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Global Methane Hub

A MODEL FOR CITIES: HOW BUENOS AIRES IS REDUCING METHANE THROUGH SMARTER ORGANIC WASTE MANAGEMENT

Amid growing pressure on cities to act on GHG emissions, Argentina's capital is proving that acting smarter, not bigger, can drive rapid progress on organic waste and emissions

November 2025

PROJECT SUMMARY

In Buenos Aires, less than 3% of organic waste is currently separated and recovered, with most ending up in the CEAMSE Norte III landfill — one of the largest landfills in Latin America. In a project co-funded by **the Climate and Clean Air Coalition (CCAC)** and **the Global Methane Hub (GMH)**, Delterra worked with the city to show how optimizing existing systems can deliver outsized results.

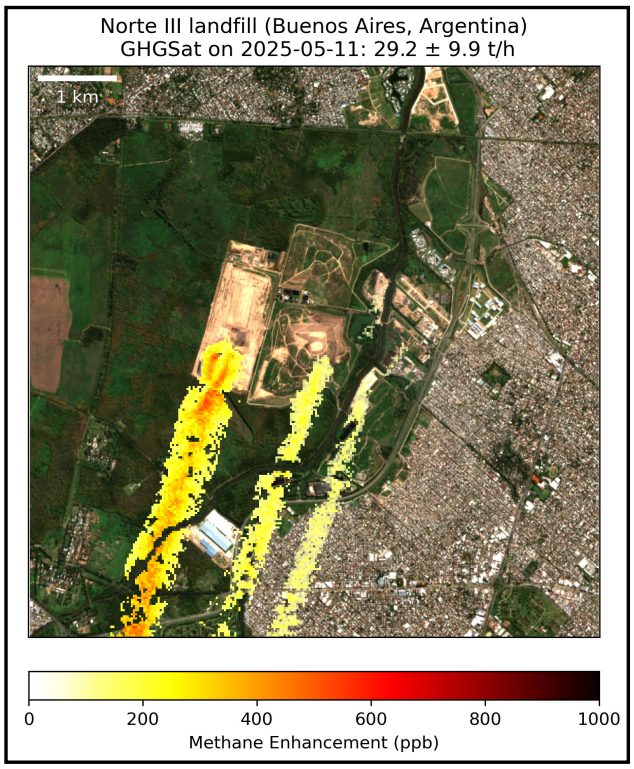
By redesigning a single collection route serving large food businesses – and combining it with a targeted behavior change campaign and digital tracking tools – the city **boosted organics recovery by 45%** and **improved sorting quality from 68% to nearly 100%** in just 12 weeks.

Encouraged by these results, Buenos Aires now plans to expand the model to 10 routes by 2027, with the potential to recover more than 6,000 tons of organic waste each year. **Expanded further through a hotspot strategy, this can prevent an estimated 159,771 tons of carbon dioxide equivalent (CO_2e) emissions by 2030** – proof that local action can deliver climate impact at scale.

PROJECT CONTEXT

Buenos Aires, Argentina's bustling capital, is home to about 3 million residents and another 1.5 million daily commuters. Together they generate more than 1.1 million tons of waste each year, roughly 30% of it organic.[1] Over the past decade, the city has invested heavily in recycling programs for materials like paper, cardboard and plastics, but organics have received far less attention. Today, **less than 3% of organic waste is source separated and recovered**, with the rest collected as mixed waste and unable to be sent to facilities for proper treatment.

Most of that mixed waste ends up at the CEAMSE Norte III landfill, which receives trash from the wider Buenos Aires metropolitan area of nearly 14 million people. When organics are buried instead of composted or otherwise treated, they decompose without oxygen and release methane, a greenhouse gas 86x potent than carbon dioxide in the short term. The CEAMSE Norte III landfill has methane capture systems in place to reduce GHG emissions, incorporating a Mechanical Biological Treatment facility designed to recover recyclable materials and minimize the volume of waste destined for final disposal. But due to the large volumes of waste managed at this site, satellite data still identified CEAMSE Norte III as a global super-emitter of greenhouse gases,[2] highlighting the urgency of keeping organics out of landfill.



When organics are buried instead of composted or otherwise treated, they decompose without oxygen and release **methane, a greenhouse gas 86x potent than carbon dioxide in the short term.**

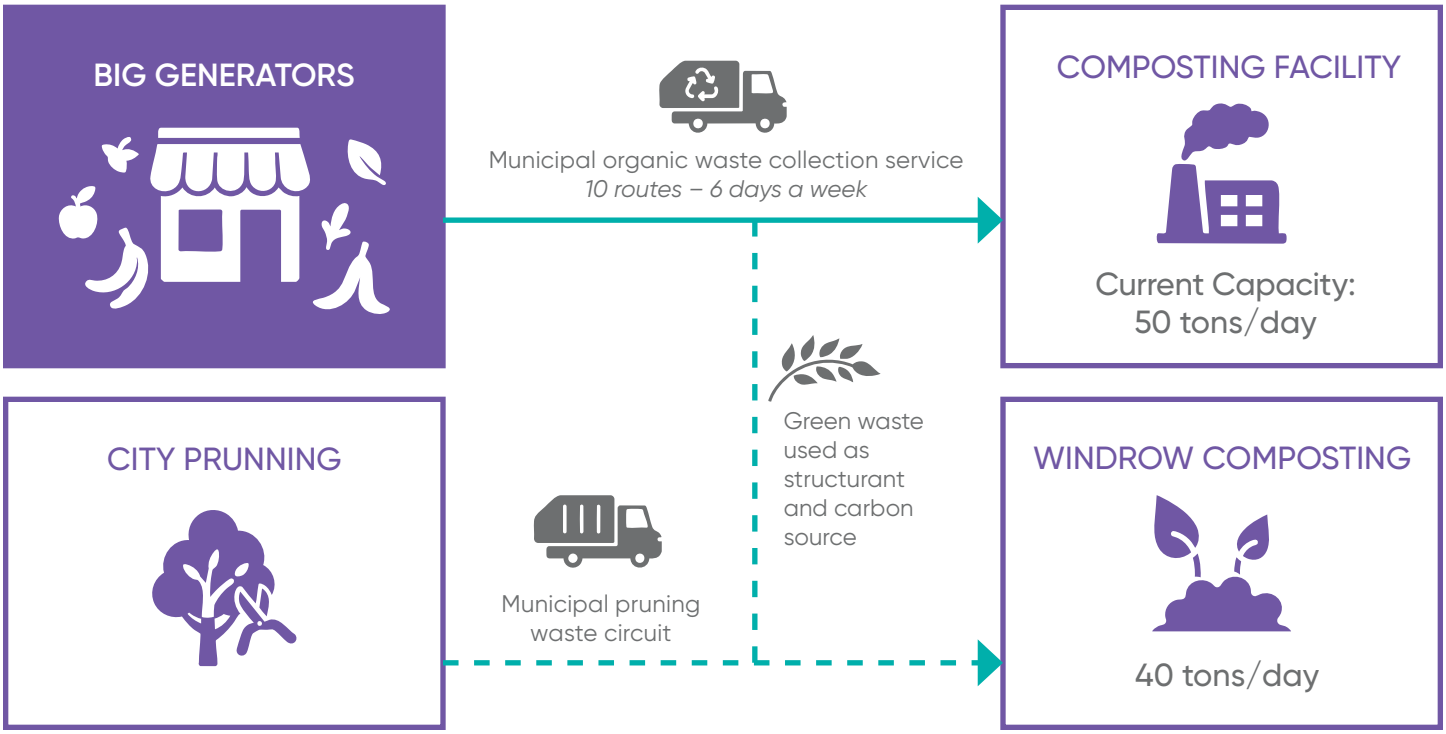
Left: Image via GHGSat (background via Sentinel-2) in collaboration with SRON, GMH, as part of the TWOS project

Yet Buenos Aires is better positioned than most other cities in Argentina to lead the way on this issue. The city already operates a separate collection service for food scraps from large businesses and runs a municipal composting facility capable of processing about 50 tons of material per day. Both systems, however, are underused. For example, trucks often run half full – leaving significant room to improve performance with targeted operational changes.

1 Based on estimates from 2024 city data | 2 The Guardian, 2023

The timing could not be more critical. In 2027, Buenos Aires will renew its long-term waste management contracts, a process that happens only once a decade. These contracts last for 10 years with the possibility of extension, so decisions made in the next few years will define the city's waste priorities for decades to come.

CURRENT DIFFERENTIATED ORGANIC WASTE FLOW



In a project co-funded by CCAC and GMH, Delterra is working with the city to demonstrate how optimizing existing systems – from smarter route design to improved waste separation and real-time monitoring – can dramatically increase organics recovery without major new investments. Once these systems reach full efficiency, expansions in service areas or truck fleets can follow – turning small improvements today into lasting climate gains for tomorrow.

PILOT IMPLEMENTATION

ROADMAP

OPTIMIZING ORGANICS COLLECTION IN BUENOS AIRES

DIAGNOSE SYSTEM	IDENTIFY GAPS	REDESIGN PILOT ROUTE	ENABLE BEHAVIOR CHANGE	RESULTS
GPS data from 7 routes analyzed	Idle time >15 min, incomplete stops (avg 66%)	Caballito route optimized – fewer stops, clearer schedule	48 food businesses trained, digital tracking & feedback loop introduced	**+45%** recovery Sorting quality **≈ 100%** City scaling to **10 routes** by 2027

ROUTE EFFICIENCY RANGED FROM 41–96%

Delterra partnered with the City of Buenos Aires to increase organics recovery by making better use of existing assets and building the city's capacity to manage the system independently.

We began by diagnosing service and logistics across seven collection routes that serve large food businesses. Using GPS data, we analyzed driving time, stop duration and truck utilization, comparing scheduled stops with those actually serviced. The assessment showed that on average, only 66% of scheduled stops were completed – with overall completion per route ranging from 41% and 96%. In some cases, trucks idled for more than 15 minutes at collection points, reducing productivity and discouraging continued participation from businesses.

Based on these findings, we started by redesigning a single route (Caballito) to focus on consistent participants and formalize pickup schedules. By reducing unnecessary stops and right-sizing collection frequency, the city shortened total route length, improved completion rates and freed up capacity to add new, reliable generators.

Additionally, we added a behavior-change campaign and a digital tracking tool that allowed drivers to record each pickup and automatically share receipts with participating businesses. This improved transparency, allowed the city to spot issues in real time and strengthened communication between generators and municipal teams.

In total, 48 large food businesses were activated through a combination of on-site visits, digital communication and tailored training. Businesses received practical materials co-designed with city officials, including posters showing collection schedules, examples of correct separation and durable bin stickers to remind staff of proper sorting. Digital reminders reinforced these messages and provided a clear line of communication with city services.

See details of the behavior change strategy below

BEHAVIOR CHANGE ACTIVATION STRATEGY - 8 WEEKS

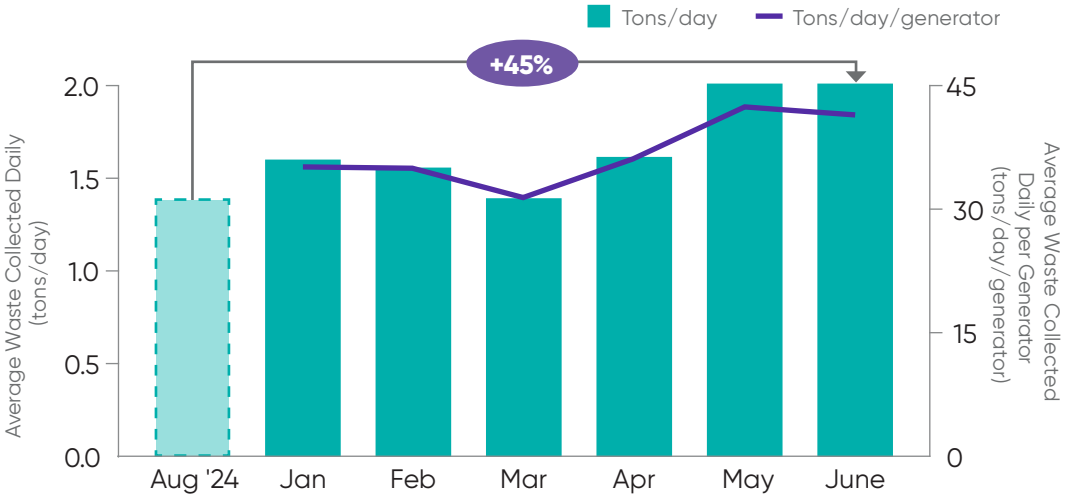
	SENSIBILIZATION PHASE	**CORRECTIVE AND MAINTENANCE PHASE**
	4 weeks	*4 weeks*
E-MAIL	• Notification of waybill change and onsite visit • Send first digital waybill and schedule	• Corrective reminder and training offer • Feedback on participation
WHATSAPP	• Notification of waybill change and onsite visit • Reminder of digital waybill validity	• Service issues notices and circularity messaging
FIELD VISITS	• Promoter visits to notify the validity of the digital waybill • Facilitator materials are delivered	• On-request training for low-compliance users • Supervisory visit to low-compliance generators
	Reinforcement visit and feedback on new service and materials	
DIGITAL TOOLS	Real time monitoring of participation, quantity and quality	

Beyond the direct performance gains, the pilot also built lasting capacity within local government. City officials were trained to use standardized performance indicators, track efficiency and quality, and take corrective actions independently. A centralized communication channel and digital tracking system are now in place on the pilot route, setting the stage for expansion to additional areas in the coming years.

IMPACT

The Buenos Aires pilot showed that improving operations and pairing them with behavior change and digital tools can deliver rapid, measurable results. After collection routes were redesigned, efficiency improved across multiple performance measures. Route efficiency rose, driven by higher completion rates, fewer unscheduled stops and shorter travel times between points. As a result, more businesses received consistent service and the total tons of organics collected increased. The redesigned schedule also freed up capacity, allowing new businesses to join and further boost total recovery.

CHANGE IN WASTE COLLECTED PER DAY IN THE CABALLITO ROUTE



45% increase in tons collected

28% increase in tons collected per point

High quality collection taken from **68% to 100%**

18% increase in collection points

The pilot also demonstrated the added impact of combining operational improvements with engagement. Over the course of the pilot, the route collected 75 additional tons of organics – equivalent to 225 tons per year if sustained – and participation grew as more businesses joined the service. Sorting quality also improved dramatically: at the start of the pilot, 68% of businesses were separating correctly, compared to nearly 100% by week 12. The digital tracking system provided transparency between drivers, businesses and city officials, helping maintain accountability and build trust.

By the end of the pilot, the approach demonstrated how simple, data-informed improvements can create momentum across the wider waste system. When operational adjustments were combined with Delterra's behavior change blueprint and a digital tracking system, there was a 45% increase in average tons collected per day between August 2024 and June 2025.

Using the same methods tested in Caballito – route redesign, behavior change and digital monitoring – the city has since expanded the model to additional routes. This is estimated to recover an estimated 2,577 tons of organic waste per year, nearly doubling total organics recovery in Buenos Aires and laying the groundwork for long-term scaling. Additionally, the city is evaluating adding 3 additional routes by the end of 2025.

SCALING THE PILOT

ROADMAP

The Buenos Aires pilot demonstrated a clear pathway to increase organics recovery: diagnose and optimize existing systems, reinforce them with behavior change and digital tools, and only then expand service areas or add new collection trucks.

Looking ahead, the city plans to extend this model across all remaining collection routes. The goal is to roll out one new route every two months, using the same method tested during the pilot – first diagnosing and redesigning routes, then implementing behavior change efforts to improve participation and waste separation. At current pace, all 10 routes are expected to be completed by mid-2027 at the latest - with Buenos Aires currently operating ahead of schedule.

To ensure a smooth scale-up, each improvement identified during the pilot will have clear ownership, timelines and progress checkpoints. The city and its private collection company will meet regularly to review service performance, identify areas for adjustment and apply lessons from the initial pilot. Coordination between field teams and digital communication channels will also be strengthened to maintain consistent messaging and support high participation rates across all routes.

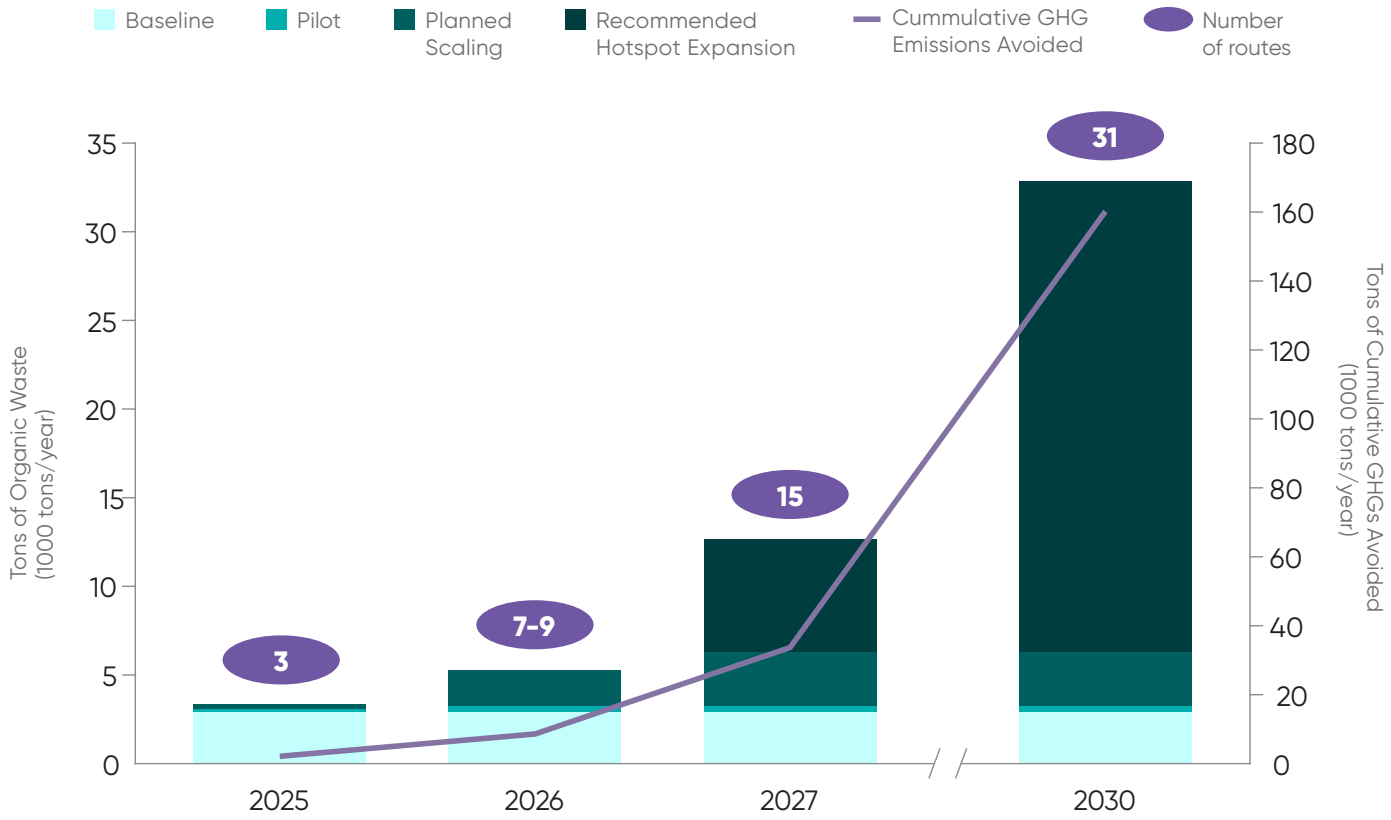
Data and monitoring will remain central to continuous improvement. A new baseline survey will measure the quantity and quality of organic waste collected per generator before the intervention, and the digital tracking system will be refined to make it easier for drivers and city officials to record results in real time. Promoters will receive periodic training to keep practices consistent across routes, while a shared online dashboard will help officials make quick, data-informed decisions – from adjusting collection frequency to following up with participating businesses.

IMPACT

If Buenos Aires scales this approach to the remaining nine routes, the city could recover about **6,240 tons of organic waste per year by 2027** – a **120 percent increase from 2025 levels** (around 2,800 tons).

Looking further ahead, expanding the model to four major organic waste hotspots through a privatized collection system and mandatory source separation for large businesses could raise recovery to roughly 32,700 tons per year. At full scale, this could **prevent 159,771 tons of carbon dioxide equivalent (CO_2e) emissions by 2030 and 1,702,714 tons by 2050**[3] – which is equivalent to removing about 370,000 cars from the road for one year.[4]

DELTERRA'S ESTIMATES OF TONS OF ORGANIC WASTE AND GHG EMISSIONS THAT CAN BE AVOIDED, *2025–2030*



3 Calculated using 2.58 ton CO_2e per ton of organic waste using IPCC default values | 4 Estimates based on EPA

ENABLERS FOR LONG-TERM SUCCESS

As Buenos Aires transitions from successful pilots to citywide implementation, long-term success will hinge on strengthening the systems and policies that enable sustained performance.

The city already has a strong foundation – a functioning composting facility, active large generators and digital monitoring tools that provide real-time performance data. Yet, as new collection routes come online, treatment capacity will soon need expansion. **Planning and investment in higher-capacity composting facilities, alongside a robust policy framework that defines clear roles between public and private actors, will be critical**.

The upcoming 2027 renewal of municipal waste contracts offers a timely opportunity to formalize this evolution – embedding dual-stream collection, service standards and digital traceability to align all operators under a single performance-based framework.

PLANNING AND INVESTMENT IN HIGHER-CAPACITY COMPOSTING FACILITIES, ALONGSIDE A ROBUST POLICY FRAMEWORK THAT DEFINES CLEAR ROLES BETWEEN PUBLIC AND PRIVATE ACTORS, WILL BE CRITICAL.

At the same time, regulatory and financial incentives will play a key role in ensuring participation and efficiency. A phased mandate for large generators to separate organics at the source, paired with balanced landfill and treatment tariffs, can make diversion economically viable while improving the quality of materials delivered to composting sites. Digital systems piloted during the first phase – such as real-time route monitoring – will serve as the backbone of governance, enabling oversight, transparency and adaptive decision-making.

Coupled with ongoing coordination between municipal authorities, haulers, treatment operators and cooperatives, **these enablers will ensure that Buenos Aires scales organics recovery in an efficient, inclusive and climate-smart way – positioning the city as a model for urban methane reduction across Latin America**.

ECONOMIC IMPLICATIONS

The proposed model for Buenos Aires is intentionally designed to be economically viable. In its first phase, it requires no large public investment. Instead, the focus is on optimizing what the city already has – routes, staff and composting capacity – to demonstrate that efficiency improvements alone can boost recovery rates. There are also low investments in the application and behavior change mechanisms. Once existing capacity is fully used, we've modeled a system wherein private operators can profitably take the lead in expanding the collection system.

Large food businesses in City of Buenos Aires are already required by law to contract private waste services for their mixed waste. Under this model, those same companies could contract private haulers to collect their separated organics instead – at a comparable or lower cost.

Because routes are optimized and concentrated in highly dense areas with disposal occuring in treatment plants closer to the city, operators can offer competitive prices while avoiding long transport distances to the CEAMSE Norte III landfill. This structure allows for growth driven by market demand, not subsidies.

FINANCIAL FEASIBILITY

To assess whether private operators could profitably expand organics collection once capacity is reached, the financial model was tested under a range of realistic conditions. The results show that the business can quickly recover its investment, with early payback expected within the first two years of operation.

Even when tested under less favorable scenarios – such as higher fuel prices or lower service fees – the model remains profitable. This analysis confirms that private-sector investment in organics collection is both low-risk and financially sound.

"We now understand that a digital tool is a key enabler to keep growing the system. We are saving time, increasing efficiency, making better decisions and recovering more material. Without this tool, we wouldn´t have been able to include more routes and generators,"

–Ricardo Bordon, Implementation and Route Monitoring Manager

For the city, scaling this model reduces dependence on cross-jurisdictional landfills, lowers transport costs and supports compliance with Buenos Aires' Zero Waste Law. For private operators, it opens a growing market for differentiated collection services that are viable from day one. As organics recovery increases, the compost produced can continue to serve public parks and community projects – and in time, become a valuable local resource.

Starting with low-cost optimizations and creating a pathway for private investment once the system scales, the City of Buenos Aires can transform how it manages organic waste while maintaining financial stability. The result is a citywide approach that is both economically sound and environmentally powerful – one that other cities can adapt to achieve climate impact without overextending public budgets.

FINAL REFLECTIONS

The City of Buenos Aires pilot offers a powerful example of how cities can turn waste management into climate action by starting small and thinking systemwide. **By optimizing existing routes, engaging large businesses and introducing simple digital tools, the city showed that it can nearly double organics recovery without major new spending.** These advances come at a pivotal moment, as CABA prepares for its 2027 waste management contract renewal, it provides an opportunity to embed this model citywide

BY OPTIMIZING EXISTING ROUTES, ENGAGING LARGE BUSINESSES AND INTRODUCING SIMPLE DIGITAL TOOLS, THE CITY SHOWED THAT IT CAN NEARLY DOUBLE ORGANICS RECOVERY WITHOUT MAJOR NEW SPENDING.

The project also revealed a financially sustainable pathway for growth – one that begins with operational efficiency and transitions to private investment once capacity is reached. With proven results on the ground and a clear economic case for scale, Buenos Aires is positioned to lead a new generation of waste solutions that are both cost-effective and climate-positive, showing other cities around the world that transformation is within reach.

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For more information, please reach out to Jeremy Douglas (Global Director of Partnerships) at jeremy@delterra.org