

ECO-INNOVATION FOR AIR QUALITY

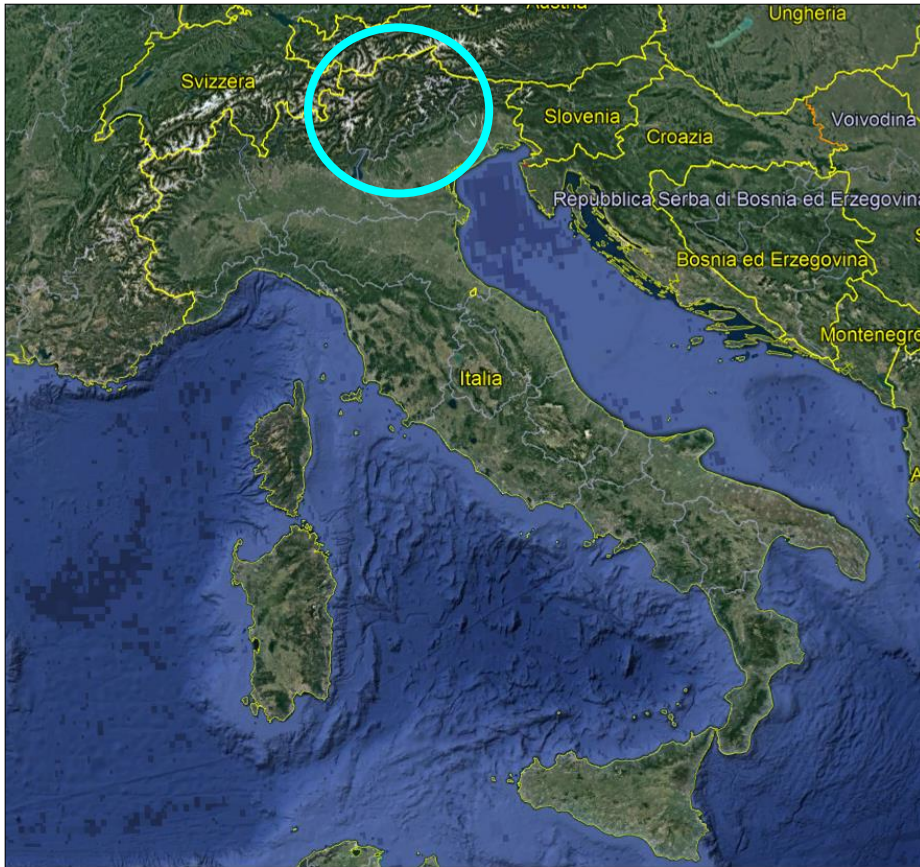
«Brenner Lower Emissions Corridor»

Project LIFE15-ENV-IT-000281

Laura Pretto

Environmental Protection Agency - Autonomous Province of Trento (Italy)

PROJECT AREA: TRENTINO-ALTO ADIGE REGION



THE BRENNER MOTORWAY

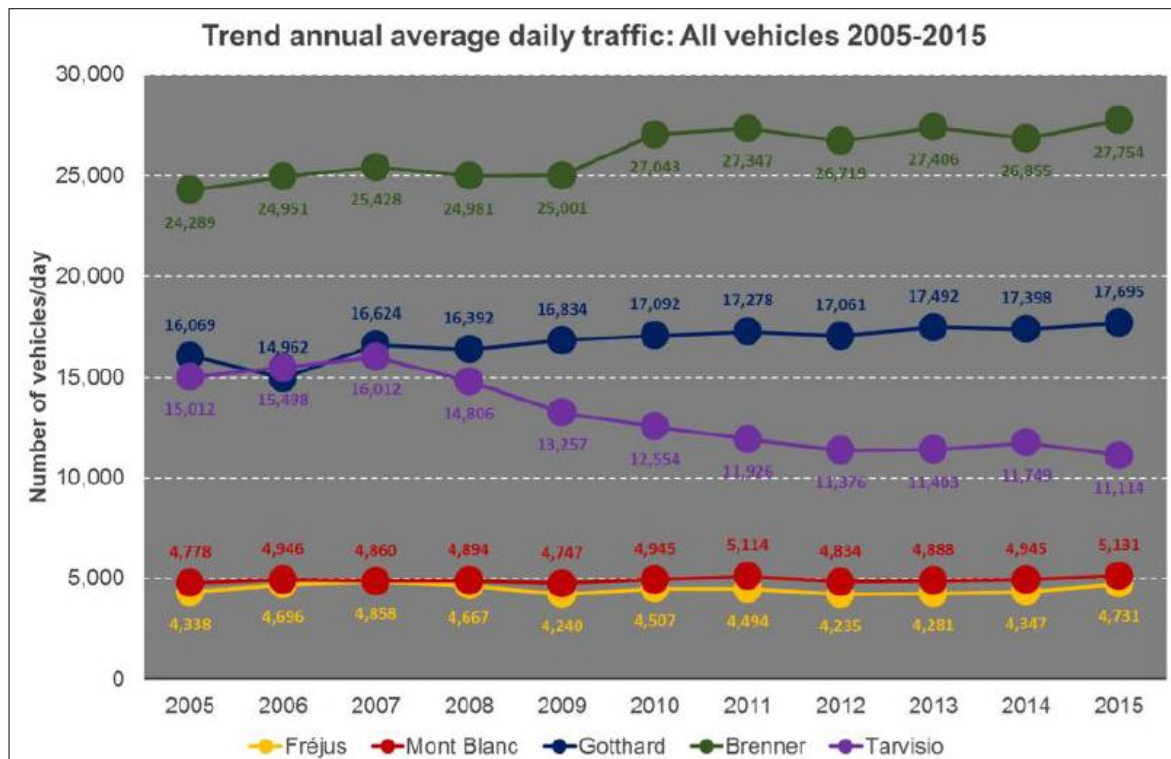


PLAIN SECTION

Length: 314 km

ALPINE SECTION

Altitude: 50 - 1375 m above sea level

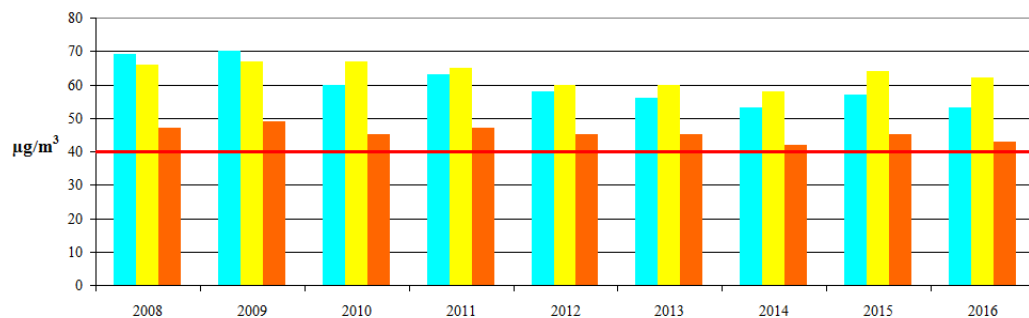


THE BRENNER MOTORWAY

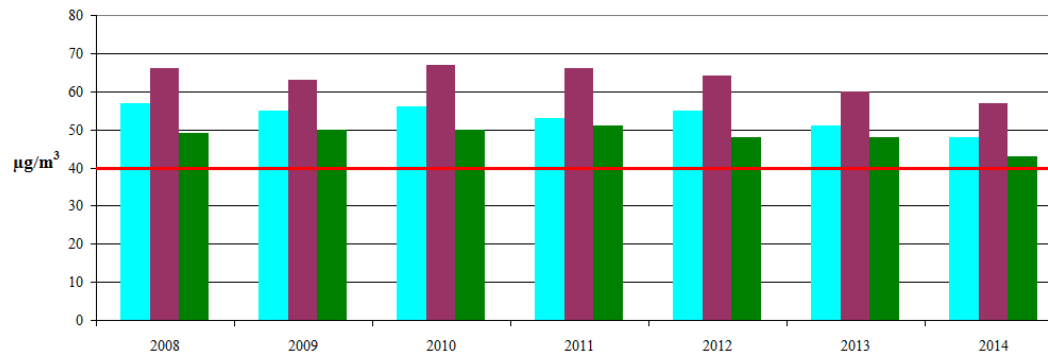
An environmental concern



NO₂ annual average



Avio (A22) - ITA Chiusa (A22) - ITA Egna (30m - A22) - ITA — valore limite



Kundl (A12) - AUT Vomp (A12) - AUT Gäberbach (A13) - AUT — valore limite

THE «BRENNER LOWER EMISSIONS CORRIDOR» PROJECT

Partners	<p>Autostrada del Brennero A22 (coordinator)</p> <p>Environmental Protection Agency – Autonomous Province of Bolzano</p> <p>Environmental Protection Agency – Autonomous Province of Trento</p> <p>University of Trento</p> <p>CISMA</p> <p>IDM Südtirol / Alto Adige</p>
Duration	01.09.2016 – 30.04.2021
Overall budget	€ 4.018.005
Eligible budget	€ 3.311.365
LIFE co-financing	€ 1.922.772



THE «BRENNER LOWER EMISSIONS CORRIDOR» PROJECT



To develop a «**Low Emissions Corridor**» concept to be applied to the Brenner highway [A22] by means of the experimental and scientific study of an **integrated set of dynamic policies** to manage traffic on the basis of a **proactive logic**

To define the modalities to exploit the concept to the whole Alpine corridor («**Alpine BLEC**»)



THE «BRENNER LOWER EMISSIONS CORRIDOR» PROJECT

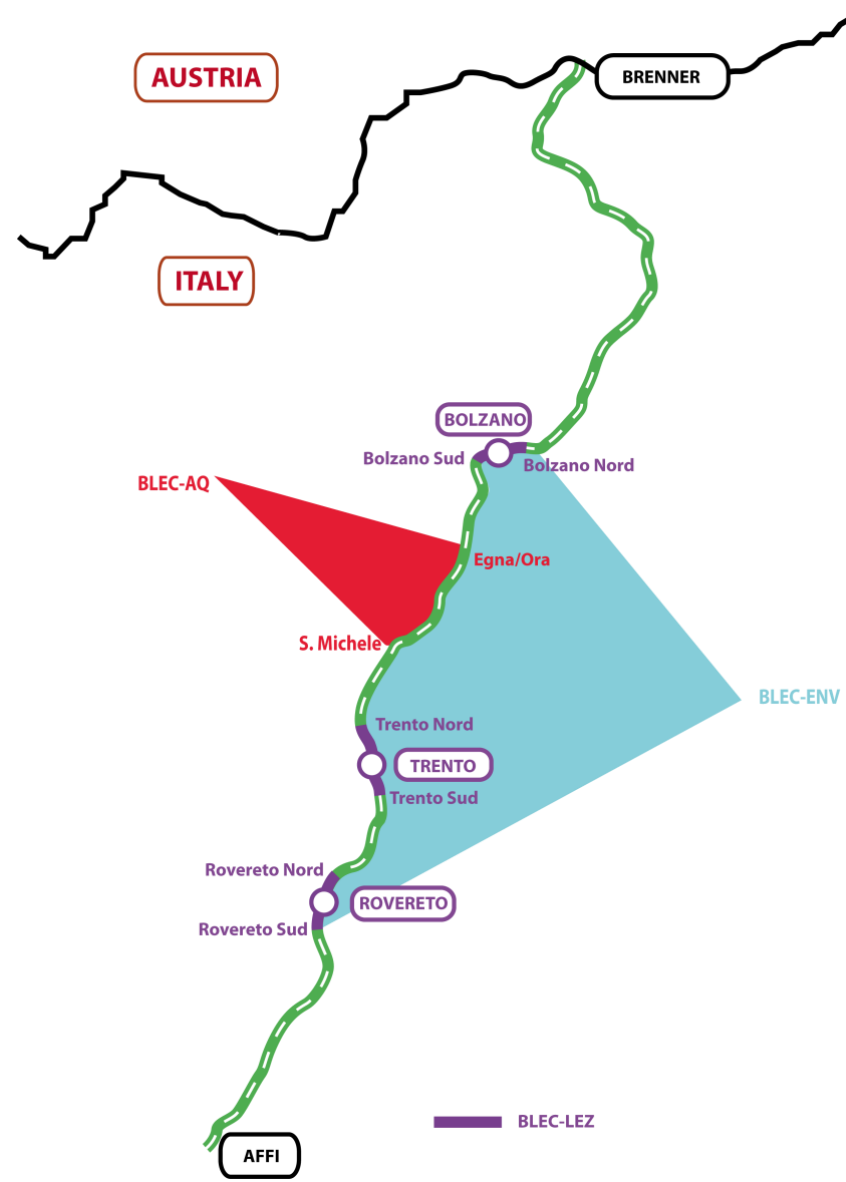


maximum environmental benefits,
minimum inconvenience for users,
optimal use of the existent
infrastructure,
maximum safety level



WHAT POLICIES ?

Dynamic management of speed limits
for passengers cars
under heavy traffic conditions and in case of
severe atmospheric pollution



AIR QUALITY MONITORING

3 air quality monitoring stations + meteorological stations



AIR QUALITY MONITORING

Concentration of most relevant pollutants

NO - NO₂

PM
- gravimetric
- ultrafine

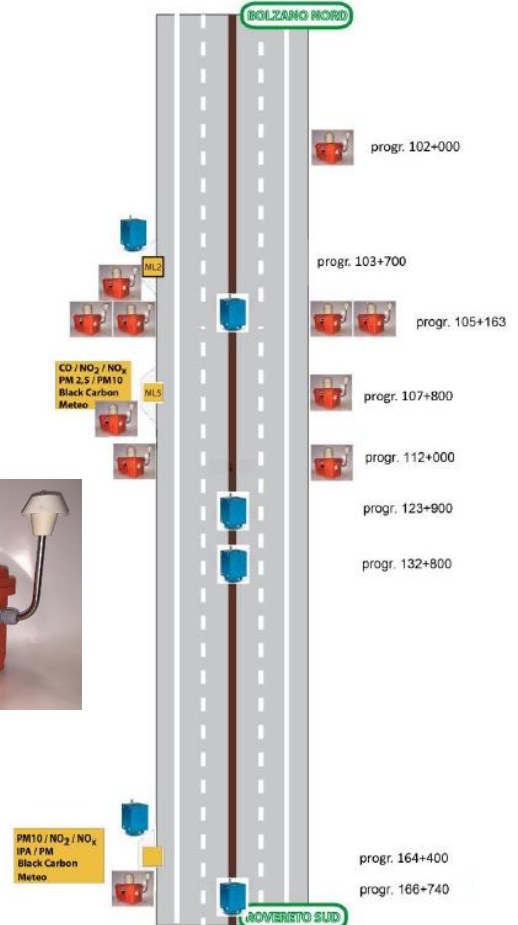
Black Carbon

PAH

CO



Innovative NO₂ “low cost” sensors



1° EXPERIMENTAL POLICY

Under heavy traffic conditions:
dynamic reduction of speed limits for passengers cars



REDUCING SPEED LIMITS WITH HEAVY TRAFFIC CONDITIONS...

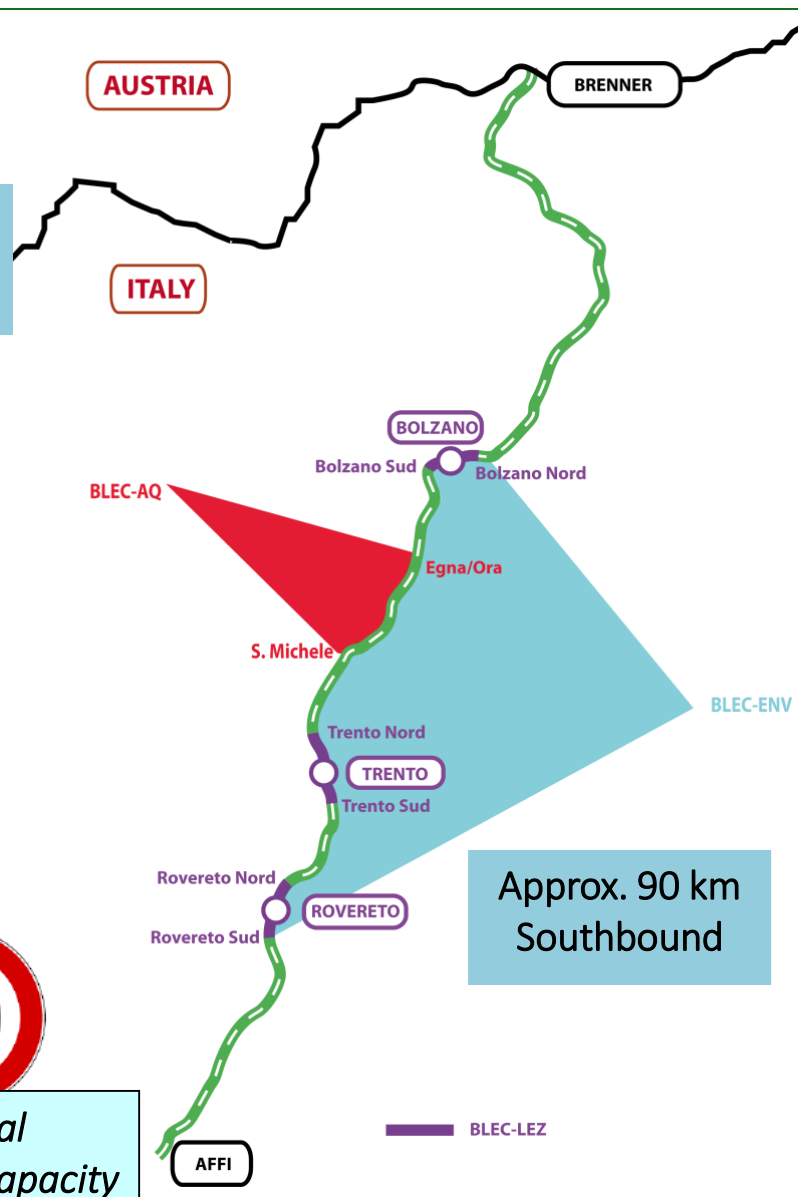
... to increase the motorway capacity

... to smoothen traffic and reduce stop&go condition

... to reduce pollution



maximal
motorway capacity

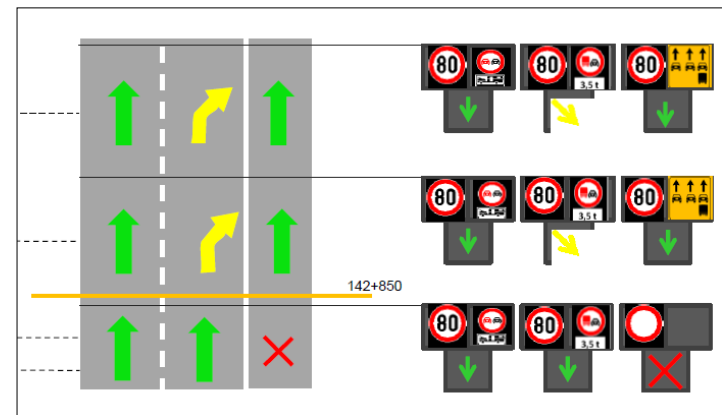
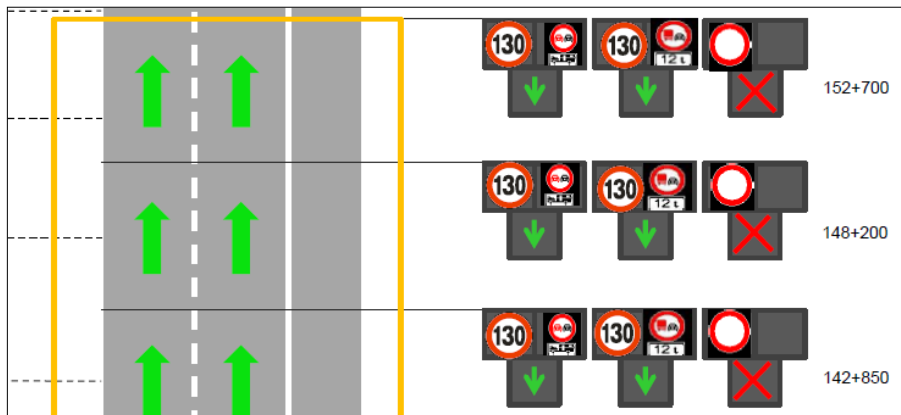


1° EXPERIMENTAL POLICY

Under almost saturated conditions:
temporary use of the hard shoulder
as additional transit lane



- In order to **increase the motorway capacity** from 3,000 vehicles/hr to 4,000-4,200 vehicles/hr
- Already **infrastructured** motorway section
- According to a **special regulation**

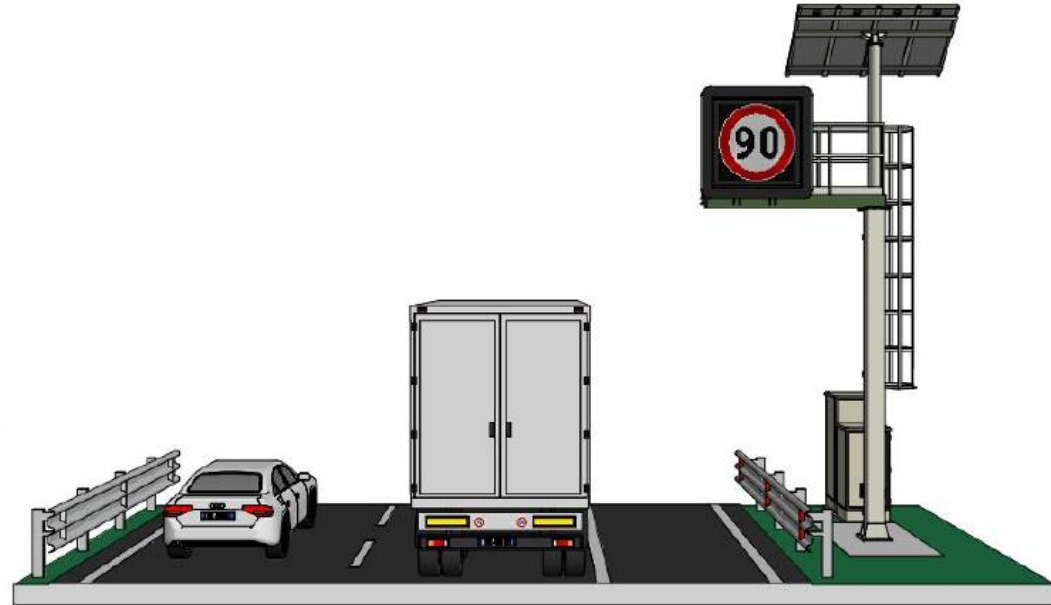


INFRASTRUCTURES

- Gantries and variable message signs
- Inductive loops to detect traffic
- Videocameras



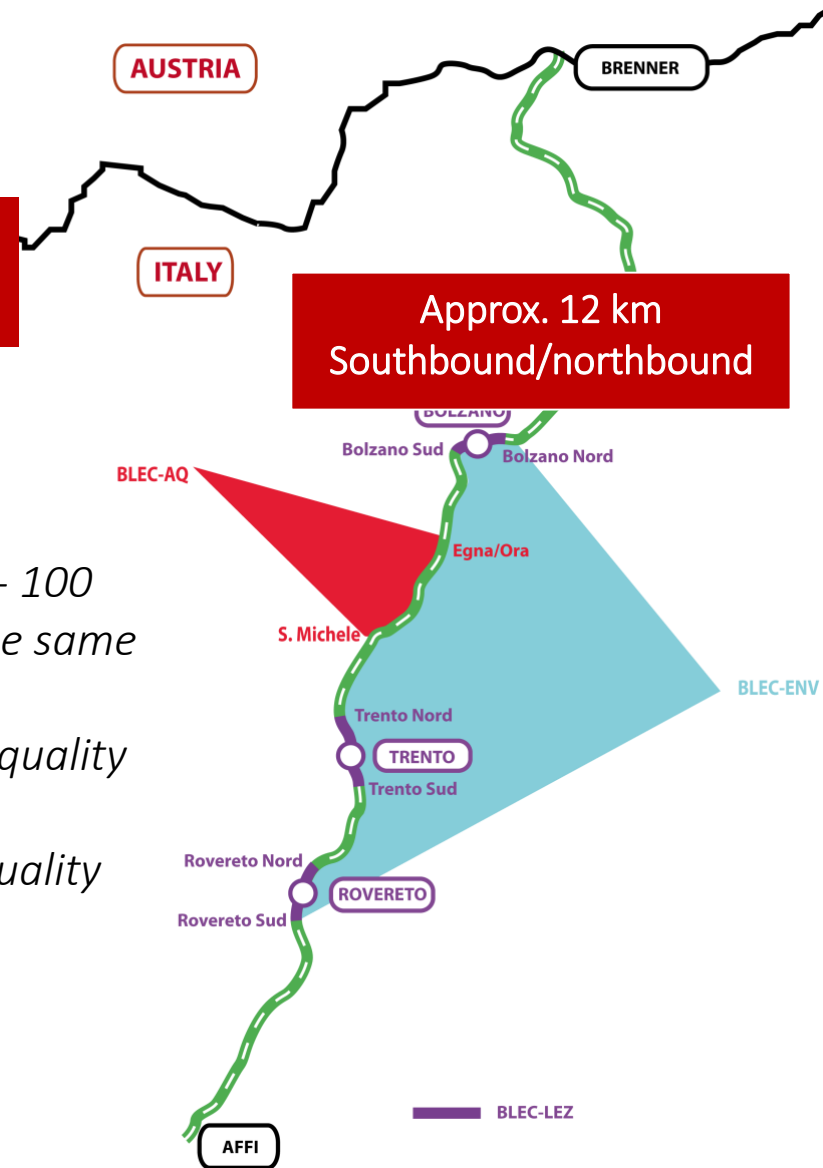
PMV IN ITINERE KM 140+605 - 156+565 - 164+300 SUD



2° EXPERIMENTAL POLICY

Under conditions of high atmospheric pollution:
dynamic reduction of speed limits for passengers cars

- *Speed limits reduction from 130 km/h to 110 km/h - 100 km/h - 90 km/h (even variable speed limits within the same motorway stretch)*
- *Speed management according to the measured air quality conditions (reactive system)*
- *Speed management according to the foreseen air quality conditions (proactive system)*



PROACTIVE SYSTEM

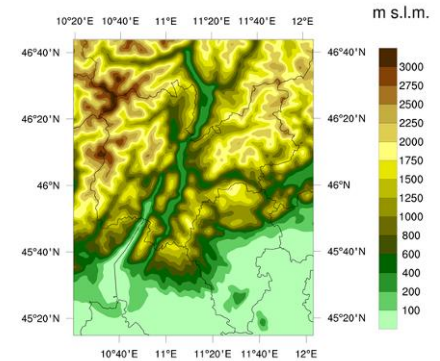
Traffic models and forecast

Emissions
(COPERT V)

Meteorological forecast
(WRF)

Air quality modelling and forecast
(CALPUFF, AUSTAL, AERMOD, RLINE models)

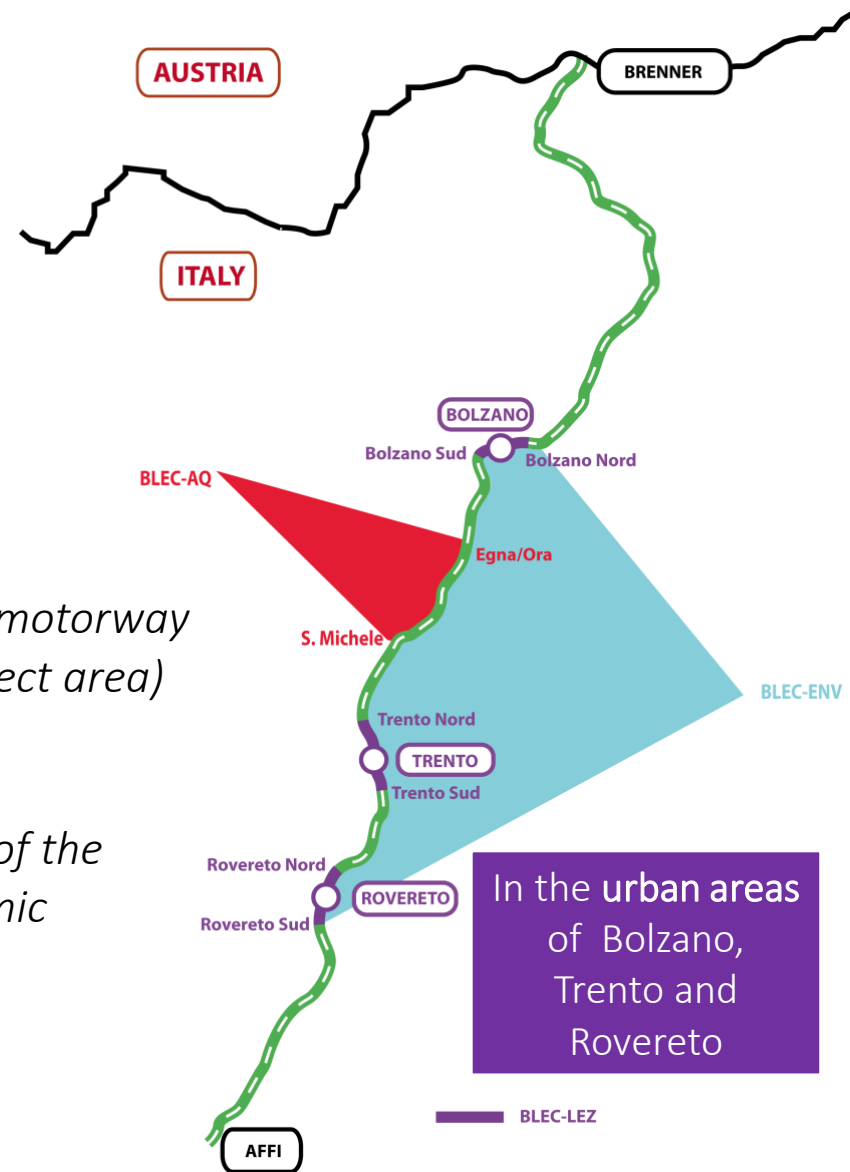
Implementation of POLICIES (speed limits reduction):
proactive system, supported by DSS



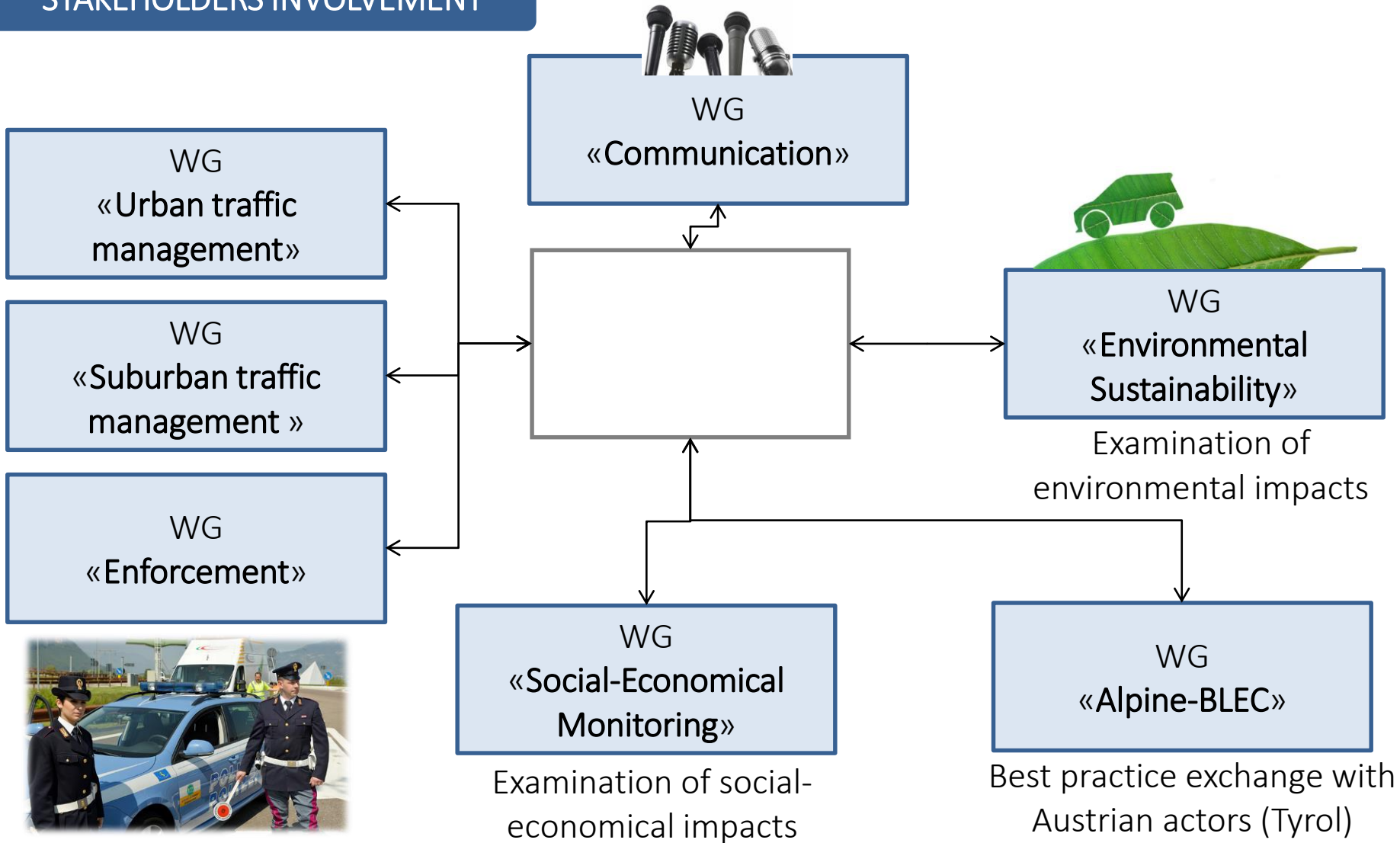
3° EXPERIMENTAL POLICY

Under traffic conditions in urban areas:
integrated use of information channels (VMS,
apps, etc.)

- *Interaction between traffic management centers: motorway ones and urban areas ones (main cities in the project area)*
- *In order to optimize the use of the motorway and of the urban and suburban network → creation of dynamic corridors for traffic flows crossing urban areas*



STAKEHOLDERS INVOLVEMENT



DISSEMINATION

Website www.brennerlec.life



Press conference



Media activities



Posters



Flyers

FURTHER DISCUSSIONS ON ...

Policies and tests carried out so far

Data analysis and correlations

Preliminary results



THANKS FOR THE ATTENTION

low emissions
improve air
Quality

