

Media Release

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First SmartCrete CRC *Fast Track* projects announced

SmartCrete CRC is proud to announce the funding of three projects submitted under its Fast Track program.

Since establishment in June 2020, SmartCrete CRC has worked to promote scientific and engineering research for Australia's concrete industry, including developments within the concrete supply chain and associated industries.

The new projects will run for up to the next 3 years and are spread across two of the three SmartCrete CRC research program streams, involving collaboration with our partner organisations. All SmartCrete CRC *Fast Track* projects are driven by the needs of industry partners and the end-users with whom they engage. The projects cover a range of areas, including research into the following:

1. **Wastewater Pipeline Sensing System** Innovative and economical photonic sensor interrogation
2. **Recycled Material Concrete Production** Recycled Waste in Concrete for Municipal Applications
3. **Concrete Corrosion Tracking and Prediction** Cost-effective, deployable photonic sensor system

The funding for the projects range from \$500,000 and \$1 million each.

These three projects represent the first of many to be funded by the Commonwealth, industry and research partners to deliver on the organisation's goal of guaranteeing the long term viability of concrete infrastructure in Australia.

Industry, government and research partners include: Sydney Water, Melbourne Water, EngAnalysis, City of Ryde, OPV (Office of Projects Victoria), City of Whitehorse (Victoria), Macquarie University, Latrobe University, University of Technology Sydney, and RMIT.

Now that these are funded we are working through our portfolio of 34 active proposals to continue to develop industry led solutions for Australian concrete infrastructure.

See following page for our first Fast Track project details.

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Fast Track Project 1

Wastewater Pipeline Sensing System

Failure of wastewater pipelines due to concrete corrosion is a global problem that custodians of this vital infrastructure face on a daily basis. Asset managers are currently unable to monitor concrete corrosion and its contributing factors over long periods of time using conventional sensing methodologies. Optical fibre-based sensing platforms however, have recently been shown to sustain performance in harsh sewer environments. Such systems though rely on costly interrogators limiting their use. This Project aims to develop a cost-effective, field deployable sensing system using optical components to deliver a time predictive capability to extend the life of sewer networks.

Fast Track Project 2

Recycled Material Concrete Production

This project will investigate and implement new applications of domestic and industrial waste materials (plastics, rubber, crusher dust, industrial by-products) in the concrete construction industry. It will provide long term environmental and economic benefits to key stakeholders: supply-chain, government, and asset owners.

The project is a strategic response to the demand-supply imbalance in the Victorian infrastructure and waste recovery sector with a primary focus on councils and local municipalities.

Concrete production in Victoria relies on aggregate and cement sourced from natural and finite sand and rock deposits. These deposits are declining in viability; there is a shortage of quarry materials and natural sands. Alternative sources of sands and aggregates are urgently required to meet forecasted consumption

Fast Track Project 3

Concrete Corrosion Tracking and Prediction

Sewer pipe failure is a growing worldwide problem as wastewater systems age and come under increasing load. When sewer pipes fail it is disruptive for the general public and comes with high financial, public health and environmental costs. Australia alone spends over \$1.4 billion annually on water and sewer pipe maintenance. The project will develop long-lived (> 10 years) "smart coupons", that once installed, will emulate the physical and chemical conditions in the surrounding concrete wastewater pipes. Smart coupons will track concrete corrosion, predict end-of-service time frames, and improve operation practices to reduce rehabilitation costs of wastewater concrete assets.

Interviews and comment available upon request.