JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

# AI Municipal Service Operations and Waste Routing Training Course

25 – 29 January 2027
Barcelona

# AI Municipal Service Operations and Waste Routing Training Course

**Ref:** 1038_39240 **Date:** 25 – 29 January 2027 **Location:** Barcelona **Fees:** 6200 GBP

AI Municipal Service Operations and Waste Routing is a 1-week training course for municipal managers, city operations engineers and public works planners who will build a Municipal Service Operations Playbook. Bin fill sensors, signal controllers, water meters and service request logs describe city work in detail, yet crews follow fixed rounds. Jupiter Prime Training presents AI Municipal Service Operations and Waste Routing as the discipline of turning that data into leaner, fairer daily services.

## Why AI Municipal Service Operations and Waste Routing Matters Now

Three pressures are changing how councils run street services. Fuel, labour and vehicle costs make every wasted collection trip visible in tight operating budgets. Connected sensors now report fill levels, traffic queues and pipe pressures every few minutes. Residents expect quick responses to reported faults and missed bins. Councils that read these signals well cut kilometres and complaints; those that automate carelessly risk unfair service gaps between districts. The course draws on the ISO/IEC 42001 AI management system standard and the NIST AI Risk Management Framework AI RMF for oversight.

## Who Gains Most from AI Municipal Service Operations and Waste Routing

- Managers who run refuse collection, street cleansing and recycling fleets
- Engineers who operate traffic signal control and junction monitoring systems
- Planners who forecast water, energy and drainage demand for public utilities
- Officers who handle resident service requests and contact centre performance
- Analysts who manage sensor platforms and operational data for local government

A council gains most when its fleet, highways, utilities and data teams attend together, since a routing model only pays off when depots, drivers and control rooms change how they work.

## AI Municipal Service Operations and Waste Routing Capabilities

Participants move from raw sensor feeds to service decisions that crews can carry out each morning.

- Design dynamic collection rounds from bin fill predictions and vehicle capacity limits — fleet supervisors
- Tune adaptive signal timing plans from detector and camera queue data — highways control rooms
- Forecast daily water and energy demand to schedule pumping and maintenance — utility operators
- Prioritise resident fault reports with text classification and urgency scoring — contact centre leads
- Check sensor data quality, privacy and equity across districts before automation — elected members
- Set service-level measures that link model outputs to visible public outcomes — chief executives

## Key AI Municipal Service Operations and Waste Routing Terms

- Vehicle routing problem — the optimisation task of assigning stops to vehicles under capacity and time limits.
- Fill-level forecasting — predicting when a container reaches its threshold from sensor history and local patterns.
- Adaptive signal control — junction timing that changes cycle and green splits in response to live demand.
- Demand forecasting — estimating future utility consumption from weather, calendar and usage history.
- Service level agreement — a published target for response or completion time on a public service.
- Equity audit — a review testing whether automated decisions serve every district and group fairly.

## AI Municipal Service Operations and Waste Routing Day by Day

## Day 1: City Service Data Foundations

- Mapping Municipal Service Chains — Where Data Changes Decisions
- Sensor Platforms For Bins, Signals And Meters — Coverage Choices
- Service Request Logs As Operational Signals — Demand Hotspots
- Data Quality, Gaps And Sensor Faults — Trusting Inputs
- Privacy And Resident Consent In Street Data — Acceptable Collection

## Day 2: Waste Collection Routing

- Fill-Level Forecasting From Container Sensors — Collection Triggers
- Vehicle Routing With Capacity And Shift Limits — Daily Round Design
- Depot, Tipping Point And Fuel Constraints — Kilometre Reduction
- Missed Collection Prediction And Recovery — Complaint Prevention
- Driver Acceptance And Round Change Communication — Adoption Plan

## Day 3: Traffic and Utility Demand

- Adaptive Signal Timing From Queue Detection — Junction Priorities
- Bus And Emergency Vehicle Priority Rules — Corridor Trade-Offs
- Short-Term Water Demand Forecasting — Pumping Schedules
- Street Lighting And Energy Load Prediction — Dimming Plans
- Leak And Pressure Anomaly Detection — Crew Dispatch

## Day 4: Public Safety, Requests and Oversight

- Resident Report Text Classification — Fault Triage
- Incident Hotspot Analytics For Patrol And Lighting — Resource Placement
- Equity Audits Across Districts — Fair Service Allocation
- NIST AI RMF Govern And Measure Functions — Council Oversight
- Service-Level Dashboards For Elected Members — Accountability

## Day 5: Practising the Municipal Service Operations Playbook

- Applying Dynamic Routing To A Coastal Town Refuse Case — Round Plan
- Applying Signal Timing To A Commercial District Corridor Case — Timing Plan
- Applying Demand Forecasting To A Water Utility Case — Pumping Rules
- Peer Challenge Of District Equity Results — Fairness Check
- Municipal Service Operations Playbook — Models, Measures, Owners And Rollout

## Applying AI Municipal Service Operations and Waste Routing After the Course

- Pilot sensor-triggered collection on one district and compare kilometres and missed bins with fixed rounds for a month.
- Present a service-level dashboard linking fault report triage times to resident satisfaction for council review.

## AI Municipal Service Operations and Waste Routing Questions FAQ

### What is AI municipal service operations and waste routing and why does it matter now?

It is the use of forecasting, optimisation and text analytics to run waste, traffic and utility services from live data. It matters now because councils face tight budgets while sensors already report street conditions continuously.

### Which roles gain most from AI municipal service operations and waste routing?

Municipal managers, city operations engineers, fleet supervisors and public works planners gain most.

## How does AI municipal service operations and waste routing differ from a course on urban planning?

An urban planning course shapes land use and long-term growth. This subject focuses on running everyday services such as collection rounds, signal timing and utility pumping more efficiently.

## What do you bring back from AI municipal service operations and waste routing?

You bring back a draft playbook setting out models, service measures, owners and a phased rollout for your council.

## AI Municipal Service Operations and Waste Routing: The Way Forward

The Municipal Service Operations Playbook sets out which services move first to data-driven rounds and timing, the models behind each change, the measures residents will notice and the owner of every step. Its first use is choosing the pilot district for sensor-triggered collection. After three months, review kilometres saved, complaints and fairness across districts before scaling.