IPART Independent Pricing and Regulatory Tribunal | NSW

Mamre Road Stormwater Scheme

Draft Report

September 2024

Water »

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present.

We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

Tribunal Members

The Tribunal members for this review are:

Carmel Donnelly PSM, Chair
Dr Darryl Biggar
Jonathan Coppel
Sharon Henrick

Enquiries regarding this document should be directed to a staff member:

Scott Chapman	(02) 9290 8449
Melanie Mitchell	(02) 9113 7743

Invitation for submissions

IPART invites comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by Friday, 18 October 2024

We prefer to receive them electronically via our online submission form.

You can also send comments by mail to:

Mamre Road Stormwater Scheme Review
Independent Pricing and Regulatory Tribunal
PO Box K35
Haymarket Post Shop, Sydney NSW 1240

If you require assistance to make a submission (for example, if you would like to make a verbal submission) please contact one of the staff members listed above.

Late submissions may not be accepted at the discretion of the Tribunal. Our normal practice is to make submissions publicly available on our website as soon as possible after the closing date for submissions. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed above.

We may decide not to publish a submission, for example, if we consider it contains offensive or potentially defamatory information. We generally do not publish sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please let us know when you make the submission. However, it could be disclosed under the *Government Information (Public Access) Act 2009* (NSW) or the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW), or where otherwise required by law.

If you would like further information on making a submission, IPART's submission policy is available on our website.

The Independent Pricing and Regulatory Tribunal

IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website.

Executive Summary

Background to the Mamre Road Precinct stormwater scheme

Protecting the Wianamatta-South Creek catchment's blue grid while building a thriving Western Sydney economic centre presents a complex challenge. Waterways, riparian vegetation, wetlands, and other water-dependent ecosystems are integral to the region's environmental health. This needs to be balanced with the NSW Government's vision of balancing jobs, connectivity and liveability to create an innovation precinct and a home for technology, science and creative industries.[1] The Mamre Road industrial and commercial precinct, close to the new Nancy Bird-Walton Airport in Western Sydney, is a key part of that strategy. For a development to proceed smoothly, there needs to be basic services to support the residents, employees and businesses who will live, work and operate there. One of those services is the collection and removal of stormwater.

Stormwater that has been poorly managed can cause problems on and off site through erosion and the transportation of pollutants to downstream waterways. The NSW Government has set waterway flow and quality targets to ensure new development doesn't result in an unacceptable level of degradation. It is necessary for Sydney Water, as regional stormwater drainage authority, to deliver fit-for-purpose stormwater management services to mitigate erosion and pollution in line with these targets.

Delivering these services comes at a cost. Infrastructure needs to be built, ongoing maintenance paid for, and the system expanded to cater for growth in the precinct.

Sydney Water has proposed a scheme based around the construction of naturalised basins along the creek. It has also proposed to construct a stormwater recycling plant to treat the stormwater captured. It will sell this recycled water to local industrial and commercial customers. It intends to recover the costs of the scheme through upfront infrastructure charges levied on the industrial developments occurring in the Mamre Road Precinct.

It is important to ensure that developers, taxpayers, and customers pay only their share of the efficient costs of these services, both now and in the future.

What the NSW Government asked IPART to do

The NSW Government asked IPART to review Sydney Water's proposed stormwater scheme, and provide advice on:

- the efficient costs of providing stormwater drainage services within the Mamre Road Precinct and
- the efficient allocation of those costs between developers, taxpayers and others.

The full terms of reference for our review are available on our webpage.

In undertaking this review, we considered the intent of the waterway health targets and the extent to which they drive scheme costs, which parties contribute to the need for stormwater services and who benefits from them. We engaged expert consultants to advise us on specific aspects of the review. These consultants are:

- Hydrology and Risk Consulting (HARC), who advised us on stormwater management, modelling and design
- WT Partnership (WTP) who provided cost-estimation advice, primarily on indicative capital and infrastructure costs.

We considered the advice and recommendations of HARC and WTP, including opportunities for cost reductions. We developed a framework for allocating costs and considered the economic impact on developers, taxpayers, customers and the broader community.

As part of our review process, we published and sought submissions on an Issues Paper and held 2 stakeholder workshops to seek views and input from interested parties. We have considered all feedback and input from the submissions and workshops. We also consulted with the Department of Climate Change, Energy, the Environment and Water, Department of Planning, Housing and Industry, Design Flow stormwater consultants (engaged by the Government to advise the Technical Working Group) and Sydney Water.

Our draft findings and recommendations

This Draft Report makes the following draft findings and draft recommendations on the efficient costs of providing stormwater drainage services within the Mamre Road Precinct and who should pay these costs.

The efficient costs of meeting the required stormwater targets are likely to be lower than those proposed by Sydney Water

Our draft finding is that the efficient cost of delivering the services over an approximate 30-year period is around $860 million in total. This includes around:

- $610 million in capital expenditure, which is around $110 million (or 16%) lower than proposed by Sydney Water
- $260 million in operating expenditure, which is around $30 million (11%) lower than proposed by Sydney Water.

These reductions are based on our initial assessment of an alternative concept design for the scheme identified through the Technical Working Group (TWG).[a] For the purpose of this Draft Report, we refer to this option as the 'TWG Option'.

Our analysis of the TWG Option suggests that it would be a credible path to meeting the stormwater targets. Key characteristics of the TWG Option include:

- smaller but deeper stormwater basins

[a] The Technical Working Group comprised representatives from Sydney Water and the NSW Government, and included technical advice from a stormwater consultant, Design Flow.

- fewer related civil works
- lower maintenance costs
- lower land purchase costs.

We have based our draft findings on the estimated efficient costs of delivering the TWG Option. It represents an alternative design that would meet the discharge targets, and is likely to be around $140 million cheaper than Sydney Water's proposed stormwater scheme.

However, while deeper stormwater basins offer potential savings, they are dependent on relatively consistent geotechnical characteristics. We understand Sydney Water is investigating the geotechnical conditions around this option. The presence of widespread rock or groundwater at some of the basin sites may increase the costs of the TWG Option.

We have also included in our cost estimates the reduced quantity of land Sydney Water would need to purchase, in line with the smaller basin surface areas in the TWG Option. This may be an impractical outcome, given the nuanced complexities involved in purchasing land, and in appropriately compensating existing land holders. However, overall the TWG Option represents a credible conceptual alternative that could have been explored in the optioneering phase.

Efficient costs should be allocated to development in the Mamre Road Precinct

We were asked to recommend how to allocate the efficient costs of the scheme between developers, taxpayers and others.

Where the scheme has been designed explicitly to provide additional environmental or social services, there could be a case for allocating some of the costs of the scheme to Sydney Water customers or the NSW Government. Such services might include improved waterway health above the current baseline, additional open space, or an allowance to explicitly provide urban cooling. In such circumstances, providing these services over and above what would be needed to sustainably manage stormwater may impose additional costs driven by society generally, rather than development in the Mamre Road Precinct.

Our draft finding is that the scheme is primarily designed to manage the impacts of additional stormwater loads from the development. The stormwater discharge targets have been set to ensure that the waterway and catchment do not progressively degrade because of the development. They have not been set to improve the overall environmental or social amenity above the existing baseline. Both Sydney Water's proposed scheme, and the TWG Option meet the discharge targets – and have been designed with that goal in mind. Any additional environmental or social utility derived from the scheme appears to be incidental, rather than targeted.

An infrastructure charge of around $850,000 per hectare is reasonable and affordable

Using our infrastructure contributions charge model, we have calculated that our draft findings on efficient costs would lead to an infrastructure charge of around $850,000 per hectare for developments in the Mamre Road Precinct. This charge reflects the efficient costs per hectare of development of managing the additional stormwater loads generated by development in the precinct.

This is around $170,000 per hectare (or 17%) lower than the indicative infrastructure charge calculated by Sydney Water for its proposed scheme.

In submissions to our Issues Paper, several stakeholders suggested that charges above $500,000 per hectare would render the development unviable.[2]

We have found that development in the Mamre Road Precinct would be viable with stormwater charges of $850,000 per hectare based on our analysis of land values and development costs.[b] While market conditions may limit developers' ability to pass these costs onto customers, we do not consider this would significantly impact overall development viability. Stormwater contributions are only one cost of development, representing around 5% of total development costs.

We also note the initial estimate of around $266,600 per hectare set out in the 'Review of water sensitive urban design strategies for Wianamatta–South Creek' feasibility study carried out by the former Department of Planning and Environment did not adequately incorporate the costs to address stormwater management of the waterway and to protect the catchment from continuous degradation.[3]

Sydney Water's proposed scheme would meet the stormwater discharge targets

Sydney Water has designed the Mamre Road stormwater scheme to meet the stormwater quality and quantity discharge targets set out in the Mamre Road Development Control Plan (DCP).[4] Based on advice from HARC, we consider that Sydney Water's proposed scheme will meet the required stormwater discharge targets set out in the DCP.

We also found that Sydney Water's forecast costs for its proposed scheme are broadly reasonable costings for that current concept design. Sydney Water's updated estimates suggest that if this scheme were developed, the infrastructure charge would be around $1.02 million per hectare.

Water flow and quality targets are a significant cost driver

The stormwater targets for the Mamre Rd Precinct are more stringent than those typically required for development approval in surrounding council areas. This is to ensure that the waterway and catchment do not progressively degrade because of development. Whether it is Sydney Water, a local council or some other entity responsible for delivering stormwater services – they would need to design and implement a scheme to meet these higher targets.

Our analysis suggests that if typical council stormwater discharge targets in other catchments applied, the Mamre Road Precinct stormwater scheme could be optimised to result in an infrastructure charge of around $300,000 per hectare.[5]

[b] Our analysis found that development would continue to be viable with stormwater charges up to the original proposed level of $1.3m per hectare.

However, this is not a reason to lower the targets. The higher targets, set through the Government's risk-based framework and subjected to wide consultation and scientific review, are necessary to protect the waterway from continuous degradation. The infrastructure charge to meet these risk-based targets for the Wianamatta-South Creek would be around $850,000 per hectare, reflecting the efficient cost of developing an international airport and all its supporting infrastructure (including the Mamre Rd Precinct) within a sensitive area. Any stormwater scheme in the Mamre Road Precinct will be more expensive than in other catchments.

Relevance to future Aerotropolis precincts

Most of our draft findings and draft recommendations relate to the Mamre Road Precinct only. Topography and location mean there are limited lessons for the design and roll-out of stormwater infrastructure in future Aerotropolis precincts.

Sydney Water is also the designated stormwater authority for 4 additional precincts within the Aerotropolis. Sydney Water and policymakers should ensure that a full range of options are assessed in the initial stages 'optioneering' because this is critical to derive efficient solutions. Prematurely narrowing the scope of potential designs of a compliant stormwater scheme may result in inefficient outcomes and higher costs.

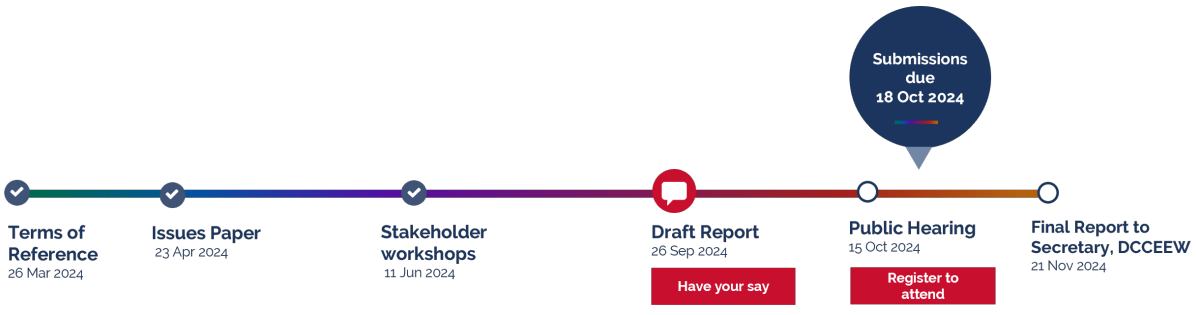
Delivery of stormwater infrastructure is critical. The Mamre Road Precinct has been in planning for more than 5 years. We have heard from stakeholders that they are already concerned about delays. Starting construction of the stormwater infrastructure should be a priority.

The new airport is scheduled to be operational in 2026. We would anticipate that any stormwater scheme serving the wider Aerotropolis would be subject to appropriate urgency.

How you can have your say on our Draft Report

We encourage stakeholders to attend our online public hearing on 15 October 2024 and make a written submission to our Draft Report by 18 October 2024. We will consider all written submissions and verbal feedback at our public hearing before finalising our recommendations to the Government for consideration.

Figure 1.1 Review timeline



Have your say

Your input is critical to our review process.

You can get involved by making a submission or attending our public hearing.

Make a submission »

Attend the public hearing »

List of draft findings and recommendations

Draft Findings

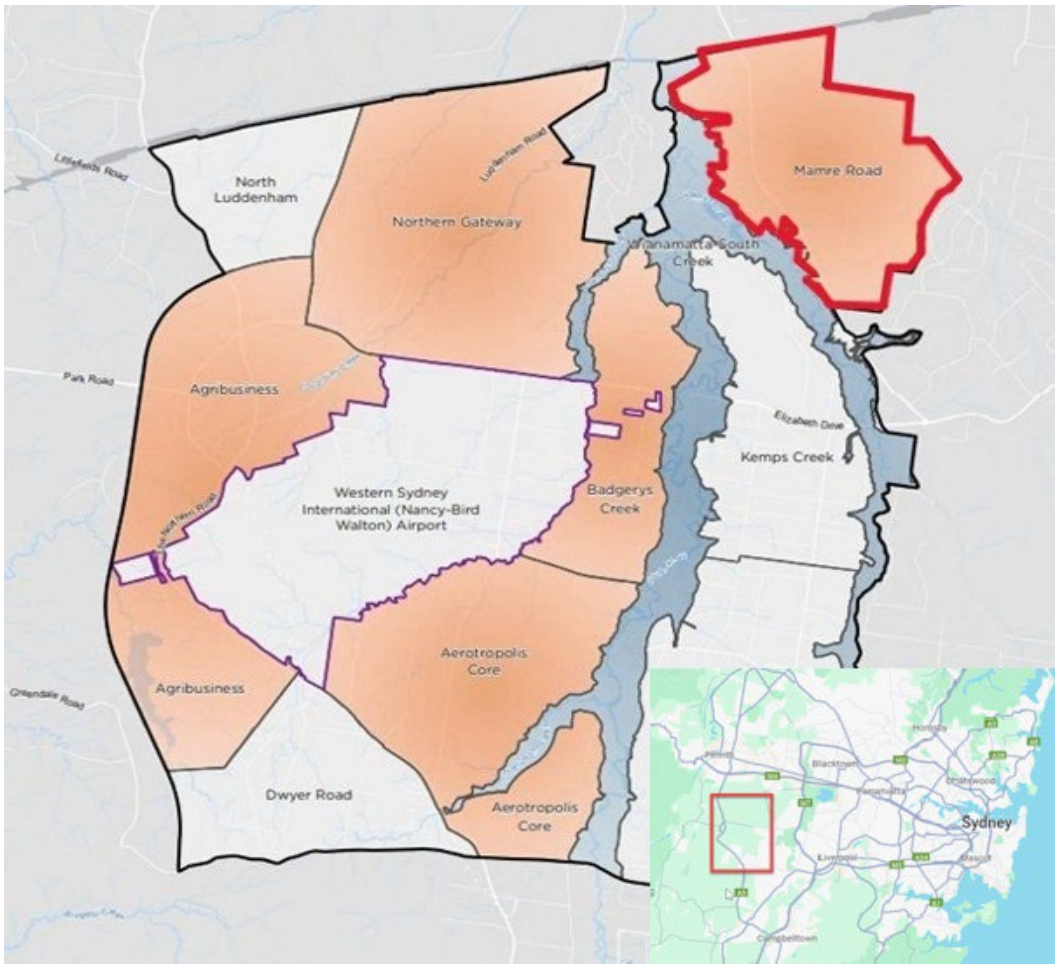
Draft Recommendations

1 Context and approach

The Mamre Road Precinct is a new industrial area located along the Wianamatta South Creek corridor and close to the site of the new Nancy-Bird Walton Airport in Western Sydney. It is located around 40km west of the Sydney CBD and falls within the Penrith City Council local government area (see Figure 1.1).

In 2020, it was rezoned to provide around 850 hectares of industrial land, primarily catering for warehousing and logistics. The development was intended to accommodate approximately 5,200 construction jobs and 17,000 ongoing jobs when fully developed.[6]

Figure 1.1 Western Sydney Aerotropolis showing Mamre Road Precinct



Penrith City Council is the consent authority for development in the area. Following a strategic business case by Frontier Economics to evaluate alternative models of stormwater infrastructure governance in the leading precincts in the Wianamatta-South Creek catchment (the strategic business case for stormwater governance), the Government appointed Sydney Water as stormwater trunk drainage authority in 2022. Sydney Water is responsible for delivering, managing and maintaining a regional stormwater network in the precinct along with its drinking water, wastewater and recycled water networks.[7]

Stormwater infrastructure is important to control rainwater runoff from hard surfaces in urban areas, such as roofs and roads, which can generate large volumes of polluted, fast-moving water that would otherwise damage sensitive waterways through introducing pollution or causing erosion.

The regional stormwater network is part of the city-shaping investment in the Western Parkland City to support and promote amenity, recreation, urban cooling and environmental outcomes. This involves conserving, investing in and actively maintaining:

- green infrastructure - such as urban canopy, open space, and
- blue infrastructure - the water-related infrastructure and stormwater management, including that provided by Sydney Water.

In most parts of Sydney, including the area surrounding the Western Sydney Aerotropolis area, stormwater is managed by councils typically using grey infrastructure such as concrete channels.

1.1 The Government's objectives for waterway health outcomes

Since European occupation, Australian landscapes and waterways have been subject to significant changes. This has led to significant degradation of waterways, especially in urban and peri-urban areas. South Creek is Western Sydney's longest urban freshwater creek and the land in the Wianamatta-South Creek catchment is the hottest, driest and least-treed area of Sydney.[8] It has seen significant changes for over 200 years, with large areas of land cleared of native forests and vegetation for European-style agricultural practices. With the significant expansion of population and urban development in the catchment in recent decades, there has been a heightened level of concern about the impact of this increased development on waterway health.

Healthy waterways provide essential services and functions to support environmental, social and economic outcomes, including more liveable cities and healthy, resilient communities. In 2017, the former Government developed the 'Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions' to guide decision-makers in determining land use planning and infrastructure to meet waterway health outcomes that reflect community environmental values and uses of waterways.[9]

Based on this framework, the Government then set stormwater management targets to achieve waterway health objectives for protecting and restoring the blue grid in the Wianamatta-South Creek catchment.[10] These risk-based targets for Wianamatta-South Creek include options for both water quality and flow targets. They are considered standard planning requirements for stormwater infrastructure in the Mamre Road Precinct Development Control Plan, which provides planning controls for future industrial development in the Mamre Road Precinct.

1.1.1 Achieving waterway health outcomes requires stricter targets

Before the risk-based targets for the Wianamatta-South Creek were introduced, local government stormwater management targets in Sydney were based largely on reducing pollutants. The new risk-based targets for Wianamatta-South Creek include more stringent targets for pollutant reduction as well as maintaining the total discharge volume from development (see Chapter 2). Previous flow targets only required temporary stormwater storage to reduce the peak discharge volumes. The new flow requirements constrain total discharge volumes within certain limits across the spectrum of storm discharge events. In new developments with large impervious areas, like roofs and roadways, this involves capturing, storing and re-using significant volumes of water, increasing the scope of stormwater management services.

1.2 The strategic business case for stormwater governance

Following the release of the risk-based targets for Wianamatta-South Creek, there were several optioneering efforts to identify the preferred approach to governing stormwater infrastructure to meet the risk-based targets. In 2021, the Government commissioned Frontier Economics to develop a strategic business case for stormwater governance. Frontier found that the preferred option for meeting the risk-based targets was a regional treatment and stormwater recycling scheme delivered by Sydney Water.

The strategic business case for stormwater governance incorporated advice on potential stormwater infrastructure solutions to deliver stormwater flow targets modelled by a stormwater specialist consultant, which was commissioned by the former Department of Planning, Industry and Environment to ensure:

"... costs and benefits modelled reflect underlying stormwater infrastructure options that can deliver new stormwater flow targets."[11]

The modelling and costs covered all the 'leading precincts' in the Aerotropolis and gave no specific breakdown of costs for the Mamre Road Precinct. Concurrently, Sydney Water undertook their own integrated servicing options review, specifically for the Mamre Road Precinct. This review found that the total cost of stormwater services required to meet the risk-based targets was $231m ($2026), which included the cost of land acquisition.[12] This is around a quarter of Sydney Water's current cost estimates.

Following this, the former Department of Planning, Industry and Environment undertook a review of water sensitive urban design strategies for Wianamatta-South Creek.[13] In this review, a wide range of options were considered with different combinations of on-lot vs regional treatment including on-site rainwater harvesting and re-use vs regional stormwater harvesting and re-use. The review focused on both the expected large format industrial and high-density residential development types in the leading precincts. In this review, a key metric was the total cost per unit of net developable area. The preferred option, which involved regional stormwater harvesting and reticulated stormwater re-use, was estimated to cost $266,600 per hectare of net developable area for large format industrial precincts such as Mamre Road.[14] The report makes the following statement regarding cost assumptions:

"The rates have been estimated by using the most recent adopted cost rates by several local authorities, recent industry installations/construction including within Western Sydney, and industry best practice guidelines (Melbourne Water 2013; eWater 2021; Sydney Water 2021). The unit cost rates were also confirmed with the independent reviewers of this work, who represent local water and stormwater (engineer) practitioners and professionals from the urban development industry."[15]

1.3 Sydney Water's Mamre Road Precinct stormwater scheme plan

In 2021, Sydney Water published the Mamre Road Flood, Riparian Corridor and Integrated Water Cycle Management Strategy. Sydney Water's strategy details how stormwater, water, wastewater, recycled water, trunk drainage and riparian zones could be managed during construction and operation, to achieve a climate independent and sustainable water system for greening and cooling in the Mamre Road Precinct.[16]

Sydney Water then designed its Mamre Road stormwater scheme plan on how it intends to deliver this, estimating the required integrated stormwater infrastructure contribution at $1.3m per hectare of net developable area.[17] This was in sharp contrast to the Government's previous estimates of $266,600 per hectare of net developable area.

In 2023, a Technical Working Group between the Government and Sydney Water, informed by a stormwater specialist consultant, was established to refine scheme costs through design review. In January 2024, the Government issued a direction to Sydney Water to cap the reasonable security required from developers to $800,000 per hectare to support timely delivery of industrial land in the precinct for development.[18]

Since then, Sydney Water has revised its scheme design to reduce costs. Sydney Water's current estimated cost to developers of delivering the scheme is around $1.02m per hectare.[19]

1.4 What IPART has been asked to do

IPART is an independent strategic agency of the NSW Government, charged with regulating key markets and government services to ensure effective social, environmental and economic outcomes.

The NSW Government has asked us to provide advice on:

- determining the efficient costs of providing stormwater drainage services within the Mamre Road Precinct
- allocating these costs efficiently between developers, taxpayers, and other stakeholders.

In fulfilling this task, we must consider:

- government policies and instruments governing land-use planning, waterway health, and environmental standards
- potential environmental, economic and social impacts of providing regional stormwater drainage services in Mamre Road Precinct compared to alternate pathways
- comparative costs of stormwater drainage schemes in Greater Sydney and other cities

- the impact of land tax and other taxes and options for funding these costs.

We must provide a report with our advice to the Secretary of the Department of Climate Change, Energy, the Environment and Water by 21 November 2024.

1.5 Our approach to this review

1.5.1 Determining the efficient costs of providing stormwater services

Sydney Water's stormwater scheme must meet the stormwater management targets set out in the Mamre Road Precinct Development Control Plan. In meeting these targets, Sydney Water must have regard to the water sensitive urban design strategies advocated in the 'Review of water sensitive urban design strategies for Wianamatta-South Creek' and 'Technical guidance for achieving Wianamatta-South Creek stormwater management targets'.

We reviewed Sydney Water's conceptual stormwater scheme design to determine whether the proposed scheme:

- complies with the guidelines and meets the stormwater management targets that apply
- delivers stormwater management services at an efficient cost
- could deliver stormwater services in a more cost-effective way.

We engaged Hydrology and Risk Consulting (HARC) to review Sydney Water's conceptual design and compare it to the Technical Working Group's alternative design for the Northwestern and Eastern sub-catchment clusters using Model for Urban Stormwater Improvement Conceptualisation (MUSIC) models.

We engaged WT Partnership Australia (WTP) quantity surveyors to provide advice on the reasonableness of both Sydney Water's and Technical Working Group's capital cost estimates, compared with projects with a similar development stage, market conditions and potential for cost efficiencies.

We also considered the extent to which meeting the Mamre Road Precinct stormwater targets contributes to costs, compared to meeting targets in neighbouring Penrith City Council areas.

1.5.2 Cost allocation between developers, taxpayers and others

IPART generally advocates allocating costs to parties according to their contribution to the cost being incurred. However, where there is not a clear nexus between the service and payee, we may consider what benefits the service provides and who accrues these benefits. Where the cost drivers or beneficiaries can't be easily identified or charged, some portion of costs may need to be recovered from customers or taxpayers.

Applying the framework to this review, we considered:

- which stormwater services (and therefore costs) are driven by new development and which, if any, are driven by other Government objectives that are intended to benefit a broader community

- who benefits from these services and how feasible it is for Sydney Water to recover costs from these parties
- the financial impact on the identified parties, including what impact it would have on the economic viability of development in the precinct.

A key consideration is whether the stormwater management targets intend to substantially improve the Wianamatta-South Creek condition above the steady state levels that would occur with no new development.

We also considered who should pay land tax and for interim works that are necessary for development prior to the roll out of the regional stormwater scheme.

1.5.3 How stakeholder feedback has informed our draft decisions

Our draft findings and recommendations have been informed by stakeholder submissions and feedback at our stakeholder workshops (see Box 1.1), advice from our stormwater and cost consultants and our own analysis.

To better understand the key issues and their impact on stakeholders, we sought submissions on an Issues Paper in April 2024 and held 2 workshops with the Tribunal in June 2024. We consulted with the Department of Climate Change, Energy, the Environment and Water, Department of Planning, Housing and Industry, Design Flow stormwater consultants (engaged by the Department of Climate Change, Energy, the Environment and Water to advise the Technical Working Group) and Sydney Water.

Box 1.1 What we heard from stakeholders

Stormwater scheme design

Some stakeholders expressed concerns that the scheme may not meet targets and could be more cost effective and efficient. Some stated that naturalised design elements add significant cost, which developers should not fund as it doesn't contribute directly to meeting stormwater targets.

Stakeholders had mixed views on the recycled water system. Some considered stormwater reuse at the source to be more efficient and effective than funding a complex system of storage and pipes to pump stormwater to catchments that already have access to potable and recycled water. Others considered that forecast demand for recycled stormwater use by industrial customers in the precinct was too high.

Efficient costs

Some stakeholders considered stormwater costs in adjacent local government areas were not a valid benchmark for future investments because they deliver lower water quality Some also suggested that Sydney Water could deliver efficient costs by outsourcing components to private operators.

Development viability, land sterilisation and interim works

Some stakeholders claimed that the current bonding cost was unaffordable and made development unviable. Developers considered that they shouldn't fund interim capital works to proceed with development before the scheme roll out, if they become redundant. They also don't want land sterilisation, because it limits how much land they can use to generate revenue. One stakeholder noted that 55% of land must be sterilised until Sydney Water's stormwater works are completed.

Cost allocation

Stakeholders considered developers (impactors) should fund scheme costs before beneficiaries or the wider community.

Land tax and ongoing landowner cost impacts

Stakeholders claimed land tax would have a significant financial impact and that this would be ongoing beyond initial development costs.

Landowners raised concerns about land-locked parcels, compensation, timing of acquisition and payment, valuation methodology for determining compensation, flooding, noise and air pollution associates with living in an industrial zone.

Stormwater management targets and broader benefits

Stakeholders expressed concerns about the target levels and how they were developed, including lack of consultation, peer review and waterway suitability.

1.6 How this report is structured

The following chapters discuss our analysis, draft findings and draft recommendations on the efficient costs of Sydney Water's stormwater scheme and how those costs should be allocated among developers, taxpayers and others.

- Chapter 2 discusses the stormwater management targets, their role in shaping the scheme and how they drive costs
- Chapter 3 reviews Sydney Water's stormwater scheme design and the Technical Working Group alternative and potential optimisations to reduce costs
- Chapter 4 examines the costs of delivering Sydney Water's stormwater scheme, the Technical Working Group's alternative and an option that meets standard local government stormwater management targets
- Chapter 5 sets out our cost allocation framework and recommends what contribution developers, taxpayers and others should make towards the efficient costs
- Chapter 6 considers how our cost allocation recommendations impact developers, taxpayers and others, including the impact on development viability in the precinct.

2 Stormwater management targets

Sydney Water's stormwater scheme must meet the stormwater management targets in the Mamre Road Precinct Development Control Plan. In developing its scheme, Sydney Water must also consider the NSW Government's policy objectives for water sensitive urban design, outlined in its 'Technical guidance for achieving Wianamatta-South Creek stormwater management targets'.

This chapter considers how these targets and guidelines affect Sydney Water's scheme costs, compared to the costs of providing stormwater services that would meet the standard local government targets that apply in neighbouring areas. It considers the how the targets were developed, including whether they were designed to realise broader benefits to the community that may warrant a contribution to costs from other parties.

2.1 Overview of our draft findings on the stormwater targets

The risk-based stormwater targets that apply to the Mamre Road Precinct are much stricter than standard local government targets in the Sydney Metropolitan area, requiring lower discharge volumes, phosphorus, nitrogen and other pollutants. This is a significant cost driver resulting in Sydney Water's proposed stormwater infrastructure charges being around 3.5 times higher than what developers would pay in neighbouring areas.[20]

However, the targets are necessary to prevent irreversible damage to the sensitive Wianamatta-South Creek and its ecosystems, ensuring altered stormwater flows from expected land use changes don't push the waterway past its 'tipping point'. Applying standard local government targets could lead to severe degradation including biodiversity loss, erosion and reduced water quality.

Meeting the targets is likely to generate water quality improvements over time, leading to conditions where ecosystems could re-generate and riparian vegetation re-planting could be sustained. We consider these benefits are incidental, generated from implementing strategies to mitigate stormwater runoff from new development in the first instance.

The former Department of Planning, Industry and Environment (now Department of Climate Change, Energy, the Environment and Water) developed the targets following the Government's 'Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions'. This involved scientific analysis and consultation with water managers, land-use planners and the broader community over a 4-year period to set the appropriate objectives and tipping points for waterway health.

2.2 How the stormwater targets compare to those in other areas

In response to our Issues Paper, some stakeholders raised concerns that the Mamre Road Precinct targets are a step change from what has been adopted in NSW to date and have resulted in a requirement for large scale, inefficient and unaffordable infrastructure.[21] In particular, the Mamre Road Landowners Group expressed concerns that the 90th percentile flow control results in "interim measures, significant sterilisation of land and infeasible scheme design costs".[22]

2.2.1 The Mamre Road Precinct stormwater targets are stricter than standard local government targets

The stormwater targets for the Mamre Road Precinct are stricter than those that apply in neighbouring local government areas. They require higher levels of water treatment to manage pollutants such as nitrogen, phosphorus and sediment. These targets also include more detailed requirements for mitigating water flow to reduce volumes and prevent erosion in the Wianamatta-South Creek.

The Wianamatta-South Creek catchment spans 8 local government areas, including Penrith City Council, where the Mamre Road Precinct is located, and the adjacent Blacktown area. These both house similar industrial developments immediately to the north and east of the Mamre Road Precinct.

Both Blacktown Council and Penrith City Council have guidelines for flow and nutrient management that apply to new developments. Along with the Mamre Road Precinct targets, these are compared with the EPA Victoria targets introduced in 2021 in Table 2.1 below.

Table 2.1 Comparison of water quality and flow targets in different jurisdictions

Parameter	Mamre Road Precinct	Penrith City Council	Blacktown City Council	EPA Victoria
Total Gross Pollutant[a]	90% reduction	90% reduction	90% reduction	N/A
Total Suspended Solids (TSS)[a]	90% reduction	85% reduction	85% reduction	80% reduction
Total Phosphorus (TP)[a]	80% reduction	60% reduction	65% reduction	45% reduction
Total Nitrogen (TN)[a]	65% reduction	45% reduction	45% reduction	45% reduction
Free Oils and Grease	No release of oil, litter or waste contaminants	90% reduction	N/A	N/A
Total hydrocarbons	N/A	N/A	90% reduction	N/A
Litter	No release of oil, litter or waste contaminants	N/A	N/A	70% reduction
Flow	Mean Annual Runoff Volume ≤2 ML/Ha/year at the point of discharge to the local waterway	Post development no greater than 3.5 times pre-development.	Deemed to comply: • Full bioretention on-lot to meet the water quality targets.	Requirements for harvesting and or infiltration as a % of mean annual runoff depending on rainfall band and priority of receiving waterway.

Parameter	Mamre Road Precinct	Penrith City Council	Blacktown City Council	EPA Victoria
			• A rainwater tank that supplies a minimum of 80% non-potable demand. Or: • Post development no greater than 3.5 times pre-development.	

a Based on annual load reduction.
Source: NSW Department of Planning, Industry and Environment, *Mamre Road Precinct Development Control Plan 2021*, November 2021, p 18; Penrith City Council, 2014; Blacktown City Council, 2020; EPA Victoria, 2021.

The Mamre Road Precinct targets include more detailed requirements for flow control (see Table 2.2).

Table 2.2 Mamre Road Precinct flow targets for new development (operational phase)

Parameter	Option 1 – Mean Annual Runoff Volume (MARV)		Option 2 – Flow duration curve approach	
	Target	Flow objective for 1st and 2nd order streams	Target	Flow objective for 1st and 2nd order streams
Mean Annual Runoff Volume (MARV)	≤2 ML/ha/y at the point of discharge to the local waterway	1.90–2.14 ML/ha/y	N/A	N/A
95% percentile flow	N/A	N/A	3,000–15,000 L/Ha/day at the point of discharge to the local waterway	N/A
90% percentile flow	1,000–5,000 L/Ha/day at the point of discharge to the local waterway	1,309–2,788 L/Ha/day	1,000–5,000 L/Ha/day at the point of discharge to the local waterway	1,309–2,788 L/Ha/day
75% percentile flow	N/A	N/A	100–1,000 L/Ha/day at the point of discharge to the local waterway	327–2,048 L/Ha/day
50% percentile flow	5–100 L/Ha/day at the point of discharge to the local waterway	50–94 L/Ha/day	5–100 L/Ha/day at the point of discharge to the local waterway	50–94 L/Ha/day
10% percentile flow	0 L/Ha/day at the point of discharge to the local waterway	2–39% cease to flow	N/A	N/A
Cease to flow	N/A	N/A	Cease to flow to be between 10% and 30% of the time	2–39%

Source: NSW Department of Planning, Industry and Environment, *Mamre Road Precinct Development Control Plan 2021*, November 2021, p 19.

2.2.2 The cost of meeting the Mamre Road Precinct targets is significantly higher

The water flow and quality targets are a significant driver of stormwater management costs. Our stormwater consultants HARC developed a design option that would meet the standard local government targets that would apply to neighbouring Penrith City Council developments. Based on the results of our cost consultant, we determined that the stormwater infrastructure to meet these targets would cost significantly less than Sydney Water's Mamre Road stormwater scheme at around $300,000 per hectare.[23]

However, this doesn't justify lowering the Mamre Road Precinct targets. The higher costs result from the extra works required to mitigate industrial development in a sensitive waterway catchment. The standard targets that apply in neighbouring areas are not suited to manage the stormwater impacts from this level of large format industrial development with vast impervious surfaces and would fail to protect the waterway, potentially leading to severe degradation, biodiversity loss, erosion and poorer water quality.

Draft Finding

1. The stormwater management targets for the Mamre Road Precinct are stricter than the typical local government stormwater targets that apply in neighbouring areas and cost significantly more to meet.

2.3 Purpose of the targets and how they were developed

Stakeholders at our workshops raised concerns that the stormwater targets provide broader community benefits that should result in lower costs for developers or adjustments to Sydney Water's rate of return.[24]

We sought further information from the Department of Climate Change, Energy, the Environment and Water about how the targets were developed and the original intent. We considered whether they were designed to realise broader benefits to the community that could warrant a contribution to costs from other parties.

2.3.1 Broader benefits from meeting the targets are incidental

The stormwater targets are one strategy to achieve the waterway health objectives of protecting and restoring the Wianamatta-South Creek, in line with the Government's vision for a 'cool, green' Western Parkland City. They also provide a level of protection for the ecosystems and aquaculture in the Hawkesbury River, for which Wianamatta-South Creek is a significant tributary. The Department of Climate Change, Energy, the Environment and Water considers compliance met when water quality concentrations in stormwater flows from the treatment train are at or below the water quality objectives.

We considered what 'protect and restore' means in this context and concluded that while the targets help reduce pollutants and help improve the creek's condition over time, restoration is incidental, not the primary goal. The targets are primarily designed to ensure that altered stormwater flows from changes in land use don't result in increased erosion and waterway pollution. While some degradation may still occur compared to a pre-development state, the targets prevent the waterway reaching a tipping point where recovery is no longer possible, even with remediation.

2.3.2 The former Department of Planning, Industry and Environment followed a reasonable risk-based process to develop the targets

Some stakeholders questioned the process used to develop the targets and lack of industry consultation. Barings stated:

> …the Stormwater Targets were developed by a Brisbane-based civil engineer with support from a local ecologist. There has been limited information shared to industry on the assumptions which informed the waterway health targets. The targets were not peer reviewed and no engagement with industry occurred during its development…[25]

One stakeholder at our workshop commented that the same controls for a first or second order watercourse apply to the Wianamatta-South Creek, which is a third order watercourse, while another expressed concern that targets were based on limited monitoring data.[26] Some stakeholders recommended that there should be a review of the current waterway targets or a revised feasibility assessment.[27]

We sought further information from the Department of Climate Change, Energy, the Environment and Water about how they developed the targets and what consultation they undertook. The Department of Climate Change, Energy, the Environment and Water (as the former Department of Planning, Industry and Environment) followed the Government's 'Risk-based Framework for considering waterway health outcomes in strategic land use planning decisions' to determine the appropriate targets. This involved mapping the natural blue grid, identifying community values and uses and setting water quality and flow objectives. They then assessed the relationship between water flow and habitat indicators and converted these objectives into specific targets. They conducted a strategic impact assessment, including consulting local councils on 16 water sensitive urban design strategies to achieve the targets.

As part of this process, the Department of Climate Change, Energy, the Environment and Water advised that they:

- conducted online market research with paid participants and used geolocated pinpoints to allocate community values and uses with 11,500 participants across NSW
- consulted 100 local and state waterway managers in 2021 and 2022 through 14 workshops that were hosted across NSW
- conducted field observations of vegetation and fauna at various sites throughout the catchment
- monitored water flows at 6 gauging stations (5 of which provided good data records) to assess the hydrological changes resulting from land-use pressures in the upstream drainage area/sub-catchment, and cross-check modelled stream flow data from Sydney Water

- reviewed water quality data from 4 undisturbed monitoring sites
- consulted subject matter experts from state and local governments, industry practitioners and academia.[28]

We consider this advice to be credible and our draft finding is that the process used to develop the targets was appropriate.

Draft Findings

2. The main purpose of the targets is to manage stormwater runoff from land-use changes that stem from large format industrial development in the precinct. Waterway improvements and other benefits that result from the targets being met are incidental.

3. The process used to develop the risk-based Wianamatta–South Creek stormwater management targets was appropriate.

3 Sydney Water's stormwater scheme design

Establishing the efficient costs of delivering stormwater drainage services ensures developers, taxpayers and customers only pay what is necessary to deliver and operate these services. To inform our view on these costs, we considered the process Sydney Water undertook to develop its stormwater scheme including its key assumptions.

We engaged Hydrology and Risk Consulting (HARC) to review Sydney Water's conceptual design and compare it to the Technical Working Group's alternative design for the Northwestern and Eastern sub-catchments using Model for Urban Stormwater Improvement Conceptualisation (MUSIC) models. HARC's report is available on our website.

This chapter considers whether Sydney Water's preferred scheme is developed consistent with the Government's water sensitive urban design guidelines and whether it meets the stormwater targets. It compares it with the Technical Working Group's alternative design and considers the main cost drivers and opportunities to reduce these.

3.1 Overview of our draft findings and recommendations on the stormwater scheme design

Our draft findings are that the stormwater treatment, storage and recycling systems proposed by Sydney Water are designed to meet the risk-based water quality and flow targets. The requirement to remove water with the use of storage and recycled water systems adds significant costs to the scheme.

More stringent water quality targets result in a greater than proportional increase in the size of treatment systems, which also adds to the costs of the scheme.

The parameters governing runoff and pollutant loads used by Sydney Water in their MUSIC model are consistent with industry standards for Water-sensitive Urban Design (WSUD).

A significant proportion of the cost of the scheme is dependent on the size of the recycled water storage ponds, which in turn are dependent on the demand for recycled water. Sydney Water's earlier recycled water demand forecasts were subject to a large amount of uncertainty. However, we found that the final forecasts used in the Sydney Water design are reasonable. Nonetheless, we consider that Sydney Water could improve the accuracy of recycled water demand forecasts for future large format industrial development areas.

Given the long lead-in times and other uncertainties, using the Kemps Creek Dam as a storage for recycled stormwater is unlikely to be a viable option for the Mamre Road Precinct.

3.2 Sydney Water's stormwater scheme design

In March 2023, Sydney Water released its design and costing of the stormwater scheme. This was, and still is, the first development of a conceptual design for the purposes of setting stormwater infrastructure development charges under the new risk-based targets for Wianamatta-South Creek.

The current Sydney Water stormwater management scheme is comprised of stormwater collection, treatment, storage over five clusters of sub-catchments and a recycled water treatment and distribution network.

The design is dependent on the modelling undertaken using the MUSIC model. This model simulates the flow and pollutants resulting from storm events and the removal of pollutants from treatment systems. The extraction of stormwater from storage ponds for recycling is also simulated.

The volumes of runoff and pollutants are governed by assumptions in the model about the areas of the catchment that are impervious (such as roads and roofs) and the potential for different land uses to generate different levels of pollutant loads.

Apart from some minor issues identified in the development of the design, the parameters governing runoff and pollutant loads used by Sydney Water in their MUSIC model are industry standard. Our draft finding is that the treatment and storage and stormwater recycling systems would meet the risk-based water quality and flow targets.

Draft Findings

4. The stormwater treatment, storage and recycling systems proposed by Sydney Water would meet the risk-based water quality and flow targets.

5. The parameters governing runoff and pollutant loads used by Sydney Water in their Model for Urban Stormwater Improvement Conceptualisation (MUSIC) Large Format Industrial model are consistent with industry standards for water sensitive urban design.

3.3 Assumed demands for recycled water

The demand for recycled water is a critically important parameter in the development of the Mamre Road stormwater management infrastructure. The higher the demand for water, the sooner space is created in storage ponds for additional capture and hence the size of storage ponds is reduced. It is important to note that there are no existing large format industrial sites like the Mamre Road Precinct in the Sydney Water service area that are supplied with recycled water.

Recycled water demand estimates for the Mamre Road Precinct have typically been generated by estimating the volume of water used on-lot (assumed to be 50% of the normal potable use) and then adding additional demands for the irrigation of other precinct areas such as on-lot and off-lot planting areas, open space and Non-Revenue Water (NRW). The assumption of 50% of on-lot use being non-potable is based on Sydney Water's records of non-residential customer water consumption in recycled water service areas. While these areas are not exclusively large format industrial, we consider that this is a reasonable assumption in the absence of better information.

Demand estimates utilised in the Review of water sensitive urban design strategies for Wianamatta–South Creek[29] were generated using an 'average frequency' analysis of water use from Sydney Water's industrial customers normalised for lot area. This analysis resulted in estimates of on-lot total demand of 12.5 kL/ha/d and recycled water demand of 6.25 kL/Ha/d

It should be noted that the 'average frequency' analysis used to generate this demand estimate is not an accepted statistical analysis technique and will not provide an unbiased estimate of the expected water consumption. We do not support the ongoing use of average frequency analysis when estimating water demand. A simple averaging of water consumption per unit lot area would give the appropriate estimate. We note it was discontinued during the evolution of the demand forecasts and so has had no material impact on the final demand estimates.

The frequency distributions used do correctly highlight the wide variance in water use intensity on large format industrial sites across Sydney and the difficulty in generating reliable estimates of water demand for the Mamre Road Precinct.

The water demand estimates were subsequently refined over the design process, with the final on-lot estimates being based on 50% of the average demands from similarly sized large format industrial lots supplied with potable water. Additional demand has been added for additional irrigation (on-lot and off-lot) plus non-revenue water. The estimation of NRW has not used a correct formula, although the impact of this error is minor.

Our draft finding is that the final demand estimate is reasonable, despite the minor error in the NRW calculation.

The resulting water demands are much lower than those used in the original review of water sensitive urban design strategies and may go some way in explaining the significant differences in the sizing of storage ponds and scheme costs between the original conceptual layouts and those finally adopted by Sydney Water.

Given the dependency of the sizing of recycled stormwater storage ponds on the level of water demand, there are strong incentives to improve the forecasts of water demand for future large format industrial development areas.

Draft Findings

6. A significant proportion of scheme costs is dependent on the size of the recycled water storage ponds, which are dependent on the demand for recycled water.

7. Sydney Water's initial recycled water demands were subject to significant uncertainty. However, the final recycled water demands Sydney Water used in its stormwater scheme design are reasonable.

Draft Recommendation

1. Sydney Water should review its method of forecasting recycled water demand for future large format industrial development areas in the broader Aerotropolis.

3.4 The additional cost of meeting the risk-based targets

The new risk-based targets for Wianamatta-South Creek require the installation of additional pollutant removal infrastructure and the infrastructure required for the interception and storage of treated stormwater for use in a recycled stormwater system. In addition, more stringent water quality targets result in a greater than proportional increase in the size of treatment systems. Due to the periodic nature of stormwater availability, this recycled water scheme requires a connection to a backup source of water, which is in this case the Upper South Creek Advanced Wastewater Recycling Plant.

To test the cost impacts of meeting these more stringent targets, IPART engaged a stormwater consultant, HARC, to develop conceptual layouts for 2 of the 5 Mamre Road Precinct clusters of sub-catchments based on meeting typical council targets. WTP considered the efficient costs of providing this conceptual layout and found that it would cost around 78% less than Sydney Water's current stormwater scheme design, largely because of the reduced area required for treatment systems.[30] If the results in these 2 sub-catchment clusters are extrapolated across the entire Mamre Road Precinct we estimate that the resulting stormwater infrastructure charge would be around 70% less than Sydney Water's stormwater infrastructure charge.[31]

Draft Finding

8. Stricter water quality targets require a greater than proportional increase in the size of treatment systems, which adds to the costs of the scheme.

9. The requirement to remove water from the system through storage and recycled water systems adds significant costs to the scheme.

3.5 The use of the Kemp's Creek Dam

One of the Technical Working Group's findings was that Sydney Water should explore the viability of using the existing Kemps Creek Dam as it's stormwater recycling storage pond. To do this, the dam would need to be either:

- re-engineered to create an off-stream storage, or
- used as an on-stream storage, with upstream flows captured and re-used offsetting the increased discharges from the Mamre Road Precinct.

As it is currently configured, the Kemps Creek Dam is clearly an on-stream storage. With its extensive embankments the current dam occupies a significant part of the original floodplain, and the outlet has been engineered to divert discharges into an adjacent creek. There would be significant challenges presented by either option, including:

- the transfer of the asset from the original owner to Sydney Water, and
- the current and ongoing integrity and stability of the dam structure.

Addressing these challenges would take a significant amount of time. The current urgency of implementing a stormwater management scheme for the precinct means that the use of the Kemps Creek Dam as part of the stormwater management scheme is not likely to be feasible and we have not considered this option further.

Draft Finding

10. Given the urgent project time frames, the potential use of the Kemps Creek Dam as a storage for recycled stormwater is not a pragmatic option at this stage.

4 Efficient costs of Sydney Water's stormwater scheme

We reviewed the costs of Sydney Water's stormwater scheme design and the Technical Working Group's alternative and determined whether they were reasonable compared to projects of similar stage and risk. We engaged WTP Australia (WTP) quantity surveyors to independently review Sydney Water scheme costs as presented in their final business case for the Mamre Road Precinct - Integrated Water Management.

This chapter considers whether Sydney Water's stormwater scheme costs are reasonable and whether the Technical Working Group's alternative offers a lower cost way of meeting the targets.

4.1 Overview of our draft findings and recommendations on efficient costs

The Mamre Road Precinct stormwater management scheme is the first to be designed to meet the new Wianamatta-South Creek risk-based targets. In hindsight, the former Department of Planning and Sydney Water's early estimates of the cost to deliver stormwater management services have proven to be significantly lower than what is required to meet the targets.[32]

Since their release of the first conceptual design, Sydney Water has made significant reductions in costs through design improvements. We have found that the cost estimates prepared by Sydney Water for their current concept design are reasonable, compared with a project of similar stage and risk profile. In addition, Sydney Water has employed an appropriate methodology in estimating costs for land acquisition and a contingency for this cost.

However, our review of recent work undertaken by stormwater consultants for the Technical Working Group in 2 of the 5 sub-catchment clusters suggests that it could be possible to achieve material cost savings through more efficient design of stormwater treatment trains and the use of deeper storage ponds, both of which lead to reduced cost and land take. If these cost savings are extrapolated to the remaining catchments within the precinct, we estimate that the stormwater infrastructure charge could be reduced to approximately $850,000 per hectare.

4.2 Independent review of Sydney Water's stormwater scheme costs

Our cost consultant, WTP, reviewed Sydney Water's stormwater scheme costs to assess the reasonableness, considering the inherent uncertainties in projects at a similar stage of development, market conditions, and the potential for cost efficiencies. The review did not include land acquisition costs.

The review has the following variance from Sydney Water's Final Business Case costs:

- direct costs are 2% lower.

- indirect costs are 3% higher.
- contractor margin is 21% higher.
- contract contingency incl margin (P50 - Base) is 21% higher.
- SWC contingency at P50 is 39% higher and at P90 is 12% lower
- Total Project Cost at P50 is 5% higher and at P90 is 1% lower.[33]

WTP's draft report is available on our website. Given the conceptual design used for costing, we conclude that Sydney Water's costs are reasonable, compared to projects of a similar stage and risk profile.

Draft Finding

11. Sydney Water's cost estimates for their current concept design are reasonable compared to comparable projects at a similar stage and risk profile.

4.3 Review of land acquisition costs

One of the key project costs is land acquisition. We reviewed both the methodology Sydney Water used to estimate land acquisition and the unit rates it applied. We found that the methodology was appropriate and thorough in both estimating the land areas required, compensation payable and contingency. We also found that Sydney Water consulted appropriately in setting market rates for land value.

Draft Finding

12. Sydney Water has employed an appropriate and robust methodology in setting costs for land acquisition and a contingency for this cost.

4.4 Independent review of Technical Working Group alternative

In late 2023, in response to the high initial estimate of the stormwater developer servicing charge, a joint Government-Sydney Water Technical Working Group was initiated to provide independent review and a forum for identifying and discussing opportunities for the optimisation of the scheme. The former Department of Planning, Industry and Environment engaged a stormwater management consultant to review the Sydney Water design and suggest improvements. Refinements that Sydney Water has made following this process means they have been able to reduce the developer infrastructure contribution from $1.3m per hectare to $1.02m per hectare.[34]

To demonstrate the potential for additional cost savings, the stormwater management consultant HARC developed alternative designs for 2 of the 5 clusters of sub-catchments in the precinct. The key difference from Sydney Water's design is reduced basin areas and increased depth, which results in a more cost-efficient design and land acquisition savings.

WTP's cost review of these alternative designs found that costs of the stormwater treatment and storage component of the collection, treatment and recycling system would be around 29% less than Sydney Water's design.[35] If this is extrapolated to all 5 sub-catchment clusters, it could result in a further 14% reduction in infrastructure costs.[36] However, this is contingent on further investigation to determine the feasibility and refine the excavation costs required for deeper basins.

These findings demonstrate that it could be possible to achieve substantial cost savings through additional optimisation of the design.

Draft Finding

13. It could be possible to achieve substantial cost savings through better optioneering, including more efficient design of stormwater treatment trains and use of deeper storage basins.

Draft Recommendation

2. Sydney Water should review its stormwater optioneering for the broader Aerotropolis to identify the most cost-effective stormwater solution at an earlier design stage.

4.5 Cost differences between the early conceptual layouts and the current Sydney Water design

As discussed in Chapter 2, the current Sydney Water stormwater scheme design cost is significantly higher than the costs estimated when the early conceptual layouts were developed for the Strategic Business Case. Factors contributing to this include:

- the additional cost imposed by land tax on forecast land acquisitions by Sydney Water to deliver the necessary infrastructure for the scheme
- the much lower water demands than those assumed in the development of the early conceptual layouts leading to much larger storage pond sizes in Sydney Water's design
- some refinements to the understanding of land uses.

However, there are still significant differences in costs that cannot be explained alone by these factors. This points to a potential failure in the early optioneering and conceptual development phases of the project to apply realistic cost estimates. This has had the effect of sending vastly inaccurate price signals to developers about the true costs of developing land in the Mamre Road Precinct. While the IPART is not able to speculate on the specific causes of this potential failure, we recommend that the agencies involved in this early optioneering review their processes and communications.

We also consider that the process of developing risk-based targets should not be undertaken without due consideration of the potential trade-offs between environmental goals and the cost of meeting those goals.

Draft Finding

14. In hindsight, the former Department of Planning and Sydney Water's early stormwater infrastructure cost estimates have proven to be too low, sending inaccurate signals of the true cost of developing the Mamre Road Precinct to developers.

5 Cost allocation

This chapter considers how much developers should contribute to the stormwater scheme costs and whether there's a rationale for other parties like taxpayers or water customers to fund some of these costs.

We apply our cost allocation framework to determine the appropriate cost allocation between developers, taxpayers and others. As part of this, we also consider who should fund land tax and the cost of interim assets required for development to begin before the regional stormwater scheme is rolled out.

5.1 Overview of draft findings and recommendations on cost allocation

Our draft recommendation is that developers in the Mamre Road Precinct should fund the costs of the stormwater management scheme. Mitigating stormwater runoff from development is the primary driver of costs and we have found that there is no foundation for taxpayer or customer contributions.

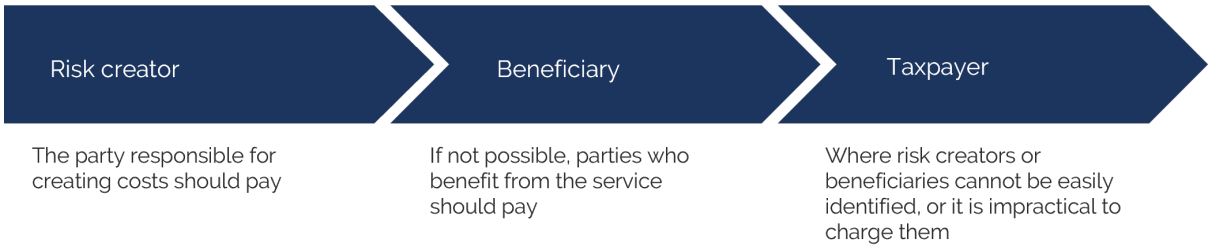
While the broader community benefits from enjoying better water quality, urban cooling and less pollution, these arise incidentally to managing stormwater runoff and are not primary cost drivers. These benefits are also small compared to what developers save on land holding and infrastructure costs compared to providing on-lot stormwater infrastructure (see section 5.4).

Developers benefit the most from interim infrastructure solutions that allow them to generate revenue from developing their land earlier than otherwise. They are also the appropriate party to fund land tax costs. Sydney Water incurs land tax as a material, statutory cost of development. If developers provided on-lot stormwater management infrastructure on their own land, they would bear these land tax obligations directly.

5.2 Cost allocation framework

When considering who should pay for new infrastructure or services, IPART's precedent is to use the funding hierarchy in Figure 5.1. This hierarchy prioritises recovering costs from 'risk creators' in the first instance, meaning the parties who trigger the need for the services. If cost recovery from the risk creators is not possible, then beneficiaries of those services should pay. If it is not possible or practical to charge either the risk creators or beneficiaries, costs would fall to the Government as the funder of last resort. We have applied these principles as the basis for our draft decisions on cost recovery in this review.

Figure 5.1 Cost allocation hierarchy



5.2.1 There is a direct nexus between the need for stormwater infrastructure and development activities

Developers, as the primary drivers of urban development, increase the proportion of impervious surfaces like roads, rooftops and pavements, which prevent rainwater from infiltrating the ground. This results in increased runoff, which can cause pollution, erosion and harm to sensitive ecosystems in the Wianamatta-South Creek catchment.

The creek's sensitivity to increased stormwater flows makes stormwater management critical. To maintain the current conditions of the waterway, runoff from planned development would need to be reduced by around 75%, which requires specific stormwater management solutions.[37] Developers are therefore the main risk creators and there is a strong case for them to fund the costs of necessary stormwater solutions in the first instance.

5.2.2 The broader community also benefits from the stormwater scheme

Developers should not be expected to pay for costs that exceed their own impacts. As discussed in Chapter 2, the waterway health objectives that apply to the Mamre Road Precinct were designed with community values in mind. Waterways, riparian corridors and water dependent ecosystems are key components of the natural blue grid that is shaping the design of the urban landscape in the Aerotropolis. Protecting and restoring the waterways to a healthy state has been identified as a necessary condition to enable a liveable green corridor within the region, providing amenities that meet community needs.

Many of these community benefits are non-market benefits, which don't have a direct market value or price, but still provide value to society. These include:

1. Waterway quality — the proposed solution is designed to protect and maintain the waterway quality against further degradation arising from development. To the extent that the waterway quality and local ecology improves because of the targets, then the community would benefit from these positive environmental outcomes.
2. Carbon sequestration and air pollution removal — the proposed scheme is expected to increase tree biomass, which has a positive effect on emission reduction and air quality.
3. Urban cooling — the scheme supports the development of a blue/green grid within the Aerotropolis, this in turn can lead to health and productivity impacts from improved liveability.

4. Reduced use of Warragamba Dam — the proposed regional scheme also includes the implementation of a recycled water mechanism, which has the potential to reduce usage of water from Warragamba Dam. This may positively impact the broader Sydney Water Customer base beyond the precinct.

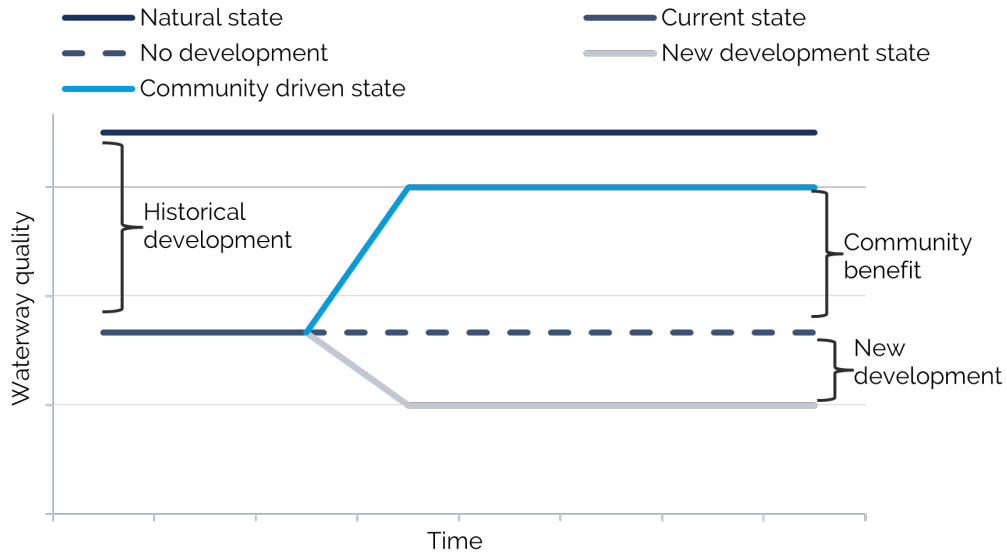
We have considered the materiality of these benefits and whether they are a key driver of scheme costs or simply incidental.

5.3 Primary stormwater scheme costs drivers

If the policy objectives of the scheme have been designed to generate a material improvement in the state of the waterway above current levels, then we would consider that the community, as beneficiaries, are a driver of at least some portion of the project costs.

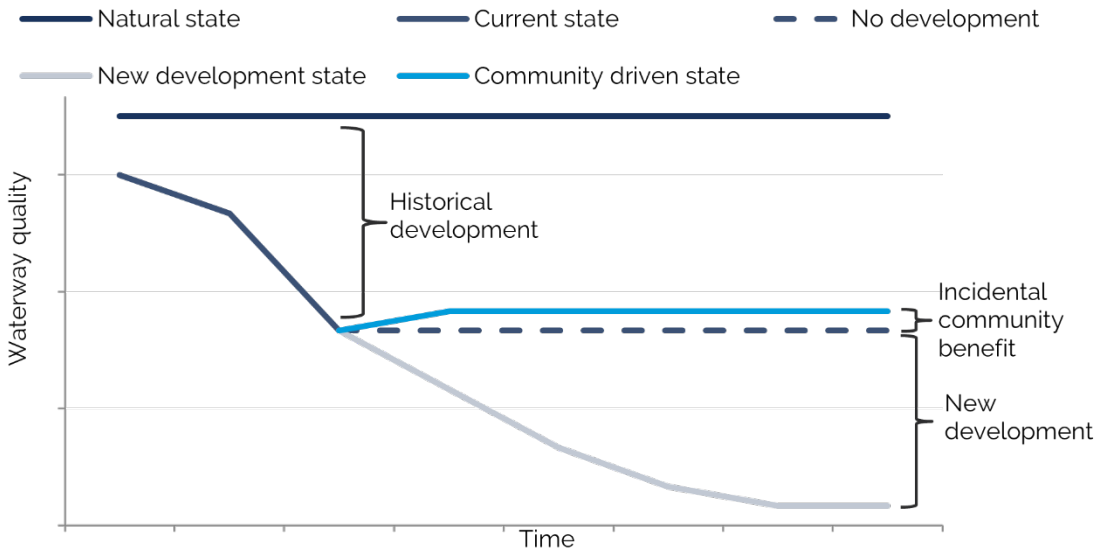
Figure 5.2 illustrates this point. The current state of the waterway is already tracking below its natural or 'pre-development' state because of historical development activity. New development would further degrade the waterway, giving rise to the need for stormwater infrastructure to manage this impact. Costs to offset this development impact would be borne by developers. However, if the proposed scheme seeks to go beyond avoiding developer driven waterway impacts, and materially improve the waterway to a higher state than its current state, then these costs would be allocated to the community (taxpayers).

Figure 5.2 Scheme designed to improve the waterway above current state



Alternatively, if the scheme has been principally designed to mitigate the impact of development, then we would consider than any benefits or improvements to the waterway and natural environment are incidental. Figure 5.3 considers what this might look like in practice. Under this scenario, developers would be allocated most of the scheme costs, as they directly drive the outcomes for which the scheme has been designed.

Figure 5.3 Scheme principally designed to address development impacts



5.3.1 Community benefits are largely incidental

We consider that Figure 5.3 more accurately depicts the cost drivers of the scheme. As discussed in Chapter 2, the waterway targets have been designed to avoid the waterway reaching a tipping point, after which very high environmental costs would occur. The impact of new development is expected to significantly exceed this tipping point under a typical 'business-as-usual' approach to managing stormwater runoff. Because of this, the scheme has been principally designed to avoid exceeding the tipping point. Any community benefits that arise are largely incidental.

As part of our analysis, we considered Sydney Water's final business case[c] for the stormwater scheme, which compared the costs and benefits of 3 options:

1. Base case: On-lot stormwater management without recycled water. Around 80% of non-potable water demand is to be met from on-lot storage and treatment of water. Ongoing maintenance of infrastructure is by property owners.
2. Option 2: Semi-integrated water cycle management approach without recycled water top up. The scheme includes a recycled water (purple pipe) network for stormwater recycling with a potable water 'top up' connection for periods when stormwater is not available. Scheme is managed by Sydney Water as the regional stormwater authority.
3. Option 3 (Sydney Water's preferred option[d]): Full integrated water cycle management approach with recycled wastewater. The scheme includes a recycled water (purple pipe) network for stormwater recycling with a recycled water 'top up' connection from the Upper South Creek Advanced Water Recycling Centre for periods when stormwater is not available. Scheme is managed by Sydney Water as the regional stormwater authority.[38]

[c] Sydney Water's Final Business Case is not publicly available. However, Sydney Water shared these documents with IPART for the purpose of our review.

[d] This is the option on which Sydney Water's current costings are based.

Sydney Water's preferred option, on which its stormwater scheme is based, is Option 3. Sydney Water's Final Business Case found that most of the non-market (community) benefits that arise from the scheme, including waterway quality and carbon sequestration and air pollution removal, would be the same benefits across all 3 options.[39] The net present value of additional avoided local cooling energy costs and avoided productivity and health costs from heat stress in Option 3 was $15m over around a 34-year period.[e,40] However, these benefits arise because the stormwater volumes generated by urban runoff are used to irrigate trees and green cover, providing a natural urban cooling effect.

Sydney Water also considered market benefits of avoided potable water augmentations and pumping costs from the recycled water infrastructure. These benefits are driven by the scheme itself, rather than the waterway targets. However, they also arise as an incidental benefit because of the way the stormwater runoff is managed.

Draft Finding

15. The stormwater scheme may incidentally deliver non-market benefits, such as improved waterway quality, carbon sequestration, air pollution removal and avoided local cooling costs. It is developers who are driving those incidental non-market benefits and they, rather than the community, should be required to pay for them.

5.4 Developer-incurred costs and benefits

Sydney Water's Mamre Road Precinct stormwater solution includes both direct project costs, incurred by Sydney Water and costs incurred by developers. We refer to these combined costs as 'recoverable costs'.

Sydney Water's Final Business Case outlines the capital and operating costs of delivering the stormwater solution over about 34 years. In the interim, developers bear additional costs to manage stormwater runoff from their developments. The Mamre Road Precinct Development Control Plan sets out these requirements for new industrial developments, including building design controls, the road network, drainage strategy and landscaping and biodiversity controls.[41] Without Sydney Water's regional scheme, developers must manage stormwater on-site, requiring them to detain and treat runoff on their own properties. These costs include:

- Capital costs: Installing infrastructure like drainage paths, pipes, culverts, retaining walls, and vegetation to manage stormwater.[42]
- Land sterilisation: Developers must reserve land for stormwater detention, limiting the portion available for revenue-generating development.

[e] Calculated as the difference in these quantified benefits between Option 3 and the base case.

Some developers contend land sterilisation reduces the area they can develop, while others are reluctant to invest in interim solutions that may become redundant once the regional scheme is operational.[43] However, some stakeholders consider that developers benefit the most from interim solutions because they allow them to begin development earlier than they otherwise could.[44]

We considered whether there was a case for other parties to share in these costs based on the relative benefits they receive.

5.4.1 Developers benefit the most from interim solutions

We considered the outcomes of Sydney Water's Final Business Case, which compared the costs and benefits of the proposed regional stormwater scheme in Option 3 against the base case, which uses on-lot stormwater management.

Meeting the set flow targets is critical to prevent the Wianamatta-South Creek from reaching the tipping point, regardless of the chosen option. Sydney Water's economic appraisal assessed the cost-effectiveness of both approaches.

Based on Sydney Water's base case, we estimate that:

- the net present value of recoverable project costs is $209 million, representing the capital developers would need for on-site infrastructure
- the net present value of additional developer costs, mainly from land sterilisation, is around $2,412 million, because of the amount of land reserved for stormwater management
- the net present value of total costs across all parties is around $2,621 million.

Based on Sydney Water's costs of the regional scheme in Option 3, we estimate that:

- the net present value of recoverable project costs increases to $466 million, accounting for Sydney Water's capital and operating costs of delivering the scheme
- the net present value of additional developer costs reduces to $83 million, as on-lot stormwater detention for stormwater management is no longer needed[f]
- the net present value of total costs decreases to around $549 million, reducing costs by $2 billion.[g]

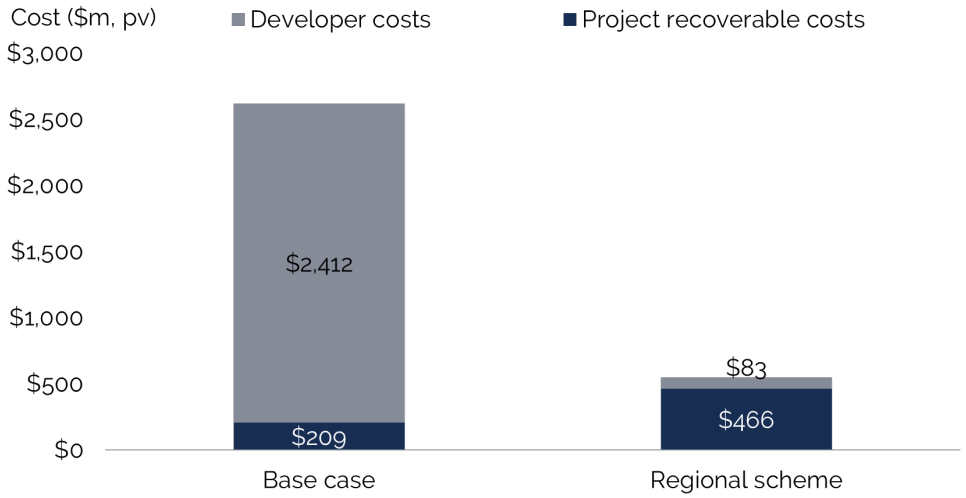
Overall, developers benefit most from the regional scheme, regaining 310 hectares of land for development that would otherwise be sterilised permanently[45] and reducing capital costs of stormwater management infrastructure. Based on Sydney Water's Final Business Case, we estimate that for every $1 in increased project costs associated with implementing Sydney Water's regional stormwater scheme, developers would save around $9, largely by avoiding the opportunity cost of sterilised land. The broader community would also benefit from Sydney Water's regional stormwater scheme, but only by around $0.17 for every additional $1 in project costs. This is largely through indirect benefits like avoided potable water augmentation and urban cooling.

[f] Developers would still need to provide on-lot stormwater detention to comply with flood management controls set out in the Development Control Plan.

[g] Based on averaging Sydney Water's value of potential land use benefits upper and lower bounds.

While no additional capital would likely be required by developers on their own lots, existing developments would have already invested in stormwater detention infrastructure, which would have holding costs. However, this is traded off against the developer's ability to generate revenue from their land holdings earlier than they otherwise could.

Figure 5.4 Cost comparison in Sydney Water's Final Business Case



Source: IPART analysis using data from Sydney Water, *Mamre Road Precinct – Integrated Water Cycle Management: Final Business Case*, May 2024.
Note: Values are discounted using a real social discount rate of 5%.

As such, we consider that there is a strong case for these interim costs, including the holding costs of land, to be borne by developers.

Draft Finding

16. Developers are the appropriate party to fund the cost of interim solutions because they benefit the most from their implementation.

5.5 Treatment of land tax

As a state owned-corporation, Sydney Water is liable to pay land tax on land that it acquires for the purpose of delivering stormwater services. In its submission to our Issues Paper, Sydney Water claimed that land tax, as an ongoing expense, is a significant driver of costs over the lifetime of the scheme. It estimated the net present value of land tax at around $140 over the period (or 14% of costs).[46]

Some stakeholders have suggested that developers should not have to pay land tax costs. The Mamre Road Landowners Group considers that land tax should be exempt from Sydney Water's Development Servicing Charge.[47]

5.5.1 Land tax is a material and statutory cost of development

Based on our efficient costs from using the TWG Option, we estimate that land tax would reduce to around $111 million.[48] This is still around the same proportion of total costs.

We note that Sydney Water had discussions with NSW Treasury and the former Department of Planning about alternative funding arrangements for land tax or zoning of developable land to constrained after acquisition on the basis that managers of similar schemes (local councils), are not subject to land tax on land used to deliver stormwater infrastructure.[49] This could lead to a downwards revaluation and potentially a land tax saving. In November 2023, IPART issued a letter of comfort to Sydney Water that we would be unlikely to adjust the regulatory asset base to reflect any land devaluation post-rezoning if the asset was efficiently purchased and still delivering services. In the absence of an exemption, land tax remains a statutory cost for Sydney Water.

5.5.2 There are no distortions arising from a perceived lack of competitive neutrality

Local council stormwater drainage service providers do not have to pay land tax. While recognising that different entities that provide the same services may be subject to different tax arrangements, it is not a breach of competitive neutrality policy.

Competitive neutrality policy in NSW is aimed at ensuring that government owned businesses do not gain an unfair competitive advantage over private sector businesses simply because they are government owned. Government owned businesses, like Sydney Water, are required to price their goods and services to fully reflect their costs, including a commercial rate of return on capital employed and to pay taxes and tax equivalents.

Sydney Water's stormwater drainage services were declared a monopoly service under the *Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997* because there were no alternative providers.[50] Therefore, there is no competitive disadvantage between government and non-government entities, because there are no potential alternative providers.

The Government appoints stormwater drainage authorities. This decision is based on a range of environmental and social outcomes related to government policy, in addition to cost effectiveness. From a cost effectiveness perspective, land tax is considered a transfer. This means that its impact on a cost-benefit analysis is neutral and would not be a criteria over which government would consider in its cost comparison of different options. In the context of Mamre Road, Sydney Water was selected as the scheme administrator due to the advantages of a regional scheme and the lower capital and land requirements compared to a council managed approach.

In the absence of a regional scheme, developers would have to maintain land sterilisation and provide on-lot stormwater infrastructure to prevent runoff. Developers themselves would be liable to pay land tax on their own land holdings for the same purpose. This would indicate that if the service were to be provided in a different way, the same resource allocation principles would apply as in a regional scheme managed by Sydney Water.

5.5.3 Developers are the appropriate party to pay land tax costs

Land tax is a statutory cost associated with acquiring and holding land for the purposes of delivering stormwater. It reflects the opportunity cost of holding and using land for stormwater provision, relative to its next best use (i.e. developable land). As a cost that Sydney Water faces, it must be included in Sydney Water's cost base and recovered in the same fashion as all other efficient scheme costs.

Developers drive the need for the scheme through their development activities. They also own land holdings that would be subject to land tax in their next best use. This includes any land that would be required to maintain on-lot infrastructure in a council managed scheme (i.e. the base case).

In addition, developers are in the best position to manage the tax impact on themselves. Land tax provides incentives for landowners to use land in its most productive capacity. Any increase in contributions rates on developable land would be reflected in the underlying land value. Developers could manage these impacts through negotiating a lower price for land or by moving their activities to a cheaper area.

5.5.4 We will need to consider longer-term land tax recovery impacts

Development servicing plans typically have a 30-year horizon. However, land tax will continue to be incurred beyond this period. By the financial year 2060, land tax could comprise around $7 million per year, which would not be recovered through the development servicing plan after it expires.[51] The exact impact of the tax will depend on various factors including:

- Land value escalation: Sydney Water currently assumes a real growth rate of 4% per annum for developable land and 1.5% per annum for constrained land.
- Land tax threshold indexation: Sydney Water applies a 4% indexation to the land tax value threshold.
- Taxation amounts and rates: the tax amounts and rates applied are those currently applied by Revenue NSW.[52]

We note that the unimproved land value across Greater Sydney has grown by 7.9% in nominal terms on average over the past 10 years.[53] The threshold applied by Revenue NSW has grown by around 9.2% per year on average, over the past 5 years.[54] The assumed rate is likely appropriate, however, as it remains consistent with expectations on future land value growth.

Draft Finding

17. While land tax is a material cost impost, it is a statutory cost that Sydney Water incurs to deliver the scheme and should be funded in the same way as other costs.

Draft Recommendation

3. Developers should fund the efficient costs of delivering stormwater services in the Mamre Road Precinct. This includes land tax and any interim works on their own land that allow them to begin development ahead of Sydney Water's stormwater scheme.

6 Impact of stormwater charges

This chapter sets out how much developers, taxpayers and other should pay for the efficient costs of providing stormwater services in the Mamre Road Precinct. It examines the impact of our draft recommended infrastructure charges on developers and residual impacts on taxpayers and others, including what impact it has on development feasibility in the precinct.

6.1 Overview of our draft findings and recommendations on stormwater charge impacts

Based on our draft recommendations on efficient costs and who should pay, the efficient level of infrastructure contribution from developers to fund stormwater services in the Mamre Road Precinct is around $850,000 per hectare. This represents a reduction of around 17% from Sydney Water's current stormwater contribution estimate of $1.02m per hectare.

We have found that development in the Mamre Road Precinct would be viable with stormwater charges of $850,000 per hectare (and would also be viable with charges of up to $1.3m per hectare) based on our analysis of land values and development costs. Submissions from the Mamre Road Landowners Group suggested a much lower capacity to pay stormwater charges based on the assumption that land purchase prices are unaffected by stormwater and other developer charges. Instead, we consider that land purchase prices would be discounted to reflect any increases to these charges, so that they would not affect the viability of development. .Our draft recommended stormwater contribution of $850,000 per hectare represents around 5% of total development costs[55], which we consider would not be a barrier to development feasibility.

While we have not recommended any direct contribution to stormwater infrastructure costs from taxpayers or other parties, such as Sydney Water customers, we note that they may incur ongoing operating costs once development contributions cease. These are largely related to the ongoing impact of land tax.

If Sydney Water proceeds with its existing scheme design at the current cost, we would expect that it would include only efficient costs in the Development Servicing Plan that it submits to IPART for registration. This could result in a revenue shortfall of up to around $170,000 per hectare that Sydney Water would need to fund without developer contributions.

6.2 Impact on development viability

In its submission to our Issues Paper, the Mamre Road Landowners Group stated that industrial users within the precinct would not have the capacity to pay stormwater infrastructure contributions exceeding $300,000 per hectare without affecting development viability. They said that they may be able to pay up to $500,000 per hectare if no land sterilisation occurs before regional scheme implementation.[56] They stated this because land sterilisation increases holding costs and reduces available land for development.

We considered the Mamre Road Landowners Group submission, including an expert report they commissioned from Atlas Economics on development feasibility.

6.2.1 Land values adjust to reflect statutory development fees and expected costs

A developer's willingness to pay to purchase a parcel of land is directly influenced by the costs associated with developing the land. If development costs are high – such as construction, infrastructure contributions, utilities and financing – developers would typically offer less for the land itself. This is because they need to ensure that the total costs of acquiring and developing the land do not exceed the reasonable return on investment for it to be profitable.

In its submission to our Issues Paper, the Mamre Road Landowners Group cited an Atlas Economics report that examined Mamre Road development viability in various scenarios:

1. Development with s7.11 contributions only[h] ($669,000 per hectare)
2. Development with s7.11 contributions ($669,000 per hectare) and Special Infrastructure Contribution (SIC)[i] ($210,763 per hectare)
3. Development with s7.11 contributions, SIC and proposed water charges (water and wastewater $50,000 per hectare and stormwater $1.3m per hectare)
4. Development with s7.11 contributions SIC and proposed water charges (water and wastewater $50,000 per hectare and stormwater $1.15m per hectare)

Atlas Economics found that the return on cost was less than the 16-18% margin required by developers for development to be viable in all scenarios with stormwater contributions. Across all scenarios, the land purchase price was assumed to be constant at $57.5m (or $5.75m per hectare). However, in practice, the land purchase price would adjust to reflect developer infrastructure contributions for stormwater and other statutory fees. If this adjustment is accurate, then development remains feasible in all scenarios (see Table 6.1).

Developers who purchased land before knowing what the final costs have incurred a sunk cost. Moving forward, they would need to focus on actual costs and avoid letting past investments cloud future decisions. The Atlas Economics report cited by the Mamre Road Landowners Group states that vacant land values for plots over 1 hectare rose by around 31% per year between 2020 and 2022. This suggests that developers who bought land early have not experienced negative financial impacts from their investment decisions.

[h] Development contributions levied by a local council under section 7.11 of the *Environmental Planning and Assessment Act 1979*.

[i] A special infrastructure contribution (SIC) is paid by developers within a defined special contributions area to help fund infrastructure delivery such as state and regional roads and open space. There are currently two active special contributions areas: the Western Sydney Growth Areas and Western Sydney Aerotropolis.

Table 6.1 Development feasibility with land price adjusted for fees

	Scenario 1 – s7.11 only	Scenario 2 – s7.11 and SIC	Scenario 3 – s7.11, SIC and water incl $1.3m per hectare stormwater	Scenario 4 – s7.11, SIC and water incl $1.15m per hectare stormwater
Land purchase cost $m	$57.5	$55.7	$44.2	$45.5
Other costs ($m)	$100.8	$102.7	$115.4	$114.0
Expected revenue ($m)	$190.2	$190.2	$190.2	$190.2
Return on cost	20.2%	20.1%	19.1%	19.2%

Source: Atlas Economics, *Mamre Road Precinct Feasibility Analysis and Value to Greater Sydney,* Report for the Mamre Road Landowners Group, June 2023, p 27 and IPART analysis.

6.2.2 Stormwater contributions are one of many costs of development that developers face

Stormwater contributions are a statutory cost of development and are just one of many costs that developers face. For example, developers must also fund potable water and wastewater, special infrastructure contributions, developer contributions as well as construction, legal, financing and other costs. Based on Atlas Economics' cost estimates, we estimate that a stormwater contribution of $850,000 per hectare represents around 5% of total development costs.

Significant increases in any of these costs could have the potential to affect development viability. In addition financial viability is also impacted by the change in the market price of land, the overall cost of the development and the demand for the development. Our review indicates that development in the Mamre Road Precinct would remain viable with our draft recommended stormwater infrastructure contribution of around $850,000 per hectare. It would be a matter for the Government to consider whether to provide a financial incentive or subsidy to support development going ahead to realise the benefits it generates. However, it is not clear that a reduction in the stormwater contribution would be the appropriate vehicle for this subsidy.

Draft Finding

18. Development in the Mamre Road Precinct would remain viable with a stormwater infrastructure contribution of around $850,000 per hectare.

6.3 Impact on taxpayers and customers

In Chapter 5, we found no justification for taxpayers or other parties to make a direct financial contribution to stormwater scheme costs. However, they are likely to face some ongoing costs from the scheme, particularly once developer contributions cease.

Based on our infrastructure contributions model, developer contributions are calculated over about a 30-year period as most capital costs associated with the project are expected to be financed by then. However, there are some residual operating costs that will continue after this time. For example, land tax will continue to be levied on land used for the scheme. It is likely that these costs will be borne by customers once developer contributions cease. The impact on customers will depend on various factors, such as the land value, tax thresholds and rates and customer numbers.

6.4 Registering development servicing plans with IPART

In 2018, IPART released our Final Report and Determination on how Sydney Water and other metropolitan water agencies should calculate maximum infrastructure charges on new developments.[57]

Our Determination includes a requirement that Sydney Water prepare a development service plan (DSP) which sets out the details of how the infrastructure charge (or DSP charge) is calculated. Some of those details include the location, services, assets, costs and customer base of the DSP area.

In line with the Determination, the capital and operating costs used when calculating the DSP charge should include only the efficient costs of delivering the services. This ensures that developers do not pay more than what is efficient.

Before water businesses can levy DSP charges, they must register the relevant DSP with IPART. The DSP comes into effect upon registration with IPART. Before seeking to register the Mamre Road DSP, Sydney Water should ensure that the DSP charges are calculated using the efficient costs of providing the services.

Draft Recommendation

4. When submitting the Mamre Road Precinct development servicing plan to IPART for registration, Sydney Water should ensure the plan is based on efficient costs only. We estimate this to be around $850,000 per hectare in the Mamre Road Precinct.

[1] NSW Government, *Aerotropolis explained*, accessed 23 September 2024.
[2] Mamre Road Landowners Group submission to IPART Issues Paper, June 2024, p 12; The Property Council of Australia and Urban Development Institute of Australia submission to IPART Issues Paper, May 2024, p 1; Barings submission to IPART Issues Paper, May 2024, p 5.
[3] NSW Government, *Review of water sensitive urban design strategies for Wianamatta–South Creek*, 2022.
[4] NSW Government. *Mamre Road Precinct Development Control Plan,* 2021.
[5] WTP Australia, *Sydney Water Mamre Road Stormwater Scheme – Independent Cost Review Report*, September 2024 and IPART analysis.
[6] NSW Government, *Rezoning of Mamre Road Precinct – Frequently Asked Questions*, June 2021, p 1.
[7] Sydney Water, *Regional Stormwater Servicing – Western Sydney Aerotropolis*, p 1, accessed 18 September 2024.
[8] Sydney Water, *Western Parkland City: Urban Typologies and Stormwater Solutions*, March 2020, p 14.
[9] NSW Government, *Risk-based framework for considering waterway health in strategic land-use planning*, 2017.
[10] NSW Government, *Technical guidance for achieving Wianamatta-South Creek stormwater management targets*, 2022.
[11] Frontier Economics, *Governance of stormwater and waterways in Wianamatta South Creek (Leading Precincts): Final Strategic Business Case*, December 2021, p 31.
[12] Sydney Water, *Mamre Road Precinct Integrated Servicing Options Assessment Report*, December 2021, p 86.
[13] NSW Government, *Review of water sensitive urban design strategies for Wianamatta–South Creek*, 2022.
[14] NSW Government, *Review of water sensitive urban design strategies for Wianamatta–South Creek*, 2022, p 21.
[15] NSW Government, *Review of water sensitive urban design strategies for Wianamatta–South Creek*, 2022, p 16.
[16] Sydney Water, *Mamre Road Flood Riparian and Integrated Water Cycle Management Strategy*, August 2021.
[17] Sydney Water, *Further background for Mamre + Aero cost challenge*, November 2023, p 5.
[18] NSW Government, *Direction to the Board of Sydney Water Corporation under section 20P*, accessed 18 September 2024.
[19] Email from Sydney Water to IPART, 12 August 2024.
[20] WTP Australia, *Sydney Water Mamre Road Stormwater Scheme – Independent Cost Review Report*, September 2024, p 19 and IPART analysis.
[21] Barings submission to IPART Issues Paper, May 2024, p 15.
[22] Mamre Road Landowners Group submission to IPART Issues Paper, June 2024, p 7.
[23] WTP Australia, *Sydney Water Mamre Road Stormwater Scheme – Independent Cost Review Report*, September 2024 and IPART analysis.
[24] IPART, *Review of Mamre Road Stormwater Scheme - Summary of stakeholder workshops*, June 2024, p 1.
[25] Barings submission to IPART Issues Paper, May 2024, p 15.
[26] IPART, *Review of Mamre Road Stormwater Scheme - Summary of stakeholder workshops*, June 2024, p 1.
[27] Property Council of Australia and Urban Development Institute of Australia submission to IPART Issues Paper, May 2024, p 2; Mamre Road Landowners Group submission to IPART Issues Paper, June 2024, p 7.
[28] Department of Planning and Environment, *Performance criteria for protecting and improving the blue grid in the Wianamatta–South Creek catchment*, September 2022, pp 26, 29, 75; and advice provided to IPART by the Department of Climate Change, Energy, the Environment and Water in June 2024 and September 2024.
[29] Department of Planning and Environment, *Review of water sensitive urban design strategies for Wianamatta–South Creek,* September 2022.
[30] WTP Australia, *Sydney Water Mamre Road Stormwater Scheme – Independent Cost Review Report*, September 2024, p 6.
[31] IPART analysis based on Sydney Water's Final Business Case costs and our developer contributions model.
[32] Department of Planning and Environment, *Review of water sensitive urban design strategies for Wianamatta–South Creek,* September 2022, p 21 and Sydney Water, *Mamre Road Precinct Integrated Servicing Options Assessment Report*, December 2021, p 86.
[33] WTP Australia, *Sydney Water Mamre Road Stormwater Scheme – Independent Cost Review Report*, September 2024, p 4.
[34] Email from Sydney Water to IPART, 12 August 2024.
[35] WTP Australia, *Sydney Water Mamre Road Stormwater Scheme – Independent Cost Review Report*, September 2024, p 6.
[36] IPART analysis based on Sydney Water's Final Business Case costs and our developer contributions model.
[37] Sydney Water, *Urban typologies and stormwater management*, 2020, p 7.
[38] Sydney Water, *Mamre Road Precinct – Integrated Water Cycle Management: Final Business Case*, May 2024, p 13.
[39] Sydney Water, *Mamre Road Precinct – Integrated Water Cycle Management: Final Business Case*, May 2024, pp 122-123.
[40] Sydney Water, *Mamre Road Precinct – Integrated Water Cycle Management: Final Business Case*, May 2024, pp 127.
[41] NSW Government. *Mamre Road Precinct Development Control Plan*, 2021.
[42] NSW Government. *Mamre Road Precinct Development Control Plan*, 2021, p 20.
[43] IPART, *Review of Mamre Road Stormwater Scheme - Summary of stakeholder workshops*, June 2024, p 2.
[44] IPART, *Review of Mamre Road Stormwater Scheme - Summary of stakeholder workshops*, June 2024, p 2.
[45] Sydney Water, *Mamre Road Precinct – Integrated Water Cycle Management: Final Business Case*, May 2024, pp 131.
[46] Sydney Water's Final Business Case developer contributions model.
[47] Mamre Road Landowners Group submission to IPART Issues Paper, June 2024, p 20; Barings submission to IPART Issues Paper, May 2024, p 14
[48] Sydney Water's Final Business Case developer contributions model.
[49] IPART correspondence with Sydney Water, October and November 2023.

[50] NSW Government, *Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997*, s 3.
[51] IPART analysis based on our developer contributions model and TWG Option alternative costs.
[52] Sydney Water, *Mamre Road Precinct – Integrated Water Cycle Management: Final Business Case*, May 2024, p 112.
[53] Core Logic, *Land Value Index – Unimproved Land Value – Greater Sydney*, accessed 23 September 2024.
[54] Revenue NSW, *Land tax - Thresholds*, accessed 23 September 2024.
[55] IPART analysis based on Atlas Economics, *Mamre Precinct Feasibility Analysis and Value to Greater Sydney*, June 2023, p 27.
[56] Mamre Road Landowners Group submission to IPART Issues Paper, June 2024, p 20.
[57] IPART, *Maximum prices for connecting, or upgrading a connection, to a water supply, sewerage or drainage system*, October 2018.