Too Many Landfills, Too Little Budget: Prioritising Risk Across Council Portfolios

Core-EP | ALTS 2026, Brisbane

Molly Hurn and John Waters

We acknowledge the Traditional Owners of the land on which we meet and recognise the continuing connection to lands, waters and communities.

We pay our respect to Aboriginal and Torres Strait Islander peoples, and to Elders past and present.

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Introduction

OUR AIM

Turn a long list of landfill liabilities into a prioritised, costed and actionable program of works.

1

The challenge

New regulatory duties, large portfolios and limited budgets

2

Screen and rank

A fast risk screen of every site, prioritised by what matters to Council

3

Engineer the options

Practical controls for the source, pathway and receptor

4

Plan and deliver

Managing high-risk sites, budgeting, and the end product

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Regulatory Environment Changes

QLD GENERAL ENVIRONMENTAL DUTY (GED)

As of June 2024, it is a direct offence to fail to comply with the GED if that failure is likely to cause serious or material environmental harm

QLD ESR/2015/1627 LANDFILL SITING (2025)

Essentially a risk-based adaptation of the Victorian BPEM

Requires demonstration through risk assessment that rehabilitation, capping and aftercare will protect environmental values for as long as necessary

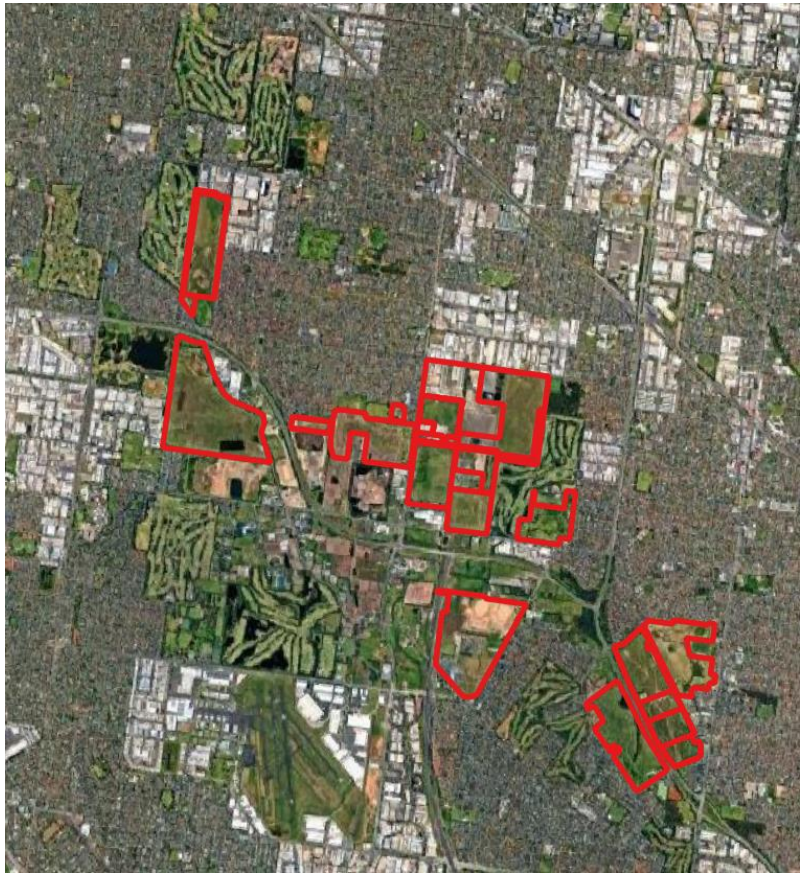
The Challenge

Large portfolios
Many active, closed and legacy sites to manage

Regulatory pressure
Councils must show environmental risks are being managed

Limited budgets
Rarely feasible to address every site at once

Unequal risk
Not all landfill sites present the same level of risk



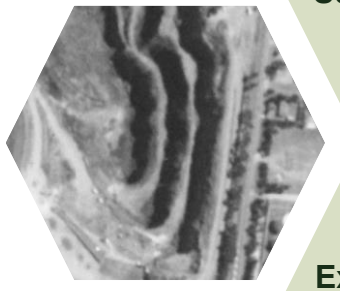
THE KEY QUESTION

Where should councils spend their next dollar?

The challenge is not just identifying landfill risks, but determining the best course of action.

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Portfolio Risk Screening



VIC EPA 1671 Self Assessment Tool



Geological Information

Historical Waste Acceptance Information



Underground Services

Aerial Imagery





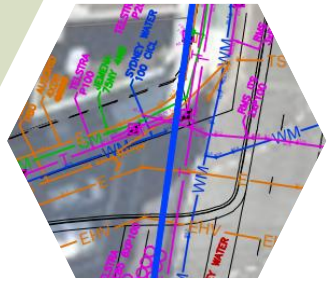
Existing Council Records



Groundwater Mapping

Receptor Analysis





Risk Ranking

PRIORITISED BY WHAT MATTERS TO COUNCIL

- Environmental and regulatory risk
- Community and amenity impacts
- Knowledge gaps and uncertainties
- Landfill gas planning constraints
- Site-specific issues (intra-site ranking)
- Methane reduction potential and cost
- Carbon reduction goals (often Council's top GHG source)

…and other criteria agreed with Council

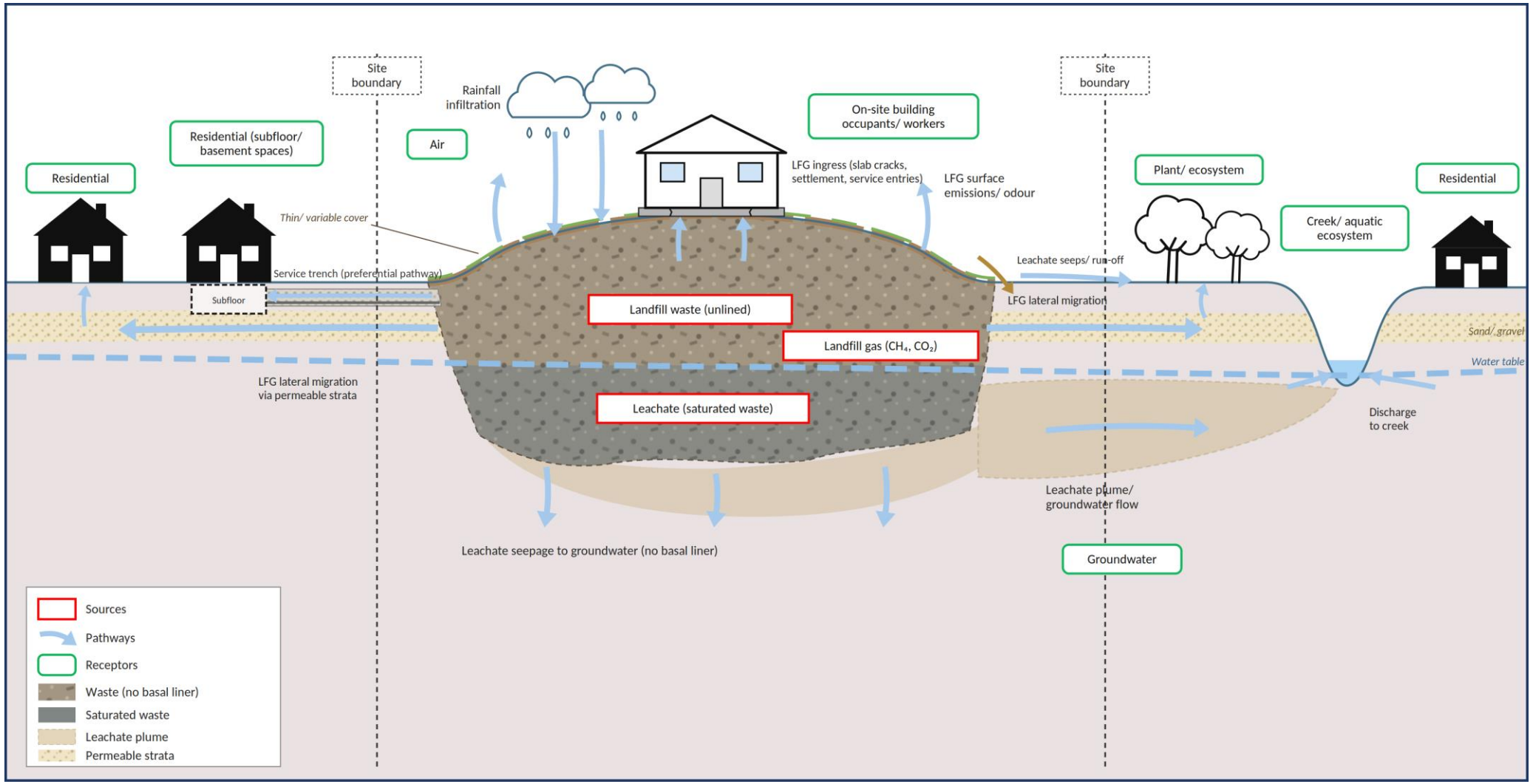
Not every priority is a high-risk site

Some sites offer significant methane reduction through simple engineering solutions at relatively low cost.

Ranking directs resources toward the outcomes that matter most to Council.

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What Drives Risk Prioritisation?



Options for the Source



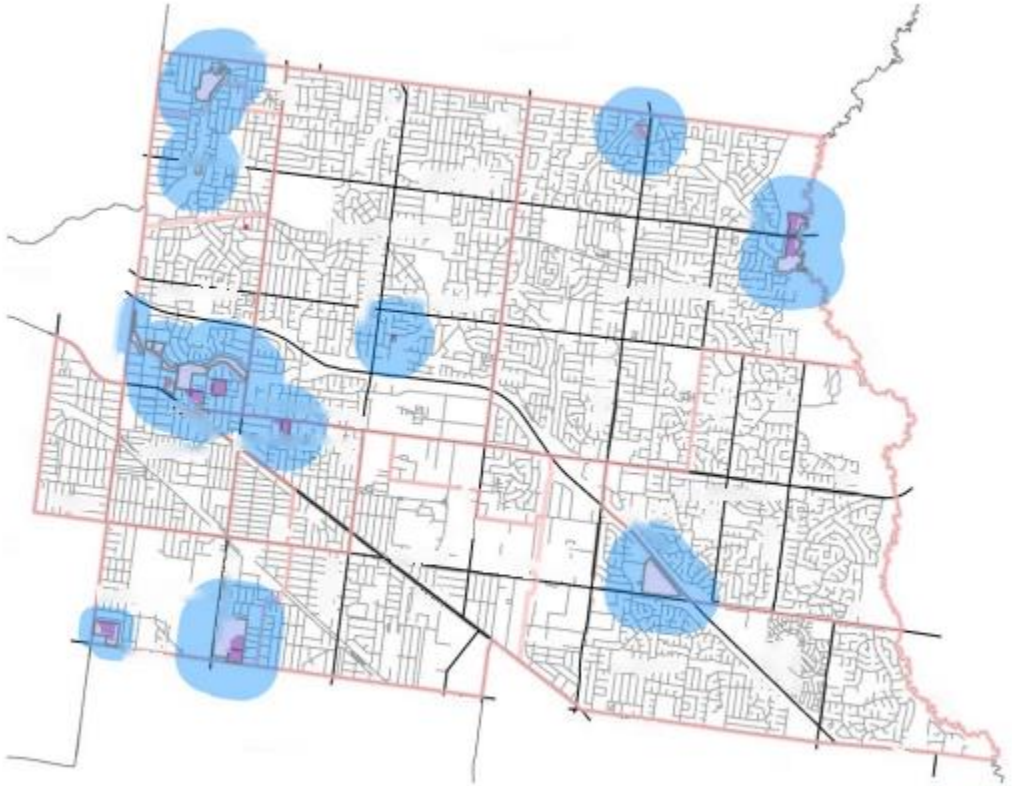


Options for the Pathway





Options for the Receptor





Comparing Engineering Pathways

OPTION	CAPITAL COST	OPERATIONAL COST	ENVIRONMENTAL BENEFIT	RISK REDUCTION
Active gas extraction	High	High	High	High
Enclosed flares	High	Medium	High	High
Biofilters	Medium	Medium	Medium	Medium
Passive venting	Low	Low	Medium	Medium
Capping upgrades	High	Low	High	Medium
Interception trenches	Medium	Low	High	High
Leachate controls	High	Medium	High	Medium
Monitoring systems	Low	Low	Indirect	Low

Indicative ratings relative to the other options; costs and benefits to be confirmed by site-specific assessment.

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Managing High-Risk Sites

1. **Why is the site high risk?**
   Data gaps and uncertainty, or likely human, environmental or reputational harm
2. **Protect receptors where harm is likely**
   Interim monitoring and controls while a long-term solution is developed
3. **Close the data gaps**
   Targeted investigation; uncertainty-driven sites may drop in priority
4. **Feasibility before pilot**
   Compare options first; engineering works usually carry high capital costs
5. **Pilot, then design**
   Trial the preferred option before detailed design and construction

RISK IS NEVER ZERO

The aim is to reduce risk to a level that is acceptable and defensible, using reasonable and practicable measures.

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Budget Planning and Forecasting

FROM OPTIONS TO BUDGET

Capital cost estimates
A capital works program council can budget for

Operating costs
Whole-of-life costs for the asset management plan

Staged delivery
Quick wins first; larger works spread over budget cycles

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The End Product

OUTCOMES

- Prioritised landfill register
- Risk rankings for every site
- Recommended actions
- Capital and operating cost estimates
- Implementation roadmap

Councils do not need to solve every landfill problem at once.

Risk assessment and landfill engineering together turn a long list of liabilities into a **prioritised, costed and defensible program of works**.

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mollyhurn@core-ep.com.au

johnwaters@core-ep.com.au

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