

Welcome!

October 2025

With the CONDUCTOR project entering its final month, we are pleased to share this special edition of our newsletter dedicated to our pilot activities across Europe. These pilots are providing valuable insights into how innovative approaches can be tested and assessed in practice, helping cities and regions to manage mobility more effectively and sustainably.

Each site focuses on specific challenges, from traffic management and cross-border connections to urban logistics and integrated mobility services. Together, they illustrate how demand-responsive planning, advanced traffic control and data-driven solutions can contribute to cleaner, more efficient and more inclusive transport systems.

As CONDUCTOR approaches its conclusion, we invite you to stay connected and to join us at our <u>Final Event</u> on 22 October 2025 in Brussels, where we will present the main results and explore how they can support future CCAM activities across Europe.

Yours sincerely, The CONDUCTOR Project Team Integrated traffic management

Demandresponsive transport

Urban logistics



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Experience the Results: CONDUCTOR-IN2CCAM Final Event

The CONDUCTOR-IN2CCAM Final Event will take place on 22 October 2025 at COMET Louise, Brussels.

This joint event will present the final results of the **CONDUCTOR** and **IN2CCAM** projects and demonstrate how their solutions can support future CCAM activities across Europe.

The programme will include contributions from the CCAM Partnership and Andrea De Candido from the European Commission, alongside four panel discussions addressing key topics:

- From pilots to deployment: scaling up CCAM solutions
- · Interoperability and multimodal mobility
- Societal acceptance and readiness
- · The role of data in shaping future CCAM

The event will also feature a poster area, where other CCAM projects will present their work, offering opportunities for exchange and collaboration.

Participation is free of charge, but registration is required. Find out more and register here.

We look forward to welcoming you to Brussels for a day dedicated to knowledge exchange, networking, and collaboration within the European CCAM community.

















Pilot 1: Urban Traffic Management in Athens

A Smarter Approach to Public Transport

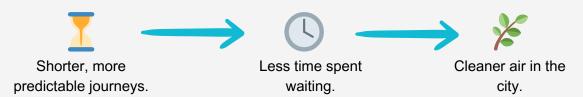
Athens, one of Europe's busiest capitals, is the location of a CONDUCTOR pilot. The project explores how public transport can work more effectively within the wider traffic system. The pilot area is Alexandras Avenue, a busy corridor with high demand, 14 signalised intersections, and 21 bus stops serving 18 public transport lines.

This pilot examines how CCAM solutions may help to ease congestion, improve reliability, and support more sustainable urban mobility.



Why Does It Matter?

For Travellers



From a Research Perspective



Using real information from buses, sensors and detectors.

Methods to forecast arrivals and improve scheduling.

Validation of traffic control and incident management tools.

Measuring impacts on travel times, punctuality, emissions and energy use.









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Instead of depending on fixed bus lanes and static timetables, Athens use case applies dynamic, data-driven traffic management. Historical bus telematics, loop detectors and city sensors are combined with modelling techniques to explore how real-time operations may be improved.



Dynamic bus lane control

Bus lane access is adjusted according to live traffic conditions, helping to support smoother journeys and more efficient use of road space.



Accurate bus arrival predictions

Improved Estimated Time of Arrival (ETA) models provide more reliable updates for passengers and operators, supporting better punctuality.



Real-time incident management

Disruptions are identified, prioritised and addressed quickly to reduce impacts on travellers.



Multimodal vehicle scheduling

Connections between buses and other transport modes are co-ordinated to shorten waiting times and make transfers easier.

Athens UC1 is an important part of CONDUCTOR's wider aim: mobility that is sustainable, intelligent and inclusive. By helping to balance transport demand across different modes, the Athens pilot shows how cities can begin to develop systems that respond to real-time conditions and to the needs of passengers.

The Athens pilot is a step towards more reliable public transport, better use of road space, and a cleaner urban environment.

















Pilot 2: Urban Traffic Management in Madrid

Responding to Planned and Unplanned Events

Madrid's M-30 ring road, a 32 km urban motorway surrounding the central districts, is the focus of this CONDUCTOR pilot. Together with adjoining secondary roads, it forms a network that often faces pressure from both daily demand and unexpected incidents.

The pilot examines how CAVs, alongside conventional traffic, can contribute to more adaptive and resilient network operations when disruptions occur.



Why Does It Matter?

For Travellers



Shorter recovery times after disruptions.



Reduced delays during roadworks or incidents.



Lower emissions and improved air quality.

From a Research Perspective



Comparative testing of

planned versus

unplanned scenarios.

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Analysis of performance with varying CAV penetration rates.



Insights into how rerouting and adaptive control enhance network resilience.









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Using the Aimsun Next simulation platform, Madrid use case evaluates how different levels of CAV usage could influence network performance during events such as roadworks or accidents. The approach combines real-world network data with virtual roadside sensors to test strategies for restoring normal operations.



Evacuation route planning

Identifying and managing safe, efficient evacuation pathways during emergencies.



Emergency vehicle prioritisation

Supporting faster access for emergency services through adaptive control.



Access control

Managing entry to specific zones in response to live conditions.



Lane management

Adjusting lane use to improve traffic flow and prioritise critical vehicles.



Dynamic rerouting

Providing alternative routes to ease congestion and maintain network performance.

This pilot strengthens CONDUCTOR's work on resilient urban mobility systems. By exploring communication between traffic managers and CAVs, Madrid use case provides evidence on tailored routing, decision support for operators, and faster recovery after events.

The Madrid pilot demonstrates how combining connected vehicle technologies with adaptive traffic management can improve safety, reliability, and environmental performance in a major European city.

















Pilot 3: Almelo – Freight Signal Priority for Sustainable Logistics

Making Logistics More Efficient

Almelo, a city in the eastern Netherlands with around 72,000 residents, is home to several industries and logistics firms. Heavy-duty vehicles make up a significant share of traffic, and frequent stops at signalised intersections cause higher fuel use, increased emissions, and delays. These impacts affect not only logistics operations but also wider urban traffic conditions.

To address this, Almelo has introduced intelligent traffic light controllers (iTLCs) with cooperative communication functions.



These systems allow vehicles and infrastructure to exchange information in real time, making it possible to adapt traffic signals based on vehicle type and conditions. The focus is on improving efficiency for freight traffic while maintaining safety and fairness for all road users.

Why Does It Matter?

For Citizens and Businesses



From a Research Perspective



Testing communication between freight vehicles and traffic infrastructure

Analysing trade-offs between freight efficiency and impacts on other road users

Studying governance questions about how to prioritise different types of vehicles









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The Almelo work shows how freight signal priority can move from experimental testing into real-world traffic management. By demonstrating that trucks can communicate directly with traffic lights, and that signals can adapt without causing major disruption for other users, the approach points towards practical applications in everyday logistics.



Freight signal priority

Demonstrates how smoother passage through intersections can reduce fuel use and emissions in heavy-duty transport.



Vehicle-to-infrastructure communication

Shows how reliable, real-time data exchange can be used in operational traffic systems.



Adaptive, multi-modal traffic management

Illustrates how future strategies could balance the needs of freight, passenger vehicles, cyclists and pedestrians in a fair and efficient way.

This use case demonstrates how vehicle-to-infrastructure communication can support sustainable logistics. By testing freight signal priority in real-world conditions, Almelo contributes practical insights into multi-modal traffic management, governance frameworks, and the role of smart infrastructure in achieving low-emission freight transport.

The Almelo case shows how targeted innovation in traffic control can reduce environmental impacts, strengthen logistics operations, and improve conditions for all road users.

















Pilot 4: Cross-border Shuttle Optimisation (Slovenia, Italy, Croatia, Austria)

Improving Regional Connectivity

This pilot explores how demand-responsive transport (DRT) can be applied across borders to improve links between cities and airports in Slovenia, Italy, Croatia, and Austria. By combining real-time data, predictive models and continuous planning, the system aims to make shared shuttle services more reliable, efficient, and sustainable.

The study focuses on three international routes: Ljubljana–Trieste, Ljubljana–Zagreb, and Maribor–Vienna. These corridors were chosen due to their operational relevance, established demand, and logistical complexity.



Why Does It Matter?

For Travellers



More direct and flexible connections between cities and airports.



Shorter waiting and travel times through optimised planning.



Lower environmental impact from shared services with higher occupancy.

From a Research Perspective



Evaluation of hybrid

approaches combining simulation and field testing.



Analysis of continuous planning under sudden demand changes.



Validation of predictive analytics in cross-border mobility systems.









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The pilot combines real-life testing with simulation to assess how a next-generation DRT platform can manage sudden changes in demand and disruptions. Both static planning and dynamic, Al-driven approaches are compared.



Demand-responsive transport platform

A modular cloud-based system that supports booking, planning, and monitoring of shuttle fleets in real time.



Planning and routing optimisation

Algorithms continuously adapt routes to reduce travel times, distances, and emissions.



Ad-hoc continuous planning

Late bookings and last-minute requests are integrated dynamically to increase service flexibility.



Demand prediction models

Forecasting tools anticipate travel needs, from short-term adjustments to longer-term planning.



Traffic event assessment

Disruptions such as accidents or roadworks are monitored, with assisted rerouting when needed.



Integration of multiple data sources

Shuttle planning is informed by airport schedules, weather data, traffic feeds, and booking trends.

This pilot offers a testbed for cross-border, multimodal DRT applications. By combining predictive analytics, dynamic planning and real-world operations, it delivers practical evidence on how shared mobility can be expanded across Europe.

The work on cross-border shuttles shows how intelligent transport systems can strengthen regional connectivity, lower emissions, and enable smoother travel across national boundaries.

















Pilot 5: Urban Logistics in Madrid

Smarter Last-Mile Delivery

This use case explores how passenger and parcel transport can be combined to make last-mile logistics more efficient. The idea is to use demand-responsive passenger services together with parcel deliveries, supported by CCAM. By coordinating journeys, fewer delivery vehicles are needed, helping to reduce congestion and emissions in Madrid's city centre.

The study area is the part of central Madrid enclosed by the M-30 ring road, where goods distribution has the highest impact on traffic and the urban environment.



Why Does It Matter?

For Travellers



Reduced congestion in central Madrid.



Shorter average travel times.



Cleaner air from fewer delivery vehicles.

From a Research Perspective



Comparison of baseline,

partial, and optimised

integration scenarios.



Assessment of trade-offs between parcel time windows, routing flexibility, and efficiency.



Evaluation of cosimulation methods for mixed passenger and goods transport.









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The Madrid logistics use case investigates how demand-responsive transport (DRT) and last-mile parcel delivery can be integrated. Testing is carried out with the Aimsun Next and Aimsun Ride simulation platforms, assessing different levels of integration and their impacts on passengers, deliveries, and traffic conditions.



Last-mile delivery demand estimation

Understanding parcel needs in dense city areas.



DRT-CCAM demand estimation

Forecasting passenger needs using on-demand systems.



Traffic impact simulation

Evaluating how integrated services influence congestion and flow.



Route optimisation

Planning efficient combined routes that prioritise passengers while accommodating parcels.

This use case contributes by demonstrating how demand-responsive passenger transport can also serve urban freight needs. Optimised routing makes better use of vehicle capacity, reduces environmental impacts, and balances demand across the urban mobility network.

The Madrid logistics case highlights how shared use of vehicles for people and goods can improve efficiency and sustainability in dense urban areas.

















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- Ccesa-Quincho, M., Fajardo Calderín, J., Cantero, X., Masegosa, A. D. & Serrano, L. (2025). Clustering-Based Route Optimization for Mixed Ride-Sharing under HAIS 2025
- Farahmand, Z. H., Eikenbroek, O., Gkiotsalitis, K., & van Berkum, E. (2025). Multi-criteria Traffic Signal Control using Moduler Deep Reinforcement Learning. Transport Research Symposium 2025
- Farahmand, Z. H., Eikenbroek, O., Gkiotsalitis, K., & van Berkum, E. (2025). Improving Physics-based Car-following Models using Bayesian Convolutional Neural Networks. EWGT 2025
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CONDUCTOR publications

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- Nisyrios, E., Nikolopoulou, A., & Gkiotsalitis, K. (2024). The Dynamic Pickup and Delivery Problem with Crossdock for Perishable Goods. ECCOMAS 2024
- Petelin, G., Rožanec, J., & Papa, G. (2024). Traffic Forecasting With Uncertainty: A Case for Conformalized Quantile Regression. ECCOMAS 2024
- Papa, G., Massi, F., & Vukašinović, V. (2024). Fleet and Traffic Management Systems for Conducting Future Cooperative Mobility. ECCOMAS 2024
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 a Holistic Approach Combining Stakeholders and Users' Needs with Regulatory
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