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Pilot Factsheet – Cesena

Pilot action overview

Freight transport and logistics play a central role in supporting Cesena's commercial and industrial activities, especially in the historic centre and the industrial areas. However, this comes with challenges, particularly regarding the negative impacts and externalities in urban environments. Urban freight logistics in Cesena faces congestion issues, and the absence of a clear regulatory framework hinders the development of sustainable logistics solutions.

To start addressing these challenges, Cesena has already adopted a Sustainable Urban Mobility Plan (SUMP), which includes urban logistics strategies to be further developed through a Sustainable Urban Logistics Plan (SULP).

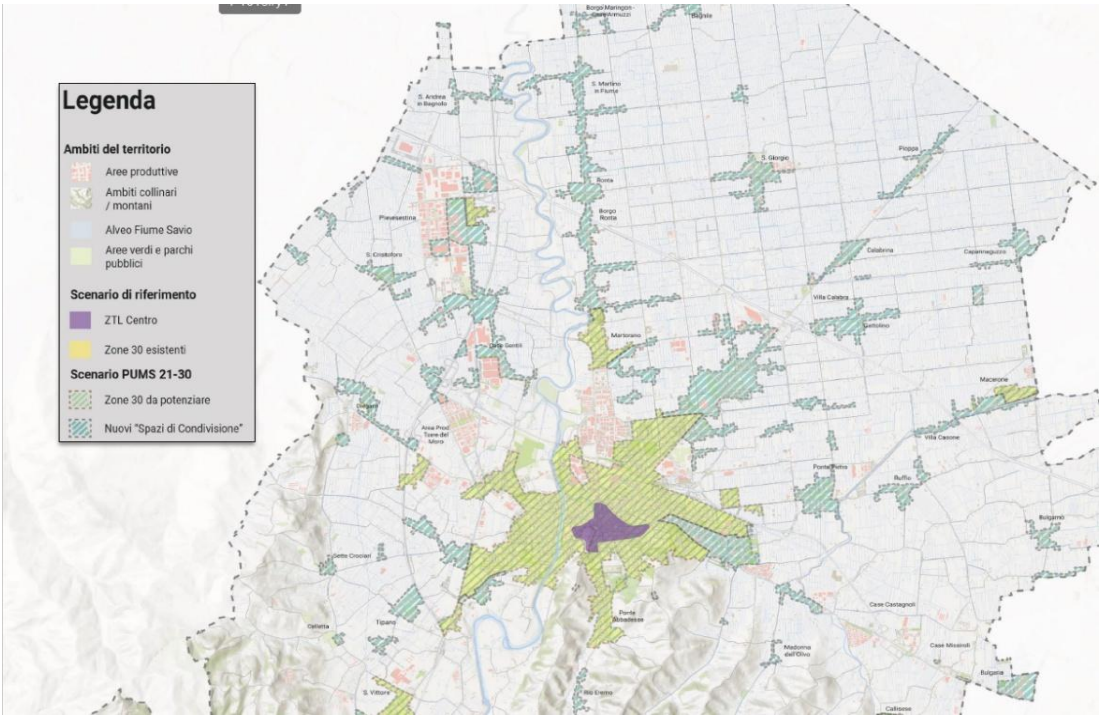

Figure 1. Overview of Limited Traffic Zones, 30 km/h zones and shared zones included in the SUMP

The SULP is a planning document that aims to integrate freight transport within a broader system, aligning it with other mobility modes and community needs to create solutions that maximize the overall benefits for the city. The main goal is to balance the high demand for freight services with the need to progressively reduce CO2 emissions and other negative externalities. This is particularly crucial in high-density residential and commercial areas, where space limitations exacerbate the difficulties in freight operations.

Given this context, the MED COLOURS pilot in Cesena aims at designing and developing a digital tool comprising a database and dashboard capable of:

- Monitoring and visualizing freight traffic data within the Municipality of Cesena.
- Calculating context indicators related to freight transport in the Municipality of Cesena.
- Defining and testing future scenarios (actions and/or policies related to freight transport), comparing them with recalculated context indicators.

Such a tool will enable Cesena to assess the application of one of the actions foreseen in the SUMP for the short term: an integrated measure combining (i) a UVAR scheme for Zero Emissions Logistics in the Limited Traffic Zone, (ii) consolidation centres/hubs/micro-hubs for logistics operations, and (iii) an alternative fleet (small EVs and cargo bikes) for last-mile delivery.

Action Plan – timeline

Pilot Action	**2025**												**2026**		
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Activity 1															
Activity 2															
Activity 3															

Activity 1 - **Data acquisition and elaboration**

This activity focused on the collection of diverse set of data for the development of a tool useful to support measures to be included in the SULP. The initial focus was on compiling a quantitative minimum set of data, which serves as the baseline for subsequent analyses and the development of the digital tool. This data is gathered from multiple sources, including:

- LTZ (Low Traffic Zone) cameras: These datasets track entries through Low Traffic Zone gates, enabling detailed analysis of flows disaggregated by specific gate, permit type, and observation period.
- Demographic data: Population datasets used as a reference for B2C (Business-to-Consumer) coverage analysis, aligned with the spatial units used in the project dashboard.
- PUDO (pick-up/drop-off) points: Registry data of PUDO point within the municipal area, converted into a dedicated geographic shapefile to enable spatial mapping and analysis.
- Shapefile of loading/unloading zones: A geographic layer containing the location and characteristics of areas dedicated to urban logistics operations. This is specifically used for

B2B (Business-to-Business) coverage analysis and for territorial assessments of delivery service accessibility.

- Local economic units data: Registry data of business units within the municipal area, as was done for PUDO points, a dedicated shapefile of these local units was created through the georeferencing of available information to enable spatial analysis and the calculation of coverage indicators.
- Territorial reference shapefiles: Baseline layers used for spatial context, including municipal boundaries, districts, and neighborhoods, alongside specific urban elements such as disabled parking and time-restricted (disk) parking zones.
- Floating Car Data (FCD): Data derived from a sample of active vehicles equipped with on-board black boxes installed for insurance purposes. The study area identified for the database analysis encompasses the entire Municipality of Cesena. The database is categorized into passenger cars and commercial vehicles. Within this second category, the database's anonymized data include information regarding the Gross Vehicle Weight. This allows for the distinction of three heavy vehicle sub-categories:
    - vans and light commercial vehicles: up to 3.5 t.
    - medium commercial vehicles: between 3.5 t and 11 t.
    - heavy commercial vehicles: over 11 t.

The collection of these data ended in March 2025. Additional qualitative information was made available by the Municipality of Cesena with the support of relevant stakeholders and stakeholders' associations.

Activity 2 - **Tool development & simulation scenarios**

This activity has been divided into two sub-activities and related milestones:

- Activity 2.1: this sub-activity includes the identification of the main requirements and use cases, the development of the system architecture, and the integration of the baseline data. These steps led to the development of a tool which was already able to provide valuable mobility insight including daily travel patterns per vehicle category, hourly profiles, origins and destinations map. This sub-activity was completed by May 2025.

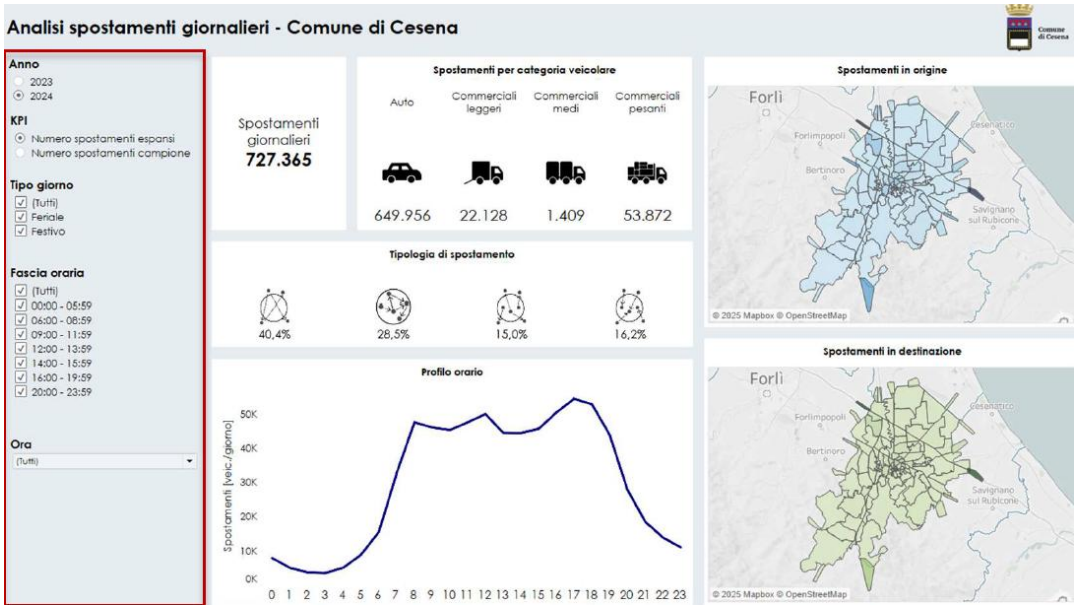

Figure 2. Example of analysis currently available in the tool

Within the framework of Activity 2.1, the identified use cases are organized along four main pillars:

1. Freight traffic flow monitoring: Utilizing FCD (Floating Car Data) segmented by vehicle category to describe the evolution of traffic volumes and movement patterns across the municipal territory. This enables the identification of temporal variations, recurring trends, and discontinuities essential for understanding logistics phenomena and planning effective measures.
2. LTZ entry flows monitoring: Analyzing entry flows into the Low Traffic Zone (ZTL) via video-monitored gate data, disaggregated by permit type. This supports detailed analysis by specific gate and time period, allowing for comparisons between homogeneous timeframes and the identification of peaks or anomalies that may require further investigation.
3. B2B and B2C coverage analysis:
    a. B2B analysis: Aimed at estimating the coverage of the local economic fabric by measuring how many business units are potentially served by existing loading/unloading zones.
    b. B2C analysis: Focused on evaluating coverage from a citizen-centric perspective, estimating the population potentially served by PUDO points based on the proximity catchment area associated with each collection and delivery site.
4. Comparative analysis of delivery modes: This analysis is made possible by identifying and characterizing logistics hubs, such as UCCs (Urban Consolidation Centres) or Micro-hubs. These are viewed as territorial nodes capable of reorganizing the urban distribution chain and, consequently, modifying freight traffic access and circulation patterns.

Building on this framework, the dashboard facilitates a structured comparison between the baseline distribution scenario and alternative scenarios involving the use of hubs (UCC or Microhub). This allows for an objective evaluation of expected

differences through the definition and monitoring of specific KPIs, aligned with the operational and performance dimensions under observation.

- Activity 2.2: this sub-activity includes the development of the scenarios to be simulated with the tool, according to Cesena's urban logistics objectives and the available data. This activity was completed in November 2025. The resulting tool supports the Municipality in the co-design of measures to be included in the SULP.

In this context, the simulations conducted using the digital tool provide valuable input for urban logistics planning and decision-making processes to be implemented by the Municipality of Cesena. Measures such as the establishment of a mobility hub for cargo bikes, an urban consolidation centre, or new loading and unloading areas in the LTZ have been discussed also with stakeholders of the local forum on urban logistics.

Activity 3 - **Capacity building activity and uptake**

Running between December 2025 and March 2026, this activity involved presenting the tool to the Municipality of Cesena representatives and staff, refining it, and training its staff for uptake. Refinement efforts were meant to ensure the delivery of an effective decision-support tool that could facilitate the co-design and monitoring of measures to be integrated into the SULP.

Two training sessions were organized for the Municipality of Cesena (Mobility and IT Departments). These meetings were designed to present the dashboard's objectives, architecture, and functionalities, ensuring the seamless uptake of the dashboard from the Municipality. The ultimate goal is to fully integrate the platform into the Municipality's operations, establishing it as a core asset for local urban planning.

Stakeholders involved

Organization	Description	Role
Local and regional public authorities	Emilia-Romagna Region and Municipality of Cesena.	The Emilia-Romagna Region plays a crucial role in defining collaborative strategies that maximize the impact of sustainable development and management of urban logistics. The Region was engaged regarding the regulatory process concerning the development of a SULP. The Municipality of Cesena represents the primary stakeholder of the pilot action, as the overall objective of the pilot is to provide the city with a reliable and scalable tool capable of addressing specific needs in terms of traffic flow analysis, monitoring, and scenario forecasting.

Organization	Description	Role
Business support organisation	Business support organizations (BSOs) related to trade, crafts and commerce, including local Chamber of Commerce and associations of logistics service providers.	BSOs are key in engaging logistics operators and economic actors in gathering information and proposals for the SULP. They play a key role also in steering both their members and the policy makers, through networking, training and awareness-raising. They are key players for the success of collaborative logistics solutions. Freight Leaders Council promote exchanges among Italian Municipalities, Organizations representing Italian Municipalities and Logistics Service Providers (LSPs).
General public	Citizens represent the generators of B2C demand and are those who will benefit first and foremost from the improved liveability of their cities: less congestion, reduced air and noise pollutions, increased road safety, and enhanced urban spaces.	Citizens involved in the participatory processes for the development of the SUMP of Cesena set their needs and expectations in terms of green urban mobility based on which SULP strategies and measures are developed.
SMEs	Local companies and operators with active local units located in the municipality, distinguished by NACE code (Statistical Classification of Economic Activities).	Traditionally receivers in the logistics supply chain, the emergence of proximity e-commerce and home-delivery makes them also shippers. They benefit from improved efficiency of logistics planning and services. They contribute to maintain and improve effective and efficient supply of warehouses and retail stores.
LSPs	Logistics Service Providers are companies that manage and optimize the transportation, storage, and distribution of goods	LSPs can help reduce environmental impact, improve delivery efficiency, and support the implementation of zero-emission zones and other sustainable initiatives

Expected results and results achieved

Expected outcomes

The primary objective of the pilot was to provide the Municipality of Cesena with a unified, updatable, and accessible information framework for monitoring freight traffic, with a specific focus on the Limited Traffic Zone (LTZ). The expected outcomes included:

- The creation of a structured database and an interactive dashboard to support continuous analysis, control, and urban planning through synthetic indicators and detailed visualizations.
- Alignment and normalization of diverse data sources (FCD, LTZ cameras, demographics) to ensure information is coherent, traceable, and replicable over time.
- Implementation of automated ETL (Extract, Transform, Load) procedures to reduce manual data handling, minimize errors, and increase the reliability of logistics information.
- Delivery of a scalable tool for the Municipality to facilitate the co-design of sustainable measures for the SULP.

Results achieved (April 2026)

The pilot has successfully reached several key milestones in the development and integration of the tool:

- A comprehensive digital platform has been developed, already capable of providing insights into daily travel patterns, hourly profiles, and origin-destination maps disaggregated by vehicle category.
- The integration of multiple diverse data sources into a single, unified repository.
- The tool successfully supports the simulation of alternative logistics scenarios (e.g., UCCs and micro-hubs), allowing for an objective comparison with the baseline through specific KPIs.
- The training and uptake process has been concluded, and the Municipality of Cesena is now able to operate the dashboard as a core tool for urban logistics planning.