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GCRC PROJECT

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GARDINERS CREEK (KOOYONGKOOT) CATCHMENT – LITTER MONITORING PILOT PROJECT

PROBLEM STATEMENT

Litter generated within the Gardiners Creek (KooyongKoot) catchment is negatively impacting environmental, social and cultural values of its waterways (Gardiners Creek, Scotchmans Creek, Damper Creek and Back Creek) and – through flow on effect – the Yarra River and Port Phillip Bay.

The five councils located within the catchment (Stonnington, Boroondara, Monash, Whitehorse and Glen Eira) have invested in local litter reduction projects and infrastructure projects (such as GPTs, side entry pit guards and isolated WSUD features), and the local community are engaged in litter-clean-ups, particularly in the lower catchment.

However, there is a lack of transparency and as such an understanding of the scale of the litter problem due to the lack of:

a) of litter trapping infrastructure within the Gardiners Creek (KooyongKoot) waterway, and its tributaries (Scotchmans, Damper, & Back Creek),

b) resources to centrally aggregate, manage and communicate litter data.

. Without understanding how litter is moving through our waterways it is challenging to advocate for intervention projects which address the key sources within the catchment.

We are coming together for a holistic, data-driven and preventative-focused approach, to combine efforts of individual partners and community members so we can have a greater impact. This centralised approach of information sharing between relevant stakeholders will reduce the risk of reproducing actions (and mistakes).

LEVERAGING THE GARDINERS CREEK (KOOYONGKOOT) REGIONAL COLLABORATION (GCRC)

The GCRC has been setup to take a catchment-scale approach to issues which negatively impact the Gardiners Creek (KooyongKoot) catchment. Governance and communication channels are in place through the GCRC to consider litter management as a shared responsibility across land, catchment and waterway managers. Through these channels we can:

(1) coordinate information and interventions between managers more effectively,

(2) better leverage existing resources,

(3) target new interventions more effectively, and

(4) improve overall outcomes for partners and for the community.

PROJECT CONTEXT

Litter management is a shared responsibility across managers and owners of catchments and land, and the communities who use our public and private spaces.

In collaboration with the Department of Climate Change, Energy, the Environment and Water, CSIRO are working to better understand plastic waste losses to the environment. In 2024 they began a nation-wide technology trial to improve litter management in natural waterways and stormwater drainage networks.

The trial has included two technologies currently being developed by CSIRO's Marine Debris group. The first is a Gross Pollutant Trap Sensor for detecting litter in stormwater assets to guide management and save on costs. The second is an Artificial Intelligence (AI) Model for identifying litter types and volume in waterways through image acquisition (i.e., use of cameras on waterways).

For these trials, the collaboration decided that the initial focus within the Gardiners Creek (KooyongKoot) catchment would be to use the second technology - Artificial Intelligence (AI) Model as there is already investigation by councils to use technology to guide stormwater infrastructure maintenance.

The AI model identifies litter in waterways via image recognition technology. A significant task involved in this technology is the collection of photos. Inexpensive trail cameras are installed over waterways (generally nearby or from bridges). They are programmed to take thousands of images each day. Images are then processed by CSIRO's AI model which determines the amount of floating litter in the waterway.

A trail camera being set to monitor litter along a river.

A camera installed on a bridge rail overlooking a river.

This technology aims to infer the abundance and distribution of floating litter and to inform waste managers and policymakers in their efforts to identify litter hotspots and develop safe, innovative and less expensive waste management systems.

This technology can also assist in catchment-based stormwater planning by estimating pollutant loads, identifying floating plastic hotspots within the catchment, and evaluating the effectiveness of current systems for managing towards healthy waterways.

This overarching data-driven action plan will drive solutions which present the highest likelihood of effectiveness and value for money to have a lasting improvement in litter management at a catchment scale

WHAT DOES SUCCESS LOOK LIKE?

➢ The volume, type and distribution (i.e., % of litter contributed via tributaries across the catchment) of floating litter, on Gardiners Creek (KooyongKoot) and its tributaries (Scotchmans Creek, Damper Creek and Back Creek) are measured.

➢ Information gathered through the trial is used by waste managers and policymakers in their efforts to identify litter hotspots and advocate for innovative and effective waste management systems that address the key issues within the catchment.

➢ All project partners share holistic and reliable data about litter loads and with this information can work collaboratively towards future interventions.

PROJECT PHASES AND PARTNERS INVOLVED, ESTIMATED COSTS

Project Phases:

The following five phases will be undertaken from July 2024 to June 2025:

➢ **Phase 1** – Gather catchment-wide endorsement for project: July - Aug 2024

➢ **Phase 2** – Site Identification: Aug - Nov 2024

➢ **Phase 3** – Installation of hardware (cameras): Dec 2024 – Jan 2025

➢ **Phase 4** - Project initiation and image collection: Jan (late) - Apr 2025

➢ **Phase 5** – Data analysis: May - Jun 2025

Partners Involved:

Partners involved in the project will include Stonnington, Boroondara, Monash, and Whitehorse councils. The community will be represented by the KooyongKoot Alliance, and the waterways will be represented by Melbourne Water.

All members of the GCRC will be updated through the collaboration Data Strategy working group and through the monthly GCRC Steering Committee meetings (at a high level).

The activity throughout the project will be coordinated through the GCRC Data Strategy working group.

Estimated Costs:

Costs against the project are in-kind, through time from council, community and Melbourne Water staff. All software and hardware costs for the project such as cameras, AI modelling, data analysis and reporting is being covered by CSIRO.