CleanWalker Robotics

City of Melbourne

Autonomous Litter Collection — Built for the Emerging Technology Testbed

01 — THE CHALLENGE

The City of Melbourne spends AUD 59.8 million annually on street cleaning — running a 24/7 Clean Team, removing 130,000 square metres of graffiti, and maintaining parks, laneways, and public plazas across the CBD and surrounding suburbs. With an 8.4% maintenance budget cut flagged by the Committee for Melbourne, the pressure to do more with less is real. The city already deploys 450 BigBelly smart bins and runs an Emerging Technology Testbed with 26 founding partners including AWS, Telstra, PwC, and CSIRO. Yet individual litter collection — cigarette butts, bottles, wrappers scattered across parks, river walks, and pedestrian zones — remains entirely manual.

02 — OUR SOLUTION

CleanWalker is the world's first commercial quadrupedal litter-collecting robot — a natural fit for Melbourne's Emerging Technology Testbed:

- **AI-powered detection** across 20+ litter categories (25,000+ real-world images)
- **Four-legged locomotion** navigates grass, gravel, cobblestones, curb transitions, and mixed-terrain park paths
- **All-weather operation** — IP65 weatherproof with multi-shift capability (20+ hours/day)
- **Quiet operation** (<55 dB) suitable for residential parkland, laneways, and waterfront paths
- **Data integration** — litter heatmaps to complement existing BigBelly sensor networks

Collected waste is bagged for existing City of Melbourne collection routes — no new infrastructure required.

03 — PILOT PROPOSAL — 4 UNITS, 90 DAYS

Deployment zones: Royal Botanic Gardens paths, Yarra River promenade (Southbank to Docklands), and Fitzroy Gardens

KPI	TARGET
Litter items collected per unit/day	Tracked & reported weekly
Coverage per shift	2,000–4,000 m²/hr per unit
System uptime in variable conditions	>90%
Terrain types navigated	Grass, gravel, cobblestone, paved, curbs
Cleanliness score improvement	Pre/post measurement in pilot zones

04 — VALUE PROPOSITION

1.5–2.5
FTE OFFSET PER UNIT

40–60%
COST REDUCTION AT SCALE

RaaS
ROBOT-AS-A-SERVICE MODEL

Zero
HARDWARE OWNERSHIP REQUIRED

> Melbourne's Testbed is designed exactly for this — evaluating emerging technologies in controlled real-world deployments before broader rollout. CleanWalker fits the testbed model: defined pilot zone, measurable KPIs, short evaluation period, and clear path to city-wide scale. With the 8.4% maintenance budget cut creating pressure to deliver cleanliness outcomes more efficiently, autonomous litter collection is not a future ambition — it is an immediate operational need.

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