

Italy

Nine out of 10 Road Tunnels are Unsafe

The European Commission presented in January a draft directive aimed at improving safety in road tunnels longer than 500 m on the TENs (Trans-European Networks). Two months later, the EU council started talks with the EU members, facing strong opposition in Alpine countries for the heavy cost they would have to bear to upgrade their tunnels. Out of the 512 TEN tunnels, 246 are located in Italy. Italy has been granted five years more than the 10-year period to bring its tunnels to the required safety levels. However, at least 50% must be upgraded in the first six years. Now, the EU council is to submit to national expert committees on road tunnels a plan for adopting uniform lighting, emergency lay-bys at least every 1,000 m, escape exits every 500 m and a standardised signalling. Many Italian tunnels suffer poor or no lighting and need urgent modernisation work (see section World Digest of Tunnel Renovation & Maintenance, p. 4).

Italy

Autostrade to Illuminate Highway Tunnels

The Board of Autostrade adopted in July 2002 a €5.5 million plan to illuminate 59 tunnels, with lengths comprised between 125 and 250 m. Autostrade operates 577 tunnels on its network, of which 410 are already illuminated. Forty-eight of its tunnels are shorter than 125 m. The 59 tunnels are mostly located in Liguria and on the A1 highway in the Appennines. The plan was scheduled to be implemented between July 2002 and February 2003. It also involved an agreement with 3M to test the Optical Lighting Film (OLF).

This technology consists of prismatic films (OLF) and multilayer films mirror (VMF) that englobed in special optic guides, allow to distribute, direct, conform, drive and mix both the natural and the artificial light reaching levels of homogeneity, flexibility and design that once were considered unthinkable.

Technically, the 3M system is constituted by an optic guide of varying length (Light Pipe), with a transparent wrapping of polycarbonate and, along the internal surface, by a film with microprisms of the 3M Optical Lighting Film (OLF) realized with the microreplication technology. The surface of the film acts in practice as a reflecting mirror but also as a transparent film and thanks to these characteristics it transports the light in a uniform and **softened** way at ambient temperature, without the production of shades. The result is a source of light very similar to that produced by the sun, with a cold emitting surface, a strong reduction of the dazzlement, the maximum visual comfort and, also, the reduction both of the costs of installation, maintenance and of the energetic consumption.

The first test in a short disused tunnel has given positive results and the next step plans to install the technology in the 1.2 km Banzole tunnel between Bologna and Florence to test the efficiency in real conditions of traffic. Once the test period is completed, the Autostrade-3M agreement plans a 5-year partnership to market the product both in Italy and abroad.

Visit www.mmm.com and <http://cms.3m.com/cms/IT/it/0-154/zeilEZ/view.jhtml>

World Digest of Tunnels Under Planning

Italy. Like most large European cities, Palermo – the capital city of Sicily (1.2 million inhabitants in the metropolitan area) – suffers heavily from traffic congestion and from nuisance

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caused by the excessive use of private car in the urban area. Surveys show that 81% of the 960,000 people who travel inside Palermo every day use their private car, and only 19% public transport. This rate is the lowest of all large Italian cities. The average speed of trips is 18 km/h in the whole city, and only 7 km/h in the city centre. Moreover, these chaotic traffic conditions lead to a high number of road accidents (4,000 every year), with a heavy death toll (100 persons).

To bring solutions, the city devised in 2002 a master plan for public transport, which proposes to build new high capacity public transport systems in the coming 10 years. The main infrastructures foreseen are the following:

- building an automatic underground line, crossing the whole city as a backbone line of 17 km at a speed of 35 km/h. It will provide several interchange stations with the other public transport means and park-and-ride facilities at the terminal stations. The estimated cost is €1.1 billion. The city is completing the surveys before starting civil works.
- doubling the railway tracks between the airport with the city centre, called Passante ferroviario, for a cost of €610 million,
- and completing a railway ring crossing the city underground. This means building a 2.3 km-long tunnel for a cost of €120 million. Operations are expected to start within four years.

The funding of the last two projects is already secured for the period 2002-2006, thanks to financial contributions of the Italian government, European regional funds and loans from the European Investment Bank. Visit www.comune.palermo.it

United States. With memories of terrorist attacks still fresh, a group of prominent leaders from New York's business, labour, environmental, community and urban planning sectors have joined to form a coalition, dubbed MoveNY, to push for federal transportation funding for the construction of a rail freight tunnel under New York Harbour. MoveNY notes that New York is the only major US city where the majority of freight comes in and out by truck. Only about 3% of the goods that move around the city comes by rail, while the average for other cities is at least 30%. The group says the tunnel would remove 14.9 million tonnes of freight from the region's bridges and roads each year. But the estimated cost of between \$1.5 billion and \$2.2 billion poses a challenge.

Congress is now considering reauthorization of the Transportation Equity Act for the 21st Century as the original bill signed in 1998 expires 30th September. The total proposed funding under that bill for a six-year period is \$247 billion, and the MoveNY group hopes that federal funding could pay a major portion of the tunnel's construction costs.

The Cross Harbour Rail Freight tunnel would be beneath New York Harbour, connecting rail lines in Greenville Yard, Jersey City, New Jersey, to the Bay Ridge line in Sunset Park, Brooklyn. Goods coming into the region would be able to move directly across the Hudson River from the west and continue by rail to points closer to their destination. Read E-News Weekly 46/2002.

United States. Construction of a \$215 million tunnel connecting the Brickell area to Miami's downtown core could be under way within four years if preliminary engineering and environmental studies begin by summer's end, City of Miami transportation planner Clark Turner said on 27th May. The tunnel is one of many projects approved by the city commissioners, as part of Miami's Downtown Transportation Master Plan. Officials amended the plan to speed planning for the tunnel, targeted to dip under the Miami River at Southwest First Avenue, immediately east of the Metrorail line. Funds for the tunnel are secured by a half-cent countywide sales tax earmarked for transportation improvements and approved by voters in November. The tax is to bring the city about \$10 million in annual revenue. South Florida's only tunnel runs under Fort Lauderdale's New River, built in 1961 for \$6.6 million (the equivalent today of about \$40 million). Read E-News Weekly 13/2003.

Taiwan. The Cabinet plans to build a Su'ao-Hualian expressway in a bid to boost upgrade economic and tourist development in eastern Taiwan. With a total investment of NT\$96.2 billion (US\$2.8 billion), the construction of the 86.5 km expressway linking Su'ao in the northeast county of Ilan to Hualian in eastern Taiwan will start in late 2003. The whole project is scheduled to be completed by 2011. The first phase of construction will include several tunnels through the Central Mountain Range in Hualian county, while the second phase will mainly cover the Su'ao-Liwu section.

World Digest of Bids

Bulgaria. Preinformation notice for construction of the second tube, 275 m in length, parallel to the existing southbound tunnel on the dual two-lane carriageway of the Dupnitsa bypass. The purpose of the project is construction at least to the same standards of safety and ride quality as the rehabilitated existing tunnel tube. Also published is the preinformation notice for supervision services to the Road Executive Agency for the construction of this tunnel. Indicative maximum budget: €350,000. Tenders both for construction and supervision will be invited in August 2003. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=094396-2003> and <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=094397-2003>, OJ S 106.

Canada. The proposed rapid transit line between Richmond, the Airport and Vancouver (RAV) has cleared another significant hurdle. The board of TransLink has voted to contribute C\$300 million to the project, which has a total price tag of C\$1.7 billion. The line is now subject to final approval by the Greater Vancouver Regional District board. The RAV line includes a subway tunnel along the Cambie Street corridor. Visit www.tunnelbuilder.com, ca/24.

France. Enertherm will spend €90 million to renovate an existing heating plant in Courbevoie and build a second one in Noël-Pons street in Nanterre. Two years will be necessary to build the new 4,500 sq m plant. The two facilities will be connected by a 1.5 km tunnel, at least 2.5 m in diameter. The bids are being analysed and an award is planned by mid-July. The geology will consist of marls and loose stones but there will be a tricky area in old backfilled quarries. The tunnelling method may be traditional means or a TBM. Enertherm is awaiting to sign a concession agreement at year-end so that tunnelling would not start until 2004. Visit www.enertherm.fr

France. Restricted call for bids, deadline 27th June, 2003 for equipment of Line B of the Toulouse metro, contract 15.1, electricity and false ceilings in 10 stations. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=092943-2003>, OJ S 104, or contact SMAT, Toulouse, fax +33 561144851.

United Kingdom. The price tag for the tram system from Fareham to Portsmouth city centre was set to be £170 million, but it has now increased to £270 million throwing the project into doubt. The light rapid transit scheme will include a tunnel from Gosport to Portsmouth. But the tunnel will now cost much more because it will have to be dug 2.44 m deeper to allow the new aircraft carriers to enter and leave the port. The added gradient means more powerful trams will have to be used. The council fears the government, which has the final say on the project, could block the scheme. Visit www.tunnelbuilder.com, uk/35.

World Digest of Contract Awards

Canada. A JV of Neilson and EBC Inc. has clinched a C\$73.7 million contract to build the 1.8 km-long single-bore twin-track tunnel passing under Rivière des Prairies for a length of 700 m as part of metro Line 2 extension to Laval in Montreal. Visit www.neilsonex.com, www.ebcinc.qc.ca and www.tunnelbuilder.com, ca/17. See also section World Digest of Ongoing Tunnelling, p. 4.

France. Scetauroute has won a €866,000 contract for project supervision engineering for a 200 m-deep 5-6 m-diameter shaft and a 250 m access adit to the site of IRAM on Bure plateau in Hautes-Alpes county. Read E-News Weekly 1/2003. Visit www.scetauroute.fr

Spain. Geoteyco has been awarded a €928,000 contract for work control and supervision services for the Castrelos-Bouzas / Puxeiros-Val Miñor connection in Galicia, including a 260 m cut-and-cover tunnel in Valladares. Read E-News Weekly 29/2002. Visit www.geoteyco.es

World Digest of Ongoing Tunnelling

Canada. On the metro extension to Laval in Montreal, the new tunnel, to stretch 5.2 km north of Henri Bourassa station, is 80% complete. Still, the project is far from being a fait accompli. Only a small portion has been concreted so far and other preparatory work is at an early stage. The digging yet to be done includes the tunnel under the Rivière des Prairies to link up with the existing Henri Bourassa metro terminus (See section World Digest of Contract Awards, p. 3). The Metropolitan Transit Agency revealed that the cost will be higher than the C\$378 million forecast. Quebec Transport Minister Yvon Marcoux and the new Liberal government asked for a report on progress and costs as part of its overall review of big capital projects on taking office. Visit www.amt.qc.ca/grandsprojets/index.asp and www.tunnelbuilder.com, ca/17.

Norway. The 8,530 m-long 8.5 m-wide Korgfjell tunnel is under construction in Nordland county by Mesta AS from the south drive and Leonard Nilsen & Sønn AS from the north drive. Mesta AS is now a private company, which was previously operating under the name Statens Vegvesen Tunnel Produksjon, the former tunnelling branch of the national public roads administration. To date, Mesta has excavated about 2,400 m and Leonard Nilsen & Sønn about 3,400 m. They are using Atlas Copco drilling jumbos. Work started in October 2001 and is due to end in November 2005.

Venezuela. The central government pledged to release \$92 million to complete the construction of the first phase of the Valencia metro, a 6.7 km section from the south recreational park to Cedeño with stations in Plaza Monumental, Las Ferias, Palotal, Santa Rosa, Michelena, Lara and Cedeño. The funds should be sent to the Carabobo state for finishing work in the stations, equipment in the tunnels, landscaping work at the surface and complementary work necessary for commissioning. The TBM 'Beatriz' reached Cedeño station on 26th May completing a 3 km bored stretch, which adds up to a 2.5 km cut-and-cover section south of Las Ferias. Completion is planned for 2005. Read E-News Weekly 11/2003, 7/2003 & 40/2002. Visit www.metrodevalencia.com.ve/metro.shtml, www.eldish.net/metrovalencia/page3.html and www.tunnelbuilder.com, ve/12.

World Digest of Inaugurations

Colombia. The Orrapihuasi-Depresión El Vergel-Florencia section of the Altamira-Florencia road opened to traffic on 29th May, 2003. The 84.9 km road crosses the oriental Andes mountain range from Magdalena Valley to the Colombian Amazon in Florencia. There are four tunnels for a total length of 1,027.5 m. Visit www.invias.gov.co

World Digest of Tunnel Renovation & Maintenance



Italy. The Pratosardo tunnel in Sardinia on the road to Lanusei is completely dark and needs urgently to be equipped with lighting. The Copanello tunnel on national road SS 106 in Calabria is another tunnel in which lighting should be installed. Local citizens are lobbying to make these two tunnels safer. On the southern coast of Lazio, the tunnels on Via Flacca (national road SS 213) are also deprived of lighting. In south Tyrol, illumination in the tunnels in the Isarco Valley must also be improved.

Picture 1: The much feared Pratosardo tunnel in Sardinia.