



Keeping the Midlands Metro expansion on track

CASE STUDY

Managing the transformation of the West Midlands light rail network is no mean task. The £1.35bn project is part of an ambitious ten-year plan to link Birmingham, the Black Country and Solihull via an expanded tramway. With safety and maintenance a key consideration around an operational service, ACO Water Management was challenged by the Midland Metro Alliance (MMA) to develop a brand-new drainage access system to help ensure both construction and day-to-day services are easily maintained.



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THE PROJECT

[Expansion of the West Midlands light rail network by the Midlands Metro Alliance.](#)

THE BRIEF

Provide an alternative solution to the existing, challenging to install cast iron access drainage system.

THE SOLUTION

A brand-new drainage access system to help speed up both construction and day-to-day maintenance.

ACO Water Management has been involved with the project since the early stages in 2017. Centenary Square, Birmingham has recently seen the installation of a number of standard and bespoke channel drainage together with the ACO TramDrain 200 system. However, it was at Bilston Road in Wolverhampton, part of the Wolverhampton City Centre Metro extension scheme, where technical support and a bespoke solution were first required.

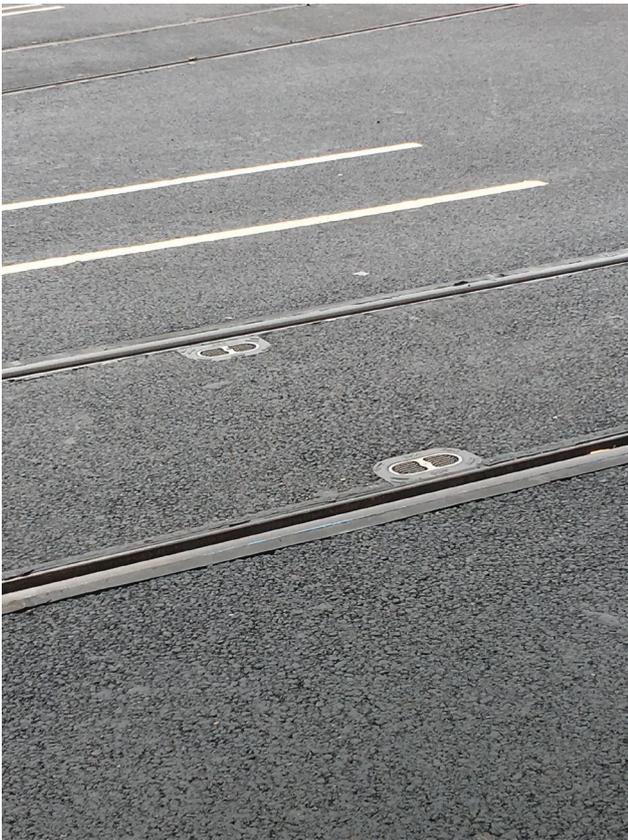
Keeping the project running

When designing modern tramways, one of the biggest challenges is designing systems which keep disruption through maintenance to a minimum. Well maintained tramways are vital to ensure service users are not impacted by down time. Selecting products which last despite ongoing vibration and contact with potentially corrosive substances (as with all transport routes) is vital to the long term success of the project.

During the construction phase of Bilston Road, it became clear that the existing cast iron access drainage system, which is required to drain the rail profile, being used was difficult and therefore time consuming to install and did not suit the long term requirements of the Midland Metro Alliance team due to potential wear from ongoing contact with aforementioned substances.

To resolve this problem, the Midland Metro Alliance approached ACO Water Management in search of an access drainage solution to drain the rail sections that could replicate all design elements of the original system, but with a faster installation process and that would stand up to the demands as part of a heavily used roads when compared to previous options.





Bespoke design services

Peter Bembridge, Business Development Manager at ACO Water Management, explains how the design services team at ACO immediately started pulling together a bespoke drainage access system that worked with the existing designs and was compatible with the chosen 41GPU Rails:

“The original design that the Midland Metro Alliance were using raised concerns regarding wear over time, so we eliminated this problem by developing a polymer concrete alternative. We also had to ensure that the product was easy to install and installation rates improved as the cast iron unit was taking too long.

“Our designers were able to make an almost identical copy of the drainage access box that the engineers were originally using, but with the increased efficiency of requiring no attachment through the rail, thus speeding up the installation time. This meant that the drainage access solution was securely attached to the rails due to the profile design.

As well as being a high strength material, polymer concrete also retains its appearance for longer post-installation when compared to untrafficked cast iron, as it doesn't oxidise. With the addition of a smoother and quicker installation process, the polymer concrete access drainage system was the perfect application product for the contractor.

Future Maintenance

In addition to the bespoke solution, the Midland Metro Alliance also utilised ACO's TramDrain 200 system across the expansion. This too has been modified with ACO being able to re-profile the TramDrain 200 Connector Unit to fit the specific profile of the rail section, 41GPU. Designed for all of the different tram and rail tracks, the high capacity, one-piece drainage system provides efficient water drainage to grooved rail profile, both in the 4-foot and 6-foot sections of the track slab.

The bespoke system also provides the tramway operator with safe access points to support with any future maintenance and cleaning processes. Forming part of the tram drainage system, the access points are required to drain the rail sections and collect the “grit” that is used in areas where trams need to improve traction.

Objective achieved thanks to ACO

The new solution has completely eliminated the original issues raised by the MMA. Natalie Cropp, Sustainability Manager for the Midland Metro Alliance, explains: “Using this new unit has made it easier to manage quality of installation on site, maintain encapsulation and increase the ease and therefore speed of installation.”

To enhance future projects, ACO Water Management has now developed a mould that can be used by anybody that has a requirement for it including the Midland Metro Alliance team. The long-running West Midlands Metro project could now choose for the system to be rolled across the network as the track is extended further.

Natalie added: “One of the benefits of the new system is that it could be used as part of our track design for future projects. Thanks to the ACO Rail Drain Access Point, we know that installation will be fast and maintenance has been streamlined which will assist in making similar projects more efficient.”

Peter Bembridge concludes: “We're delighted that we have been able to support the Midland Metro Alliance on what is a hugely significant project in the West Midlands. Ensuring projects run smoothly throughout and that infrastructure lasts are both of paramount importance for any contract and we are proud to have achieved these goals by working collaboratively with the Midland Metro Alliance.”

To find out more about ACO's drainage solutions, as well as the TramDrain 200 system, please visit www.aco.co.uk

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