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Case Study
Parramatta River Restoration Project
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1.0 Executive Summary

The Parramatta River Restoration Project is a major initiative to revitalise one of Sydney's most iconic waterways, making it swimmable and environmentally healthy by 2025. Urban Asset Solutions, under the leadership of NSW State Manager Aaron Beale, has played a pivotal role in this ambitious effort in collaboration with the Parramatta River Catchment Group (PRCG). This large-scale project addresses decades of pollution, sediment buildup, and ecological degradation while covering a cleanup area of 8,000 m^2.

The project has achieved significant milestones, including removing over 40 megalitres of water and 445 tonnes of sediment and debris, making it one of the region's most extensive urban water cleanups. Trolleys, bikes, tyres, and other debris were removed using specialised equipment including spider excavators. This extensive cleanup effort has improved water clarity, restored flow pathways, and enhanced biodiversity, creating a healthier ecosystem and a foundation for recreational use.

In addition to debris removal, Urban Asset Solutions conducted critical maintenance on key infrastructure, ensuring proper water flow management and minimising flood risks. Urban Asset Solutions also ensured all waste was responsibly disposed of in compliance with strict environmental regulations, minimising the project's ecological impact.

This project is closely aligned with the Duba, Budu, Barra: Ten Steps to a Living River Masterplan, developed by the PRCG in 2018. The Masterplan focuses on improving water quality, protecting wildlife habitats, and fostering community awareness. Urban Asset Solutions has further supported this vision by engaging with local communities and collaborating with First Nations groups to honour the cultural significance of the Parramatta River and restore its ecological balance.

Urban Asset Solutions is committed to ensuring the long-term sustainability of this project through ongoing monitoring, debris management, and habitat restoration efforts. These practices, combined with innovative technologies and a focus on environmentally responsible methods, ensure the river's continued improvement. By achieving these milestones, the Parramatta River Restoration Project has laid the groundwork for a cleaner, healthier, and more accessible waterway that will serve the community and environment for generations.

To View our important works undertaken for the City of Parramatta
https://www.youtube.com/watch?v=0bTdg90nR9Q

2.0 Introduction

2.1 Historical Context

The Parramatta River has a rich and complex history spanning millions of years, shaped by natural forces and human interaction. Formed between 15 and 29 million years ago, the river originated as a valley carved by freshwater through Hawkesbury sandstone and Ashfield shale. Approximately 7,000 years ago, rising sea levels transformed the valley into the estuarine system now linked with Sydney Harbour. This natural evolution created diverse ecosystems such as salt marshes, mangroves, and mudflats, which supported abundant wildlife and provided food, shelter, and cultural significance for the First Nations peoples.

For over 30,000 years, the Burramatta people of the Darug Nation have maintained a deep spiritual and cultural connection to the river. Known as the "place of eels," the river served as a critical source of food, water, and gathering spaces for ceremonies and trade. However, the arrival of European settlers in the late 18th century initiated dramatic changes. Urbanisation, land clearing, and industrial activity degraded water quality and disrupted ecosystems. By the mid-20th century, widespread pollution had rendered the river unsafe for swimming, and by 2006, commercial fishing was banned due to heavy metal contamination.

Efforts to reverse the river's decline began in the 1970s with the introduction of the Clean Waters Act and the relocating of industries from its foreshore. 2008, the Parramatta River Catchment Group (PRCG) was established to coordinate restoration efforts. The PRCG launched the Duba, Budu, Barra: Ten Steps to a Living River Masterplan in 2018, setting a bold goal to make the river swimmable again by 2025. This comprehensive plan focuses on managing stormwater and wastewater, protecting wildlife habitats, and educating communities about the river's cultural and ecological importance.

Today, the Parramatta River Restoration Project is one of Australia's most ambitious urban restoration efforts. In collaboration with First Nations communities, local councils, and environmental organisations, the project aims to balance ecological sustainability with urban development. By addressing the historical impacts of colonisation and adopting holistic catchment management practices, the Parramatta River is on track to becoming a cleaner, healthier waterway that honours its natural and cultural heritage for generations.

Picture 1 below: Parramatta River in Early Settlement. (Source: National Trust of Australia, 2024)

Picture 2 above: Removal of Heavy Sediments from the Parramatta River.

3.0 Project Objectives

3.1 Restore Water Quality:

The primary goal of the Parramatta River Restoration Project is to remove decades of accumulated debris, sedimentation, and rubbish to restore the river's water quality and meet swimmable standards by 2025. Over the years, pollutants from urban runoff, illegal dumping, and sediment buildup have compromised the river's health, leading to degraded water clarity, elevated bacterial counts, and unsafe conditions for recreational use. Addressing these issues will reduce turbidity, improve bacterial counts, and lower pollutant levels, ensuring the river is safe and enjoyable for recreational use, including swimming and other public activities.

3.2 Revitalise Biodiversity

Enhancing the ecological health of the Parramatta River is a critical component of the restoration effort. Years of sediment buildup and pollution have significantly impacted the aquatic and riparian ecosystems, leading to habitat loss and a decline in native species populations. The project focuses on revitalising aquatic and riparian habitats by removing debris and sedimentation, which have smothered natural vegetation and obstructed the river's flow. This cleanup effort supports the growth of native plants and the return of aquatic species, fostering a healthier ecosystem. Invasive species like carp have contributed to the degradation of aquatic vegetation and disrupted the balance of native fish populations. Targeted efforts to control these species are integral to restoring the river's ecological balance and supporting the long-term health of native wildlife.

3.3 Ensure Infrastructure Resilience:

Maintaining the river's key infrastructure is essential for managing water flow, reducing flood risks, and ensuring the long-term success of restoration efforts. The cleanup targeted critical infrastructure for regulating water levels and protecting surrounding urban areas. The river, located in one of Parramatta's most commercially active zones, required thorough cleaning and inspections to ensure its continued functionality. The surrounding area features high pedestrian activity on the southern side, as this is the Parramatta CBD area. In contrast, the northern side hosts a mix of residential and commercial developments, making flood risk management particularly important.

By removing blockages caused by sedimentation and debris, the project has improved water flow, reduced stagnation, and minimised the likelihood of localised flooding during heavy rainfall events. These efforts contribute to the river's safety, resilience and surrounding urban environment. In addressing these objectives, the Parramatta River Restoration Project improves the river's ecological health and enhances its value as a cultural and recreational asset for one of Sydney's most vibrant and active urban areas.

4.0 Project Methodology

The Parramatta River Restoration Project was executed over two weeks, from 1 November to 15 November 2024. Urban Asset Solutions deployed a team of seven qualified professionals with expertise in environmental restoration and heavy machinery operation to ensure the cleanup's successful execution.

4.1 Equipment and Workforce Deployment

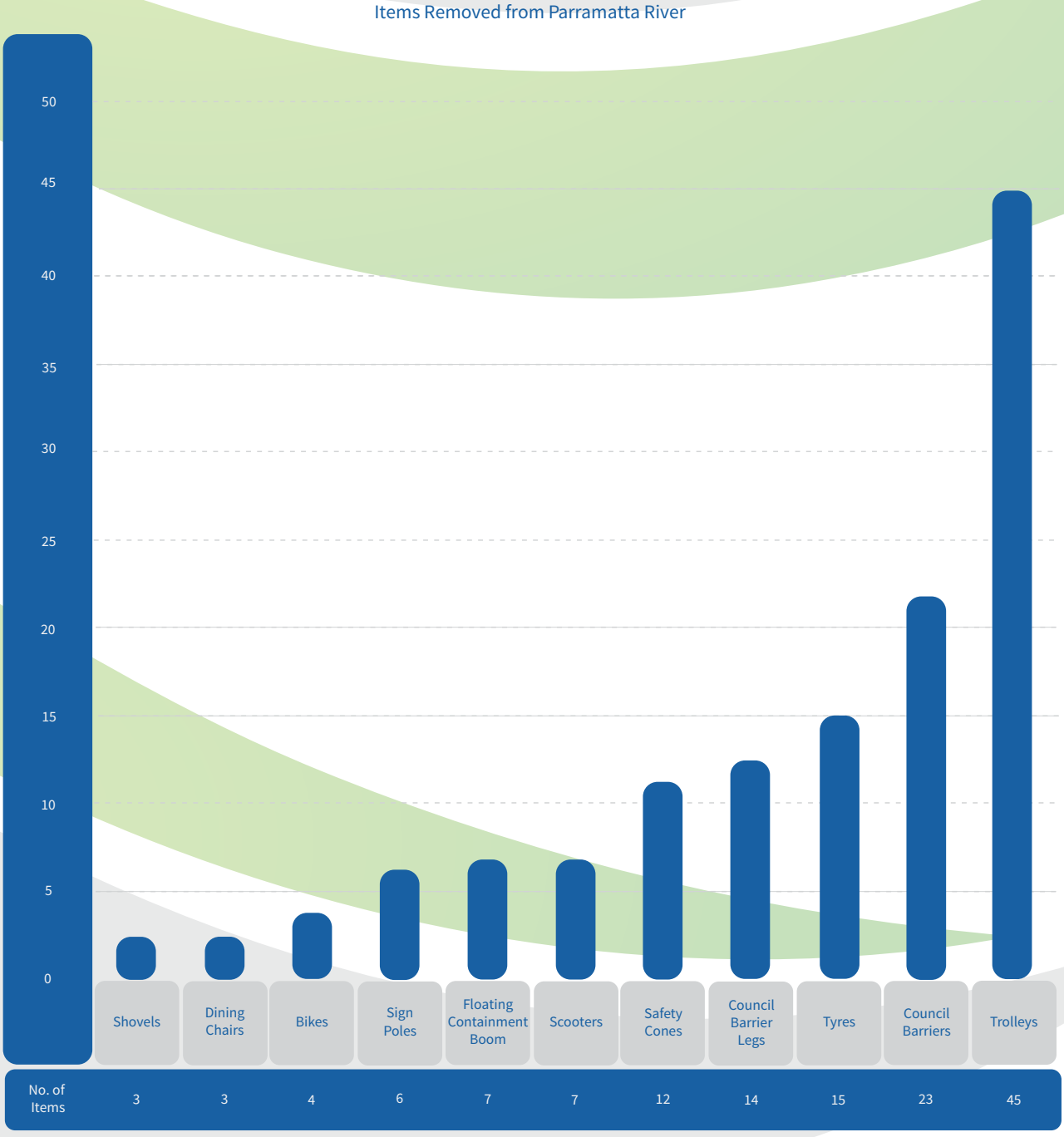
To handle the complex and large-scale debris and sediment removal, the following equipment was used:

- 1 x 8-tonne Spider Excavator: For handling large sediment deposits and accessing difficult to- reach areas along the riverbanks.
- 1 x 5-tonne Spider Excavator: Used for precisely removing smaller debris and sediment in sensitive zones.
- 1 x 5-tonne Pozi Track Loader: Facilitated the transport of debris and sediment from riverbanks to collection points for proper disposal.
- 1 x 4-tonne Excavator: For the loading of debris stockpiles into transport vehicles.
- 2 x 8-tonne Tipper Trucks: Transport the extracted sediment and debris to designated waste management facilities.

The cleanup focused on removing years of accumulated debris and sedimentation that had obstructed water flow and degraded the river's ecological health.

Picture 3: Google Maps view of the river area for the project.

4.0 Project Methodology continued



Picture 4: Graphical Presentation of Removed Items from The Parramatta River

4.0 Project Methodology continued

The team systematically targeted the heavily urbanised section of the river adjacent to the commercial district of Parramatta on the north side and the residential and mixed-use areas on the south side.

Specialised equipment was used to clear blockages while minimising disturbance to the surrounding environment and infrastructure. The project adhered to a tight schedule, with daily operations from 7:00 AM to 4:00 PM. By the end of the two-week period, 40 megalitres of water and 445 tonnes of debris and sediment were successfully removed,restoring flow pathways and improving water quality.

This structured approach highlights Urban Asset Solutions' capability to handle environmentally critical projects efficiently and effectively, ensuring immediate results and long-term benefits for the Parramatta River and its surrounding communities.

Pictures 5 and 6: Removing unnecessary items from river during the clean-up process

a) Picture Above Using Excavator to collect debris and sediment.

b) Picture Below Collected debris and sediment from the river.

Picture 7: Parramatta River after the successful completion of the project

5.0 Achievements and Results

5.1 Water Quality Improvements

The Parramatta River Restoration Project has significantly enhanced water quality, addressing decades of accumulated pollution and sedimentation. Key improvements include:

- Clarity: Removing large volumes of sediment and debris has reduced turbidity levels, improving water clarity and overall visual appeal.
- Pollutant Removal: Modern pollutants such as vapes, plastics, and other urban debris have been extracted, visibly improving the water's condition and reducing contamination risks

Additionally, eliminating foul odours caused by decaying organic matter, dead fish, and heavy sediment has created a more inviting environment for the community. This improvement enhances the river's ecological health and fosters greater public use of adjacent amenities such as cycling tracks and walking paths.

5.2 Ecological Revitalisation

The cleanup has revitalised the river's ecosystem, enabling native species to return and thrive. Key outcomes include:

- Return of Native Species: Improved water conditions have encouraged the reappearance of native fish, aquatic plants, and other wildlife, restoring ecological balance.
- Biodiversity Growth: Enhanced habitats provide a stable foundation for a range of aquatic and terrestrial species, contributing to a healthier and more resilient ecosystem.

These ecological improvements have advanced the project's goal of making the river swimmable, reigniting public enthusiasm for recreational use. The river's visible transformation has boosted its aesthetic appeal and reaffirmed its role as a vital ecological and social asset.

6.0 Conclusion and Recommendations

The Parramatta River Restoration Project is a landmark initiative in urban waterway revitalisation, showcasing the effectiveness of engineering solutions in addressing decades of ecological degradation, pollution, and infrastructure challenges. Led by Urban Asset Solutions under the leadership of NSW State Manager Aaron Beale, the project has achieved significant milestones, including removing 40 megaalitres of water and 445 tonnes of sediment and debris over an 8,000 m^2 cleanup area. These efforts have improved water clarity, reduced turbidity, and eliminated foul odours, creating a healthier river environment that supports biodiversity and enhances community engagement.

The project has revitalised the river's ecosystem, encouraging the return of native species, and improving habitats for aquatic and riparian wildlife. These improvements address immediate ecological challenges and contribute to the broader goal of making the river swimmable by 2025, in line with the Duba, Budu, Barra: Ten Steps to a Living River Masterplan.

In addition to ecological and infrastructural benefits, the project has enhanced the river's appeal as a community asset. Removing pollutants and sediment has transformed the river corridor, making it an inviting space for recreational activities such as walking and cycling. This has encouraged healthier lifestyles and strengthened the community's connection to the river.

To sustain the progress achieved and ensure the long-term health of the Parramatta River, the following recommendations are proposed:

- Establish a routine schedule for debris removal and sediment management to prevent future blockages and maintain water clarity.
- Conduct periodic inspections of critical infrastructure, such as weirs, to ensure continued functionality and resilience against flooding.
- Expand public awareness programs to educate residents on the importance of maintaining the river's health and minimising urban pollution.
- Encourage community participation through volunteer cleanups and citizen science initiatives to monitor water quality and biodiversity.
- Develop climate-resilient solutions to address the impacts of extreme weather events, such as increased sedimentation from heavy rainfall.
- Foster partnerships with businesses and industries along the river to reduce pollution and promote sustainable practices.
- Address invasive species like carp to protect aquatic ecosystems and support native species populations.
- The Parramatta River Restoration Project has demonstrated the transformative potential of engineering and environmental solutions. By implementing these recommendations, the river's ecological health and community value can be sustained, ensuring a cleaner, healthier waterway that benefits future generations

7.0 References

National Trust of Australia, 2024, New exhibition explores the history of Parramatta River, viewed 3 December 2024, https://www.nationaltrust.org.au/news/new-exhibition-explores-thehistory-of-parramatta-river/.

Parramatta River Catchment Group, 2023, First Nations Peoples of the Parramatta River and surrounding region, Parramatta River Catchment Group, viewed 4 December 2024. Available at: https://ourlivingriver.com.au/firstnationspeoples

Parramatta River Catchment Group, 2023, Duba, Budu, Barra: Ten Steps to a Living River – The Parramatta River Masterplan, Parramatta River Catchment Group, viewed 4 December 2024. Available at: https://ourlivingriver.com.au/masterplan

River drainage project (2024) City of Parramatta. Available at: https://www.cityofparramatta.nsw.gov.au/environment/city-in-nature/river-waterways/riverdrainageproject?fbclid=IwY2xjawGZJDJleHRuA2FlbQIxMAABHZEs3MyNifBMPVQpwmiHrN0Ex7HTDQRq7yasgVFjE302-cq2_oeirIBPw_aem_h_vItcSuW-6AKCgsEK5-ZA.

Water and Rivers Commission, 1999, Revegetation: Case Studies from South-West Western Australia, Water and Rivers Commission, Perth. Available at: https://www.water.wa.gov.au/

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