



From Vicenza to Treviso

PEDEMONTANA VENETA EXPRESSWAY

A WIDE RANGE OF PRODUCT SYSTEMS FOR THE LARGEST INFRASTRUCTURE UNDER CONSTRUCTION IN ITALY

One of the Major Projects currently underway in Italy is the Pedemontana Veneta Expressway, 94 kilometres from the Province of Vicenza to the Province of Treviso (Northern Italy), that will help reduce the level of traffic on the A4 Turin-Venice motorway. It will end up linking to the A28 motorway that winds its way through the Dolomites around Belluno, carrying goods over the border. The first stretch near Vicenza will be inaugurated in January 2019 while around 50% of the planned construction sites have already been opened.

The Pedemontana Veneta Expressway is currently the largest infrastructure under construction in Italy and its estimated cost will be over 2.2 billion Euros.

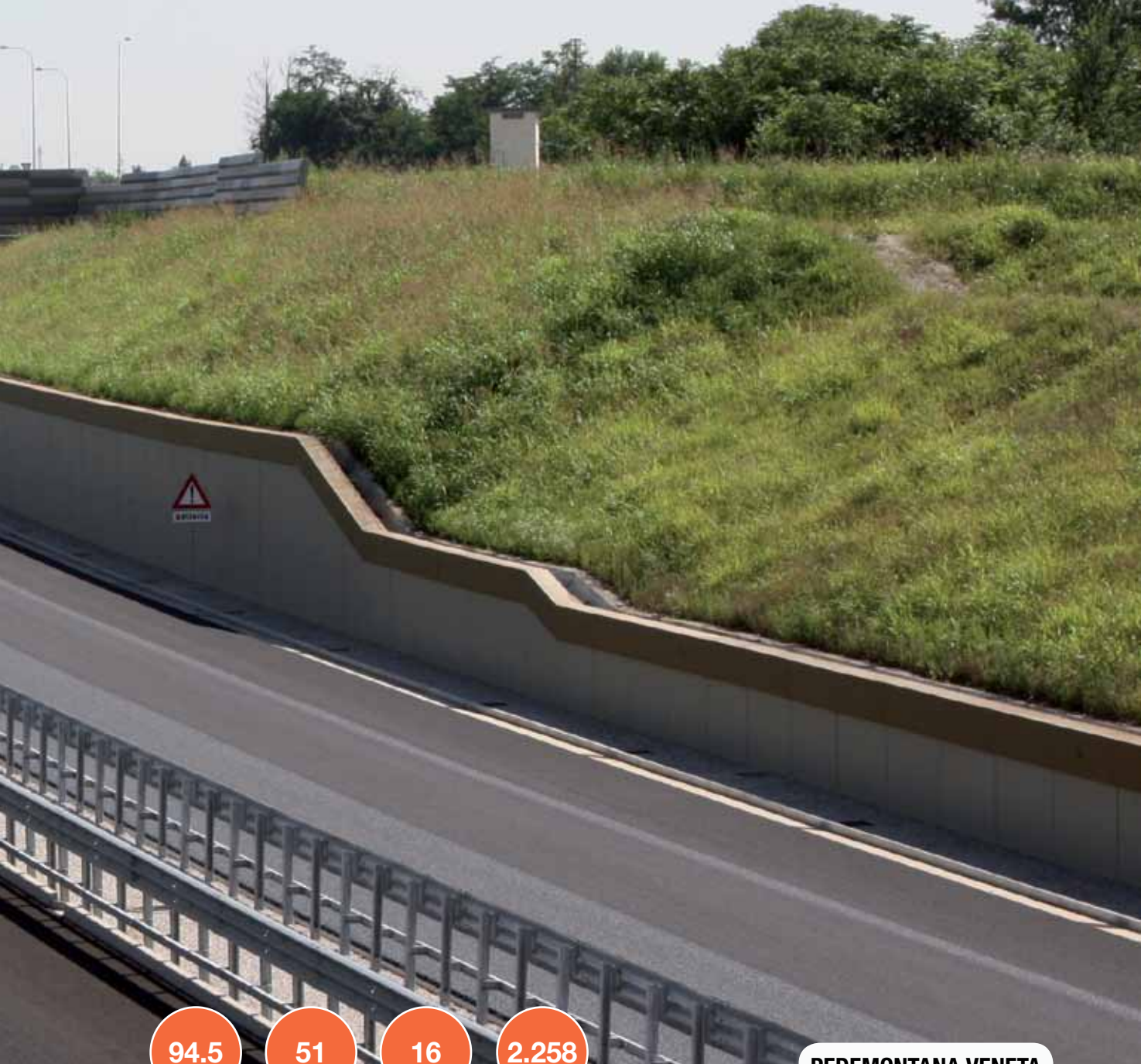
Once completed, the expressway will feed the industrial districts around Thiene-Schio and Bassano del Grappa and, to the north of Treviso, provide a link to 3 motorways from the west (the A4, A31 and the A27).

It will be 94.747 km long and will be the only expressway in Italy where a toll will need to be paid.

CHARACTERISTICS OF THE INFRASTRUCTURE

The Pedemontana expressway will have two independent carriageways with two 3.75-m-wide lanes running in each direction. The hard shoulder on the right-hand side of each carriageway will be 2.5 m wide (3 m wide in the tunnels), there will be a 75 cm wide stretch of road surface on the left-hand side of each carriageway running parallel to the central reservation and the central reservation itself will be 3 m wide, for a total cross-section of 24.5 m. Of the 90 km of road, 50 km will run through cuttings, 26.5 km will run along embankments, 7.8 km will run through natural tunnels and 5.6 km will run through artificial tunnels. Reinforced concrete will be used for the walls and decks of the artificial tunnels and to build the retaining walls to shore up the cuttings.

The estimated volume of precast concrete required for the whole of the Pedemontana Veneta Expressway is around 1 million m³, while the amount of ready-mixed concrete required will be around 2 million m³.



94.5

km of road

51

km running through cuttings, 26.5 km along embankments

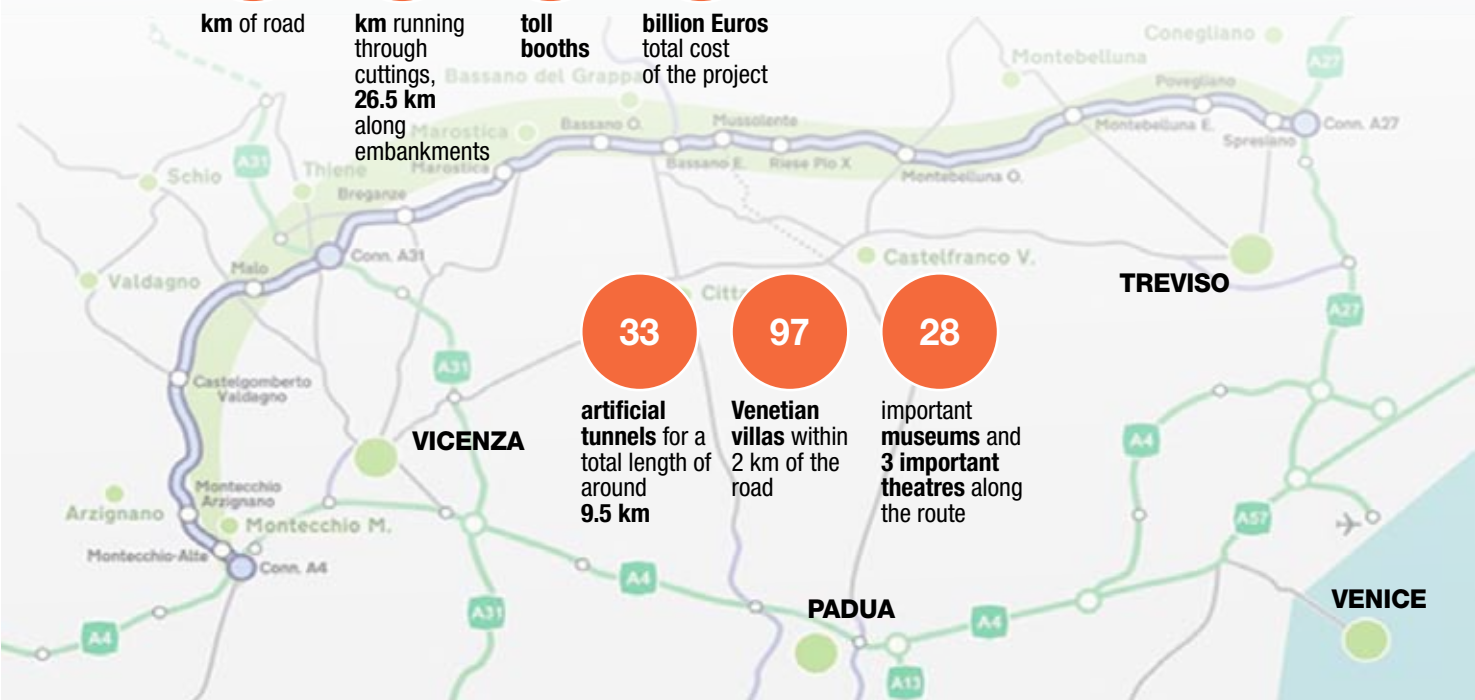
16

toll booths

2.258

billion Euros total cost of the project

PEDEMONTANA VENETA





One of the tunnels after being painted



Trials of the skimming compound



The first artificial tunnel under construction



Micropiles for the new bridge over the Brenta River

HIGHLY ADVANCED PRODUCTS FOR EVERY NEED

Numerous Mapei products have been used to construct this important link on the Italian roads network.

The concrete mixes for all the precast structures include the super-plasticiser DYNAMON NRG 1022 and the concrete will be stripped with the help of MAPEFORM ECO OIL form release agent.

Ready-mixed concrete has been admixed with the superplasticizers DYNAMON SX 44 and DYNAMON SX 42 with added aerating agent MAPEPLAST PT1 for concrete resistant to freeze-thaw cycles.

The lanes for the toll booths have been made using concrete admixed with MAPETOP N AR6 pre-blended, ready-to-use dry shake hardener along with MAPECURE E curing compound to prevent rapid evaporation of water in concrete.

The load-bearing concrete walls for the toll booths have

been covered with rough-cut natural stone bonded with grey ELASTORAPID adhesive, while joints have been grouted with MAPE-ANTIQUE ALLETTAMENTO mortar and expansion joints have been sealed with MAPESIL LM neutral silicone sealant.

WALLGARD GRAFFITI BARRIER graffiti-resistant barrier has been used to protect the stone walls, while MAPECOAT I24 epoxy paint has been used to protect the run-off channels for rainwater and fuel at the toll booths.

MALECH undercoat and ELASTOCOLOR PAINT have been used to finish off precast concrete surfaces along the sides of the expressway.

The joints in the road surface in the lanes of the toll booths have been sealed with MAPEFLEX PU70 SL and MAPEFLEX PU65 sealants and the internal walls of the toll booths where the offices are located have been skimmed with PLANITOP 530.

The two main tunnels, one 2x1.5 km long and the other 2x6 km long, are of the twin-tunnel type and have been built using the plasticizing and expanding agent CABLEJET for preparing shrinkage-free, highly-fluid pumpable slurries for injection, as well as MAPEQUICK AF1000 alkali free accelerator for shotcrete in combination with MAPEFIBRE CN54 structural polypropylene fibers and MAPEFORM ECO OIL.

The walls have been painted with MAPECOAT W HRI two-component epoxy tunnelling paint in water dispersion with low dirt retaining surface for concrete walls.

The firefighting tanks used to collect rainwater have been waterproofed with MAPELASTIC FOUNDATION, while some of the concrete partition walls have been waterproofed with PLANISEAL 88 osmotic cementitious mortar.

As for the viaducts, the following products were used: MAPEGROUT SV FIBER flowable, shrinkage compensated, quick setting and hardening, high-ductility cementitious mortar; ADESILEX PG1 two-component, thixotropic epoxy adhesive for structural bonding; PLANIBOND BA 100 two-component fluid epoxy resin for anchoring steel bars and MAPEFLOOR EP90 three-component, epoxy screed consistency mortar. Numerous other products have also been used for the problems encountered on site: MAPEFER 1K, PLANITOP SMOOTH & REPAIR R4, MAPEFILL, LAMPOSILEX, EPORIP, EPOJET, MAPEFINISH, MAPEGROUT T60, MAPEGROUT BM T3, MAPEFLEX MS CRYSTAL, MAPEBAND TPE and MAPELASTIC SMART.

IN THE SPOTLIGHT

MAPETOP N AR6

Pre-blended, ready-to-use dry shake hardener for concrete floors made of special well-graded quartz, Portland cement and special admixtures.

Thanks to its high mechanical strength and resistance to abrasion, MAPETOP N AR6 is particularly suitable for creating anti-wear layers on concrete floors in industrial and commercial environments with intense goods traffic in interiors.

It also has excellent resistance to atmospheric agents, freeze/thaw cycles and de-icing salts.

Specific products that help solve any problem on site effectively and quickly.

A construction project still underway which, once completed, will bring enormous benefits to the transport network and to the whole of north-eastern Italy.

But there is also a cultural aspect that we would like to bring to your attention. If you follow the route of the expressway from east to west, you will come across numerous examples of the Italian cultural, environmental, architectural, urbanistic, humanistic and artistic heritage.

And the route is almost like leafing through a book where the kilometres are the pages, the towns and villages are the chapters, the road signs are the captions and the landscapes and views are the illustrations.



Trials of the shotcrete in the Sant'Urbano tunnel



Sealant applied along the lanes of the toll stations



Installation of the stone covering on the toll stations

TECHNICAL DATA

Pedemontana Veneta expressway, Provinces of Vicenza and Treviso

Period of construction: 2012-on-going

Period of the Mapei intervention: 2012-on-going

Intervention by Mapei: supplying products for building, waterproofing, finishing, and admixtures for concrete

Client: Veneto Regional Government

Design: IGO - Ingegneria Grandi Opere Srl, Carlo Dogliani

Works director: Vittoriano

Picca

Technical director: Giovanni Salvatore D'Agostino

Site directors: Lucio Cerato, Christian Toscano, Luigi Cordaro, Nicola Ruggiero

Main contractors: SIS Scpa and Itinere Infrastrutture S.A.

Concrete suppliers: Betonrossi SpA, Facchin Calcestruzzi Srl, Superbeton SpA, Meneghini Attilio Calcestruzzi Srl, General Beton Triveneta SpA, C&P for SIS Scpa

Mapei coordinators: Paolo Toniolo, Mauro Orlando, Ettore

Menegaldo, Katuscia Venturini, Giorgio Tansini, Claudio Azzena, Cristiano Bordignon, Sonia Murer, and Paolo Banfo, Mapei SpA (Italy)

MAPEI PRODUCTS

Dynamon NRG 1022, Mapeform Eco Oil, Dynamon SX 44, Dynamon SX 42, Mapeplast PT1, Mapetop N AR6, Mapecure E, Elastorapid, Mape-Antique Allettamento, Mapesil LM, Wallgard Graffiti Barrier, Mapecoat I 24, Elastocolor Paint, Malech, Mapeflex PU70 SL, Mapeflex

PU65, Planitop 530, Cablejet, Mapequick AF 1000, Mapefibre CN54, Mapecoat W HRI, Mapeelastic Foundation, Planiseal 88, Mapegrout SV Fiber, Adesilex PG1, Planibond BA 100, Mapefloor EP 90, Mapefer 1K, Planitop Smooth&Repair R4, Mapefill, Lamposilex, Eporip, Epojet, Mapefinish, Mapegrout T60, Mapegrout BM, Mapeflex MS Crystal, Mapeband TPE, Mapeelastic Smart.

For further information on products visit www.mapei.com