

Signalling the end of temporary traffic management

YUNEX TRAFFIC



Plus+ Advantage saved over 1,400kg of embedded CO2 from reduced cabling at Birch Hill, Bracknell

Yunex Traffic uses its latest Plus+ traffic signal technology to deliver a complex signalised traffic intersection scheme, without the need for a separate temporary traffic management solution, significantly reducing cost, time and disruption to the travelling public.

That's the Plus+ Advantage!

Background

The civil engineering works required to install a signalised traffic intersection nearly always result in lane closures and temporary signals, which not only cause disruption to road users and pedestrians, but also congestion-related air quality issues.

The design and deployment of temporary signal schemes can be both challenging and costly if network performance is to be maintained throughout. And with UTC operation of temporary signals also providing challenges, the result is very often overly complex, expensive and wasteful.

Many traditional temporary schemes also require cabling to be raised high above the carriageway, which therefore involves considerable working at height for operatives. This not only increases risk, but also adds significant cost to the overall scheme.

The Plus+ Advantage - a new approach to traffic signal control

The unique features and architecture of the Plus+ traffic control system eliminates the need for separate temporary traffic management equipment at roadworks.

The Plus+ traffic control system offers a new approach to traffic signal control, where intelligence and infrastructure are distributed around junctions. This delivers a range of benefits including a significant reduction in the number of cables used, a much simplified installation process, reduced overall scheme costs, and environmental improvements from reduced copper usage and travel time reduction. All delivering improved resilience. The system enables cost-effective installation for both new schemes and major refurbishment projects.

Plus+ Advantage draws on the inherent advantages of the features and architecture of the Plus+ system to enable even complex signalling schemes to be deployed without the need for temporary traffic signals, whilst maintaining network connectivity with UTC throughout the deployment phase. This not only reduces project complexity and risk – it also saves time, materials and significant cost.

How it works

With Plus+ Advantage all the equipment required for the permanent Plus+ solution is also used as temporary equipment during the scheme deployment phase. The Plus+ controller is installed in its permanent location and temporary poles with the Plus+ traffic signal equipment are installed in temporary bases.

Because Plus+ uses a small number of 2-pair feeder cables to support an entire junction, the temporary junction can easily be installed with cables, often using existing ducting, around a junction. This removes the need for large numbers of overhead cables, and provides improved resilience over wireless signals. As the cable size required for Plus+ is smaller in diameter and only carries 48V, if necessary, it can be slot-cut directly into the carriageway as a temporary measure.

Once the temporary Plus+ system is commissioned, the redundant equipment can be removed, enabling installation of the new. As civils works are completed and new poles installed, the Plus+ signal equipment in the temporary locations can be removed one by one and transferred to their new permanent locations with minimal switching off of signals to limit downtime.



Full UTC Connectivity

Plus+ Advantage uses a fully compliant TOPAS 2500 traffic control system, meaning there is no loss of control connectivity. So even in the construction stage, the scheme can run under UTC/ UTMC, SCOOT or MOVA control - with full integration of pedestrian and cycle movements. Site to system connectivity and fault monitoring also operate as they would with the final scheme.

Using the permanent solution during construction means there is no need to hire equipment, with the earlier utilisation of the Plus+ solution recognising the value of the new asset.

A number of implementations of Plus+ have already used the final system equipment during the construction phase to eliminate the need for temporary traffic signals, including Birch Hill in Berkshire.

The Plus+ Advantage

- Eliminates the need for the hire of temporary traffic signalling.
- Eliminates the need for wireless battery powered signals (particularly important for longer duration projects.
- Uses the final site Plus+ equipment, realising benefits earlier in the project.
- Uses a fully compliant TOPAS 2500 traffic control system, with the complete set of functions you would expect from a traffic signal controller.
- Compatible with a range of outstation and instation equipment.
- Provides flexible methods of control including SCOOT and MOVA.
- Provides connection to central systems including UTC and fault monitoring systems.
- Provides flexible temporary cable methods as provided by Plus+



Birch Hill, Bracknell



Birch Hill, Bracknell

Project Background

This 33-pole hamburger roundabout scheme was delivered by Yunex Traffic for Bracknell Forest Council in 2022.

The Birch Hill Roundabout sits on the A322, a key route between the M3 and M4 motorways, and provides access to the centre of Bracknell. The site is a through-about style roundabout with the main A322 running through the centre and local roads serviced by the circulatory.

The traffic signal equipment had become life expired and was scheduled for replacement, with the aim being to minimise disruption throughout the works.

Project Scope

The project to replace the life expired traffic signal equipment was designed to ensure increased reliability of a critical intersection. The complex nature of the site, with the A322 running centrally through the site, required an enhanced traffic management solution to avoid parts of the site having to be closed whilst works were ongoing.

The Plus+ Advantage scheme utilised existing ducting both for the temporary works and, due to the huge reduction in cable requirements, the final implementation. Had a traditional ELV solution been used for the programme, extensive ducting and civils works would have been required, which would have caused additional disruption, added cost and an extended timeline – which in turn would have necessitated an extended temporary operational period.

Following the three-month construction phase, the Plus+ Advantage 'temporary' equipment was transferred to its new, permanent location and commissioned into full operational service.

Designed by the Yunex Traffic Consultancy Services team, the deployment of the system for temporary traffic control is just the latest example of the benefits that the innovative Plus+ solution delivers, offering considerable savings to projects by removing the need for traditional temporary traffic control measures to be implemented by third party traffic management contractors.

By using Plus+ Advantage rather than installing a traditional ELV signal system and using temporary traffic management, the project:

- Removed the need for extensive civils works and ducting replacement.
- Shortened the programme by over 4 weeks.
- Saved over 1.7km of copper cable which equates to over 350kg of copper.
- Saved over 1,400kg of embedded CO_2 from reduced cabling.

Let's shape the future of mobility together

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Yunex Traffic is a global leader in the field of intelligent traffic systems, offering the widest end-to-end portfolio of solutions for adaptive traffic control and management, highway and tunnel automation, as well as smart solutions for V2X and road user charging tolling. Yunex Traffic has 3100 employees from 58 nations and is active in over 40 countries worldwide. Its intelligent mobility solutions are currently being used in major cities across the world, including Dubai, London, Berlin, Bogota, and Miami. Yunex Traffic has successfully concentrated its efforts on mastering technologies in the three segments of hardware, software, and service, and is subsequently the only supplier who is capable of meeting all major regional standards in Europe, UK, Asia and America. Further information is available at www.yunextraffic.com/us.
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