



## Kier/Pike Signals/A plant/Bristol Water/AGD with Intelligent Traffic Lights: I-lights

### Winner of the Street Works UK Innovation Excellence award 2017

Street Works UK is the UK industry association representing utilities solely on street works issues. Street Works UK represents some 56 utility companies and contractors engaged in the street works sector, and 18 specialist sub-contractors who provide equipment, materials and services supporting street works activities. Our members represent major contributors to economic growth and work to deliver gas, electricity, water and telecommunications to both individual consumers and UK plc. In order to continue this drive for further improvements within the industry – we have developed the Street Works UK Vision for Street Works, which revolves around seven main principles:

- Safety
- High Quality
- Minimise Disruption
- Keep the Public Fully Informed
- Sustainable Methods and Materials
- Avoid Damage to Underground Assets
- Innovation

This case study is an example of the street works sector delivering on these principles and turning the vision into reality.

### Overview

Kier approached Pike Signals 14 months ago due to an increasing problem with demand for manual control of traffic lights.

Highways have a duty of care to ensure they have a congestion free network and reduced disruption by traffic lights set up as it attracts customer complaints and unnecessary media attention. Utilities and their partners too do not want to upset the travelling public.

Whilst manual control of lights is justified for traffic sensitive routes, the demand is becoming the norm in some areas. This increasingly stretches on resources and puts pressure on planning teams to place the resources where most needed. This upsets relationships when there are not enough resources to meet the demands.

Kiers answer was to understand further how the Vehicle Actuation technology worked and whether they could instil confidence with their clients to the highways authorities that new technology would not require manual control going forward. The technology should do the work.

#### **The problem Kier approached them with 14 months ago:**

- More demand by highways for manual control of traffic lights ave cost £200 a day.



- Resource skill gap due to demands not justified –tension with highways when can't fulfil request.
- We wanted technology that eliminates manual control of lights –Remote control of lights that reduces admin burden.

A steering group was formed involving all parties.

#### **What Kier wanted:**

- Technology that does not need manual control.
- Highway authorities to have confidence in technology.
- Ability to remotely control traffic from an office rather than on site –in order for remote control.
- Ability of integral camera within lights.
- To be able to monitor sites without physical travel- reduce carbon emissions and time.
- Take still snapshots through camera for audit purposes.
- One resource which could monitor several jobs in a network through camera –resource efficiencies and job motivation.
- Reduce H&S risk of a physical person on site who cannot have a long range of congestion build up. Most often is in front line of public abuse and is not a very motivating job due to limited intervention needs.

**Pike Signals with AGD had a solution and A plant were willing to invest in the new technology that Kier uses for TM hire. A new lighter battery that can be proactively tracked was tested as part of the trials too.**

#### **Trials:**

- Initial trials in the Somerset Council area as phase one.
- Allowed remote control view from desktop in offices.
- Camera offered longer range view to see congestion build up
- Still snapshots could be taken (DfT guidance permitting).
- Added benefits of site monitoring remotely from H&S point of view/plant checks.
- Lessons learnt on battery use and life.
- It was noticed speed of traffic was reduced and red light jumpers could be spotted as an added benefit.

A joint meeting with DfT and Somerset Council was held to capture any concerns at an early stage. DfT were supportive of the innovation as hadn't realised how big a resource demand this was having. The DfT meeting was important to ensure all signs, timings of signals and camera's adhered to legislation.

A further trial was carried out in Nunny with no problems.

Recently another trial was set up to monitor the ARVA radar technology.



The traffic lights would be set up using the existing Vehicle Actuation technology and a data logger would monitor peak flow activities and congestion. The new ARVA technology used would show improvement in congestion at peak traffic flows. It is thought that with the new software, remote control intervention would not be needed let alone manual control.

### **Technology available as of January 18**

**ARVA technology** –proactive sensor of traffic flow, quicker change of green light to match flows with minimum green time reduced to 7 seconds.

- Max green time is automatically set to reflect the pink book suggestion, based on the all red time per phase
- Every phase which ends with a demand still present will have its max green time extended
- Each cycle which ends before it reaches its max green time will have its max green time reduced
- This will help respond to varying traffic demands and smooth out the signal response to errant traffic demands.

**Camera in built** – remote monitoring of site for audit purposes–see network view –congestion build up.

**Remote control of lights** from desk top view – this shouldn't be needed due to ARVA but just in case -no need to send a physical person out (needs to be tested in latest trial.

**Idoc batteries** – smaller batteries –reduces manual handling issues and smarter to cope with extra software/camera /can monitor power remotely to change before power runs out.

**Trackit system** –theft issues.

### **Benefits:**

- Make efficiency savings and better use of resources.
- Improved highway relationships.
- H&S aspect of physical person not on site often abused by the public.
- Manage a network at desk view rather than one person per site.
- Reduce manual handling of battery change.
- Trace plant at all times.
- Remote site audits that can be done more frequently from camera view.

All partners worked in a collaborative way to think about the future of street works.