

CASE STUDY 2: TASWATER - LAUNCESTON COMBINED SEWERAGE SYSTEM INVESTIGATION INTERIM OPTIONS & STRATEGY DEVELOPMENT



TasWater operates a combined sewerage system that services the city of Launceston; it is the last significant combined system within Australia. The operation of the combined system is of concern to the local community and there is a perception that the combined system has a highly deleterious impact on the environment during combined sewage overflow events.

Management approach

Effects-based

Receiving environment principles considered/met/achieved

Ecosystem, Community

Background

During wet weather periods the combined system is designed to overflow to the Tamar and North Esk rivers to prevent localised flooding of the city. The combined system has approximately 60 overflow locations into the Tamar and North Esk rivers. There are many smaller gravity overflows and several pumped overflows in and around the city's levee system.

TasWater received federal funding as part of the Tamar River Recovery Plan (TRRP) to investigate the impact that the combined sewerage system was having on the Tamar River. There is significant concern amongst the local community and interest groups that the combined system is causing environmental harm during overflow periods. The purpose of the study was to understand the frequency, volume and pollutant loading associated with combined sewage overflows (CSO). The Launceston Combined Sewerage System drains an area of approximately 11 square kilometres and provides stormwater and sewerage services to more than 15,000 Equivalent Tenements (ET).

It was considered that the use of an effects-based analysis would be the most appropriate

method to quantify the impact that the combined system was having on the receiving environment and the completion of a mass balance model would provide numerical indicators of pollutant loads. The project made use of a modified approach to assess the risk and impact of CSO events based on overarching principles of the UK Urban Pollution Management (UPM) Manual. TasWater has now progressed beyond this assessment to a strategic business case assessing relevant options for the LSIP project.

Project Objectives

The following required project outcomes have been developed to provide clear 'line-of-sight' and ensure solutions address the problem whilst also achieving alignment with key TasWater strategic and corporate objectives:

- Environmental compliance (EPA Licence) at all STPs
- Compliance with EPA 2019 Sewer Pump Station Guidelines
- Odour management - achieve EPN licence compliance and EPA Pump Station Guidelines compliance with respect to odour (based on Environment Protection Policy (Air Quality) 2004).
- System growth - the project will ensure that all STPs and new network structures have sufficient existing or planned capacity to service growth within the thirty-year planning horizon
- System resilience the project will ensure infrastructure resilience is planned for, designed and built into assets, networks and systems.

CASE STUDY 2: TASWATER - LAUNCESTON COMBINED SEWERAGE SYSTEM INVESTIGATION INTERIM OPTIONS & STRATEGY DEVELOPMENT

- Economic sustainability (value for money)- the project will provide economically sustainable solutions that ensure value for money for the level of investment required.
- Alignment with TasWater strategic directions.

Stakeholders

The project has had a strong emphasis on stakeholder engagement as it was identified that educating and engaging with the key stakeholders would be essential to delivering the project successfully. One on one interviews were conducted with the other committee members of the TRRP to understand the key drivers for them in terms of what role the rivers played for the community, the values associated with the river and what impact they thought the combined system had on the community's use of the river. This engagement process outlined some of the knowledge gaps to be addressed and revealed that although all of the stakeholders had a key interest in the health of the river there was generally low understanding of how pollutants entered the river and the impact that CSO events had on river health.

The stakeholders were heavily involved throughout the project and were asked to nominate upgrade and improvement ideas at the solutions workshop and to contribute to the development of the MCA that was used to score the four major upgrade options investigated.

Cost and Valuation

The development of the strategy and associated strategic business case has included developing costs for each option considered. The current preferred option costing a total CAPEX value of \$435M based on a P50 confidence level; and based on the indicative staging strategy based on strategic business case costings.

Outcomes

One of the most successful aspects of the project was that the stakeholders and to a lesser extent TasWater staff went through an education process to learn more about combined systems, the risks associated with CSO events but also a greater awareness that river health is a complex area and that sewage overflows are just one of the contributing factors to the overall amenity and health of a watercourse. The initial outcomes of this work has been used to inform future

capital works strategies in the combined system as well as provide community education and engagement pieces. The use of an effects-based analysis type assessment has provided tangible outcomes in terms of solution identification and project costing, and it is proposed that this method be used by TasWater for future projects across a number of sewerage systems.

Through development of a strategic business case, TasWater has completed site-specific assessments for Legana, Riverside and Newnham to identify whether local treatment or transfer to Ti Tree Bend STP was the preferred compliant option. Each catchment was considered individually and independently of other STPs across a range of cost and non-cost criteria. Based on the site-specific assessments of each catchment's servicing strategy, the preferred outcomes for satisfying the project drivers were:

- Legana: decommission Legana STP and transfer Legana's catchment to Ti Tree Bend STP for treatment via 6x ADWF transferred flows (option L2b) (refer Section 13.3)
- Riverside: decommission Riverside STP and transfer Riverside's catchment to Ti Tree Bend STP for treatment via 6x ADWF transferred flows (option R2b) (refer Section 14.3)
- Newnham: decommission Newnham STP and transfer Newnham's catchment to Ti Tree Bend STP for treatment via 6x ADWF transferred flows (option N2b) (refer Section 15.3).

The outcomes of the site-specific assessment were agreed with the Stakeholder Group during the Options Assessment and Selection Workshop held on 23 and 24 February 2022. Therefore, the overall preferred LSIP Strategic Option for investment is for Full Consolidation of the three LSIP STPs to Ti Tree Bend STP via 6x ADWF transfer rate.

Project Timing

The key deliverable from the Project Development phase will be a Detailed Business Case (DBC). Current program timing from the strategic business case is execution in January 2023 with a staged approach with final completion in March 2038