



Driving a successful project

The M50 upgrade PPP scheme, which was designed by ATKINS Ireland, has met with widespread approval

The design of the M50 upgrade PPP scheme involved a significant management exercise on the part of the designer, ATKINS Ireland. More than 120 staff members in 20 offices were involved in the design and two thirds of the design work was completed in Ireland.

The M50 motorway is Dublin's ring route and is a crucial part of the transport infrastructure for the capital and surrounding counties, carrying more than 100,000 vehicles each day.

The M50 upgrade PPP contract was signed by the National Roads Authority (NRA) and M50 Concession Limited (M50CL) in September 2007. M50CL is a consortium of Spanish firms Globalvia and Sacyr Concessions and Irish firm PJ Hegarty.

The design and construction of the scheme was carried out by M50 D&C, a consortium comprising Spanish construction company FCC, Sacyr and PJ Hegarty.

The scheme included widening about 23 kilometres of motorway from 'dual two' to 'dual three' or 'dual four' lanes and upgrading seven existing junctions, including the conversion of the M1, N2 and N3 junc-

tions to free-flow interchanges.

Undertaking these works on a live motorway represented an enormous challenge. To complete the design while construction was ongoing required a highly coordinated and well-managed design effort on the part of ATKINS.

The scheme design and construction included particular focus on planning the construction phasing, innovation and flexibility in the design, minimising waste, maximising reuse of materials, mitigating environmental impacts effectively and achieving the lowest cost solution.

The scheme demonstrated ingenuity, innovation and creativity through extensive value engineering to identify potential contract variations that offered significant benefits to all parties.

A major variation to the M50/N3 interchange was implemented, which required new statutory approval. The willingness of the contractors to take on and manage the risks associated with this alternative realised major benefits for all parties. The scheme was completed within budget and two months ahead of schedule. A stringent quality, safety and environmental management system was followed throughout.

The scheme provides economic benefits through reduced traffic congestion and improved road safety. It also makes a positive contribution to the local community by reducing traffic congestion, improving access and a significant reduction in traffic noise.

The N2 and N3 interchange alternatives both improved linkages across the interchanges for pedestrians and cyclists. The drainage design approach will reduce the risk of flooding for local communities downstream.

The scheme provides sto-

rage and attenuation of surface water run-off from the new road in order to limit the discharges to the same level as the existing motorway for a one in five-year flood event.

The M50 upgrade project has set a new benchmark for the provision of transport infrastructure in Ireland, and has raised the status and excellence of Irish engineering by demonstrating the capability and capacity of Irish engineering consultants to deliver very large-scale and complex infrastructure projects.

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The M50 upgrade PPP Scheme by ATKINS Ireland: undertaking the works on a live motorway represented an enormous challenge



Improving the quality of life

“The improved motorway caters for the highest volume of traffic of any road in Ireland, and provides much-improved linkages between regionally important facilities, including Dublin Airport and Dublin Port,” said Tom O’Malley, managing director at ATKINS.

“The scheme has provided a major improvement to a key transport corridor connecting various regions in Ireland with the capital city. This will facilitate further economic integration of the island, improving trading links and stimulating future economic growth.”

O’Malley said several aspects of the project had raised the status of Irish engineering, including the design and construction of a viaduct for the N3 interchange alternative.

This structure featured the design by ATKINS of a highly innovative form of bridge construction in Ireland involving precast pre-tensioned beams that were subsequently post-tensioned after erection.

“The design solution balanced competing factors including cost, environmental impact, quality and safety in the most appropriate manner,” said O’Malley.

“We achieved maximum benefits from a willingness to take on and manage risks effectively, particularly by identifying potential contract varia-

tions, with benefits to all parties. For example, the N3 interchange alternative required the contractor to assume the risk of obtaining new statutory approval.”

The project elicited positive public reaction, resulting from the effective design and phasing of the implementation.

In addition, the successful traffic management operation minimised disruption to traffic during construction and preserved the safety of the travelling public and the workforce.

“The project team achieved an excellent safety record with a very low rate of accidents and near misses, despite the high degree of complexity of the job, involving construction in an urban environment and

management of very high volumes of traffic,” said O’Malley.

“As the most prominent and heavily-trafficked route in Ireland, the scheme had a very high profile during construction with all the inherent risks of a live project, but the work was completed smoothly and without incident.”

The excellent management of the scheme construction and favourable public reaction both during and since the completion of the scheme has enhanced the reputation of the Irish engineering profession.

“The scheme has made a very positive contribution to the quality of life of the local community, and of all road users,” said O’Malley.