Amsterdam - The Netherlands
Optimising waste collection logistics in urban systems

Code: AM-UC03
Brief: A heuristic algorithm optimises the routing and scheduling of a multimodal waste collection service in Amsterdam to improve efficiency.

Key Urban Challenges Addressed:

- Limited space and heavy vehicle restrictions hinder standard waste collection
- Street waste attracts pests and harms cleanliness
- Alternative modes of transport, such as cargo bikes, present new challenges for planning and require smart coordination

Goals & Anticipated Benefits:

- Decrease illegal waste disposal
- Decrease litter, caused by damaged waste bags on the streets
- Reduce the weight load on historic infrastructure
- Improve traffic safety in the historic inner city
- Reduce emissions by modal shift to light electric vehicles

Ownership:

- **TU Delft** develops the scheduling algorithm
- **Argaleo** builds a digital twin to visualise and analyse waste collection patterns and support data-driven insights without controlling operations

Infrastructure:

- No new physical infrastructure is needed
- A prototype scheduling algorithm will be developed, tested, and validated

Location:
The algorithm will be tested in De 9 Straatjes, where a pilot is evaluating on-demand waste collection alongside scheduled service using cargo bikes, light electric vehicles, and barges.

Timeline:

April - ongoing
Field data collection

September 2025
Finalise and refine the timetable

October 2025
Inform residents by letter/app and implement the timetable

January 2026
Evaluation survey with residents on the new schedule

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