



Waikerie Stormwater Management Plan

A Summary for our Community and Council

August 2026

This summary is based on the draft Waikerie Stormwater Management Plan (Rev 2, August 2026) prepared for the District Council of Loxton Waikerie by Neilly Group Engineering. It is intended as an accessible companion to the full technical document, which remains the authoritative reference for engineering detail and is available from Council on request.



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About this summary

The District Council of Loxton Waikerie (DCLW) commissioned Neilly Group Engineering to prepare a Stormwater Management Plan (SMP) for Waikerie — a detailed, 150-plus page technical study covering the town's flooding history, its drainage network, water quality in the River Murray, and a prioritised program of works to fix the problems that were found.

This companion summary translates its key findings into plain language for residents, ratepayers and elected Council members, so that everyone can understand what was found, what is proposed, what it will cost, and what it will achieve — without needing to read the full engineering report.

Wherever this summary presents a number, a table or a chart, it is drawn directly from the technical SMP. Some charts have been simplified or redrawn for clarity, and detailed engineering tables have been condensed. Readers who want the full technical detail — including every flood map, model assumption and detailed cost breakdown — should refer to the full Stormwater Management Plan, available from Council.

In short

Waikerie's stormwater network is aging (mostly built in the 1960s–70s) and is undersized for today's storms, let alone the more intense short bursts of rain expected as the climate changes.

Flooding recurs at a well-known set of locations — Ifould Park, the Community Sports Complex, Mary Starr Drive, the Lifestyle Village and several others.

The Plan recommends a mix of pipe upgrades and “water sensitive urban design measures (rain gardens, basins, wetlands) costing an estimated \$11.9 million in total, staged over the next 15+ years.

If delivered, the Plan is expected to cut the number of at-risk flood locations by roughly half in common storms, and to eliminate the town's most severe flood risks altogether.

1. Why Waikerie needs a Stormwater Management Plan

Waikerie sits on a dramatic stretch of the River Murray — a town that runs from an elevated mallee plateau, down a steep escarpment, to a low-lying river floodplain. That varied terrain, combined with a stormwater network largely built in the 1960s and 1970s, growing development, and a changing climate, means stormwater management in Waikerie is genuinely complex.

When heavy rain falls, water needs somewhere to go. In parts of Waikerie, the underground pipes, street gutters and drains that were designed decades ago simply cannot carry the volume of water that falls today, let alone what is expected in the future. The result is recurring localised flooding — of roads, parks, and in some cases private property — during storms that, in many cases, are not especially rare or extreme.

The Stormwater Management Plan was commissioned to answer four questions for Council: Where does flooding happen, and how bad is it? Why does it happen? What could be done about it? And, of the options available, what should Council prioritise first, and what will it cost?



Sourced from the 2022/23 Murray River Flood Loxton Waikerie District Photography Exhibition

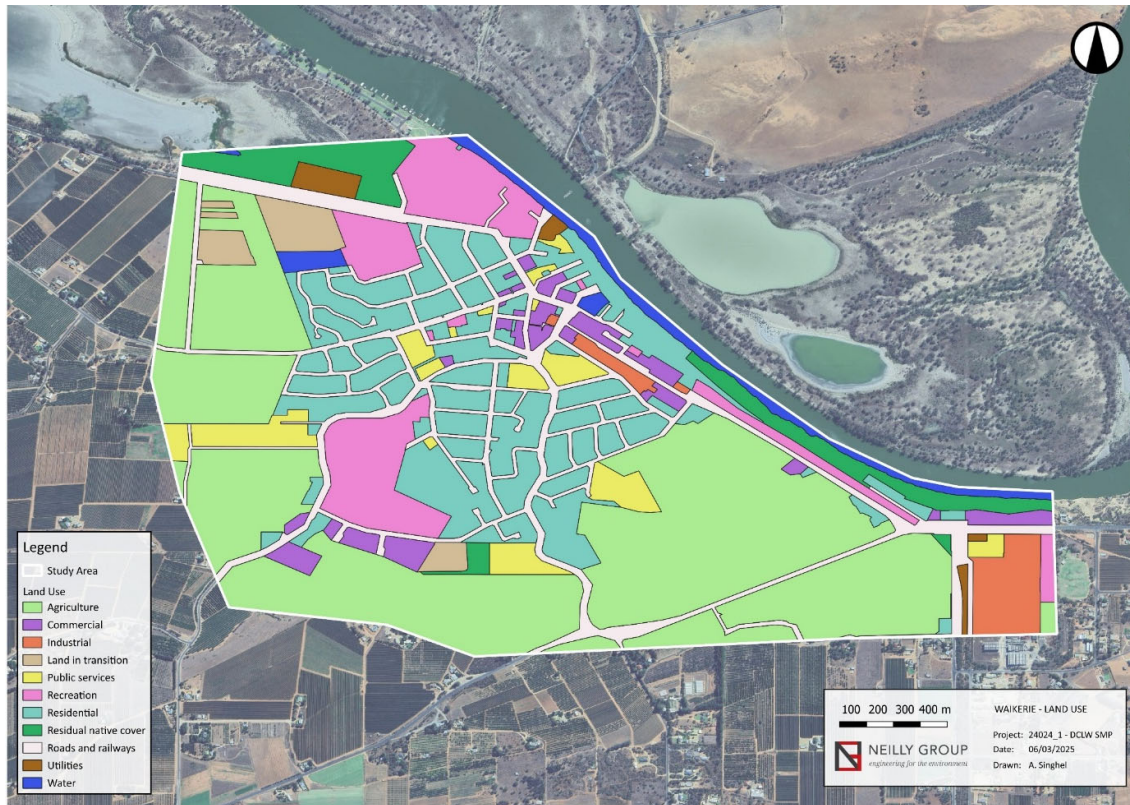
What the study involved

Neilly Group's investigation was delivered in stages:

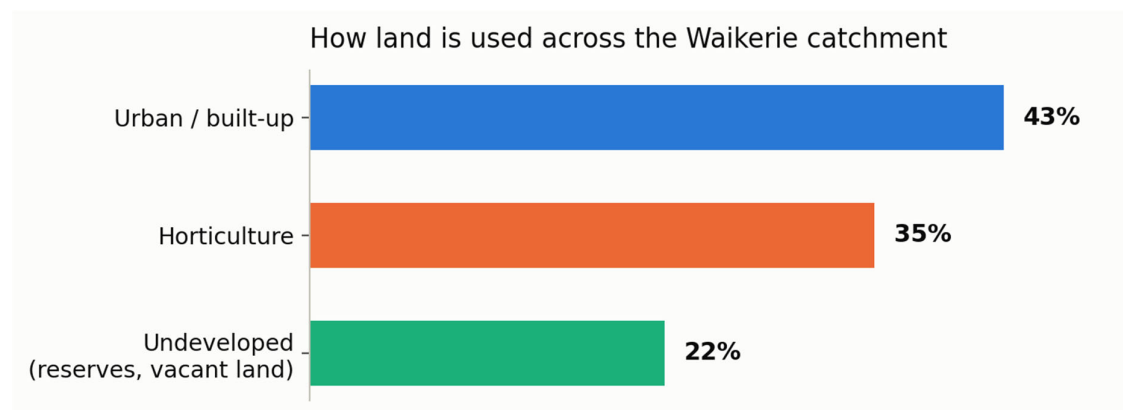
- Compiling data on the existing drainage network.
- Assessing the catchment's land use, climate and infrastructure.
- Building computer models of how water flows across Waikerie in storms of different sizes (using industry-standard software called DRAINS and TUFLOW).
- Assessing water quality impacts on the River Murray.
- Identifying and rating flood risks.
- Developing and costing a program of works to address the problems found.

The models represent both today's conditions and a future "ultimate development" scenario reflecting Waikerie's growth areas, and they account for climate change projections out to 2090. This lets Council plan not just for the flooding problems of today, but for how those problems will evolve as the town grows and the climate changes.

2. Waikerie at a glance



The stormwater study area covers 505 hectares — the township itself, its designated future growth areas, and the land that drains through it. Within that area, Waikerie is home to 936 dwellings and around 1,670 residents (2021 Census), making it the second-largest township in the District Council of Loxton Waikerie.

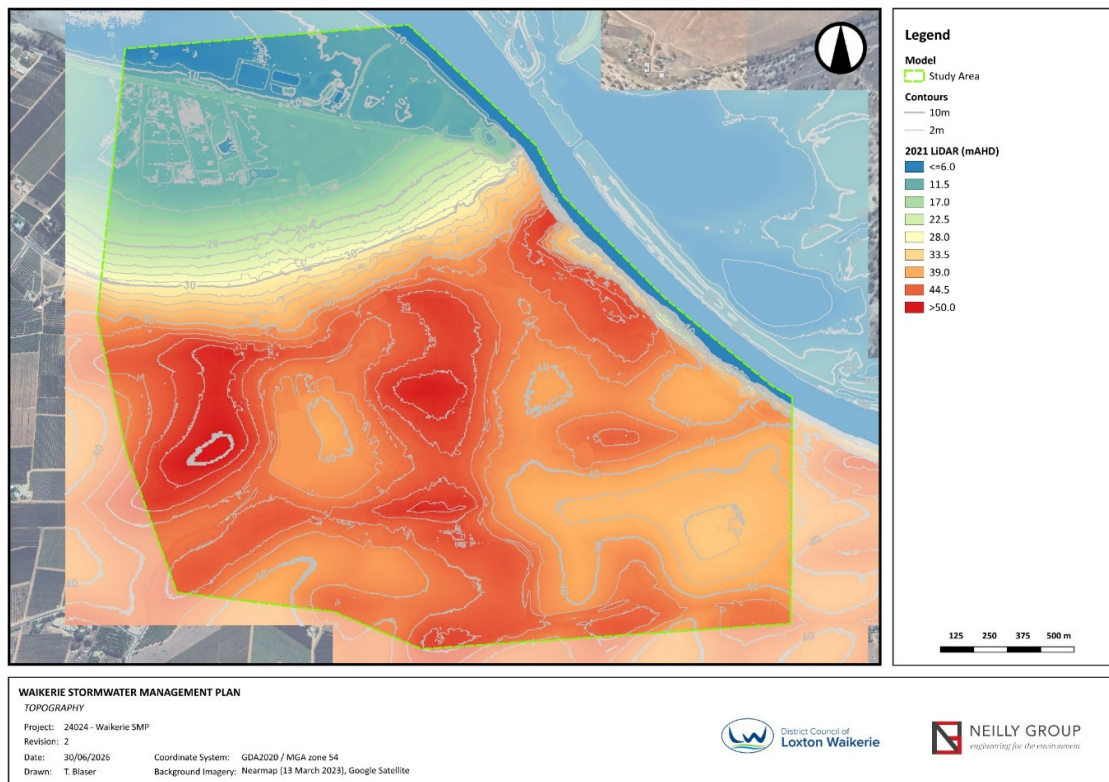


Land use across the 505-hectare study area (2022 land use data).

A town of two halves: the plateau and the floodplain

Waikerie's terrain falls into distinct zones. The upper town sits on a plateau between roughly 35 and 50 metres above sea level, with notable low spots at the Community Sports Complex, Ifould Park, and the vineyards near McCutcheon Street. From there, the land drops via a steep slope (about 5.5%) down to a low-lying residential zone and, ultimately, the River Murray floodplain, which sits only 10–13 metres above sea level and is protected in places by flood levees and the elevation of Ramco Road itself.

This shape matters for stormwater: water falling on the plateau pools in low-lying depressions before it can drain away, while water running down the escarpment gathers speed — the technical report identifies several laneways and roads on the slope with hazardously high flow velocities in storms.



An older network under growing pressure

Most of Waikerie's underground drainage — its trunk pipes and pits — was built in the 1960s and 70s, with only limited extensions since. Council's records, combined with a site condition assessment, identified: 203 stormwater pits, roughly 8.6 kilometres of underground pipes and culverts (ranging from 150mm to 900mm+ in diameter), one pump station, one detention basin, and one constructed wetland (Hart Lagoon).

The condition assessment also found some very simple, fixable problems — for example, a side-entry pit next to Ifould Park found to be shallow and clogged with debris, and other pits found full of silt or topsoil. Fixing basic blockages like these, even ahead of any larger capital works, was identified as a quick way to meaningfully reduce localised flooding.

A changing climate

Waikerie's climate is arid, averaging only 270mm of rain a year across fewer than 40 rain days, with evaporation far exceeding rainfall in every month. Climate change is projected to reduce Waikerie's average annual rainfall further (to around 251mm/year by 2090 under a moderate emissions scenario) while making the rain that does fall more intense over short bursts — exactly the kind of rainfall that causes urban flash flooding.

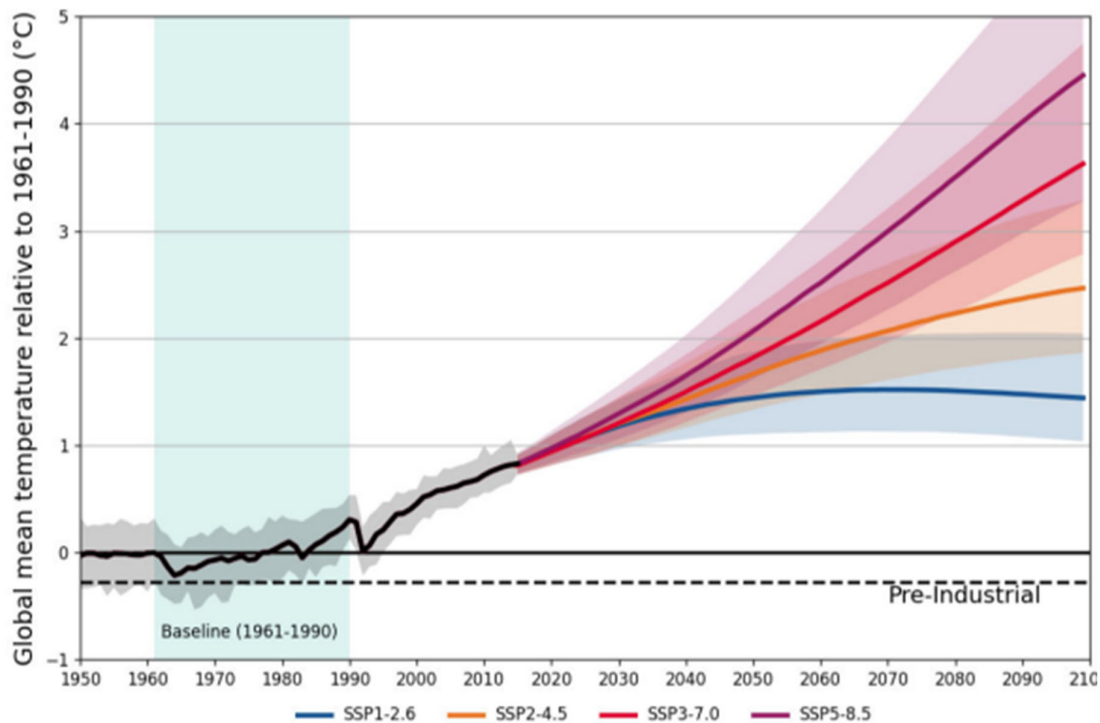


Figure 1.6.2. Projected temperature increases associated with AR6 socioeconomic pathways relative to 1961-1990 and their associated uncertainty²

Figure 1. Change (and climate change predictions) to mean temperature since 1950.

Average temperatures are projected to rise from 25.4°C to as much as 27.1–29°C by 2090, alongside more time spent in drought and more severe fire-danger days.

Why this matters for planning

A stormwater network sized for the storms of the 1960s and 70s is not well matched to the shorter, sharper downpours climate change is expected to bring — even though total annual rainfall is falling. This is why the Plan's engineering standards are set using rainfall projections out to 2090, not just today's climate.

3. Flooding today — what the modelling found

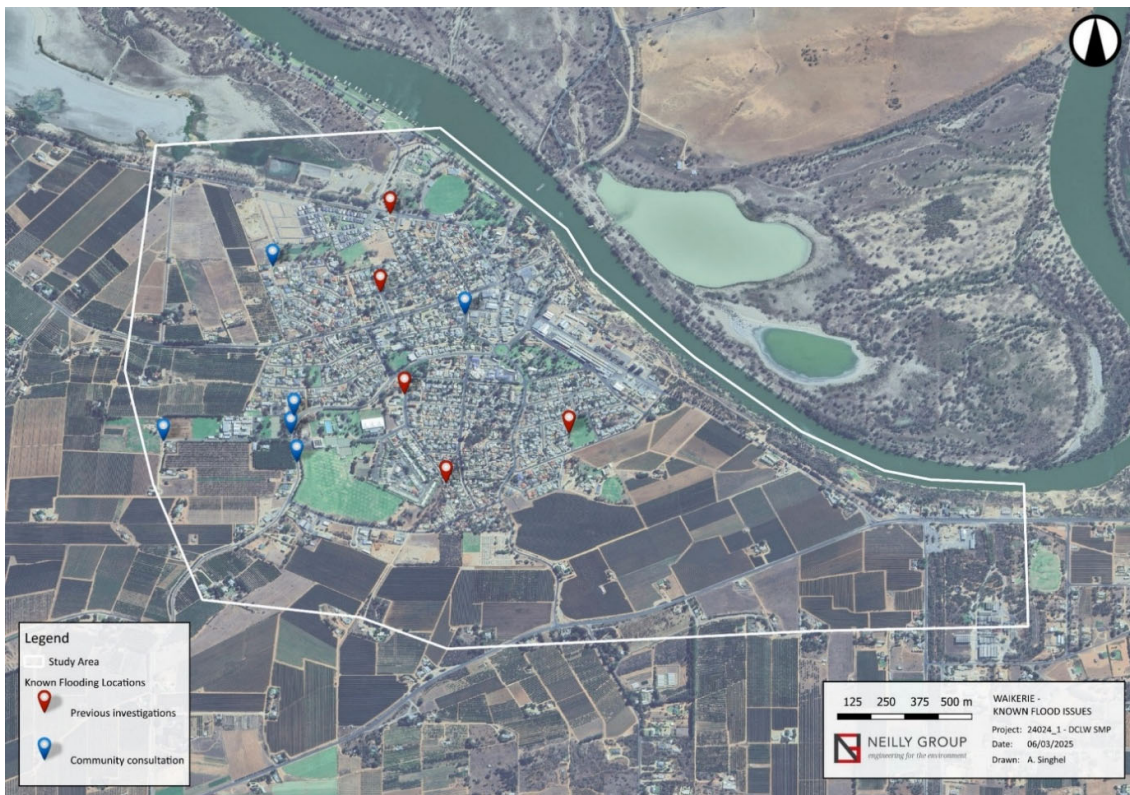
To understand flood risk, the Plan models two "design" storms: a minor, more frequent storm (technically an 18% Annual Exceedance Probability, or AEP, event — roughly a 1-in-5-year storm) and a major, rarer storm (a 1% AEP event — roughly a 1-in-100-year storm). Both were modelled for today's conditions and for a future "ultimate development" scenario reflecting Waikerie's planned growth.

Waikerie's stormwater infrastructure requires augmentation for current and predicted development and changing climate conditions. Even in the more frequent, minor storm, dozens of properties experience some flooding; in the rarer, major storm, that number roughly triples.

Where the flooding happens

The same handful of locations recur as flooding hotspots across almost every storm scenario modelled. These are summarised below.

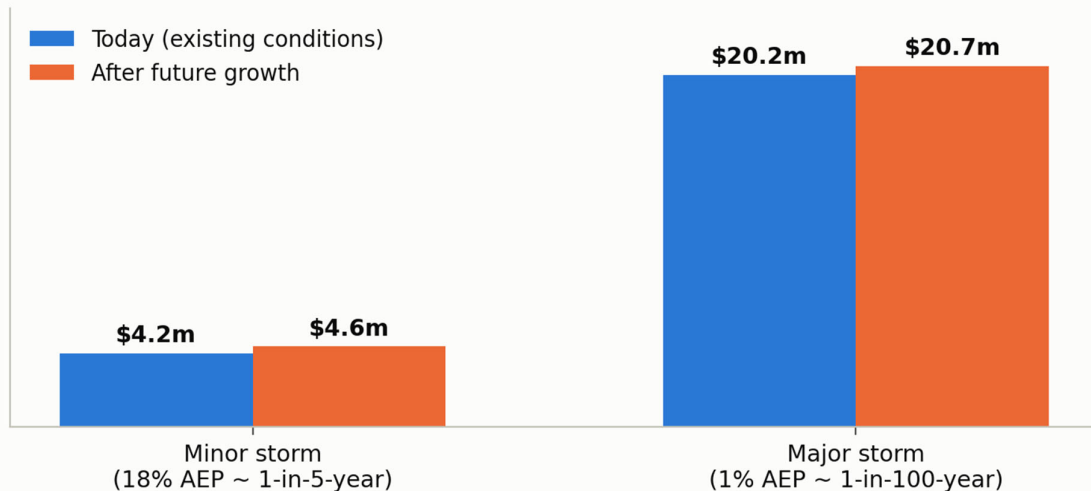
Location	What happens there
Mary Starr Drive & Basin	Drains at the base of Mary Starr Drive cannot cope in heavy rain; the basin itself overtops in larger storms, spilling toward the Lifestyle Village and Apex Park.
Lifestyle Village	Multiple internal roads and common areas flood and become cut off (a "flood island") in larger storms.
Ifould Park / Wohling Street	One of the town's most severe hotspots — flooding of allotments, road closures, and a site of cultural sensitivity affected; made worse historically by a blocked, shallow drainage pit.
Community Sports Complex	A significant depression that floods to real depth; an existing pump has limited effect in bigger storms; overflow can reach the Warrawee Lodge aged-care facility on Rotary Drive.
Bottom of Stanley Street	Reaches the highest hazard rating recorded anywhere in the study (full-width road closure, unsafe for people or vehicles) in major storms.
Top of Cates Avenue (Lutheran Church)	Underground network constraints cause ponding near the church in larger events.
Peake Terrace, Henderson & Kirby Streets	Steep laneways and roads with high flow velocities; recurring gutter flooding at 45–47 Peake Terrace.
Medical Centre & Ambulance Station (Strangman Rd)	Flagged in every scenario as inundation risk to critical community infrastructure, even where flood depths are modest.
Pflaum & Campbell Terraces	Runoff has caused extensive damage to a local business.
Miller Street / Jacobs Street	An old pipe running through private backyards surcharges in rain events.



What it could cost if nothing changes

The Plan estimates the direct cost of property damage (to buildings and their contents) under both storm sizes, for both today's town and its future built-out form. These are engineering planning estimates, not insurance valuations, but they illustrate the scale of what is at stake.

Estimated property damage cost per storm event, if nothing changes



Estimated total tangible flood damage cost per storm event (2025 prices).

The "minor", relatively common storm already causes an estimated \$4.2 million in property damage however allowing for Waikerie's planned future growth only adds a modest amount to this figure (roughly 2–9%, depending on storm size) — because most new growth is planned for areas outside today's flood-prone town centre. In other words, today's flood risk is largely "locked in" regardless of how the town grows, which shows that improving the existing network is the priority.

4. Stormwater quality and the River Murray

Every time it rains, water washes across roofs, roads, driveways and paddocks on its way to the drain — picking up sediment, nutrients (from fertiliser and manure), litter, oils and other contaminants along the way. In Waikerie, most of that water eventually reaches the River Murray, either directly or via the Hart Lagoon wetland system.

Left untreated, this runoff can cloud the water (reducing light for river plants), feed algal blooms, choke waterways with litter, and introduce metals and hydrocarbons that are toxic to aquatic life. The Plan estimates the town currently generates around 204 million litres of stormwater runoff a year.



Hart Lagoon: already doing a lot of the work

The good news is that Waikerie already has one significant piece of water treatment infrastructure: the Hart Lagoon constructed wetland and stormwater harvesting scheme, completed in 2023. It captures and treats runoff from around 137 hectares of the urban area (roughly 30% of the whole catchment) before it reaches the natural Hart Lagoon wetland, and it also stores water for reuse. Because Hart Lagoon only treats about 30% of the whole catchment, the town-wide result is more modest — across all of Waikerie's runoff, current treatment reduces sediment by around 49%, phosphorus by 45% and nitrogen by 43%, still a substantial improvement on no treatment at all, but short of the state's aspirational targets (80% sediment, 60% phosphorus, 45% nitrogen, 90% litter). Section 9 of this summary shows how the full recommended plan is expected to close much of that remaining gap.

Hart Lagoon's performance, within its own catchment

Removes most of the litter and debris reaching it.

Removes an estimated 87% of sediment, 79% of phosphorus and 69% of nitrogen — all ahead of state benchmark targets.

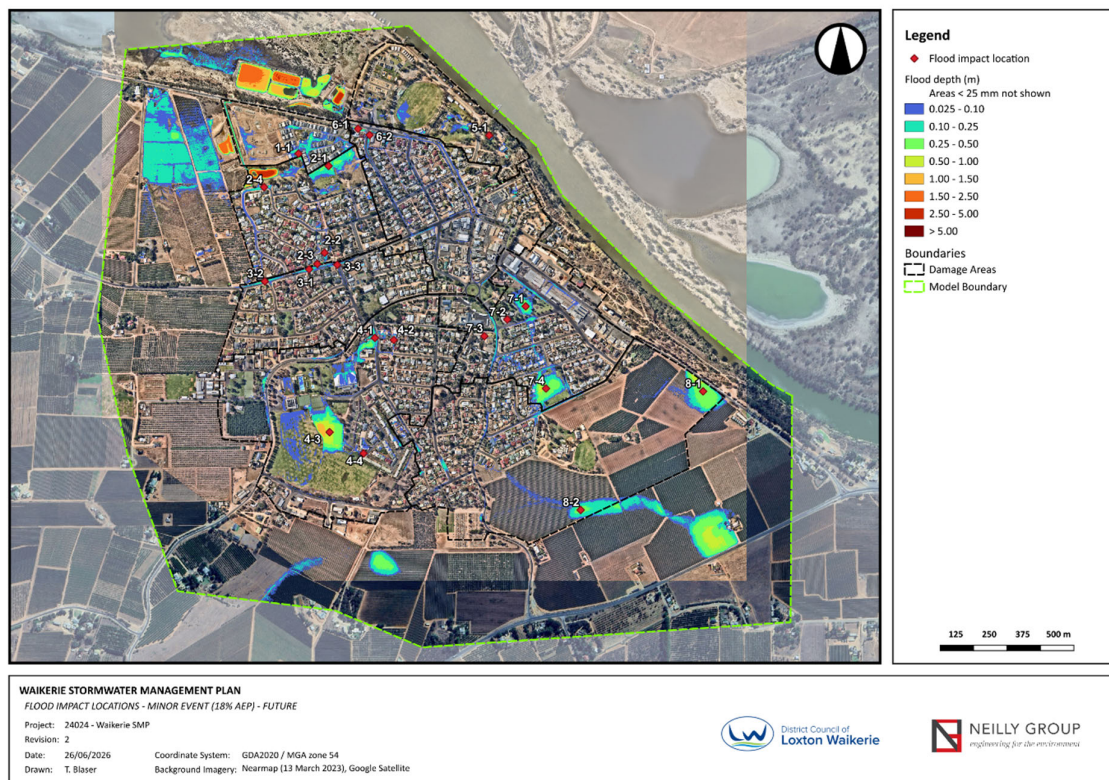
Supplies up to 40 million litres a year of treated water for irrigating parks and gardens (including the Waikerie oval), easing demand on the River Murray.

5. How flood risk was assessed and rated

To decide where to invest first, the Plan needed a consistent way to compare very different kinds of flooding problems — a flooded park is not the same kind of problem as a flooded ambulance station. Each flood-affected location was therefore rated using a standard risk framework, considering both how likely the flooding is and how serious its consequences would be.

Consequences were assessed across five categories:

- Safety — risk to life, injury, or safe evacuation and emergency access.
- Strategic — effects on future land use, development, and Council's stormwater strategy.
- Operational — blockages, overflows, and strain on Council's assets and crews.
- Regulatory — compliance with planning, environmental, cultural heritage and public health obligations.
- Reputational and community — cost overruns, transparency, and community trust.



Combining likelihood and consequence produces an overall rating of Low, Moderate, High or Severe for each location — the same scale used throughout this summary and the full Plan.

The key finding

"Without improvements, the number of high and severe flood risk areas is likely to increase as the town grows." — Waikerie Stormwater Management Plan

In the major (1% AEP) storm, the number of High-rated risk locations is thirteen times higher than in the minor (18% AEP) storm — showing how quickly risk escalates once a storm exceeds the network's capacity.

6. Council's goals for stormwater management

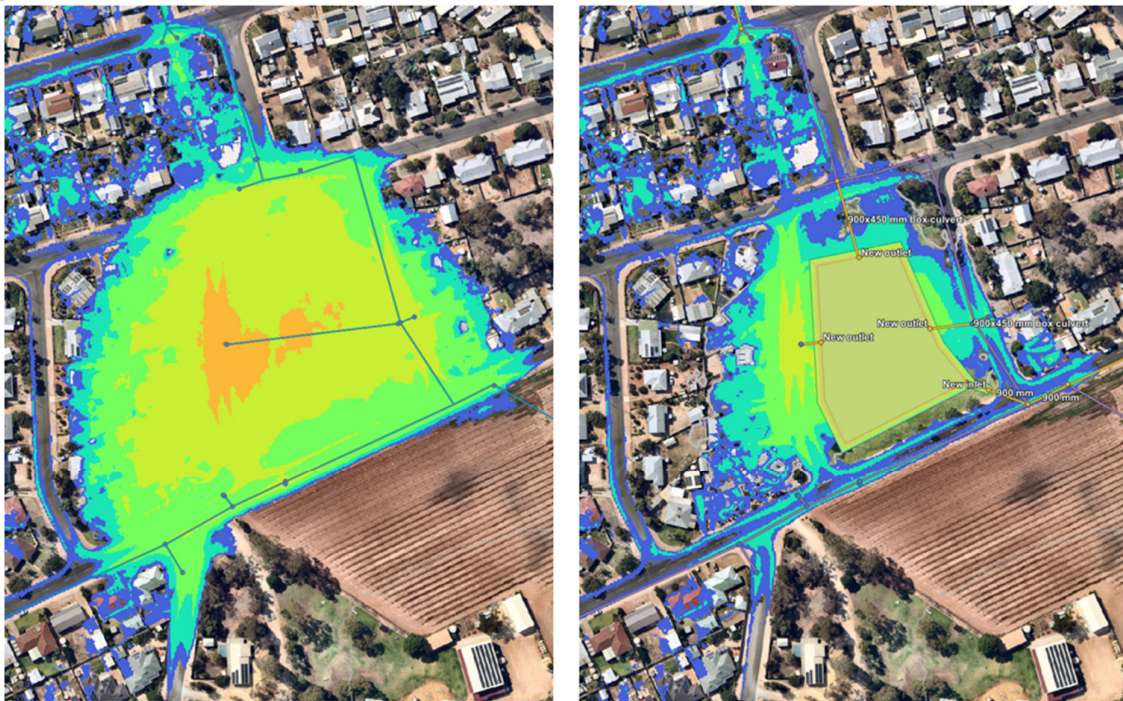


The Plan sets ten objectives to guide Waikerie's stormwater management, each with specific, measurable targets. Some targets are described as "Absolute" — firm engineering or regulatory standards Council commits to meeting — while others are "Aspirational" — goals Council will work toward as opportunities and funding allow. In plain terms, the ten objectives are:

Objective	In plain terms
Flood protection	Keep floors of new homes safe in even a 1-in-100-year storm; keep existing homes safe from serious flooding in common storms; keep main roads passable for emergency vehicles.
Planning for new development	New subdivisions must manage their own stormwater and must not make flooding worse for anyone downstream.
A well-performing pipe network	Underground pipes and pits should cope with common storms without overflowing, wherever that is practical and affordable.
Cleaner water to the River Murray	Cut sediment, phosphorus, nitrogen and litter reaching the river by 80%, 60%, 45% and 90% respectively, compared to no treatment at all.
More stormwater reuse	Capture and reuse more stormwater for irrigating parks, sports grounds and streetscapes, easing demand on the River Murray.
Healthy waterways and habitat	Protect and enhance riverbank vegetation, and design new drainage outlets so they don't erode the riverbank or damage sensitive environments.
Open space, amenity and liveability	Design stormwater infrastructure (like basins and wetlands) so it also creates useful, attractive community spaces, not just engineering assets.
Good asset management	Keep accurate, up-to-date records of the stormwater network's location, age and condition, with maintenance plans for new water-sensitive assets.
Climate resilience	Design new infrastructure for the rainfall Waikerie is expected to experience by 2090, not just today's climate.
Communication and engagement	Keep the community informed about flood risk, and involve residents, businesses and other agencies in shaping the response.

7. The proposed plan — what would be built

Rather than simply making pipes bigger everywhere — an expensive, disruptive, and often impractical approach — the Plan favours managing stormwater as close as possible to where it falls. That means combining traditional pipe and pit upgrades with Water Sensitive Urban Design (WSUD): rain gardens, vegetated swales, detention basins and constructed wetlands that slow water down, soak it in, and clean it up before it ever reaches the main network or the river.



Sixteen specific capital projects were identified, each targeting one of the flooding hotspots described in Section 3. Combined, their estimated capital cost is approximately \$11.9 million (an early-stage planning estimate — the sum of the individual project estimates shown in the Plan, added together for this summary). This is in addition to a small number of ongoing, catchment-wide programs (reviewing and maintaining existing assets, coordinating stormwater works with road resurfacing, and community education) that don't carry an individual construction cost.

The table below lists every project, ordered from the highest priority to the lowest (see Section 8 for how priority was decided).

Ref	Location	What it does	Estimated cost
D8	Cates Street & Strangman Road	Raise kerbs to keep floodwater away from private properties	\$156,800
C1	Peake Terrace, Henderson St, Kirby St	Optimise the existing underground network (no new pipes needed)	\$816,100
B4	Community Sports Complex	New wetland or detention basin to store floodwater and treat runoff, doubling as community open space	\$705,300
D4	Ifould Park	New detention basin and swale to hold back floodwater at one of the town's worst-affected sites	\$2,958,000

Ref	Location	What it does	Estimated cost
D3	14 Miller Street	Disconnect an old pipe currently running through a private backyard	\$4,500
C2	Peake Terrace (Leonard Norman Dve to Hart Lagoon)	Replace an ageing section of pipe network	\$889,100
D6	River outlet	Upgrade the stormwater outlet to the River Murray	\$157,800
A8	Mary Starr Basin	New surcharge grate and swale on the main trunk line	\$66,600
A10	Blight & Matthews Streets	Extend the pipe network and raise kerbs	\$382,600
A11	Stanley Street to outlet	Upgrade the trunk drain (the network's highest single-item cost)	\$2,629,600
D5	Ian Oliver Drive	Formalise stormwater inlets on the western side of the road	\$143,200
A13	Mary Starr Drive outlet	Upgrade the outlet pipe to a larger box culvert	\$129,200
D1	Civic Reserve	New detention basin doubling as community open space	\$348,100
B1	Cates St & Lawrie Terrace (Lutheran Church)	Lower and enlarge underground pipes to fix a local constriction	\$1,008,500
D2	Strangman Rd, between Dowling St & Miller St	Increase pit inlet capacity and upgrade pipes	\$771,800
A2	West of Lifestyle Village (Growth Area 3)	New detention basin, sized to also serve future growth	\$718,500

Every project also carries a small ongoing annual operating cost (ranging from under \$200/year for simple pipe upgrades to around \$13,000/year for a new wetland with vegetation to maintain) — modest compared to the value of the flood damage they prevent.

8. Priorities and timing

Sixteen individual projects were scored and ranked using a Multi-Criteria Analysis — a standard planning technique that weighs each project against flood-risk reduction (weighted highest, at 30%), environmental benefit (25%), cost (25%), stormwater reuse potential (10%) and community/social benefit (10%). This produces an objective ranking rather than a simple "cheapest first" or "most expensive first" list.

Priority	Indicative timeframe	Projects
Very High	0–2 years	D8 — Raise kerbs, Cates St & Strangman Rd C1 — Optimise network, Peake Tce / Henderson St / Kirby St
High	2–5 years	B4 — Community Sports Complex wetland/basin D4 — Ifould Park detention basin & swale
Medium	5–10 years	D3, C2, D6, A8, A10, A11, D5, A13, D1, B1, D2 (eleven projects — see Section 7 for details)
Low	10–15 years	A2 — New detention basin, Growth Area 3 (sized to also serve future development)

Ongoing, catchment-wide programs

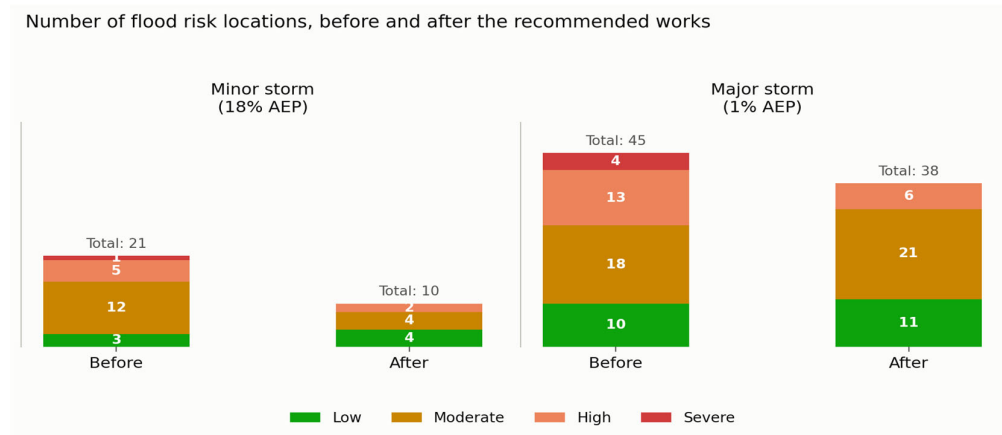
Alongside the specific capital projects, five longer-running programs support the whole strategy:

Program	Timeframe	Priority
Review of stormwater and WSUD assets	0–3 years	High
Increasing inlet capacity (as part of routine renewal)	0–15 years	Medium
Increasing on-site storage (as part of streetscape works)	0–15 years	Medium
Education and promotion of water-sensitive design	0–5 years	Medium
Ongoing maintenance and monitoring of Council assets	10–30 years	Low

9. What this will achieve

The Plan modelled the expected effect of delivering all sixteen projects together — comparing flood risk and water quality before and after the works, for both the minor and major storm scenarios.

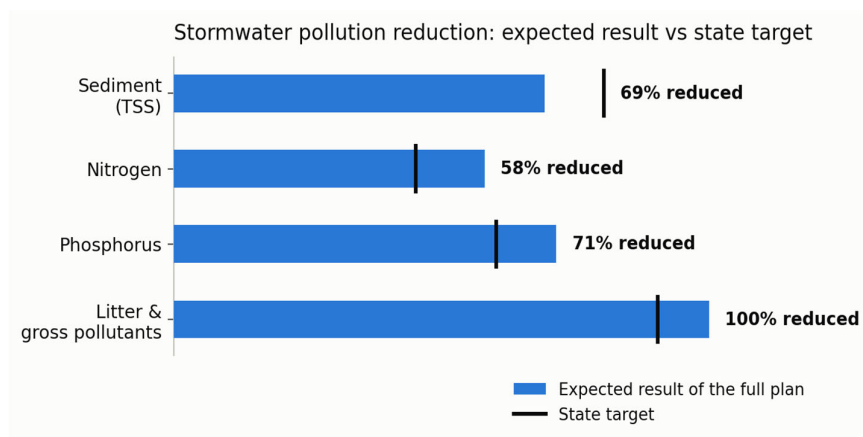
Flood risk: fewer locations at risk, and the worst risks eliminated



Number of flood-risk locations rated Low, Moderate, High or Severe, before and after the recommended works.

In the common, minor storm, the number of at-risk locations is expected to fall from 21 to 10 — roughly a 52% reduction — with the town's only Severe-rated risk eliminated entirely. In the rarer, major storm, the total number of at-risk locations falls by a smaller margin (45 to 38, since a major storm affects more of the town regardless), but the improvement in severity is dramatic: High-rated locations fall from 13 to 6, and all four Severe-rated risks — including the Medical Centre, the Community Sports Complex, Ifould Park and a Miller Street property — are fully resolved.

Water quality: exceeding most state targets



Expected pollutant reduction achieved by the full recommended plan, against the state's Water Sensitive Urban Design targets.

With all recommended WSUD measures in place (working alongside the existing Hart Lagoon wetland), the town-wide reduction in litter, phosphorus and nitrogen reaching the River Murray is expected to exceed state benchmark targets. Sediment reduction (69%) falls just short of the 80% aspirational target — the Plan notes this is a reasonable outcome for a mature, largely already-developed town, and recommends continuing to look for opportunities (such as on-site detention in future development) to close the remaining gap over time.

10. Next steps — for Council and for the community

For Council

- Formally adopt the Stormwater Management Plan as the guiding strategy for stormwater investment, maintenance and development approvals.
- Use the prioritised project list to inform Council's long-term financial plan and to support external funding applications (state and federal stormwater/resilience grants often require exactly this kind of evidence base).
- Maintain up-to-date records of the stormwater network's condition, and continue rolling simple fixes (like clearing blocked pits) into routine maintenance.
- Ensure new development applications are assessed against the Plan's objectives — particularly that new subdivisions manage their own stormwater and don't worsen flooding downstream.
- Revisit and update the Plan periodically as climate projections, funding, and the town's growth evolve.

For residents and the community

- Report blocked drains, pits or localised flooding to Council via its community reporting channels — several of the problems identified in this Plan were first raised by residents.
- Keep gutters, private drains and any easements on your property clear of leaves, silt and debris.
- If you are renovating or building, consider water-sensitive design features (a rain garden, a soakage pit, a rainwater tank) — they reduce pressure on the public network and can reduce your own flood risk.
- Stay engaged with Council's community consultation on stormwater and flood planning, and consider your own household's flood/emergency plan if you live in or near one of the locations identified in Section 3.

11. Glossary of terms

Term	What it means
AEP (Annual Exceedance Probability)	The chance of a storm of a given size happening in any year. An "18% AEP" storm has an 18% chance of occurring (or being exceeded) in any given year — roughly once every 5 years on average. A "1% AEP" storm is much rarer — roughly a 1-in-100-year event.
Catchment	The area of land from which rainfall drains to a common point — in this case, Waikerie's stormwater network and, ultimately, the River Murray.
Detention basin	A basin designed to temporarily hold stormwater during a storm, releasing it slowly afterwards to reduce flooding downstream.
mAHD	Metres above the Australian Height Datum — a standard measure of elevation, similar to "metres above sea level."
MUSIC	Software used to model how much sediment, nutrients and other pollutants stormwater carries, and how effectively different treatments remove them.
Stage-damage curve	A standard engineering tool estimating the likely dollar cost of damage to a building at different flood depths.
Stormwater harvesting / reuse	Capturing stormwater (rather than letting it run to waste) so it can be reused, typically to irrigate parks, gardens or sports grounds.
WSUD (Water Sensitive Urban Design)	An approach to designing drainage, landscaping and buildings so that stormwater is managed close to where it falls — through features like rain gardens, swales, wetlands and permeable paving — rather than simply piping it away.

12. Where to find more information

This document summarises the draft Waikerie Stormwater Management Plan (Revision 2, August 2026), prepared by Neilly Group Engineering for the District Council of Loxton Waikerie. It is intended to make the Plan's key findings accessible to the community and to elected members; it is not a substitute for the full technical document.

The full Plan contains additional detail not repeated here, including:

- detailed flood extent and hazard maps for every scenario modelled; the complete engineering methodology and modelling assumptions; full cost breakdowns and multi-criteria analysis scoring for every project; a community consultation feedback report; and detailed "before and after" flood maps for every individual project in Section 7.

Residents and Council members wanting to view the full technical Plan, provide feedback, or ask questions about a specific location can do so through the District Council of Loxton Waikerie.