



ASSET MANAGEMENT PLAN #01 BRIDGES, STORMWATER, KERB AND CHANNEL

September 2023



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SUMMARY

OVERVIEW

This Asset Management Plan provides for effective and responsible management of bridge, stormwater, kerb and channel assets, their replacement cycles and funding requirements. The Plan incorporates information from a variety of sources including data stored in Council's Asset Register and should be read in conjunction with the Asset Management Policy.

Council has a network of 52 bridges made up of culverts, footbridges, boardwalks, platforms and road bridges with a replacement cost of \$28,250,673 as at 30 June 2022. Forecast capital expenditure over the term of this Plan is \$2,228,600.

Council has a stormwater network of over 95 kilometres including drains, pipes and other stormwater structures with a replacement cost of \$60,852,972 as at 30 June 2022. Forecast capital expenditure over the term of this Plan is \$18,786,900.

Council has a kerb and channel network made up of over 266 lineal kilometres of kerb, gutter and spoon drains with a replacement cost of \$24,769,507 as at 30 June 2022. Forecast capital expenditure over the term of this Plan is \$2,520,000.

The combined expenditure for all of these asset classes over the period of the Plan is \$23,535,200 with the annual breakdown provided in the table below:

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
Renewal and Replacement									
\$362	\$734	\$960	\$2,811	\$924	\$1,018	\$2,466	\$1,296	\$534	\$402
New and Upgrade									
\$366	\$1,729	\$589	\$2,352	\$1,146	\$1,056	\$1,646	\$2,424	\$276	\$444
Total Capital Expenditure									
\$728	\$2,463	\$1,549	\$5,163	\$2,070	\$2,074	\$4,112	\$3,720	\$810	\$846
TOTAL EXPENDITURE OVER TERM OF PLAN									\$23,536

The impacts of climate change, including sea level rise, coastal inundation and erosion, extreme temperatures, and flood risk, continue to be assessed as new information is gathered. The Plan will be updated as new data becomes available.



PROJECT SELECTION

Projects are selected for inclusion in Asset Management Plans (AMPs) based on several factors.

Renewal and replacement projects are determined by risk, useful life, age of the asset, condition rating, defect and failure levels, external reports, utilisation, impact on users, operational and maintenance costs.

New and upgrade projects are identified from various sources including strategic plans of Council, community or Council Member requests, grant funding availability and partnership proposals from other organisations.

Council is committed to the replacement of existing assets as per the life cycle and condition rating of the asset. The expectation is that all renewal and replacement projects will be fully funded in Council's Long Term Financial Plan in line with optimal replacement cycles.

New and upgrade projects included in these AMPs exceed Council's ability to fund sustainably without external contributions from grants and/or private partnerships.

An annual review of the projects in the AMPs will be undertaken to re-assess the optimal replacement schedule and re-prioritise works in consideration of community needs, risk assessments, external factors and funding opportunities. This review will form part of the Annual Business Plan and Budget process.

The appendices to this document provide a list of the capital projects under consideration with timing and budget estimates. In line with the review above, these estimates are subject to change and the appendices will remain in draft as they are working documents.

Feedback from public consultation may affect the timing of the projects. Projects will be confirmed once the Annual Business Plan and Budget has been adopted by Council each year.

BRIDGES

OUR ASSETS

Council provides a bridge network to enable safe, well maintained, fit for purpose crossings in accordance with Council's strategic aspirations:

ASPIRATION 5

WE HAVE SERVICES AND INFRASTRUCTURE THAT MEET OUR COMMUNITY'S NEEDS

The bridge network comprises 52 bridges and major culverts made up of five asset subclasses:



Culverts x 9
(Mont Rosa Bridge - 1981)



Platform x 3
Boardwalk x 12
Footbridge x 13
(Encounter Bikeway - 2004)



Road Bridge x 15
(Sawpit Road Bridge - 1972)

These subclasses are further broken down into a number of components including super structure, sub-structure, surface, deck and rail. Each component has an individual replacement value based on the construction material, utilisation levels and industry pricing.

LEVELS OF SERVICE

Levels of service for bridge assets are defined in relation to both community and technical requirements. The assets are assessed in terms of quality, function and capacity.

The City of Victor Harbor aims to maintain bridge assets at a condition rating of < 3.

Current levels of service and performance measures for each asset per annum (p/a) are provided in the table below:

Service Level *	Description	Measurement Process	Desired Level of Service
Quality	Asset Maintenance	Condition assessments	Condition Rating < 3
	Community Feedback	Customer service requests and complaints requiring action	< 3 requests and/or complaints p/a
	Structural defects	Maintenance requirements	< 1 reactive works p/a
Function	Fit for purpose	Meets standards and design specifications	Compliant
Capacity	Traffic Flow	Customer service requests and complaints requiring action	< 3 requests and/or complaints p/a
	Flooding	Continued use of vehicle bridges during rain events	< 1 bridge inundation (excluding floodways)

**Major emergencies and disaster events are excluded from the service level measurement*

A service level hierarchy is also used to prioritise competing works dependent on utilisation rates of the assets (how many people are affected) and risk assessments.

VALUATION

Bridge assets are valued in accordance with AASB13 (Fair Value Measurement) with revaluations programmed on a four-year cycle. The next revaluation for bridge assets is scheduled to be undertaken in 2023/24.

The value of assets by bridge subclass recorded in the Asset Register as at 30 June 2022 that are covered by this Plan are shown in the table below:

Asset Type	Replacement Value	Accumulated Depreciation	Written Down Value
Boardwalk	\$1,132,352	\$177,246	\$955,106
Culvert	\$3,966,991	\$704,866	\$3,262,125
Footbridge	\$2,736,802	\$478,896	\$2,257,906
Platform	\$50,640	\$9,540	\$41,099
Road Bridge	\$20,363,889	\$3,689,980	\$16,673,909
Total	\$28,250,673	\$5,060,528	\$23,190,145

USEFUL LIVES

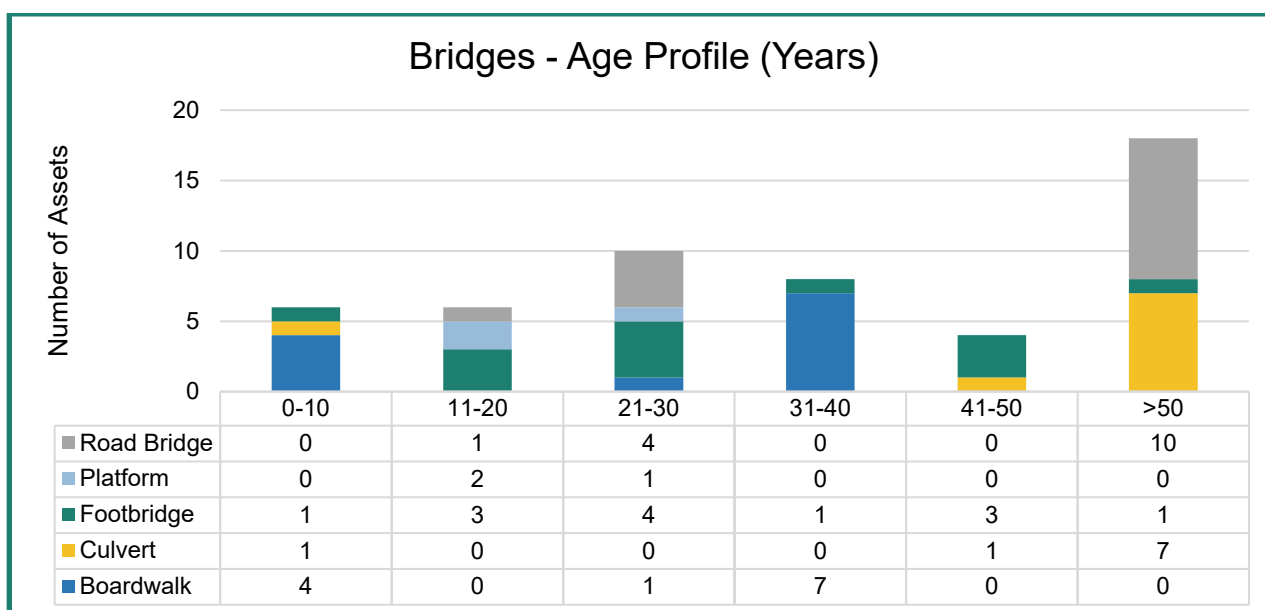
Useful lives of bridge assets are determined at the component level and are provided in the table below:

Component Name	Description (Material)	Useful Life (Years)
Deck Main	PSC Deck unit, RC Deck slab, timber cross	40 to 80
Rail Main	W Beam, Parapet, Pedestrian	40 to 80
Sub Structure Main	Culvert, Columns, Pier Wall	40 to 100
Super Structure Main	RC Slab, Girder, Beam, Deck Unit	30 to 100
Surface Main	Formed Gravel, Spray Seal, Asphalt, Concrete	10 to 30

The useful life sets the depreciation rate, net of any residual values of the asset at end of life. The average useful life for all bridge assets is 59 years, with the minimum useful life set at 10 years and the maximum set at 100 years.

AGE PROFILE

The age profile of bridge assets is determined by the principal component and construction date. The age profile of bridges is provided in the graph below:



THE AVERAGE AGE OF ALL BRIDGE ASSETS IS 48 YEARS

Bridge and culvert assets range in age from 9 years to 79 years with the majority of road bridges over 50 years old. The minimum, maximum and average age by subclass is provided in the table below:

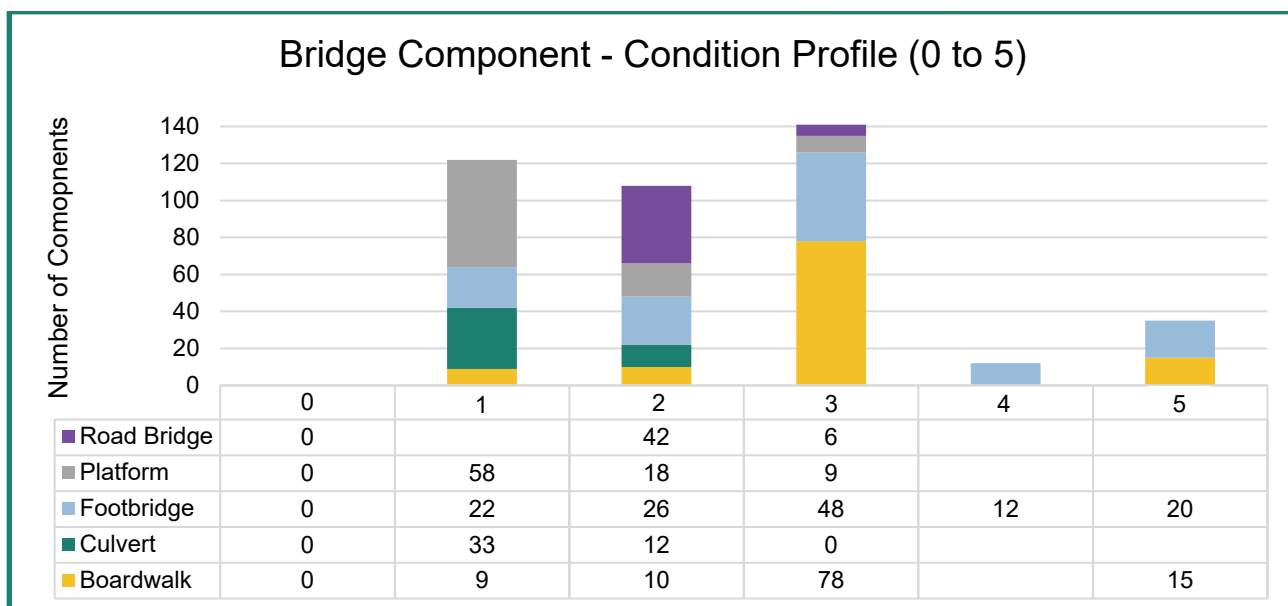
Asset Subclass	Minimum	Maximum	Average
Major Culvert	9	79	63
Footbridge	10	53	30
Road Bridge	12	79	56

CONDITION PROFILE

Condition of bridge assets is monitored through ongoing data collection which is incorporated into relevant attribute criteria within Council's corporate asset software. The data is reviewed and updated during revaluation cycles, after significant weather events, with community feedback or complaints, as well as during routine maintenance duties. Condition ratings and descriptions are provided in the table below:

Condition Rating	Summary Description	Detailed Description
0	Brand New	Asset is brand new
1	Very Good	Near as new condition with no defects
2	Good	Superficial deterioration, reliable and no maintenance is required.
3	Fair	Minor deterioration present and routine maintenance may be required
4	Poor	Significant deterioration present, maintenance required to keep the asset serviceable with program for renewal within the next five years
5	Very Poor	Extensive deterioration present, significant maintenance required to keep the asset serviceable with program for renewal within the following year

The condition profile of bridge assets is determined by the components and the construction materials with the condition ratings demonstrated below:



Bridges components with a condition rating of 2 or less make up 55% of the components within the asset class, with 34% at condition rating 3 and 8% at condition rating 5.

THE AVERAGE CONDITION RATING OF BRIDGE ASSETS COMPONENTS IS 1.5

FORECAST EXPENDITURE

Forecast expenditure over the next ten years totals \$2,230,000. This is made up of 88% renewal and replacement works and 12% new and upgrade works. The average annual spend over the ten-year plan is \$223,000 per year.

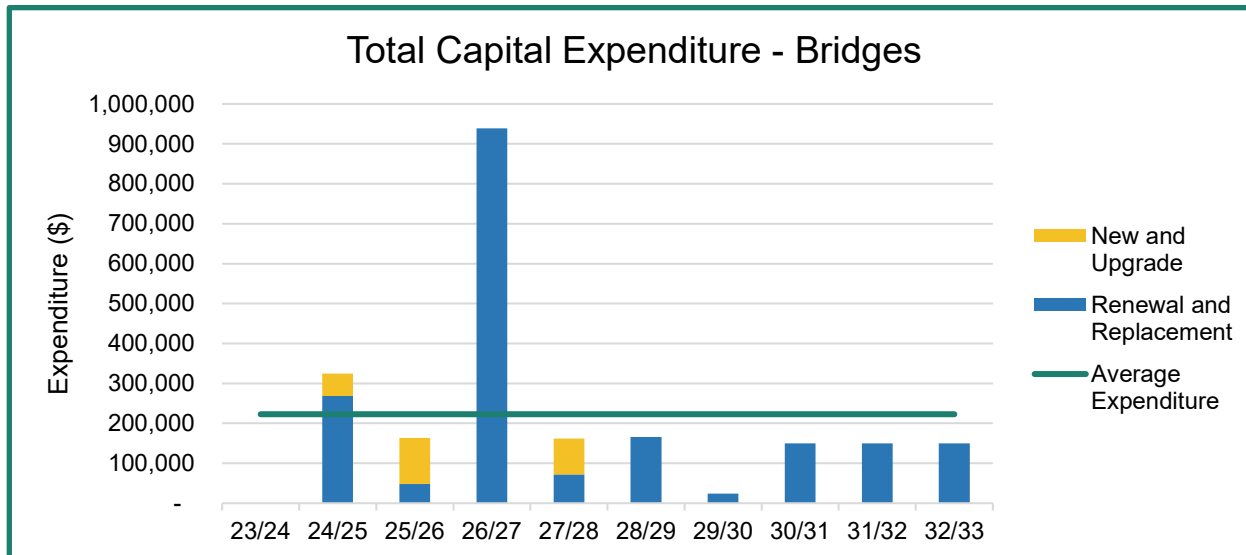
Projects are determined to be renewal / replacement or new / upgrade depending on the project scope and the existing asset attributes.

Renewal and replacement applies where the asset is reconstructed to the same size / capacity of the existing asset. Changes in the use of materials and/or useful life does not constitute an increase in capacity.

New and upgrade applies where the asset did not previously exist or where there is an increase in the size / capacity of the asset. The principal attribute considered for determining whether there is an increase for bridges is length and width (m²).

In addition to the above, capitalisation thresholds need to be considered in line with Council's Asset Accounting Policy with projects that fall below the financial limits considered to be operating and maintenance rather than capital.

The graph below shows the total expenditure over the ten years of the Plan as well as the breakdown of renewal / replacement and new / upgrade:



The 2026/27 financial year spike is due to the replacement of the Keen Road Bridge (# 15) at an estimated cost of \$891,000.

CAPITAL – RENEWAL AND REPLACEMENT

Renewal and replacement expenditure is major work which does not increase the asset's design capacity but returns the asset to its original or required service potential.

Renewal of a bridge asset is typically undertaken to ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (i.e. a bridge with a 5t load limit) or to ensure that it is of sufficient quality to meet the service requirements (i.e. roughness of a road).

Renewal schedules are determined by undertaking an assessment based on risk, useful life, age of the asset, condition rating, defect and failure levels, external reports, utilisation, impact on users, operational and maintenance costs. The assessment and weighting are summarised in the table below:

Criteria	Weighting
Condition Rating (4 and 5)	60%
Risk Rating (residual high or extreme)	30%
Utilisation	10%
Total	100%

Forecast expenditure on renewal and replacement of bridge assets over the next ten years totals \$1,967,000 and is summarised in the table below with a detailed listing provided in the Capital Works Program for Bridges at Appendix A.

The next condition assessment for bridge assets is scheduled to be undertaken in 2023/24. The renewal and replacement recommendations from the report will inform the forecast expenditure in the next review of the plan.

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
\$0	\$268	\$48	\$939	\$72	\$166	\$24	\$150	\$150	\$150
Total Expenditure of Renewal / Replacement									\$1,967

CAPITAL – NEW AND UPGRADE

New and upgrade expenditure is major work that creates a new asset or upgrades an existing asset to increased capacity. Increased capacity may be required due to growth, social or environmental needs. Changes to appearance or materials is not an increase in capacity.

New and upgrade projects are identified from various sources including strategic plans of Council, community or Council Member requests, grant funding availability and partnership proposals from other organisations.

Throughout the year, new proposals and requests are added to a Project Register for consideration during the annual budget process and strategic document review.

Inclusions are determined by undertaking an assessment based on risk, community benefit, utilisation, impact on users, future operational and maintenance costs (life cycle costs). The assessment and weighting are summarised in the table below:

Criteria	Weighting
Public Need	70%
Risk	10%
Utilisation	20%
Total	100%

Forecast expenditure on new and upgrades of bridge assets over the next ten years totals \$261,600 and is summarised in the table below with a detailed listing provided in the Capital Works Program for Bridges at Appendix A.

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
\$0	\$56	\$115	\$0	\$90	\$0	\$0	\$0	\$0	\$0
Total Expenditure on New / Upgrade									\$262

OPERATING – REPAIRS AND MAINTENANCE

Repairs and maintenance includes all costs and actions necessary for retaining an asset at the appropriate service level and includes both planned and reactive works, as well as administrative expenses such as insurance. Regular cyclic replacement may also be included where the capitalisation threshold is not met.

Operating budgets for maintenance are generally driven by historic costs and the Consumer Price Index and do not always allow for variances, peaks and troughs in maintenance cycles, weather and environmental conditions or new / upgraded assets. Increases above these levels are detailed in the annual budget process as separate budget proposals.

Operating expenditure on bridge assets has been extracted from a range of accounts to provide approximate spending levels for the previous ten years as below:

2012/13 \$ '000	2013/14 \$ '000	2014/15 \$ '000	2015/16 \$ '000	2016/17 \$ '000	2017/18 \$ '000	2018/19 \$ '000	2019/20 \$ '000	2020/21 \$ '000	2021/22 \$ '000
\$1	\$0	\$35	\$22	\$82	\$0	\$33	\$19	\$17	\$5

This represents an average spend over the ten years of \$21,000 per year. The bridge maintenance budgets have been reduced over several recent years to find savings in the operating budget. This historic expenditure is not sufficient to meet the maintenance requirements for these assets as per condition assessment reports.

Forecast operating expenditure for this asset class is as follows:

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
\$6	\$30	\$30	\$35	\$35	\$35	\$35	\$35	\$35	\$35

CLIMATE CHANGE

The impacts of climate change will have consequences for infrastructure assets. Rising sea levels in low lying areas may affect not only individual assets but also connectivity. Higher temperatures are expected to increase heat stress, particularly on transport infrastructure.

Stormwater studies currently being undertaken will identify any bridge assets at risk, from storm events or projected sea level rise, and provide recommendations for actions that may need to be taken within the next 10 years to reduce the impacts of climate change on the bridge assets. These recommendations will be included in the next review of the Asset Management Plan.

STORMWATER

OUR ASSETS

Council provides a stormwater network to enable a safe, well maintained, fit for purpose stormwater system in accordance with Council's strategic aspiration:

ASPIRATION 5

WE HAVE SERVICES AND INFRASTRUCTURE THAT MEET OUR COMMUNITY'S NEEDS

The stormwater system includes the following asset categories:



Stormwater
Drains



Stormwater
End Structures



Stormwater
Pits

Stormwater assets are made up of 6,949 individual assets (segments) within the register representing a stormwater system of 96 kilometres broken down into asset types as below:

Asset Category	Asset Type
Stormwater Drains	Box, Pipe and Road Culverts, Headwalls, Open Channel and Pipes
Stormwater End Structures	Drop structures and Retention Basins
Stormwater Pits	Field Gully, Gross Pollutant and Storm Traps Grated Inlet, Junction, Letter Box and Side Entry Pits
Levee Banks	Levees

LEVELS OF SERVICE

Levels of service for stormwater assets are defined in relation to both community and technical requirements. The assets are assessed in terms of quality, function and capacity.

The City of Victor Harbor aims to maintain stormwater assets at a condition rating of < 3.

Current levels of service and performance measures for each asset per annum (p/a) are provided in the table below:

Service Level *	Description	Measurement Process	Desired Level of Service
Quality	Asset Maintenance	Condition assessments	Condition Rating < 3
	Community Feedback	Customer service requests and complaints requiring action	< 3 requests and/or complaints p/a
	Structural defects	Maintenance requirements	< 1 reactive works p/a (excluding pit lids)
Function	Fit for purpose	Meets standards and design specifications	Compliant
		New subdivision and development impacts investigated during planning approval	Developers contributions required for increased capacity requirements
Capacity	Blockages	Customer service requests and complaints requiring action	< 3 requests and/or complaints p/a
	Flooding	Customer service requests and complaints requiring action	< 1 inundation of living space p/a

**Major emergencies and disaster events are excluded from the service level measurement.*

A service level hierarchy is also used to prioritise competing works dependent on utilisation rates of the assets (how many properties are affected) and risk assessments.

VALUATION

Stormwater assets are valued in accordance with AASB13 (Fair Value Measurement) with revaluations programmed on a four-year cycle.

The value of assets by stormwater category recorded in the Asset Register as at 30 June 2022 that are covered by this Plan are shown in the table below:

Asset Category	Replacement Value	Accumulated Depreciation	Written Down Value
Stormwater Drains	\$39,789,455	\$10,919,637	\$28,869,818
Stormwater End Structures	\$9,504,949	\$2,373,624	\$7,131,325
Stormwater Pits	\$10,873,652	\$2,545,432	\$8,328,220
Levee Banks	\$684,917	\$79,842	\$605,074
Total	\$60,852,972	\$15,918,535	\$44,934,437

USEFUL LIVES

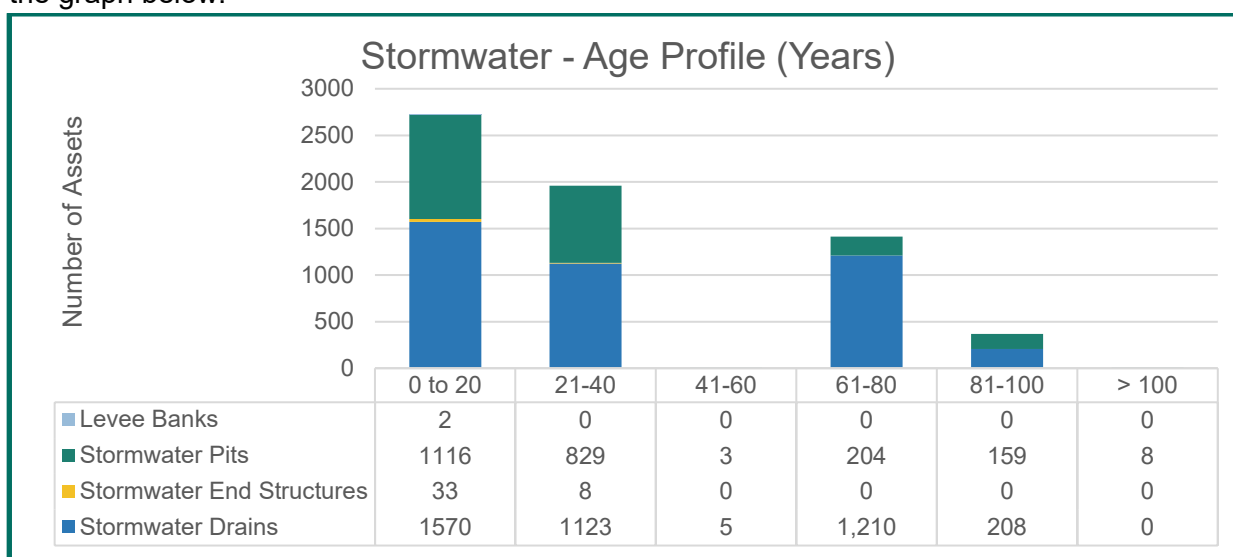
Useful lives of stormwater assets are as shown in the table below:

Asset Type	Useful Life (Years)
Stormwater Drains	120
Stormwater End Structures	100
Stormwater Pits	120
Levee Banks	100

The useful life sets the depreciation rate, net of any residual values of the asset at end of life. The average useful life for all stormwater water assets is 114 years, with the minimum useful life set at 100 years and the maximum set at 124 years.

AGE PROFILE

The age profile of stormwater assets is determined by the construction date, and is illustrated in the graph below:



Stormwater assets range in age from 0 years to 124 years, with minimum, maximum and average ages provided in the table below:

Asset Type	Minimum Age	Maximum Age	Average Age
Stormwater Drains	2	84	39
Stormwater End Structures	7	35	18
Stormwater Pits	0	124	29
Levee Banks	12	12	12

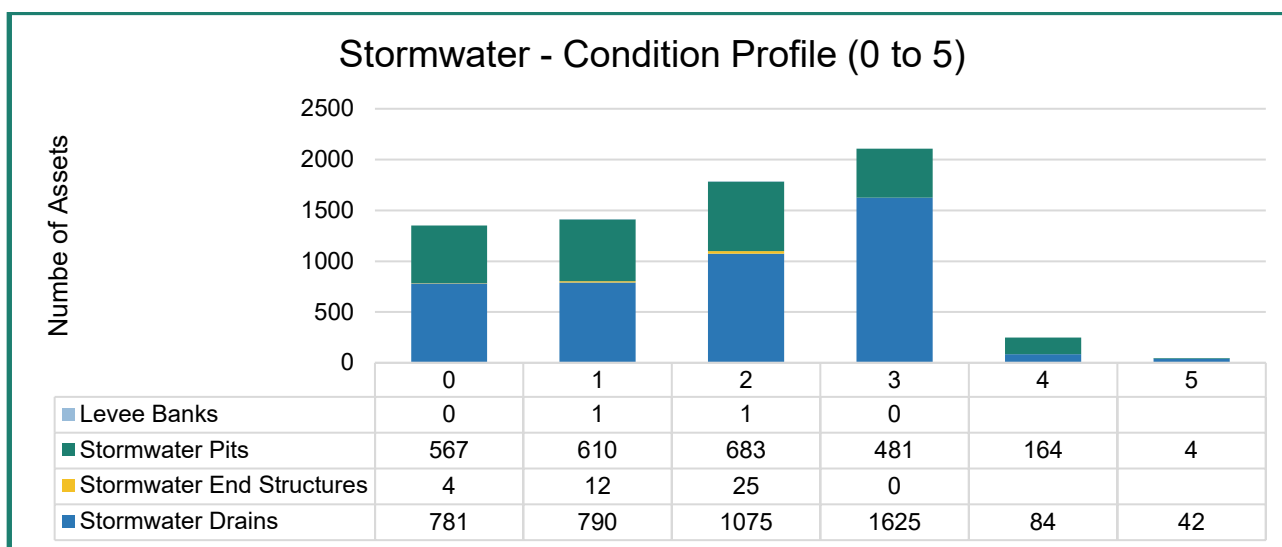
**THE AVERAGE AGE
OF ALL
STORMWATER
ASSETS IS 35
YEARS**

CONDITION PROFILE

The condition of stormwater assets is monitored through ongoing data collection which is incorporated into relevant attribute criteria within Council's corporate asset software. The data is reviewed and updated during revaluation cycles, after significant weather events, with community feedback or complaints, as well as during routine maintenance duties. Condition ratings and descriptions are provided in the table below:

Condition Rating	Summary Description	Detailed Description
0	Brand New	Asset is brand new
1	Very Good	Near as new condition with no defects
2	Good	Superficial deterioration, reliable and no maintenance is required.
3	Fair	Minor deterioration present and routine maintenance may be required
4	Poor	Significant deterioration present, maintenance required to keep the asset serviceable with program for renewal within the next five years
5	Very Poor	Extensive deterioration present, significant maintenance required to keep the asset serviceable with program for renewal within the following year

The condition profile of stormwater assets is determined by the components and the construction materials with the condition ratings demonstrated in the graphs below:



Assets with a condition rating of 3 or less make up 96% of the total class with 3.6% at condition rating 4 and 0.7% at condition rating 5.

**THE AVERAGE CONDITION
RATING FOR STORMWATER
ASSETS IS 1.8**

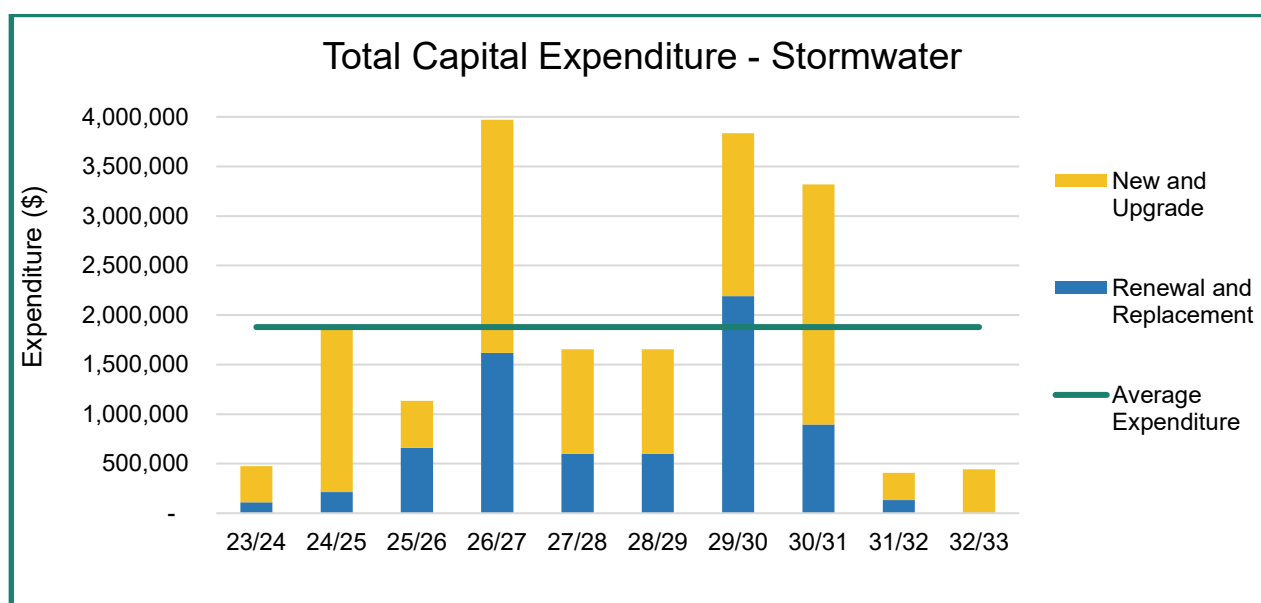
FORECAST EXPENDITURE

Forecast expenditure over the next ten years totals \$18,786,900. This is made up of 37% renewal and replacement works and 63% new and upgrade works. The average annual spend over the ten-year plan is \$1,878,700 per year.

Projects are determined to be renewal / replacement or new / upgrade depending on the project scope and the existing asset attributes. *Renewal and replacement* applies where the asset is reconstructed to the same size / capacity of the existing asset. Changes in the use of materials and/or useful lives does not constitute an increase in capacity. *New and upgrade* applies where the asset did not previously exist or where there is an increase in the size / capacity of the asset. The principal attribute considered for determining whether there is an increase for stormwater is size (pipe diameter, single / double entry pits).

In addition to the above, capitalisation thresholds need to be considered in line with Council's Asset Accounting Policy with projects that fall below the financial limits considered to be operating and maintenance rather than capital.

The graph below shows the total expenditure over the ten years of the Plan as well as the breakdown of renewal / replacement and new / upgrade:



Significantly higher than average expenditure is expected in the following years due to major stormwater construction projects:

- 2023/24 and 2024/25 – Giles Steet - \$1,600,100
- 2025/26 and 2026/27 – Beachfront Flood Mitigation - \$2,040,000
- 2026/27 – Seaview Road/Hindmarsh Road - \$1,200,000
- 2028/29 and 2029/30 – Tabernacle Road - \$2,400,000
- 2029/30 and 2030/31 – Bacchus Wetland Upgrade - \$4,286,400

CAPITAL – RENEWAL AND REPLACEMENT

Renewal and replacement expenditure is major work which does not increase the asset's design capacity but returns the asset to its original or required service potential.

Renewal of a stormwater asset is typically undertaken to ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate or to ensure that it is of sufficient quality to meet the service requirements.

Renewal schedules are determined by undertaking an assessment based on risk, useful life, age of the asset, condition rating, defect and failure levels, external reports, utilisation, impact on users, operational and maintenance costs. The assessment and weighting are summarised in the table below:

Criteria	Weighting
Condition Rating (4 and 5)	70%
Risk Rating (residual high or extreme)	30%
TOTAL	100%

Forecast expenditure on renewal and replacement of stormwater assets over the next ten years totals \$7,019,900 and is summarised in the table below with a detailed listing provided in the Capital Works Program for Stormwater at Appendix B.

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
\$110	\$214	\$660	\$1,620	\$600	\$600	\$2,190	\$894	\$132	\$0
Total Expenditure on Renewal / Replacement									\$7,020

CAPITAL - NEW AND UPGRADE

New and upgrade expenditure is major work that creates a new asset or upgrades an existing asset to increased capacity. Increased capacity may be required due to growth, social or environmental needs. Changes to appearance or materials used is not an increase in capacity.

New and upgrade projects are identified from various sources including strategic plans of Council, community or elected member requests, grant funding availability and partnership proposals from other organisations.

Throughout the year, new proposals and requests are added to a Project Register for consideration during the annual budget process and strategic document review.

Inclusions are determined by undertaking an assessment based on risk, community benefit, utilisation, impact on users, future operational and maintenance costs (life cycle costs). The assessment and weighting are summarised in the table below:

Criteria	Weighting
Capacity	60%
Risk (residual high or extreme)	30%
Condition	10%
Total	100%

Forecast expenditure on new and upgrade of stormwater assets over the next ten years totals \$11,767,000 and is summarised in the table below with a detailed listing provided in the Capital Works Program for Stormwater at Appendix B.

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
\$366	\$1,673	\$474	\$2,352	\$1,056	\$1,056	\$1,646	\$2,424	\$276	\$444
Total Expenditure on New / Upgrade									\$11,767

OPERATING – REPAIRS AND MAINTENANCE

Repairs and maintenance includes all costs and actions necessary for retaining an asset at the appropriate service levels and includes both planned and reactive works, as well as administrative expenses such as insurance. Regular cyclic replacement may also be included where the capitalisation threshold is not met.

Operating budgets for maintenance are generally driven by historic costs and the Consumer Price Index and do not always allow for variances, peaks and troughs in maintenance cycles, weather and environmental conditions or new / upgraded assets. Increases above these levels are detailed in the annual budget process as separate budget proposals.

Operating expenditure on stormwater assets over the previous ten years is provided below:

2012/13 \$ '000	2013/14 \$ '000	2014/15 \$ '000	2015/16 \$ '000	2016/17 \$ '000	2017/18 \$ '000	2018/19 \$ '000	2019/20 \$ '000	2020/21 \$ '000	2021/22 \$ '000
\$132	\$138	\$110	\$144	\$194	\$150	\$178	\$155	\$100	\$341

This represents an average spend over the ten years of \$154,000 per year. This historic expenditure has been used as a base to forecast the maintenance expenditure requirements for the next ten years as well as an increase for maintenance on new assets.

Forecast operating expenditure for this asset class is as follows:

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
\$140	\$142	\$150	\$152	\$164	\$169	\$175	\$183	\$195	\$196

CLIMATE CHANGE

The impacts of climate change will have consequences for infrastructure assets. Rising sea levels in low lying areas may affect not only individual assets but also connectivity. Higher temperatures are expected to increase heat stress, particularly on transport infrastructure.

Stormwater assets are generally underground however there is likely to be a number of inlet pits or outlets that are currently at a lower level than projected sea level rise.

Studies currently being undertaken will identify any stormwater assets at risk, from storm events or projected sea level rise, and provide recommendations for actions that may need to be taken within the next 10 years to reduce the impacts of climate change on the stormwater assets. These recommendations will be included in the next review of the Asset Management Plan.

KERB AND CHANNEL

OUR ASSETS

Council provides a kerb and channel network to enable safe, well maintained, fit for purpose road barriers and stormwater diversion in accordance with Council's strategic aspiration:

ASPIRATION 5

WE HAVE SERVICES AND INFRASTRUCTURE THAT MEET OUR COMMUNITY'S NEEDS

The kerb and channel network comprises 2,373 individual assets made up of 266 lineal kilometres of kerb and channel made up of four asset types:



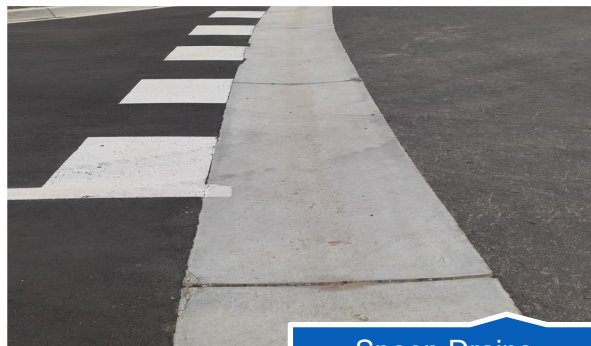
Barrier Kerb and Gutter
126 lineal kilometres



Mountable Kerb and Gutter
127 lineal kilometres



Median Kerb
4 lineal kilometres



Spoon Drains
9 lineal kilometres

The purpose of each asset type is provided in the table below:

Asset Type	Purpose
Barrier Kerb and Gutter	Channel stormwater runoff towards a stormwater drain
Mountable Kerb and Gutter	Channel stormwater runoff towards a stormwater drain whilst allowing vehicular access to properties
Median Kerb	Physically separate opposing lanes of traffic on a roadway
Spoon Drains	Channel stormwater runoff towards a stormwater drain whilst allowing vehicular movement

LEVELS OF SERVICE

Levels of service for kerb and channel assets are defined in relation to both community and technical requirements. The assets are assessed in terms of quality, function and capacity.

The City of Victor Harbor aims to maintain kerb and channel assets at a condition rating of < 3.

Current levels of service and performance measures for each asset per annum (p/a) are provided in the table below:

Service Level*	Description	Measurement Process	Desired Level of Service
Quality	Asset Maintenance	Condition assessments	Condition Rating < 3
	Community Feedback	Customer service requests and complaints requiring action	< 3 requests and/or complaints p/a
	Structural defects	Maintenance requirements	< 1 reactive works p/a
Function	Fit for purpose	Meets standards and design specifications	Compliant
Capacity	Flooding	Continued use during rain events	< 1 living space inundation p/a

**Major emergencies and disaster events are excluded from the service level measurement*

A service level hierarchy is also used to prioritise competing works dependent on utilisation rates of the assets (how many people are affected) and risk assessments.

VALUATION

Kerb and Channel assets are valued in accordance with AASB13 (Fair Value Measurement) with revaluations programmed on a four-year cycle. The latest revaluation for kerb assets was undertaken in 2021/22.

The value of assets by asset type recorded in the Asset Register as at 30 June 2022 that are covered by this Plan are shown below:

Asset Type	Replacement Value	Accumulated Depreciation	Written Down Value
Barrier Kerb and Gutter	\$11,189,562	\$3,309,427	\$7,880,135
Mountable Kerb and Gutter	\$12,305,972	\$3,493,739	\$8,812,233
Median Kerb	\$327,751	\$99,664	\$228,087
Spoon Drain	\$946,222	\$285,436	\$660,785
Total	\$24,769,507	\$7,188,267	\$17,581,240

USEFUL LIVES

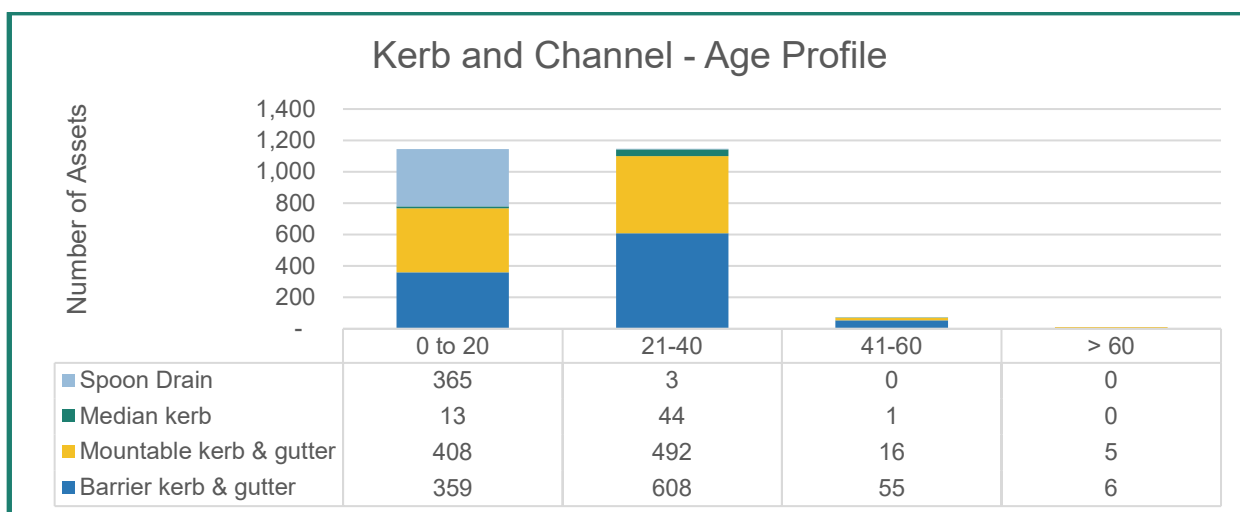
Useful lives of kerb and channel assets are determined by short- and long- life components. These components include the kerb and channel formation (long life) and concrete construction (short life) as provided in the table below:

Component Name	Useful Life – Short (Years)	Useful Life – Long (Years)
Barrier Kerb and Gutter	70	210
Mountable Kerb and Gutter	70	210
Median Kerb	70	210
Spoon Drain	70	210

All kerb and channel assets have the same useful life for short and long-life components. The useful life sets the depreciation rate net of any residual values of the asset at end of life. Depreciation of kerb and channel is 1.4% (Short Life) and 0.5% (Long Life).

AGE PROFILE

The age profile of kerb and channel assets is determined by the principal component and construction date. The age profile of kerb and channel is provided in the graph below:



The minimum, maximum and average age by asset type is provided in the table below:

Asset Type	Minimum Age	Maximum Age	Average Age
Barrier Kerb and Gutter	0	73	19
Mountable Kerb and Gutter	1	73	13
Median Kerb	6	55	23
Spoon Drain	0	36	8

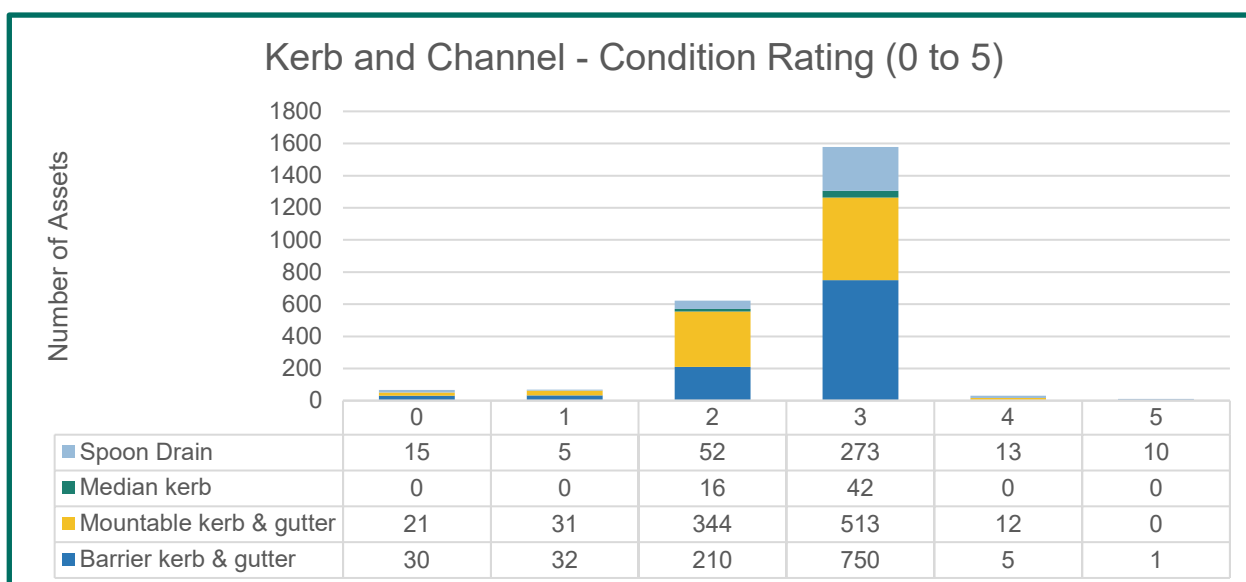
**THE AVERAGE AGE
OF ALL
KERB AND CHANNEL
ASSETS IS 18 YEARS**

CONDITION PROFILE

Condition of bridge assets is monitored through ongoing data collection which is incorporated into relevant attribute criteria within Council's corporate asset software. The data is reviewed and updated during revaluation cycles, after significant weather events, with community feedback or complaints as well as during routine maintenance duties. Condition ratings and descriptions are provided in the table below:

Condition Rating	Summary Description	Detailed Description
0	Brand New	Asset is brand new
1	Very Good	Near as new condition with no defects
2	Good	Superficial deterioration, reliable and no maintenance is required.
3	Fair	Minor deterioration present and routine maintenance may be required
4	Poor	Significant deterioration present, maintenance required to keep the asset serviceable with program for renewal within the next five years
5	Very Poor	Extensive deterioration present, significant maintenance required to keep the asset serviceable with program for renewal within the following year

The condition profile of kerb and channel assets is determined by the principal component and rating as per the asset register. The majority of assets are rated condition 2 or 3 combined making up 92% of the total asset class as shown in the graph below:



Kerb and channel assets rated condition 3 make up 66% of this asset class with 26% at condition rating 2.

THE AVERAGE CONDITION RATING OF KERB AND CHANNEL IS 2.7

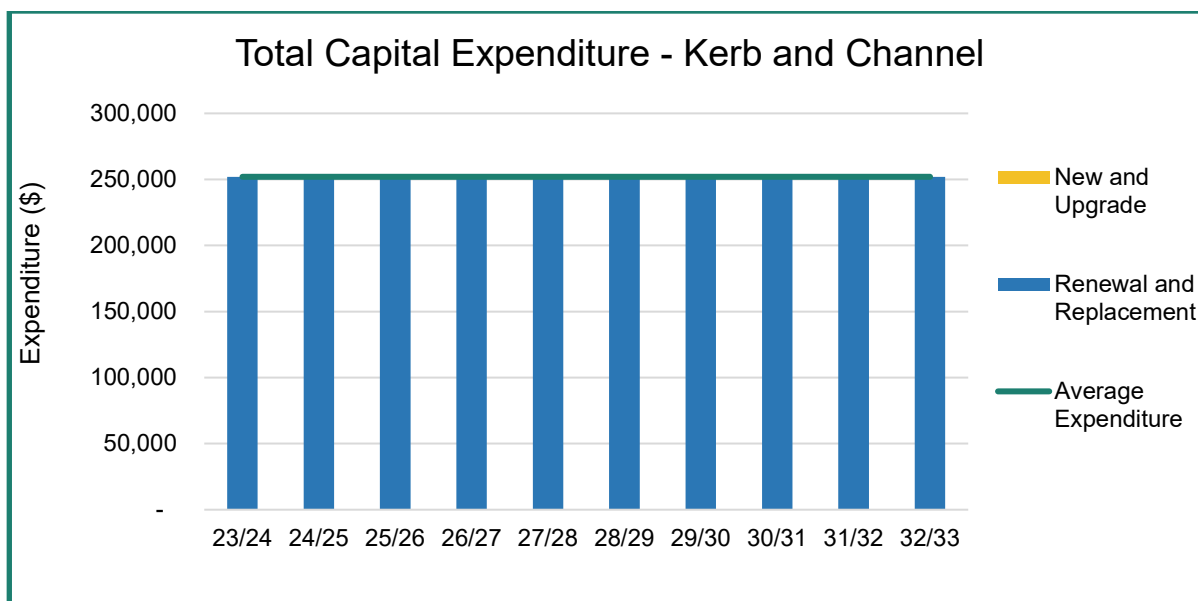
FORECAST EXPENDITURE

Forecast expenditure over the next ten years totals \$2,520,000. This is made up of 100% renewal and replacement works. New kerb and channel is usually considered as part of a larger construction project involving road and / or stormwater assets. The average annual spend over the ten-year plan is \$252,000 per year.

Projects are determined to be renewal / replacement or new / upgrade depending on the project scope and the existing asset attributes. *Renewal and replacement* applies where the asset is reconstructed to the same size / capacity of the existing asset. Changes in the use of materials and/or useful lives does not constitute an increase in capacity. *New and upgrade* applies where the asset did not previously exist or where there is an increase in the size / capacity of the asset. The principal attribute considered for determining whether there is an increase for kerb and channel is size.

In addition to the above, capitalisation thresholds need to be considered in line with Council's Asset Accounting Policy with projects that fall below the financial limits considered to be operating and maintenance rather than capital.

The graph below shows the total expenditure over the ten years of the Plan as well as the breakdown of renewal / replacement and new / upgrade:



Kerb and channel replacement projects are selected each financial year based on condition rating within the asset register and current data.

CAPITAL – RENEWAL AND REPLACEMENT

Renewal and replacement expenditure is major work which does not increase the asset's design capacity but returns the asset to its original or required service potential.

Renewal of kerb and channel assets is typically undertaken to ensure the infrastructure can deliver the service it was constructed to facilitate or to ensure that it is of sufficient quality to meet the service requirements.

Renewal schedules are determined by undertaking an assessment based on risk, useful life, age of the asset, condition rating, defect and failure levels, external reports, utilisation, impact on users, operational and maintenance costs. The assessment and weighting is summarised in the table below:

Criteria	Weighting
Condition Rating (4 and 5)	70%
Risk Rating (residual high or extreme)	30%
Total	100%

Forecast expenditure on renewal and replacement of kerb and channel assets over the next ten years totals \$2,520,000 and is summarised in the table below with a detailed listing provided in the Capital Works Program for Kerb and Channel at Appendix C.

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
\$252	\$252	\$252	\$252	\$252	\$252	\$252	\$252	\$252	\$252
Total Expenditure on Renewal / Replacement									\$2,520

CAPITAL – NEW AND UPGRADE

New and upgrade expenditure is major work that creates a new asset or upgrades an existing asset to increased capacity. Increased capacity may be required due to growth, social or environmental needs. Changes to appearance or materials used is not an increase in capacity.

New and upgrade projects are identified from various sources including strategic plans of Council, community or elected member requests, grant funding availability and partnership proposals from other organisations.

Throughout the year, new proposals and requests are added to a Project Register for consideration during the annual budget process and strategic document review.

Inclusions are determined by undertaking an assessment based on risk, community benefit, utilisation, impact on users, future operational and maintenance costs (life cycle costs). The assessment and weighting is summarised in the table below:

Criteria	Weighting
Public Need	30%
Risks (residual high or extreme)	30%
Capacity	40%
Total	100%

There is no forecast expenditure on new and upgrade of kerb and channel assets included within this Asset Management Plan. Generally new kerb and channel will be considered within and constructed along with either stormwater or road projects and recognised in the asset register at completion of the project.

OPERATING – REPAIRS AND MAINTENANCE

Operations and maintenance includes all costs and actions necessary for retaining an asset at the appropriate service levels and includes both planned and reactive works, as well as administrative expenses such as insurance. Regular cyclic replacement may also be included where the capitalisation threshold is not met.

Operating budgets for maintenance are generally driven by historic costs and the Consumer Price Index and do not always allow for variances, peaks and troughs in maintenance cycles, weather and environmental conditions or new / upgraded assets. Increases above these levels are detailed in the annual budget process as separate budget proposals.

Expenditure on kerb and channel assets over the previous ten years is provided in the table below:

2012/13 \$ '000	2013/14 \$ '000	2014/15 \$ '000	2015/16 \$ '000	2016/17 \$ '000	2017/18 \$ '000	2018/19 \$ '000	2019/20 \$ '000	2020/21 \$ '000	2021/22 \$ '000
\$27	\$26	\$14	\$27	\$23	\$25	\$18	\$27	\$20	\$49

This represents an average spend over the ten years of \$25,500 per year and is not sufficient to meet the maintenance requirements for these assets.

Forecast operating expenditure for this asset class is as follows:

Year 1 2023/24 \$ '000	Year 2 2024/25 \$ '000	Year 3 2025/26 \$ '000	Year 4 2026/27 \$ '000	Year 5 2027/28 \$ '000	Year 6 2028/29 \$ '000	Year 7 2029/30 \$ '000	Year 8 2030/31 \$ '000	Year 9 2031/32 \$ '000	Year 10 2032/33 \$ '000
\$26	\$40	\$40	\$50	\$50	\$50	\$60	\$60	\$60	\$70

The increase in forecast maintenance expenditure is due to insufficient budgets in previous years as well as a combination of the Consumer Price Index, maintenance and depreciation on new assets.

CLIMATE CHANGE

The impacts of climate change will have consequences for infrastructure assets. Rising sea levels in low lying areas may affect not only individual assets but also connectivity. Higher temperatures are expected to increase heat stress, particularly on transport infrastructure.

Projected sea level rise is unlikely to impact on kerb and channel assets and it is unlikely that any action will need to be taken on existing assets within the next 10 years. Planning for new assets will consider the projected sea level rises.

APPENDIX A

CAPITAL WORKS PROGRAM – POTENTIAL BRIDGE PROJECTS

DESCRIPTION	Year 1 23/24 \$'000	Year 2 24/25 \$'000	Year 3 25/26 \$'000	Year 4 26/27 \$'000	Year 5 27/28 \$'000	Year 6 28/29 \$'000	Year 7 29/30 \$'000	Year 8 30/31 \$'000	Year 9 31/32 \$'000	Year 10 32/33 \$'000
Culverts										
Francis Road Bridge 2 (# 33) Deck and barriers	-	36	-	-	-	-	-	-	-	-
Memory Grove Bridge (# 14) Barrier, surface and wing wall	-	127	-	-	-	-	-	-	-	-
A.H. Denis Bridge (# 4) Concrete barrier and abutment	-	48	-	-	-	-	-	-	-	-
Mount Rosa Road Bridge (# 10) Bridge deck, slab and kerb	-	-	24	-	-	-	-	-	-	-
Footbridges										
Canton Place Footbridge (# 34) Design (24/25) and Construction (25/26)	-	57	115	-	-	-	-	-	-	-
Footbridge Construction Section 696 Inman River	-	-	-	-	90	-	-	-	-	-
Road Bridges										
Keen Road Bridge (# 15) Replacement	-	-	-	891	-	-	-	-	-	-
Hutchinson Road Wardle Bridge (# 7) Bbeams (26/27)	-	-	-	24	-	-	-	-	-	-
Pitkins Road Bridge (# 21) Beams (29/30)	-	-	-	-	-	-	24	-	-	-
Sawpit Road Bridge (# 9) Beams (27/28)	-	-	-	-	48	-	-	-	-	-
Kirk Road Bridge (# 16) Barrier, wing wall and approach	-	56	-	-	-	-	-	-	-	-
Cartwright Road Bridge (# 12) Surface, wing walls and abutments	-	-	24	-	-	-	-	-	-	-
Pearce Road Bridge (# 6) Beams	-	-	-	24	-	-	-	-	-	-
Nettle Hill Road/Browns Bridge (# 11) Beams	-	-	-	-	24	-	-	-	-	-
Coote Road Bridge (# 8) Barriers/movement joints and beams (28/29)	-	-	-	-	-	112	-	-	-	-
Back Valley Bridge (# 2) Beams	-	-	-	-	-	54	-	-	-	-
Allowance for future bridge works	-	-	-	-	-	-	-	150	150	150
ANNUAL TOTALS	-	324	163	939	162	166	24	150	150	150

APPENDIX B

CAPITAL WORKS PROGRAM – POTENTIAL STORMWATER PROJECTS

DESCRIPTION	Year 1 23/24 \$'000	Year 2 24/25 \$'000	Year 3 25/26 \$'000	Year 4 26/27 \$'000	Year 5 27/28 \$'000	Year 6 28/29 \$'000	Year 7 29/30 \$'000	Year 8 30/31 \$'000	Year 9 31/32 \$'000	Year 10 32/33 \$'000
Inlet Program Construction - Annual Allowance	60	77	120	144	144	144	144	144	144	144
Giles St - Underground Stormwater (Resolution #OC1652017)	400	1,200	-	-	-	-	-	-	-	-
Beachfront Caravan Park - Flood Mitigation Design (25/26) and Construct (26/27)	-	-	120	1,920	-	-	-	-	-	-
Seaview Road/Hindmarsh Road Construction	-	-	-	1,200	-	-	-	-	-	-
Acraman Street (Hill St/Hinkler St) Stage 1 (27/28) and Stage 2 (28/29)	-	-	-	-	912	912	-	-	-	-
Tabernacle Rd Construction (Bay Rd to Matthews Flinders Drive)	-	-	-	-	-	600	1,800	-	-	-
Bacchus Wetland Upgrade Stage 1 (29/30) and Stage 2 (30/31)	-	-	-	-	-	-	1,802	2,484	-	-
Yandra Terrace Outlet Upgrade (under railway line to sea)	-	-	-	-	600	-	-	-	-	-
Coastal Monitoring Photo Points	16	-	-	-	-	-	-	-	-	-
Churchill Road (Crozier/Inman River) Design (24/25) and Construct (26/27)	-	51	-	216	-	-	-	-	-	-
Oakham Street - full length Design (24/25) and Construct (25/26)	-	51	384	-	-	-	-	-	-	-
Haug's Dam Upgrade Design (25/26) and Construct (26/27)	-	-	42	372	-	-	-	-	-	-
Fell Street - Upgrade Design (24/25) and Construct (25/26)	-	50	264	-	-	-	-	-	-	-
Higgins Street Design (24/25) and Construct (25/26)	-	50	204	-	-	-	-	-	-	-
Sweetman Avenue Design (24/25) and Construct (26/27)	-	42	-	120	-	-	-	-	-	-
Shields Crescent Stormwater Upgrade Construct (24/25)	-	366	-	-	-	-	-	-	-	-
Canterbury (Dene/Crozier) Design (29/30) and Construct (30/31)	-	-	-	-	-	-	42	264	-	-
Kullaroo Road (Flood Protection Levee) Design (29/30) and Construct (30/31)	-	-	-	-	-	-	48	384	-	-
Yilki Common Reserve Design (30/31) and Construct (31/32)	-	-	-	-	-	-	-	42	264	-
Allowance for future projects	-	-	-	-	-	-	-	-	-	300
ANNUAL TOTALS	476	1,887	1,134	3,972	1,656	1,656	3,836	3,318	408	444

APPENDIX C

CAPITAL WORKS PROGRAM – POTENTIAL KERB AND CHANNEL PROJECTS

DESCRIPTION	Year 1 23/24 \$'000	Year 2 24/25 \$'000	Year 3 25/26 \$'000	Year 4 26/27 \$'000	Year 5 27/28 \$'000	Year 6 28/29 \$'000	Year 7 29/30 \$'000	Year 8 30/31 \$'000	Year 9 31/32 \$'000	Year 10 32/33 \$'000
Kerb and Channel Replacement Program (as per condition assessments)	252	252	252	252	252	252	252	252	252	252
ANNUAL TOTALS	252	252	252	252	252	252	252	252	252	252



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