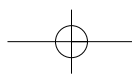


Iron masters

Glasgow City Council has developed a city-wide road/iron-work maintenance strategy, aimed at reducing disruption and ensuring the safety of residents. **Malcolm Chalmers** charts its progress.



It is often said that the British are not good at complaining compared with some of our friends on the Continent. However, in the sphere of street and highway works, most councils would agree members of the public are only too ready to complain.

A letter to London's *Evening Standard* newspaper earlier this month is a case in point. The correspondent feels Transport for London is being 'conned'. 'In years gone by, holes which opened up in the road surface, would have been repaired probably at night,' the letter states. 'Now a contractor comes along and carries out a temporary repair... A few weeks later, all the (repair) has disappeared or is blocking the rain gully, and we're back to square one ... I am sure Londoners will be aware of many such sites... Who allows this to happen?'

Road users now appear to accept pot holes, damaged ironwork, disruption caused by repeated repairs, compensation claims for damage to vehicles, life and limbs as part of the experience of travel along the highways, whether it be by car, bus, bicycle or on foot. In the meantime, irate councillors continue to demand engineering miracles, amid tighter budgets.

Given the undisputed fact that our roads are worse now than they were 30 years ago, it is not surprising that so many road users feel the need to



ment, cracking and surface degradation – and three fared 'very favourably'. The latter three varied in performance from absolutely no settlement, surface cracking or surface degradation, to a partial breaking of over banding. Ironmaster, from Rhino, emerged as the most suitable product.

Ironmaster incorporates two high-quality approved mortars – pre-cast reinforced concrete shims for bedding the ironwork and a flexible (hot-applied) wearing course, which requires no compaction.

The system, which is designed to be trafficked within one hour, minimises disruption and is currently undergoing assessment for Highway Authorities Product Approval Scheme (HAPAS) approval by the British Board of Agreement (BBA). Full certification is anticipated by the end of 2005.

Phase two of the evaluation study was designed to further assess the performance of the three successful products. The results at this stage were critical to the development of the council's current ironwork repair strategy.

Researchers concluded that the most-effective ironwork repair technique identified by the study, Ironmaster, might be over-specified if used on all roads, especially residential routes with light, occasional traffic.

The recommendation was that the most cost-effective long-term strategy for the city was to match the repair solution to road usage so that the most



Working flat out: Glasgow monitored a total of six repair systems. The above show ironwork before (left) and after with Ironmaster

write and complain. Allied to this, some areas of the press quote reports which claim more than £200M is spent annually in the UK on installing and reinstating damaged and defective highway ironworks.

This issue of ironworks was faced by Glasgow City Council's Land Services – which has responsibility for the management of the local road infrastructure in the city. The problem was exacerbated by the fact that at least 20,000 utility openings are undertaken on the city's streets every year.

Realising that something had to be done, but lacking the luxury of an increased budget, council officers decided to develop a city-wide road/ironwork maintenance strategy designed to minimise the risk of injury and damage to vehicles and people. They also realised that an intelligent, long-term strategy would reduce disruption, while improving the 'experience' for all of Glasgow's road users and, ultimately, save money.

'We have had real problems in the past with road repair systems failing after relatively short periods of time and knew something more robust was needed for major traffic routes,' explains Robert Booth, director of land services at the city council.

Officers appreciated that, in order for their plans to be effective, they would have to invest time into researching all the ironwork systems available on the market, in order to determine which would be the most appropriate for the city and satisfy its stringent cost/benefits criteria. The answer was a head-to-head 'test' for the short-listed systems.

In October 2002, the city council's Land Services Operations Sub-Committee reviewed the results of a manhole repair trial, which tested the long-term durability of each of the six different repair products then available. Each repair was monitored and assessed every three to four months.

In March 2003, the first monitoring report was presented to the sub-committee and subsequent inspections were made in July 2003, September 2003, and January 2004. The results were enlightening. Of the six repair systems under review, three failed to meet the agreed criterion – settle-

robust system was only used on the most heavily-trafficked roads. The following schedule was drawn up:

- Residential roads: use a fast-set mortar system;
- Minor traffic routes: use pre-compressed shims set in fast-set mortar;
- Major traffic routes: use Ironmaster, comprising pre-cast shims in high tensile-strength cement, combined with a proprietary brand surface material.

In February 2005, Rhino began the process of installing Ironmaster on routes prioritised by Glasgow City Council and trained its Direct Labour Organisation (DLO) to enable it to carry out all further repair work, and so eliminate the need for outsourcing.

An additional part of Rhino's quality assurance programme is the fact that the initial training programme is sustained by refresher courses, tailored to meet a client's specific requirements. Confident of the success of its training programme, every repair is backed by a free five-year warranty, even where the work is undertaken by the council's in-house road maintenance crews.

'The results of our study highlighted the fact that Ironmaster was the most suitable system for these roads,' Booth adds. 'Meanwhile, the five-year warranty will not only save us money in the long run, but will reduce disruption caused by the need to reinstate failed repairs.'

Booth believes the strategy has been so successful, others could learn from it. 'Other utilities know they need to improve and having seen what we have achieved and the benefits for the road users, we have received several inquiries into which system we've used,' he says.

The council's utility monitoring team also acknowledges the need for a similar system, and now that it is installed, one major utility company has already started to explore how it could use the system nationally.

• **Malcolm Chalmers** is managing director of Rhino.