

PRACTICAL CAPITAL PLANNING & ASSET VALUE CREATION

Capital Allocation for Resilience

Optimising OPEX, CAPEX and Long-Term Value

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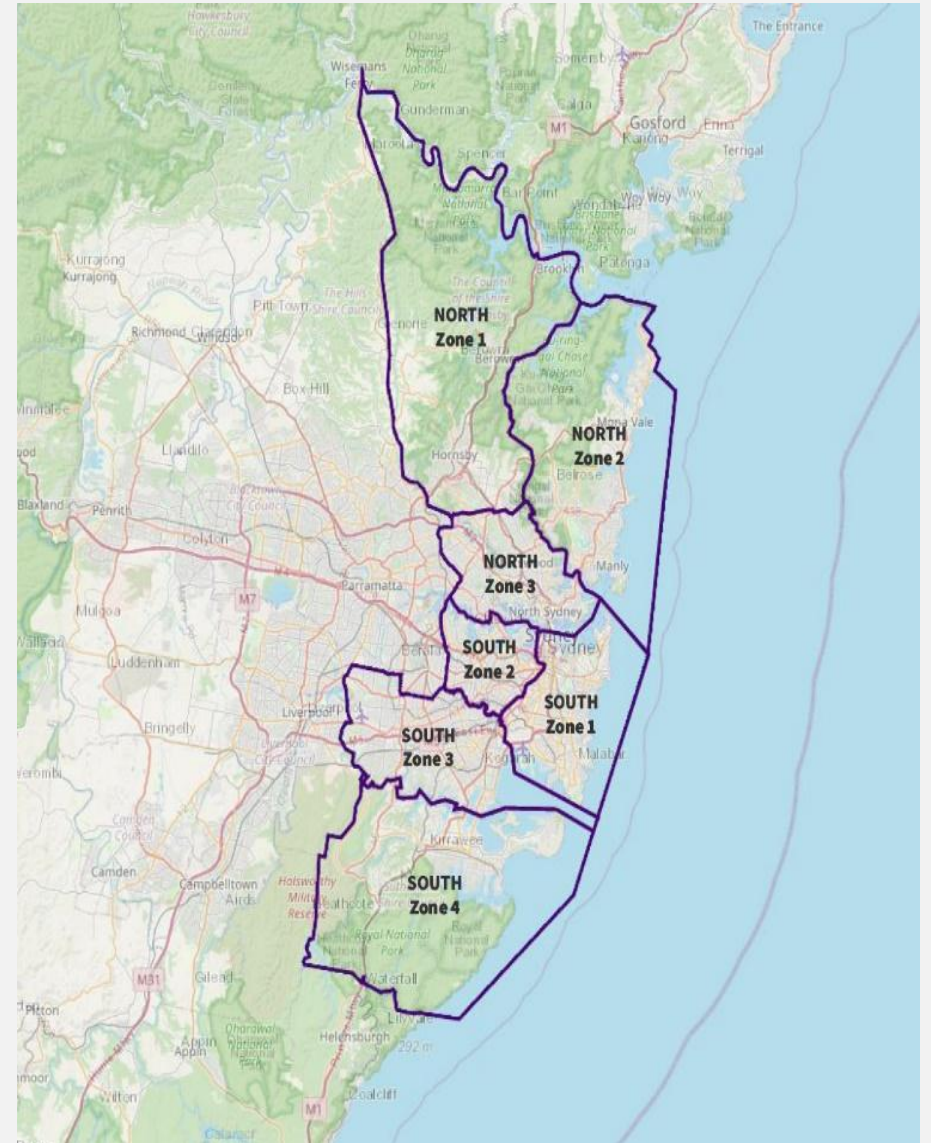
CONNECT  SYDNEY

The network behind this talk

Harbour Zone, Sydney Roads Asset Performance Contract Pavement | Bridges | Tunnels | Slopes | Culverts | ITS

Bounded by the Hawkesbury River in the north and Waterfall in the south, from the eastern coastline of the city to Galston, Strathfield, and Milperra in the west.

The questions in this talk aren't theoretical — they're ones answered on a live network every week.



Harbour Zone boundary — Connect Sydney, SRAPC



Resilience investment works when it changes the asset decisions you were already going to make — not when it becomes a separate budget line.

If a resilience initiative doesn't change the timing, scope, option, or value of a decision you were already making — it isn't a capital allocation strategy. It's a risk report.

The four-question test

Reframing the asset decisions you already make — through a climate-exposure lens

1

What's the asset condition?

Is the deterioration assumption still valid under future exposure?

2

How critical is the asset?

Does failure create wider safety, service, or network consequence?

3

When should we intervene?

Does climate exposure bring the intervention point forward?

4

Which option gives best value?

Are we reducing the risk driver, or funding repeat symptoms?

THE WORKED EXAMPLE

Bridge deck drainage & joints

The primary structure may have a century-scale design life, while drainage, joints, and hardware carry much shorter service lives. These components are often assessed within the same structure-focused regime — but climate exposure is compressing their remaining life faster than the regime is built to prioritise — until failure forces the question.

The failure mode

A small sub-component degrades quietly — corrosion, a failed clamp, a blocked scupper — while the structure itself shows no distress.

The trigger

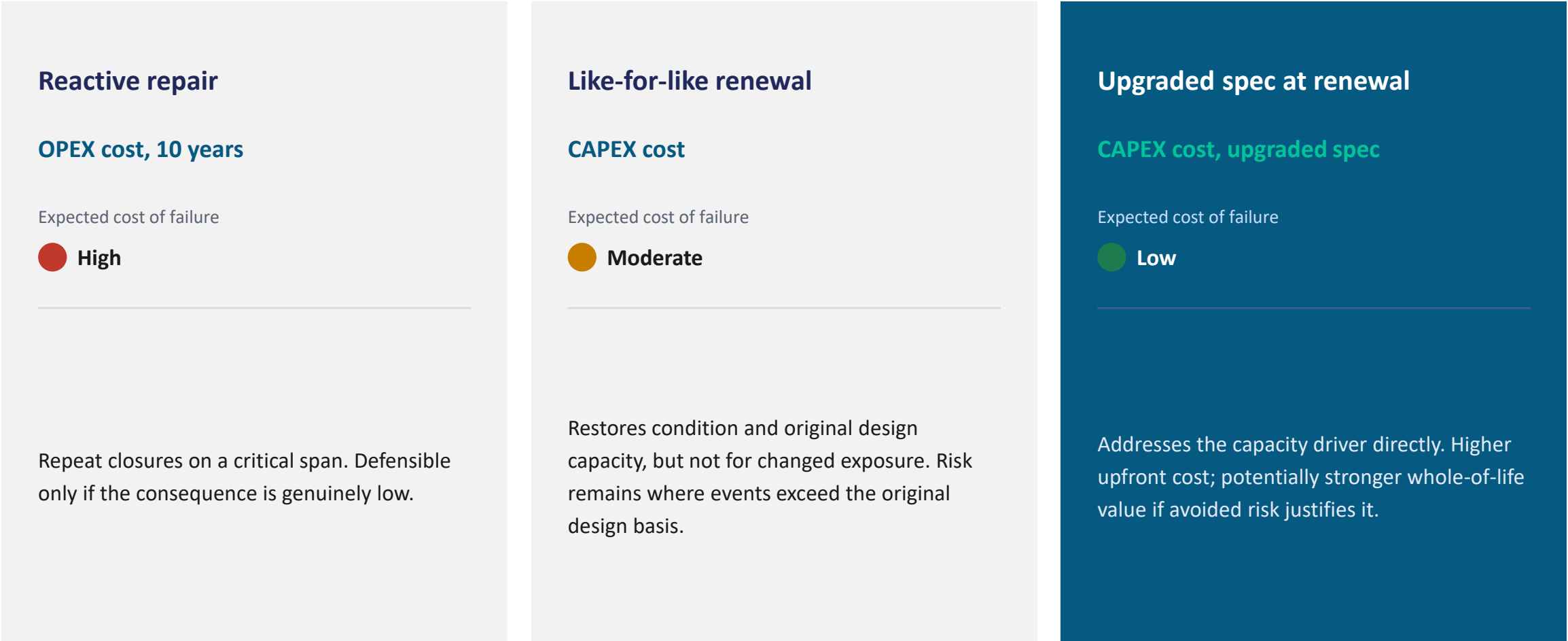
Short-duration rainfall intensity is projected to become more intense under a warming climate, even as annual totals ease. This hardware may rely on assumptions that no longer hold.

The consequence

Findings on small components rarely carry the same urgency as structural ones — until failure triggers disruption and questions about the rest of the network.

THREE WAYS TO MANAGE THE SAME RISK

Reactive repair vs. renewal vs. upgraded spec



Cost categories shown for illustration; figures not sourced from a specific asset or budget.

PUTTING IT IN ONE UNIT

Whole-of-life value

$$\text{Capital cost} + \text{Repeat OPEX} + \text{Disruption cost} + (\text{Probability} \times \text{Consequence})$$

Capital cost

The upfront spend on repair, renewal, or upgrade.

Repeat OPEX

The recurring cost of maintaining an option that doesn't fix the driver.

Disruption cost

Closures, detours, and service impact when the asset fails or is worked on.

Expected cost of failure

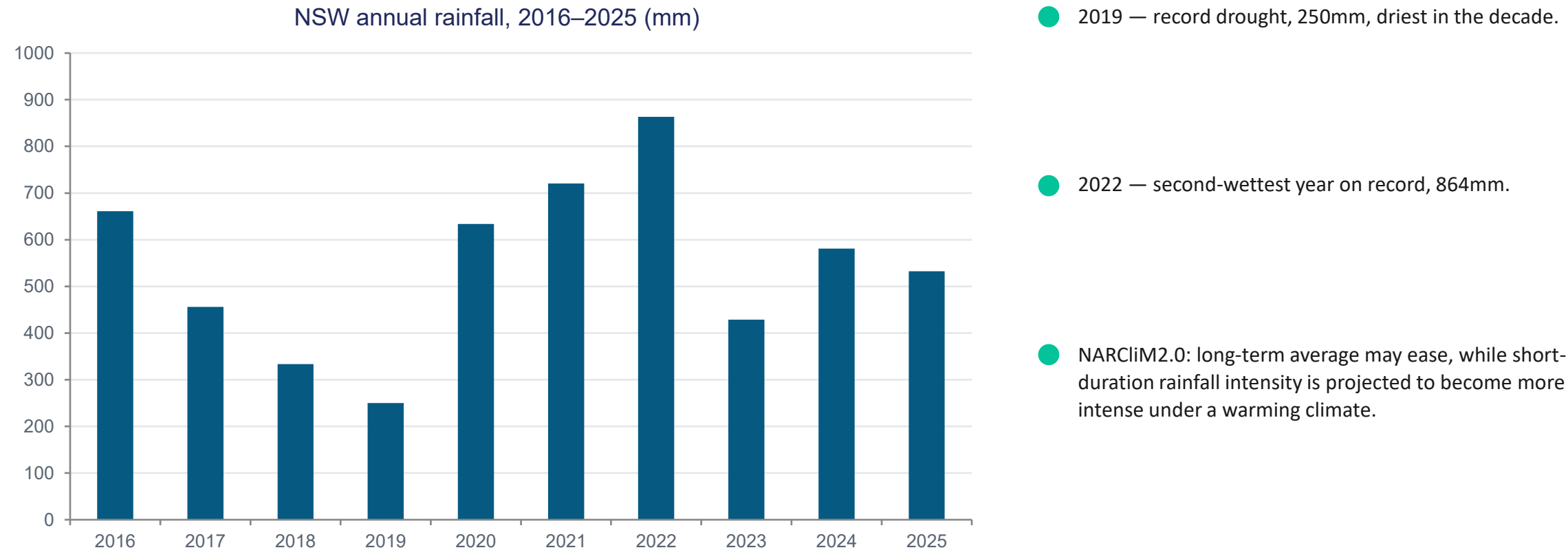
Probability of failure × consequence cost — in dollars, not a red/amber/green rating.

Monetisable costs compared on one common basis; material unpriced consequences disclosed separately.

THE PATTERN REPEATS

Same logic, different asset classes

NSW rainfall hasn't trended steadily — it's swung hard between drought and flood. What's projected to keep rising is the intensity of short-duration events, even as long-term averages ease.



NSW area-average annual rainfall, Bureau of Meteorology; some earlier years derived from published anomaly percentages. Incl. ACT — statewide data, not asset-specific.

THE REAL TEST

The real test of climate resilience isn't whether it appears in a strategy. It's whether it changes next year's maintenance plan, renewal program, and capital allocation.

MONDAY MORNING

Don't build a separate climate list. Take the program you already have, and ask where climate exposure changes the timing, scope, option, or value.

Discussion

Questions & comments

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