ASECAP DAYS
MILANO 2024

TECNE
Sustainable
Engineering

ORGANIZED BY

ASECAP

HOSTED BY

Aiscat

milanoserravalle
milanotangenziali

Mercury Programme
Smart Sustainable Mobility

MERCURY
SMART
SUSTAINABLE
MOBILITY

INNOVATION   **SAFETY**   **SUSTAINABILITY**

CONNECTED INFRASTRUCTURE
MERCURY SMART SUSTAINABLE MOBILITY

Digitisation and **modernisation** of infrastructures to enable the implementation of **advanced technological solutions**, to collect and exchange new information

INTELLIGENT ROADS
MERCURY SMART SUSTAINABLE MOBILITY

Innovative solutions for **improving traffic flow** through the implementation of **intelligent road systems**

FLEXIBLE PRICING
MERCURY SMART SUSTAINABLE MOBILITY

Digitisation and **automation** of **collection systems** to enable **new pricing models**

GREEN SOLUTIONS
MERCURY SMART SUSTAINABLE MOBILITY

Solutions to **enhance environmental sustainability, generate energy from renewable sources** and build an infrastructure to **enable new mobility services**

URBAN MOBILITY
MERCURY SMART SUSTAINABLE MOBILITY

New services and **innovative solutions** geared towards the end user and **Public Administrations** managing mobility in metropolitan areas
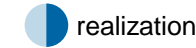
TECNE
Sustainable Engineering

Mercury Programme

Smart Sustainable Mobility

PROGRESS STATUS

- plan
- realization
- roll-out

Infrastructure and traffic management

Step 1 — realization

Step 2 — plan

National Road Traffic Model

- Static
- Dynamic

Real Time Traffic Control Room

- Traffic monitoring
- Traffic management

The National Road Traffic Model

A new powerful DSS

Decision Support System

Local and large-scale traffic studies

Estimation of pollutant emissions

Advanced data processing and traffic control room

Network resilience assessment

Worksites planning

New infrastructures simulation

TECNE
Sustainable Engineering

The National Road Traffic Model

Examples of use cases

The National Road Traffic Model: **tool to answer planning and management questions** across the **whole national network**, both on **highways** and **lower level roads**.

Supply changes:

- Impact of worksites on traffic
- Opening/decommissioning of toll stations
- Road extensions (3°, 4°, 5° lane)
- New construction of highways or roads
- Impact of closures due to unpredictable events
- Re-routing simulations

Demand and cost changes:

- Variations in trips generation and attraction of a specific zone or point of interest

- Evaluation of new **tolling policies**

TECNE
Sustainable
Engineering

What is the National Road Traffic Model

Technical features
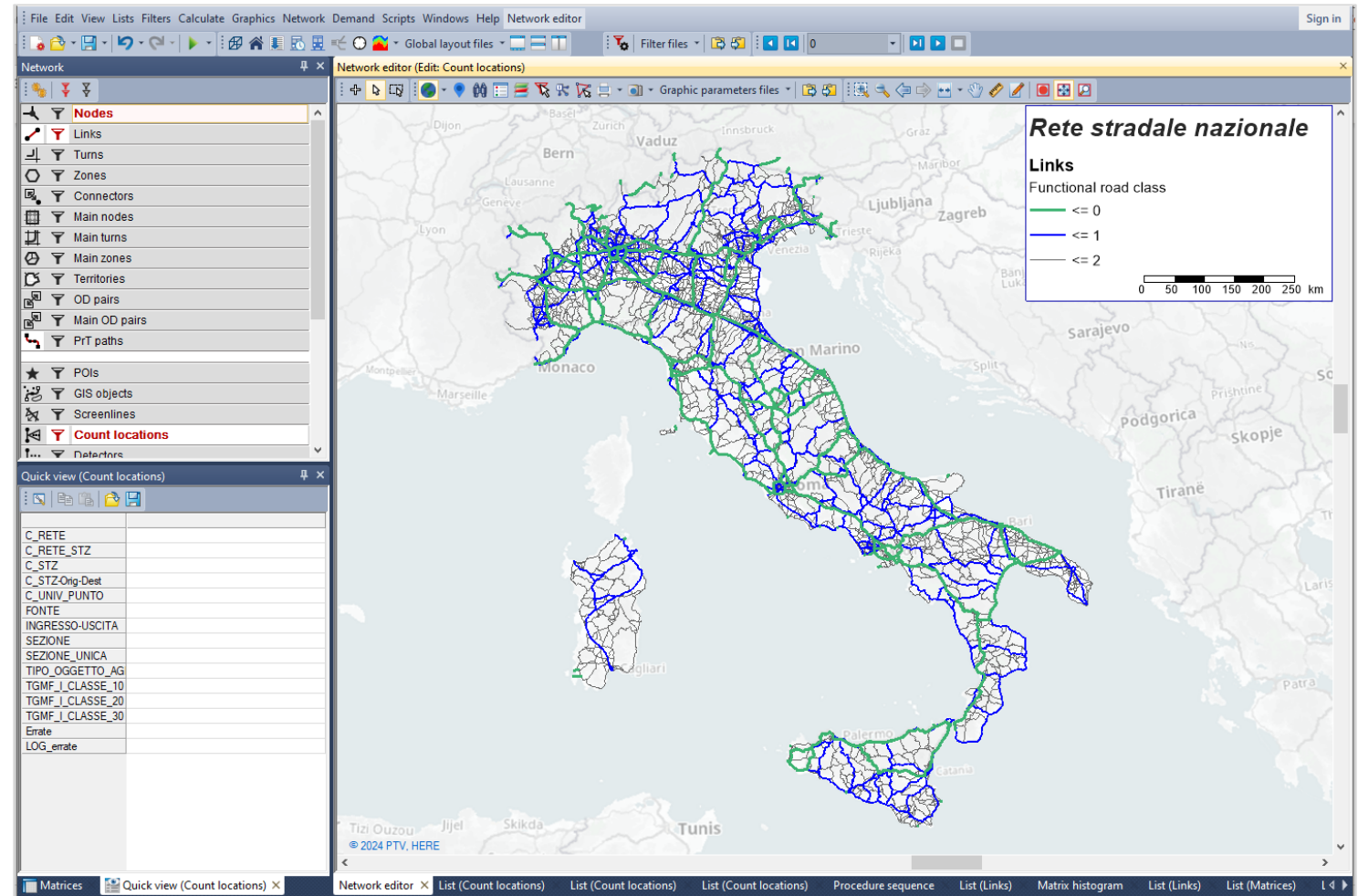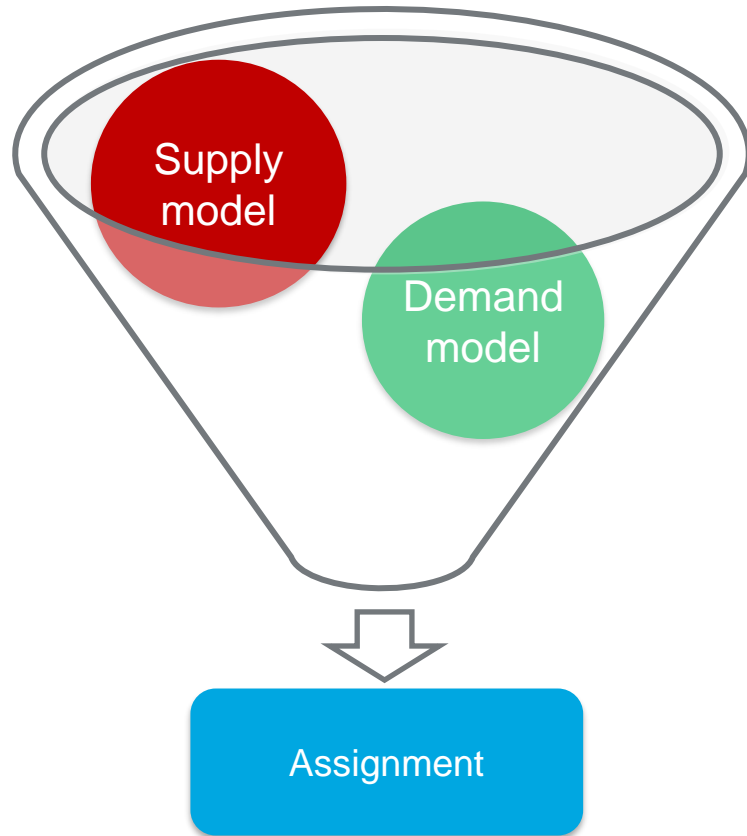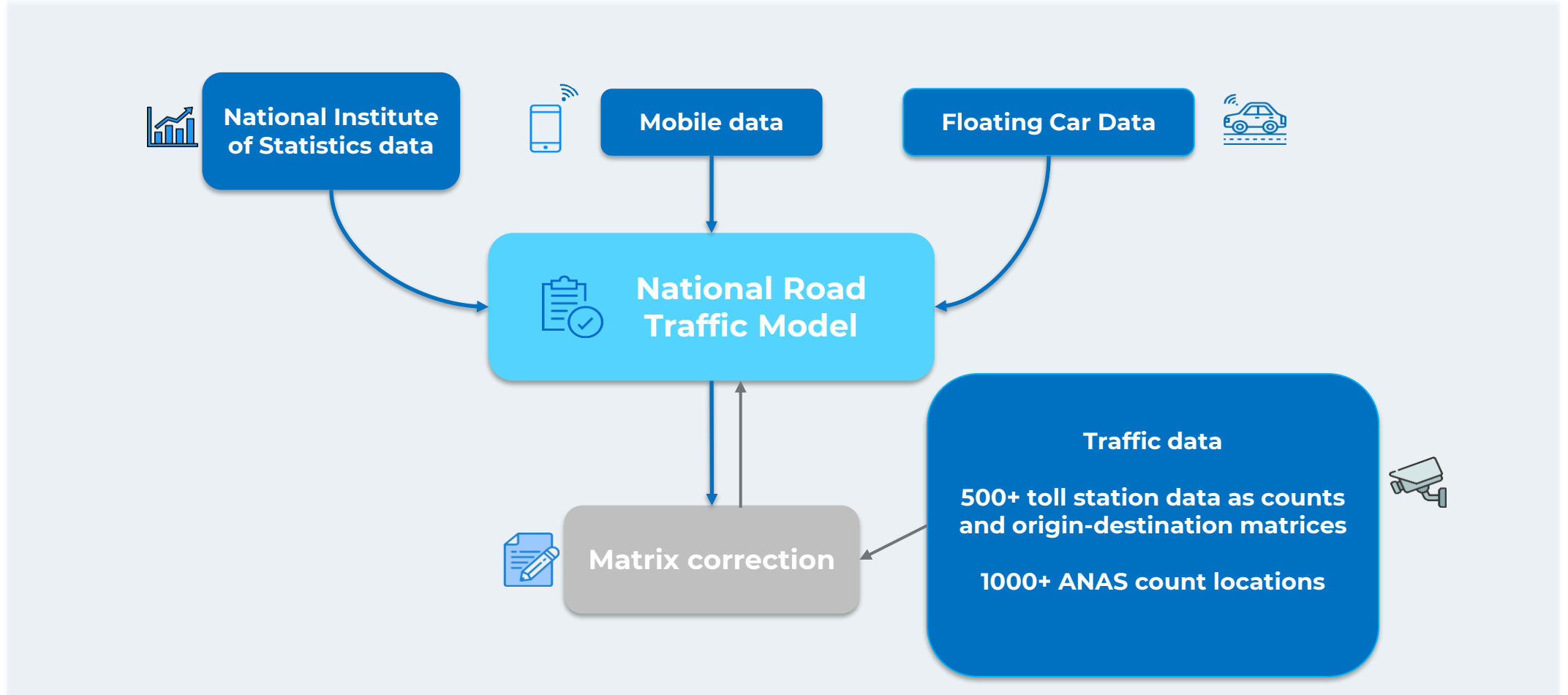
The National Road Traffic Model

Supply model

- Complete representation of **national road network**, including islands, and highways **European network**

- Detailed description of **geometrical and functional** link features

- Classification by **territorial context** and **TEN-T corridor**
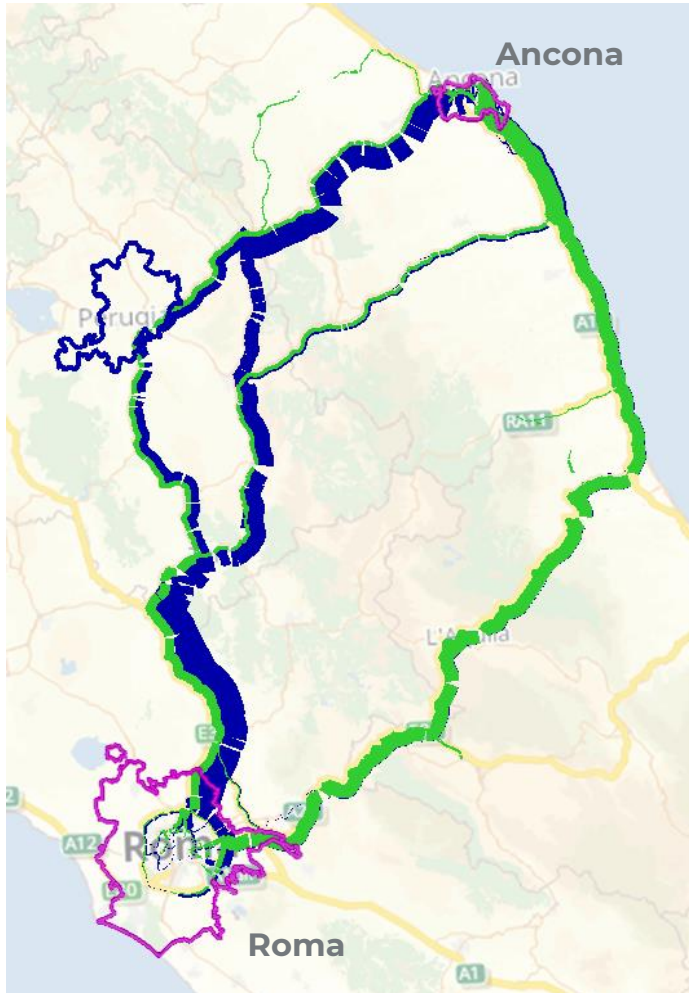
The National Road Traffic Model

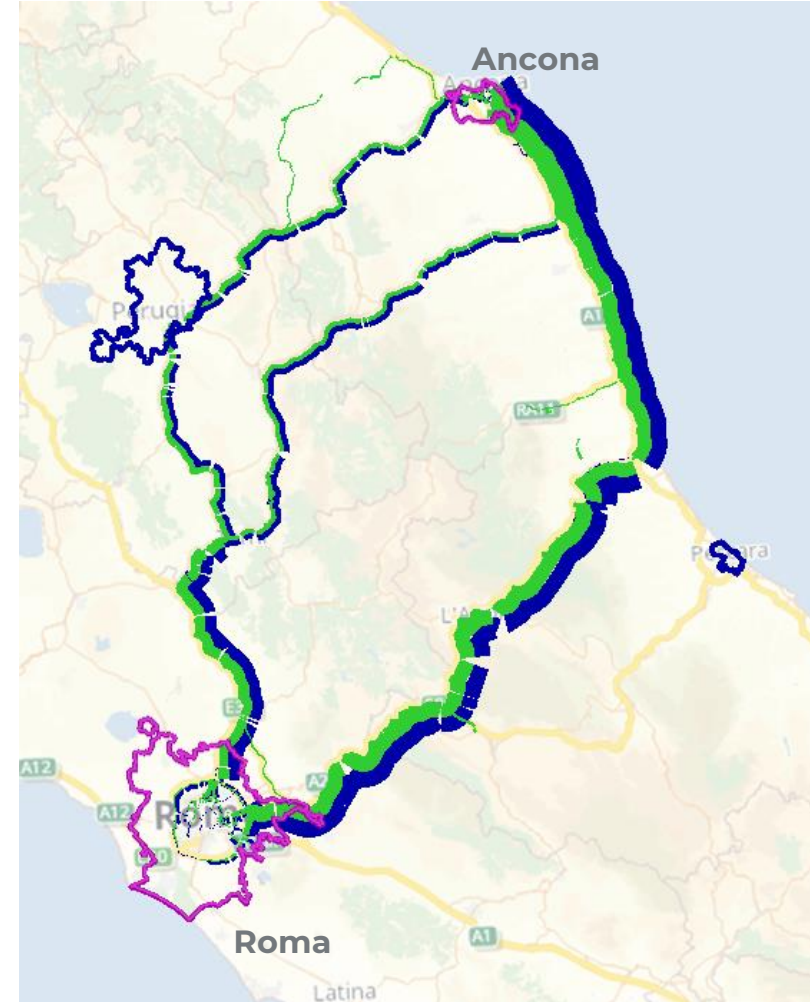Technical features: demand model, assignment model and matrix correction

The National Road Traffic Model

A focus on path choice model calibration

Before calibration

After calibration

— Model flow bars

— Floating car data bars

Data collected in October 2022

10

The National Road Traffic Model
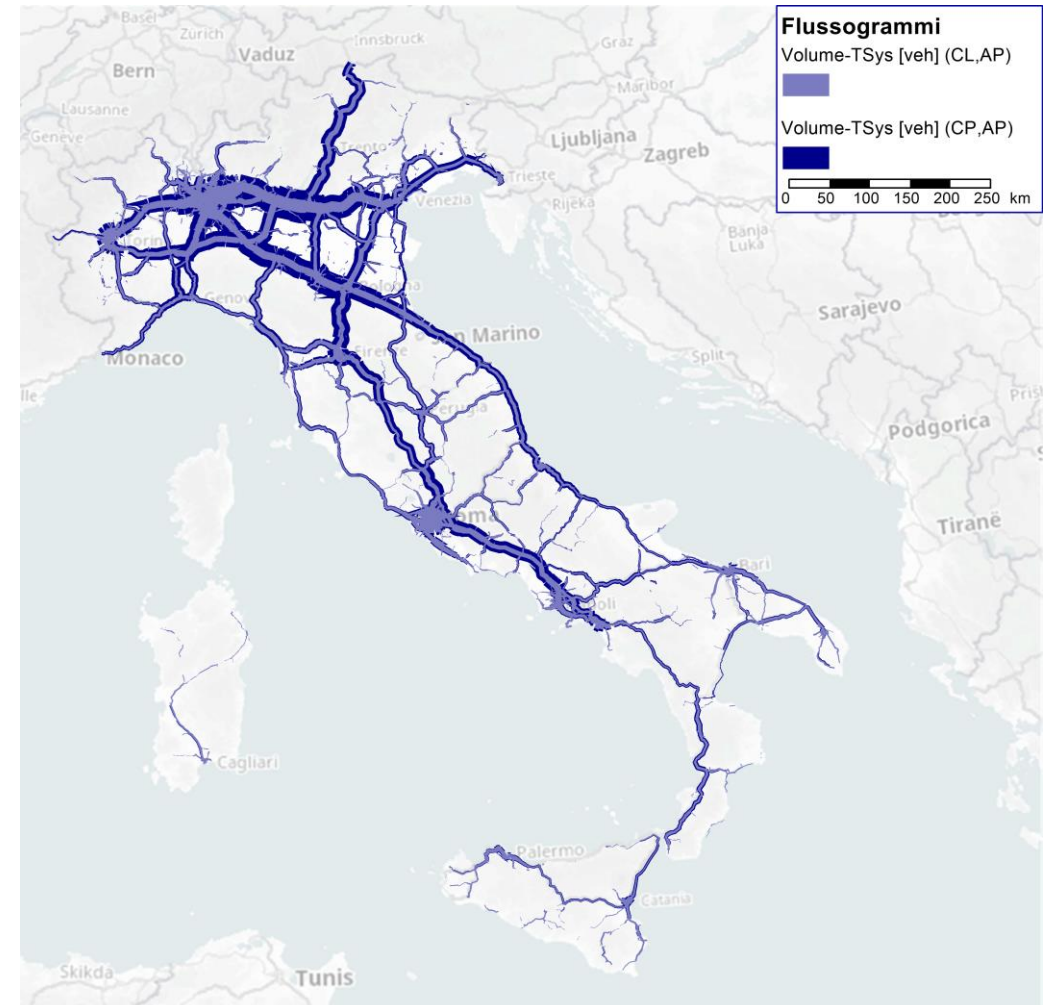
Output

OD matrices

- Average winter day / average July holiday
- Peak hour of the average winter day
- 24-hour matrices of the average winter day / average July holiday

Assignment results

- OD paths - static
- Traffic volume and congested travel time - static
- For each time interval: flow, density, speed, portion of link in congestion (queue length) - dynamic

KPI

- Vehicles*km
- Vehicles*h
- Statistics by road type, territorial context, TEN-T corridor

Flussogrammi
Volume-TSys [veh] (CL,AP)

Volume-TSys [veh] (CP,AP)

0 50 100 150 200 250 km

ASECAP DAYS
MILANO 2024

THANK YOU
GRAZIE

Lucia Maletti
lucia.maletti@tecneautostrade.it
+ 39 3420781215

TECNE
Sustainable Engineering

HOSTED BY

Aiscat

milanoserravalle
milanotangenziali

ORGANIZED BY

ASECAP

The National Road Traffic Model

Technical features

Road model in multiple versions

Static model

·Average winter day

·Peak hour of the average winter day

·Average July holiday

Dynamic model

·Dynamic 24h model of the average winter day

·Dynamic 24h model of the average July holiday

National Road Traffic Model
Zones

4500 ZONES

External zones:

- France **(NUTS 2)**
- Belgium **(NUTS 1)**
- Luxembourg **(NUTS 2)**
- Netherlands **(NUTS 1)**
- Germany **(NUTS 1)**

- Austria **(NUTS 2)**
- Slovenia **(NUTS 2)**
- Croatia **(NUTS 2)**
- Czech Republic **(NUTS 2)**

NUTS: aggregation level according to the Nomenclature of Territorial Units for Statistics

Internal zones:

- Municipality level (circa 3,100 zones)
  - Aggregations for less dense territories and remote areas
  - Disaggregations for the most dense areas (Roma, Milano, Napoli...)
- Main logistics hubs (58 ports, 24 freight terminals, 25 civil airports)
- 23 road border crossings
- Major Italian islands