

Installation of photovoltaic variable message signs and traffic detection systems to extend the traffic management measures implemented within the European project BrennerLEC

Installation of variable message signs

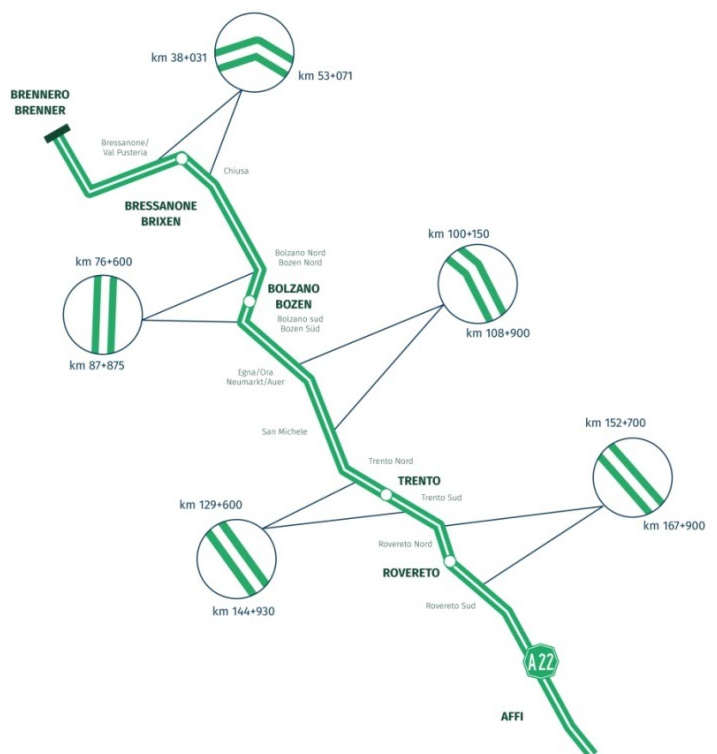
Autostrada del Brennero installed variable message signs to inform users about dynamic speed reduction measures for environmental purposes as continuation of the activities carried out within the BrennerLEC (Brenner Lower Emissions Corridor) project.

From 2016 to 2021 Autostrada del Brennero coordinated the BrennerLEC project, co-funded by the European Commission. Its main aim was the creation of a lower emissions corridor (LEC) along the A22 motorway section through the Trentino-Alto Adige region, by implementing on an experimental basis dynamic traffic management systems for the improvement of air quality, climate protection and noise protection in some pilot sections (LEZ - lower emission zones).

In 2022, a strategic and operational collaboration between the Brenner Motorway, the environmental agencies of Trento and Bolzano, CISMA, the University of Trento and NOI Techpark was initiated, aimed at maintaining and extending the scope of the experimental measures tested in BrennerLEC. The activities envisaged by BrennerLEC after-LIFE concern the monitoring of the benefits associated with the traffic management measures, the preparation of an annual report on air quality at the major population centres affected by the motorway route and the annual emission balance of nitrogen oxides and climate-altering gases for each motorway section in Trentino-Alto Adige, as well as the maintenance and continuous implementation of the technological system developed within the BrennerLEC project.

In particular, dynamic speed reduction measures for environmental purposes are being implemented as part of the initiative on the motorway sections near the towns of Bressanone (Area 1), Bolzano (Area 2), Egna (Area 3), Trento (Area 4) and Rovereto (Area 5).

The dynamic speed reduction measure for traffic purposes has been extended to 150 km between Vipiteno and Ala.



The main work within the BrennerLEC after-LIFE initiative is to infrastructure the new sections so that dynamic speed reduction measures can be applied. Part of these activities have been included in the Meridian project, like the installation of variable message signs to dynamically inform users to reduce speed with the aim to improve air quality. It is indeed very important, in order to grant efficiency of the system, to constantly repeat to users at which speed they need to drive, according to the evaluation done by the ITS system and the model chain developed to elaborate an output for the traffic control centre of the Brenner Motorway, i.e. the optimal speed to publish on variable message signs.

Three variable message signs needed to be installed in two of the four new stretches foreseen by the extension of the project, and precisely at km 38+750 and at km 77+500 southbound and at km 37+500 northbound.



Installation of traffic detection systems

The installation of traffic detection system is another necessary activity to grant the efficient management of dynamic speed reduction measures within the framework of the BrennerLEC after-Life initiative and part of the Meridian activities.

In particular 14 ANPR videocameras were needed for the new system for travel time detection along both carriageways of the Brenner-Bolzano stretch. .

Autostrada del Brennero installed 14 Tattile Vega Smart 2HD cameras on variable message signs, at the centre of each carriageway so as to be able to detect all vehicles at a maximum speed of 250 km/h. These cameras are capable of obtaining monochrome vehicle images, colour contextual vehicle images and an optical speed assessment, as well as the ability to read reflective and non-reflective number plates to obtain the time of passage under the variable message signs afterwards. An extra-sensitive sensor mounted on the camera ensures quality images even in low-light conditions. The camera also includes a system for recognising vehicle classes. The data collected by the camera are sent in real time to a remote server located at the company's headquarters, stored in a database, anonymised using a special algorithm, aggregated in a UDP message and sent as historical files using the FTP protocol.

The calculation of travel time and the classification of vehicles are activities needed within the framework of the BrennerLEC after-LIFE project to apply dynamic speed reduction measures to users.

