minimum of 65 Park Lands trees to accommodate basins and associated infrastructure, including connecting pipework



# Open Channel Rehabilitation: Option 2 Basins and Culvert

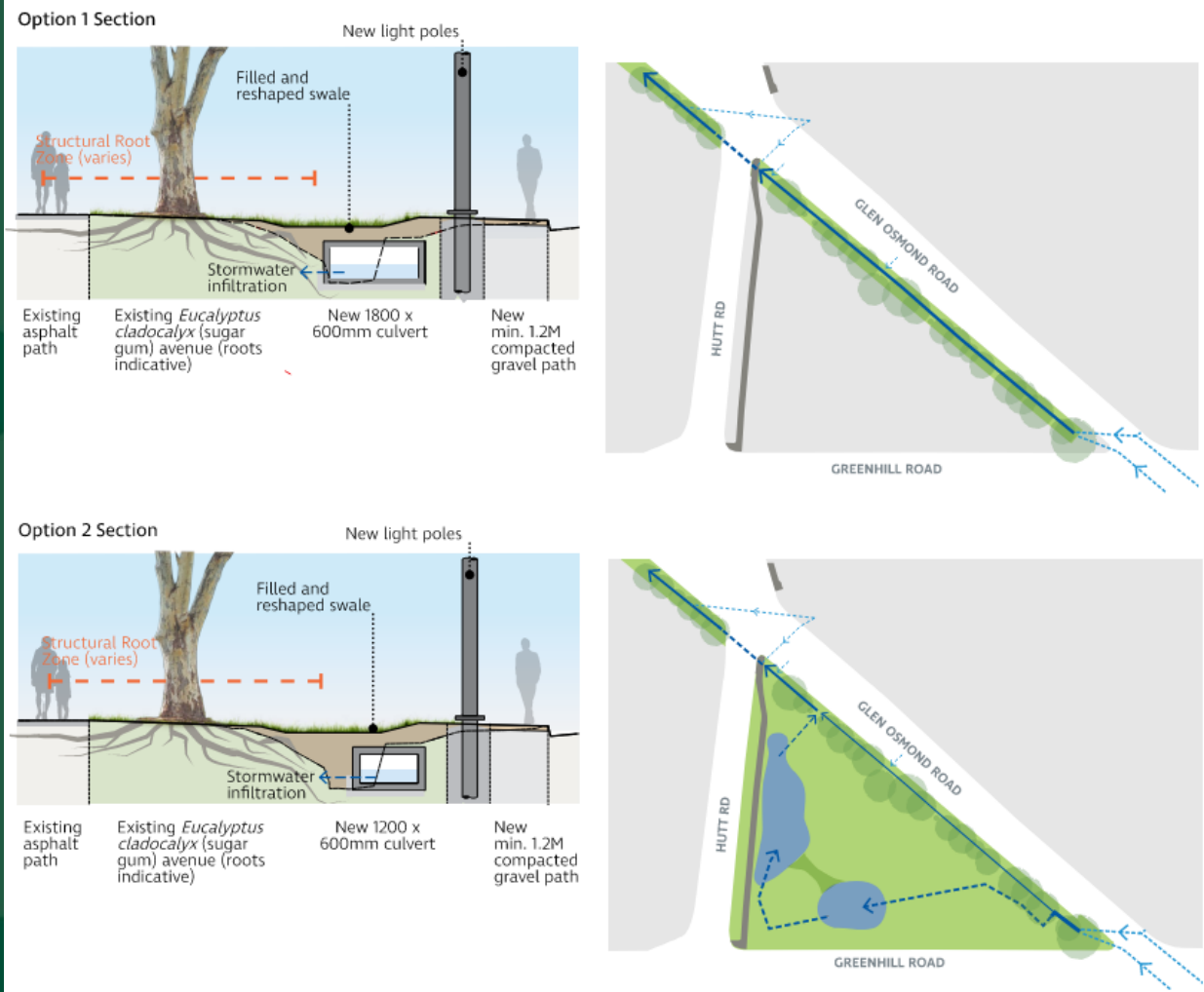


## LEGEND

- Existing avenue trees
- Existing trees
- Garden bed
- New path lighting
- New street lights
- Upgraded bus stop
- Rehabilitated channel and culvert
- Underground pipe
- Underground culvert
- Existing underground pipe
- Basin overland flow path
- Pipe junction
- Pipe outlet
- Existing path
- Shared use path
- Unsealed path



# Open channel rehabilitation – Culvert Options Comparison





# Open channel rehabilitation – Options Comparison

Options	1800mm culvert (recommended)	1200mm culvert with basins	Like-for-like open channel replacement
	Details	Details	Details
Meets project objective	Meets all project objectives <ul style="list-style-type: none"> <li>Provides reliable stormwater management services</li> <li>Preservation of significant gum trees affected by the eroded open channel</li> <li>Improved public access and safety due to steep banks of open channel</li> </ul>	Meets some project objectives <ul style="list-style-type: none"> <li>Greater risk of provide reliable stormwater management services</li> <li>Preservation of significant gum trees affected by the eroded open channel</li> <li>Improved public access and safety due to steep banks of open channel</li> </ul>	Does not meet project objectives <ul style="list-style-type: none"> <li>Greater risk of provide reliable stormwater management services</li> <li>Greater risk of affecting significant gum trees during construction</li> <li>Does not address current public access and safety due to steep banks of open channel</li> </ul>
Cost – Capital [1]	\$1.54m	\$3.64m \$1.94m for basins, and \$1.22m for placemaking (path and lights)	Not sought due to option not meeting objectives
Cost - Operational	Significantly lower compared to basins	City Ops consulted and advised “only supportive if appropriate operational budget is allocated”	No change from existing condition.
Alignment with CoA strategies	2020-24 Strategic Plan key actions <ul style="list-style-type: none"> <li>Increase community use and access to the Adelaide Park Lands</li> <li>Provide community with access to safe, high-quality open spaces</li> </ul>	2020-24 Strategic Plan key actions: <ul style="list-style-type: none"> <li>Leverage the Adelaide Park Lands to promote health, wellbeing and lifestyle experiences</li> <li>Enhance biodiversity in the Park Lands and connect our community to nature</li> <li>Increase community use and access to the Adelaide Park Lands</li> <li>Provide community with access to safe, high-quality open spaces</li> </ul>	Does not provide any alignment to CoA Strategies.
Environmental benefits	<ul style="list-style-type: none"> <li>Does not provide any additional environmental benefits.</li> <li>Provides additional flood protection for road users.</li> <li>Improves visual amenity</li> </ul>	<ul style="list-style-type: none"> <li>Utilises WSUD principles and provides limited water quality improvement benefits</li> <li>Improves visual amenity</li> <li>Improves biodiversity and greening</li> <li>Reduced risk to tree health during construction due to slightly smaller culvert size</li> </ul>	Does not provide any additional environmental benefits and likely cause irreversible damage to existing mature trees.
Risks	<ul style="list-style-type: none"> <li>May affect high profile, significant trees during installation of culvert.</li> <li>May not be the best location within the council area to construct basins (low-use park as identified in APLMS 2015-2025 ).</li> </ul>	<ul style="list-style-type: none"> <li>May affect high profile, significant trees during installation of culvert.</li> <li>Requires removal of 65 low retention value trees</li> <li>Space currently under-utilised and may provide opportunities for more functional use.</li> <li>Limited water quality treatment capacity due to size.</li> <li>Not value-for-money outcome</li> </ul>	Involves restoration of the existing staked slates, and concrete slabs retaining wall, remove accumulated silt, provide rock riprap, erosion control matting or the likes to stabilise the channel, manage weed growth and encourage quick vegetative cover. This isn’t possible due to the steep slope and presence of trees.
Recommend	<b>Recommended Option</b> Meets project objectives with acceptable financial implication and risk profile.	<b>Not recommended</b> due to financial implications, greater risk of providing reliable stormwater management solution, and removal of 65 Park Lands trees.	<b>Not recommended</b> due to unable to meet project objectives.

# Artist Impression – Option 1 (recommendation)

Rehabilitated drainage channel looking north-west along Glen Osmond Road and Ponder Avenue

