

# **WaterNSW Pricing Proposal to the Independent Pricing and Regulatory Tribunal**

## **Regulated prices for Greater Sydney 2020-2024**

Attachment 3 – Capital expenditure project and program justifications -  
Summary

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## 1. Introduction

Over the 2020-2024 Determination period, WaterNSW proposes to invest \$682 million on a capital program that will allow us to continue to provide the availability of water resources essential for our Greater Sydney customers.

This document provides a summary description of each of the proposed capital projects and programs and justifications for them. The description includes an estimate of the level of certainty about the cost and delivery of programs.

WaterNSW prioritises projects and programs according to criteria aligning with a general approach to the effective and efficient management of risks and benefits for customers and community.

Our aim is to ensure that we have the right asset capability to meet our obligations to customers and delivering service at the required level. These processes aim to deliver an appropriate level of service to our customers for the least possible cost, whilst managing the risk to the organisation, customers and stakeholders to an acceptable level and maintaining regulatory compliance.

Our approach to assessing project and program need, options, costs, benefits and timing ensure that our investment decisions are prudent and efficient.

Further discussion about our approach to prioritising and justifying capital works is presented in section 5.6.2 of the *WaterNSW Pricing Proposal for Greater Sydney 2020-2024*.

Full justifications for the proposed capital projects and programs will be provided during IPART's consultants review of the capital program.

## 2. List of key capital expenditure programs and projects and summary justifications

The following table shows the proposed capital expenditure program by key programs and projects by the key service need drivers.

In this document we have bundled related projects into key programs and have set out the related projects belonging to the programs.

**Table 1 List of key capital expenditure programs and projects and summary justifications**

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
<b>Water infrastructure – Renewals program</b>						
	<b>Water infrastructure</b>					
42	Warragamba Pipeline and Corridor	■■■■■	Maintain Sydney's primary water source	Numerous options considered informed by condition assessments, metrics and analytics.	Medium – External Risk-Based Estimate	High – low complexity renewal
	<b>This program includes the following projects:</b>					
	<i>Warragamba Internal Lining Restoration Project</i>	■■■■■				
	<i>Warragamba Corridor &amp; Pipeline - Tranche 1</i>	■■■■■				
	<i>Warragamba Pipeline ancillary valves upgrade</i>	■■■■■				

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
	<i>Warragamba Pipeline Corridor Restoration Planning</i>	■				
27	Greater Sydney Water Infrastructure Renewals	■	Refurbish/renew water supply assets in Greater Sydney region	Numerous options considered to meet levels of service, improve safety, reduce outages at least cost.	Medium – External Estimate	Medium – moderate complexity
39	Upper Canal and Corridor Remediation	■	Repairs/refurbish major water conveyance structure	Numerous options considered informed by condition assessments, metrics and analytics.	Medium – Simple Works, Internal Estimate	Medium
33	Roads Renewals	■	Maintain existing site access roads	Efficient renewal option selected per issue.	Medium – External Cost Estimate	High – few unknown factors
<b>This program includes the following projects:</b>						
	<i>Greater Sydney Roads Upgrade Provision</i>	■				
	<i>Shoalhaven Roads Program</i>	■				
35	SCADA - Automation system asset renewals	■	Maintain existing data and control systems.	Options considered to maintain appropriate level of reliability at least cost.	Medium – Internal Estimate	Medium
2	Bridges Renewals	■	Upgrade/renew site access bridges to comply with relevant regulatory standards for bridge integrity and safety. Bridge program is prioritised based upon	Efficient renewal option selected per issue.	Medium – External Estimate	High – few unknown factors

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
			operational criticality and risk.			
	<b>This program includes the following projects:</b>					
	<i>Greater Sydney Bridges Upgrade Provision</i>	■				
	<i>Bridges upgrade</i>	■				
29	Nepean Weirs E-Flow Reliability Upgrade	■	To restore the reliability of the Nepean Weirs environmental flow control system in order to Comply with environmental release regime obligations.	Option considered to meet mandatory environmental standards at least cost.	Medium – Internal risk-based cost estimate	Medium – moderate complexity
34	Rock Fall Stabilisation	■	Mitigate rock fall hazards to facilitate safe access to WaterNSW assets.	Efficient renewal option selected per issue.	Medium – Internal risk-based cost estimate	Medium
	<b>This program includes the following projects:</b>					
	<i>Greater Sydney Rock Fall Stabilisation Provision</i>	■				
	<i>Greater Sydney Rock Fall Stabilisation Program</i>	■				
31	Plant and Equipment	■	Replace/renew equipment needed for water supply.	Options considered based on the need to meet mandatory asset and service reliability requirements at least cost.	High, off the shelf equipment	High, off the shelf equipment

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
	<b>Hydrometrics</b>					
43	Water Monitoring Asset Renewals	■	Maintain water quality monitoring.	Numerous options considered based on service and reliability standards.	High, work based on costs of ongoing projects	High – few unknown factors
	<b>Water Supply Security and Reliability Program</b>					
1	Avon Deep Water Access	■	Improve long term drought and operational resilience at the Illawarra Supply Node.	Project assessed as preferred amongst various options considered through WaterNSW's strategic planning process.	Medium – External Estimate	Medium – moderate complexity
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32	Prospect to Orchard Hills Transfer (Greater Sydney System Resiliency Program)	■	Increase security of Sydney water supply.	Options considered based on a multi-criteria approach based off a range of environmental, social, operational and financial factors.	Low – Strategic level cost estimate	Medium
28	Nepean Tunnel Diversion Culvert	■	Address unacceptable water quality risk for Broughton's Pass Water Filtration Plant.	Numerous technical options considered to address risk-based on life cycle cost and implementation timeframe.	Medium – Internal risk-based cost estimate	Medium – moderate complexity



Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
1						
<b>Water Quality, Catchment Protection and Environmental Protection</b>						
	<b>Water Quality, Catchment Protection</b>					
4	Catchment Management - Declared Catchment Fencing		Manage existing water supply catchments.	Various technical and procurement/ delivery options considered.	Medium – Based upon historic spend profile	High – few unknown factors
6	Catchment Management - Infrastructure and Asset Renewals		Manage existing water supply catchments.	Various technical and procurement/ delivery options considered.	High – Based upon historic spend profile	High – few unknown factors
7	Catchment Management - Plant and equipment		Manage existing water supply catchments.	Various technical and procurement/ delivery options considered.	High, work based on costs of actual ongoing projects.	High – few unknown factors
5	Catchment Management - Fire trails		Manage existing water supply catchments	Various technical and procurement/ delivery options considered.	High – Based upon historic spend profile	High – few unknown factors
38	Upgrade Neutral or Beneficial Effect (NorBE) software		This critical software requires periodic upgrades to ensure this critical function is appropriately supported.	Efficient option to continue to maintain critical business system.	High – Based upon historic actual expenditure	High

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
<b>Environmental</b>						
41	Warragamba Environmental Flows (E-Flows)	■■■■■	Implement Metropolitan Water Directorate recommendations on Environmental flows.	Option considered based on the recommendation of the Metropolitan Water Plan.	Medium – External Risk-Based Estimate	Medium
8	Contamination & Hazardous Material Management	■■■	Manage contamination & hazardous materials treatment/disposal.	Several options based upon delivery efficiency were considered as well as operational alternatives to capital expenditure.	High, work based on costs of actual ongoing projects	High – few unknown factors
<b>Dam Safety Compliance Program</b>						
14	Post-PRA Risk Reduction Works	■■■■■	Dam safety –work required by Portfolio risk assessment.	The Portfolio Risk Assessment included detailed assessment of risks, including options to efficiently mitigate them.	Medium – Internal Risk-Based Estimate	High – low complexity work
36	SCADA - Dam Instrumentation Automation	■■■■■	Enhance WNSW's response to potential dam safety incidents identified through the risk-based process.	Options considered based on dam safety risk and response times.	Medium – Internal Estimate	Medium
10	Dam Safety - Dam Foundation Uplift restoration and Renewals.	■■■■■	Dam safety – refurbish water pressure relief drains.	Several technical options considered, including operational controls.	Medium – Internal Risk-Based Cost Estimate	High – low complexity work
30	Physical Security Upgrade	■■■■■	Maintain appropriate standard of site security.	Numerous options considered based on DSC and ISO compliance and financial prudence.	Medium WNSW cost estimate	High – few unknown factors

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
13	Dam Safety - Post Tension Anchor Testing of All Dams	■■■	Dam safety – test existing dam anchors.	Options considered meeting DSC requirements and current industry best practice.	Medium – Internal Risk-Based Estimate	High – low complexity work
11	Hydraulic Piezometer Assets and Maintain – all sites	■■■	Dam safety – replace monitoring water pressure in dams.	Options considered based on independent review to meet current industry practice.	High – Based upon robust market-based costing	High – low complexity work
9	Dam Safety - 5 Yearly Dam Surveillance Reports	■■■	Dam safety – perform comprehensive reports <i>The program involves five yearly inspections for a range of dams.</i>	Given the regulatory requirement for this activity, the program is based upon efficient delivery.	Medium-High (Based on historical costs for 5-yearly inspections)	High – low complexity work
18	Geospatial equipment and Software	■■■	Dam safety – replace monitoring equipment.	Numerous options considered based on replacement strategy based on lifecycle costings, emerging technology and regulatory requirements.	High – Based upon robust market data	High – few unknown factors
12	Long-Term Seismic Strategy Monitoring	■■■	Dam safety – Install earthquake monitoring equipment.	Several technical options considered based on a multi-criteria assessment.	High – Based upon robust market-based costing	High – low complexity work
<b>Business Capability and Enablement</b>						
	<b>ICT</b>					
19	ICT Analytics Project	■■■	WaterNSW needs to improve the consistency and quality of its water quality, quantity and operational performance	Numerous options considered to reduce ownership costs, reduce	Medium/High	Medium

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
			report to customers and uplift this capability into predictive & prescriptive analytics.	operational risks and improve reliability.		
25	ICT Renewals & Replacement	■	To ensure that standard-use, WaterNSW owned computers are fully capable of running current applications.	Options considered were to minimise support and replacement costs.	Medium – External Estimate	High – few unknown factors
37	Operational Technology – SCADA (Greater Sydney and corporate allocations)	■	Maintain existing data and control systems.	Options considered to ensure efficient lifecycle management, reduce operational risk and meet service standards.	Medium – Internal Estimate	Medium
21	ICT Identity and Collaboration Program	■	Unify a number of varying machine operating environments from the legacy organisations.	Numerous options considered to increase user collaboration, system security, resilience and enhance user function.	Medium/High	High - team requirements are well defined
20	ICT Business Process Automation	■	Automate currently manual ICT Service Management processes.	Numerous options considered based on lifecycle management and process automation considerations.	Medium – 2019 External Estimate	Medium
22	ICT Corporate Systems	■	To leverage existing ERP investment by further implementing features and enhancements. And removing remaining duplications and disparate systems.	Needs are identified, how to address need, implement and available options will be considered. as part of the Preliminary business case.	Medium – External Estimate	Medium

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
23	ICT Cyber Security	■	As WaterNSW is responsible for critical infrastructure, appropriate cyber security program will implement process tools and education to ensure and appropriately secured technology and information.	Needs are identified, how to address need, implement and available options will be considered as part of the Preliminary business case.	Medium – External Estimate	Medium
24	ICT Data Centre 5010	■	End of vendor support and expected life cycle, therefore need to be replaced.	Options considered to ensure efficient lifecycle management, reduce operational risk and meet service standards.	Medium – External Estimate	High – few unknown factors
26	ICT Telecommunications – Greater Sydney	■	Telecommunications is an essential, enabling corporate capability and a requirement for safe work place regulations.	Options considered to reduce service interruptions and improve availability of voice and data communications.	Medium – External Estimate	Medium
40	WaterNSW CIMS	■	A new ERP solution, that would be fit for purpose for the new WaterNSW and assist with the transition to a single merged organisation with standardised processes.	Efficient option to enable implementation of a consolidated business system.	High, work based on cost of ongoing projects.	High
<b>Property / facilities</b>						
16	Facilities - South West Corridor (Nepean Depot)	■	Consolidate operations into a single depot to serve six major metro dams.	Numerous alternatives considered through review of capital/operating costs, and heritage requirements.	High – External cost estimate	High – low complexity work

Our Ref.	Project or program	Cost (\$millions, \$2019-20)	Summary justification	Options considered	Cost estimate - certainty	Delivery - certainty
	<b>Fleet</b>					
17	Fleet Replacement	■	Replace vehicles and other craft in accordance with WaterNSW standards.	Numerous alternatives considered based on a range of factors including safety, reliability, lifecycle costs and standardisation.	High – well understood simple procurement process	High – few unknown factors