

## Ireland

### Report Calls for Raising Dublin Port Tunnel

An economic study by Trinity College warns that the economic costs to Dublin and the haulage sector of not raising the clearance height of Dublin Port tunnel will cost more than €76 million over the next 15 years, more than the cost of modifying the tunnel now. The report was compiled on behalf of the Transport Umbrella Group (TUG), a coalition of business organisations and the haulage industry. The report said so-called super-trucks would continue to use normal roads if the tunnel height was not increased from 4.65 m to 4.9 m. This would lead to pollution, congestion and increased commercial costs. The 4.5 km Dublin Port tunnel is halfway towards completion.

Now Atkins, called in by transport minister Seamus Brennan to find a solution, has reported that the tunnel height can be raised by 300 mm. But the adjustment will cost an additional €30 million, or €100,000/mm. Atkins' proposed solution to increase the tunnel height by 300 mm fails to meet the demands of the Dublin Port-based Transport Users' Group, which has campaigned for a clearance of 5.3 m. However, according to Atkins, that would cost €100.2 million. Meanwhile, the clearance height for the €130 million tunnel planned for Limerick, under the River Shannon, is also 4.65 m. The height will be adjusted before construction begins (see Chapter World Digest of Tunnels under Planning). Visit [www.tunnelbuilder.com](http://www.tunnelbuilder.com), ie/12.

## World Digest of Tunnels under Planning

**Ireland.** A tunnel is to be built under the River Shannon at Limerick to create a new gateway to the west by 2006. The project is part of the second phase of the southern ring road. Danish consulting firm Cowi has studies ongoing for the Limerick County Council. The 450 m twin-tube tunnel would be 8.4 m-high and 22.5 m-wide. The tunnel will go to 15 m under the Shannon and will incorporate a dual-carriageway roadway with two lanes per roadway. The cost is estimated at €130 million and construction would take four years. It will be the third road tunnel in Ireland following the completion of the Dublin Port tunnel and the Jack Lynch tunnel in use in Cork. Visit [www.tunnelbuilder.com](http://www.tunnelbuilder.com), ie/18.

**Italy.** ANAS, the road administration, has given the green light to the preliminary studies for the Olbia-Palau section on trunk road SS 125/133 bis in Sardinia. The 27.8 km section includes 1.1 km of tunnel and will cost €191 million.

**Italy.** A feasibility study is under way by CTM for the first light rail line of Cagliari, the capital of Sardinia. The project is for a 15.8 km line, fully underground, with 20 stations from Cagliari to Quartu via Monserrato, Salargius and Quartucciu. The line heads would be located in Piazza San Michele in Cagliari and Quartu (Pitz'e Serra). From Cagliari to the hinterland, the 20 stops are: Piazza San Michele, S. Avendrace, Viale Trento, Stazione FS, Piazza Yenne, Piazza Garibaldi, Mercato di San Benedetto, Via dei Giudicati, Viale Ciusa, Via de' Carroz, Via Riva Villasanta, Piazza Italia (Pirri), Via Cesare Cabras, Via Riu Mortu, (Moserrato), Via San Lussorio (Selargius), Via Nazionale (Quartucciu), Piazza Sant'Elena, Via Colombo, Via San Benedetto, and Pitz'e Serra (Quartu S.E.). The tunnels will be built using both the cut-and-cover method and mining techniques. AnsaldoBreda will supply driverless rolling stock. €460 million will be spent for opening planned in 2009. Visit

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[www.ctmcagliari.it](http://www.ctmcagliari.it)

**United Kingdom.** The idea of tunnelling beneath Bath in a bid to solve the city's appalling traffic problems was first mooted in the 1960s by Professor Colin Buchanon. The Buchanon tunnel, as it came to be known, sharply divided opinion in the city and beyond. Eventually it never left the drawing board. However, there are still many who think that had it been built, the city's streets would not be in the snarled-up, bumper to bumper, pollution-filled state that it is now. The Federation of Bath Residents' Associations (FBRA) has come up with a grand plan for not one, but two, separate tunnels under Bath. More from [fearn.wilson@virgin.net](mailto:fearn.wilson@virgin.net) and Alun Morgan [alun@jmorganbath.fsnet.co.uk](mailto:alun@jmorganbath.fsnet.co.uk)

**United Kingdom.** A formal start has been made on the long-awaited creation of a tunnel under the Birmingham-Wolverhampton railway line to end years of traffic delays at a level crossing in Tipton. Sandwell council's legal department has started work on preparing compulsory purchase orders for the land in and around Owen Street that will be required for the completion of the £13 million project. The move comes just a couple of weeks after an application for planning permission for the work was submitted by Mott MacDonald. In addition to the tunnel the plans include a car park, a bus interchange, taxi rank and a landscaping scheme. Under the proposals a new road will sweep away from the existing crossing and run alongside the main line to a tunnel linking to the main road to West Bromwich. The plans are expected to be considered by the planning committee in December. Work could start next summer and be completed by Christmas 2006. The tunnel has been demanded for years by local people concerned about the delays and pollution at the level crossing which can be closed to traffic for up to 48 minutes in an hour during peak periods.

**United States.** Vineyard Haven, also known as Tisbury, is a main seaport in Massachusetts. This harbour and connected ponds form a most fragile aquatic system and an important spawning and feeding ground for several species of edible fish and bait, while the lagoon and Tashmoo pond provide an excellent locale for breeding and harvesting shellfish. MassHighway unveiled preliminary plans to build a \$3.8 million temporary drawbridge across Lagoon Pond before beginning construction on a permanent replacement. The plan calls for filling in part of the Oak Bluffs side of the Slow Lagoon to create a base for the bridge footings. An alternative to preserve the ailing pond is a tunnel. Tunnelling under the channel between the Lagoon and Tisbury harbour would not pose any significant engineering challenges. The channel depth going into the Lagoon is fairly modest, so tunnelling would be easy. The sand is stable without being a hard muck that would make it difficult to tunnel. There could be a rather short tunnel starting on the causeway and coming up just beyond the bridge, or continuing under past the hospital to the 90-degree bend just beyond. Visit [www.state.ma.us/mhd](http://www.state.ma.us/mhd)

## World Digest of Bids

**Norway.** Open invitation to tender, deadline 5<sup>th</sup> January, 2004 for construction of a 20,000 litre drinking water basin at Tjensvoll in Stavanger, including micro tunnels for water pipelines. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=198441-2003>, OJ S 221, or contact IVAR IKS, Stavanger, fax +47 51908501 or 51843601. E-mail [odd.hummervoll@ivar.no](mailto:odd.hummervoll@ivar.no) or [bernt.stangeland@multiconsult.no](mailto:bernt.stangeland@multiconsult.no)

**Spain.** Open invitation to tender, deadline 30<sup>th</sup> December, 2003 for work management and construction supervision of the Ballota-Cadavedo motorway section including the Ribón cut-and-cover tunnel (200 m). Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=198307-2003>, OJ S 221, or contact Ministerio de Fomento, Madrid, fax +34 915978537 or 8470. E-mail [cpublic@mform.es](mailto:cpublic@mform.es)

## World Digest of Contract Awards

**Spain.** Copcisa and Azvi have won a €39.4 million contract to build the 7.51 km Sant Celoni-Riells section of the Barcelona-French border high speed line, including a 365 m bored tunnel and a 209 m cut-and-cover tunnel. Read E-News Weekly 33/2003. Visit [www.copcisa.es](http://www.copcisa.es) and [www.azvi.es](http://www.azvi.es)

**Spain.** Ferrovial Agromán has pocketed a €39.6 million contract for construction of the 9 km Riells-Massanes section of the Barcelona-French border high speed line, including a 175 m cut-and-cover tunnel. Read E-News Weekly 33/2003. Visit [www.ferrovial.es](http://www.ferrovial.es)

**Spain.** A €26 million contract has been awarded to Sacyr and Scrinser to build the 7.3 km Sils-Riudellots section of the Barcelona-French border high speed line, including a 175 m cut-and-cover tunnel. Read E-News Weekly 33/2003. Visit [www.sacyr.es](http://www.sacyr.es)

**Spain.** FCC secured a €177 million contract to construct the Puig-Berga section of the Llobregat motorway. The new section, 21 km in length, will be financed through the shadow toll system and operated under a 33-year concession agreement. A 2 x 380 m tunnel will be built. Read E-News Weekly 33/2003. Visit [www.fcc.es](http://www.fcc.es)

## World Digest of Ongoing Tunnelling

**Italy.** Naples-based firm S.I.G., subcontractor to Rabbiosi, broke through the Sant' Antonio double-tube tunnel on 6<sup>th</sup> November on the E78 expressway linking Grosseto on the Tyrrhenian coast with Fano on the Adriatic coast through Tuscany, Umbria and Marche. The tunnel (780 m + 618 m) is part of lot 3, worth €53 million with a time frame expiring in January 2005. Lot 3 goes from trunk road SS 73 bis di Bocca Trabaria in Mercatello sul Metauro to the Guinza tunnel (lot 2).



Picture 1: Visit of the Ibaeta-Amara tunnel after breakthrough.

**Spain.** A tunnel broke through on 20<sup>th</sup> October on the south railway bypass in San Sebastian, between Ibaeta and Amara. The project is part of the dualling of the Amara-Añorga line, which itself is part of the Bilbao-San Sebastian line dualling. The line is operated by Euskotren, the Basque narrow gauge railways. The new section is 3,295 m in length, whereof 1,448 m at grade between Añorga and Lugaritz and Amara and Euskotren station in Plaza Easo as well as a 1,847 m underground stretch between Lugaritz and Amara. The tunnel has been bored from two drives using a roadheader and hydraulic hammers, in accordance with NATM. Support was made up of shotcrete, bolts, mesh and,

occasionally, steel arches. Lining work is 40% complete and the invert is 50% complete. Access work at the Amara portal is also under way. Work is also under way at the Lugaritz cut-and-cover station near the Geriatric hospital. Two 5 m-diameter ventilation shafts (21 and 36 m in depth) have also been sunk using the raise boring technique.

The south bypass construction will complete next Easter, two years behind schedule, and will open next summer. The cost amounts to €21.3 million. Read E-News Weekly 11/2003. Visit [www.euskotren.es](http://www.euskotren.es)

**United States.** Portland's sewer system, like those in many cities, is too ancient and decrepit to effectively handle the volume of sewage generated by its modern population. The existing system, designed to handle sewage and runoff from stormwater drains, routinely overflows into the Willamette when rain usurps capacity.

One year into construction, a \$300 million effort to install more than 6.4 km of sewer lines along the west bank of the Willamette River has come up against an unexpected challenge. But the project, known as West Side Big Pipe, appears to remain on target for a completion date of December 2006.

Groundwater is abundant below the pump station site, where bedrock does not begin until 27.9 m below the surface. And workers have had a tough time completing a critical step-sealing off area surrounding the future shaft from groundwater seepage. Leaks have sprouted in concrete and grout curtains intended to block groundwater. The shaft's concrete walls cannot be installed until leakage is stopped.

So far, construction is underway on 10 tunnel shafts that provide access to approximately 8.9 km of sewer lines to be installed along the Willamette between Northwest Nicolai Street and Southwest Bancroft Street. Tunnel boring will happen at the Nicolai shaft, which is 18.9 m-wide and 36.6 m-deep and the largest of the west side tunnels. Two Herrenknecht TBMs imported from Germany will require a crew of five to six workers when they are put into operation in early 2004. The machines will chew away at the soil starting from a depth of 36.6 m. Rock will be crushed and together with soil will be mixed with bentonite to form a slurry capable of being pumped in hoses back to the surface via the Nicolai shaft. One TBM will head south toward Bancroft Street and the other will head north, under the river and toward the Swan Island shaft still under construction. Read E-News Weekly 25/2003. Visit [www.ci.portland.or.us](http://www.ci.portland.or.us)

## World Digest of Inaugurations

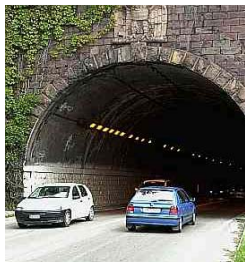
**Italy.** A 17.8 million bypass to trunk road SS 242 has been inaugurated on 23<sup>rd</sup> October in Ponte Gardena in Bolzano province. It includes a 400 m tunnel. Read E-News Weekly 14/2003.

**Italy.** The second Val Senales tunnel on provincial road 3 in Bolzano province has been opened to traffic on 6<sup>th</sup> November. This tunnel is 303 m-long. The first tunnel (1,160 m) will be opened in December. Read E-News Weekly 48/2002 & 34/2002.

## World Digest of Tunnel Renovation & Maintenance

**France.** The Vuache tunnel on motorway A40 between Lyon and Geneva reopened on 17<sup>th</sup> November after heavy renovation (repair of cracks, drainage, resurfacing, lighting, videomonitoring, escape exits and smoke removal, among other things). This twin-tube tunnel (1,431 m + 1,393 m) was opened in 1982. The renovation cost €28 million. The client is Autoroutes et Tunnel du Mont-Blanc (ATMB). The lead engineer was Setec TPI. The civil engineering companies were Razel, Bianco, Guintoli, EHTP, GTS, EJM and Campenon Bernard. Equipment specialists were clemessy and Yvroud. Visit [www.atmb.net](http://www.atmb.net)

**France.** Open invitation to tender, deadline 14<sup>th</sup> January, 2004 for rehabilitation of the Temple and Vieille-du-Temple sewers in the 3<sup>rd</sup> and 4<sup>th</sup> districts of Paris. Lengths 739 m, cross section 2.9 x 1.5 m, and 600 m, cross section 3 m x 1.2 m. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=199493-2003>, OJ S 223, or contact City of Paris, fax +33 142768710.



**Italy.** A tender for the renovation of the Virgolo tunnel in Bolzano province (south Tyrol) has been declared void. New tenders will be invited in February for work start anticipated next spring. The walls must be repaired to stop water ingress. Panels must be installed and the tunnel must also be equipped with a new ventilation and lighting system. Fire hydrants will be installed every 50 m and also niches for emergency calls and extinguishers. Time frame: 180 days. Cost: €890,000.

Picture 2: Entrance of the Virgolo tunnel.