

# Briefing Note

**Title: Vibrant and Sustainable City Scrutiny Panel - Digital Technology in Transportation**

**Date: 28 January 2021**

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**Intended Audience:** Internal  Partner organisation  Public  Confidential

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## **Purpose or recommendation**

The purpose of this briefing note is to inform the Panel of current Digital development within the transport sector within City of Wolverhampton.

## **Overview**

The use of digital technology within all sectors is accelerating at pace and this includes the enhancement of all modes of transportation. The potential subject area is vast so for the purposes of this panel the briefing will focus on the current and developing uses of technology within highways. Public transport sectors are not considered in this paper.

The note provides an outline to some of the key areas of development within CWC and is intended as a brief overview for discussion.

## **Background and context**

### **SMART City and LED street lighting**

The Smart Digital Infrastructure project (funded by Wolverhampton Council and European Regional Development Fund grant until end March 2022) delivers a package of low carbon initiatives that provide additional cost savings, carbon savings and resident benefits.

The main element of the programme is to upgrade 27,750 streetlights to low energy Light Emitting Diode (LED) lanterns. Invest to Save borrowing is funding the street light conversions with the grant providing additional funding for other project elements, as follows:

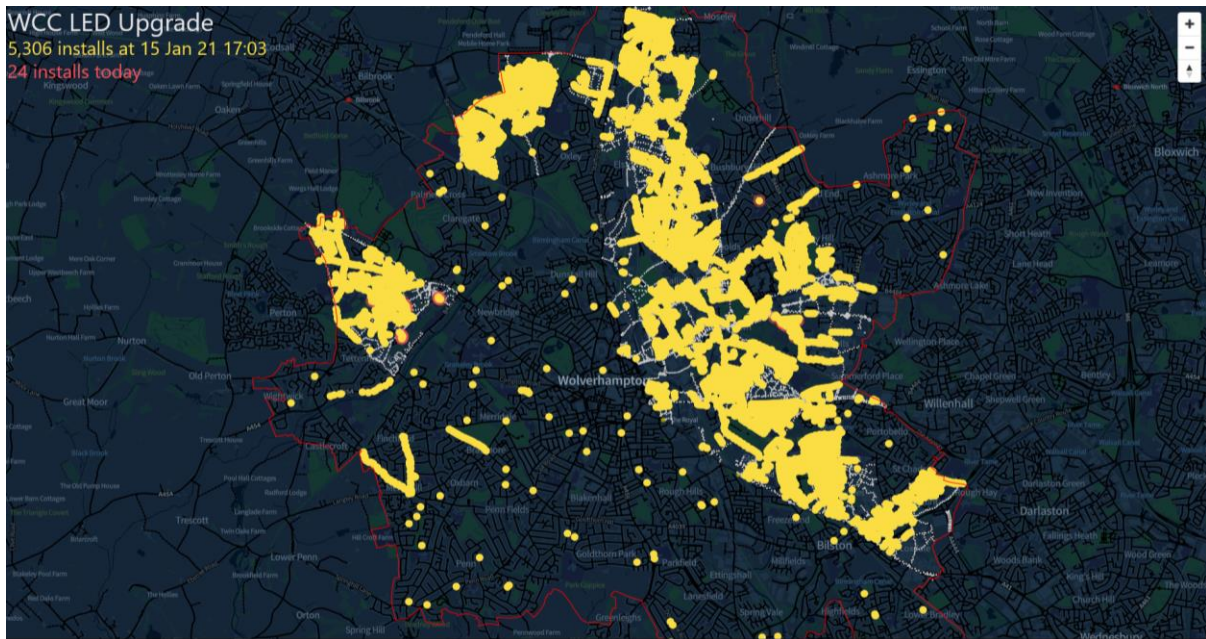
- Central management system for 9,000 street lighting units and smart city sensors.
- Procurement and installation of cycle counter signs
- Installation of solar lighting along canal towpath and digital wayfinding (delivered by Canal and River Trust)

Further grant is available for the central management system and nodes to enable a wireless mesh network that will provide remote dynamic street lighting control. The manageability, flexibility

and responsiveness of the system will bring major resource and cost savings, supporting further energy and carbon savings.

The grant will also enable city streetlights to transform into smart, connected urban assets with the addition of sensors to the columns. Sensors provide an opportunity to remote-control a range of council operations, unlocking urban data to reveal unique insights which can help improve efficiencies, sustainability and citizen experience.

Live mapping of installation progress across the city:



### Digital Highway (Variable Message) Signs

We have developed a new strategy to displaying information on the highway utilising modern LED signage. These enable a variety of information to be displayed including public information, car park status, road safety, traffic directions, event management and a wide range of other areas including key messages of national importance such as Stay at Home.



The renewal programme focusses initially on the city centre before rolling out along strategic corridors to cover the whole city.

These signs are also being enhanced to incorporate warning messages, for example, a vehicle registration could be displayed alongside a slow-down message to encourage greater compliance with the speed limit. A further development currently being trialled is displaying a warning sign to advise of turning traffic where collision trends have been identified.

The potential to utilise the signs capacity in the future includes dynamic route messages linking in with other workstreams such as: live congestion and Air Quality monitoring and car park availability.

### **Traffic signals and network management**

Wolverhampton currently hosts the Urban Traffic Control Centre (UTC) for the Black Country.

Digital technology is used to monitor the network and maximise the efficiency of traffic movements, integrating signal timings and responding to incidents. There are many data sources that are integrated to increase the intelligence and knowledge of the behaviour of the network.



Examples of use include:

- To influence road users by gating techniques to encourage alternative routes
- Develop different modal priorities i.e buses, cycling
- Improve efficiency to support reliable journey times
- React to specific events e.g. Railway station exit, post football match
- Support future driverless cars
- Prioritise travel corridors based on air quality to comply with national/ legislative requirements
- Provide journey time, traffic flow and travel data for public – commercial benefit?
- To develop automated incident detection to assist in identifying issues occurring across the network

One further recent development is the introduction of contactless activation of pedestrian crossings at key locations in the city.

### **Average Speed Cameras**

CWC has led the introduction of digital average speed cameras across the Black Country. Whilst it is the responsibility of the Police to enforce compliance with speed limits, we have a shared obligation to reduce road traffic collisions and make our roads safer. Over £700,000 has been invested in camera infrastructure on the highest priority road sections

across the Black Country and these are now being monitored and enforced by WMP. The technology allows for speeds to be recorded over a length of road rather than in one spot and have been demonstrated to have a marked impact on speeds and accident prevention.

## **CWC Full Fibre Network and 5G**

Building this new, faster network will allow the Council to future proof the city with a digital infrastructure that will benefit and be used by businesses, residents and other services.

COVID-19 has accelerated the adoption of digital services by between 2-5 years with connectivity deemed critical to levelling up the economy and driving public and private recovery, growth and innovation. 'Driven by Digital' is a cross cutting scheme in Wolverhampton's Relighting Our City recovery commitment and a key element in making the city a major player in UK's digital market, in turn generating new opportunities and jobs.

CWC has been supporting WM5G's accelerator project rolling out 5G across the city. Whilst this supports our digital connectivity it is distinct from CWC's own Local Full Fibre Network programme.

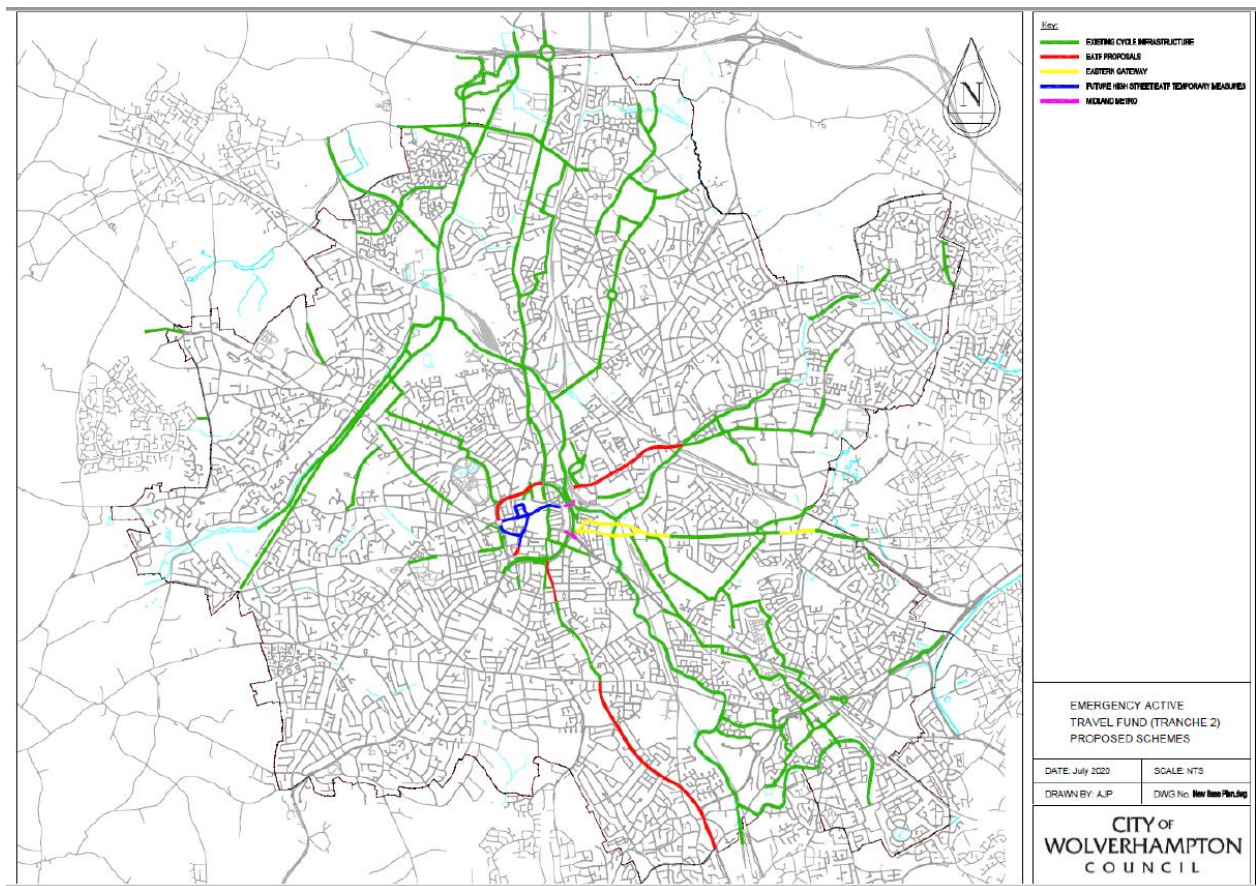
City of Wolverhampton Council secured £4.9m in funding from the Department of Digital, Culture, Media and Sport (DCMS), for the Local Full Fibre Network in June 2018 to connect 170 public sector premises across the city to full fibre (1Gb) broadband. The business case emphasised the lack of commercially available broadband in the city centre and lack of plans from the existing commercial providers to enable connectivity in the city centre going forward.

This massive step change in connectivity will enhance the SMART City progress including systems such as the CCTV traffic management network and parking management systems.

WM5G's Transport use cases are exploring how 5G can help to ease urban traffic congestion and make public transport more attractive. It includes the UK's first 5G road sensor network targeted at reducing congestion and pollution by installing 5G enabled cameras, radar and pollution sensors at key junctions across the West Midlands. Other use cases include the use of 5G-enabled smart sensors to accurately identify and classify road usage in real-time and Mast-as-a-Sensor trial demonstrates how to use existing infrastructure (4G and 5G masts) and turn them into sensors, using AI and machine learning to produce real-time traffic data.

## **Active Travel Routes**

We have in excess of 60Km of cycle way in our city. We have recently secured in excess of £1million to enhance that provision through the Active Travel Fund. In addition to the cycle route delivered through Leicester Street, Queen's Square and Darlington Street the additional funding has been allocated to new dedicated cycle routes on Ring Road St Peters and Wednesfield Road. UTC are working with suppliers to develop and improve Artificial Intelligence for cycle count and pedestrian count detectors across the city centre. The technology is seeking to revolutionise how such data is collected in future increasing the ease and efficiency in how it is collected



## Fleet management

City Transport are currently in the process of procuring a new fleet management system with a more modern, sophisticated and mobile IT solution. This greater functionality, through continuous product development and on-going functionality improvements will future proof the service in line with the Council's aspirations for digital transformation.

## Fleet Procurement

In line with our Climate ambitions we are moving towards the electrification of our fleet. We have secured free consultation advice from the Energy Saving Trust who are in the process of a complete fleet review to determine current capacity for change and future fleet and infrastructure requirements. This analysis has involved the use of telematics to track and monitor exact usage. The results of this analysis are expected in early February and will inform our green procurement strategy going forward.

The Council is in the process of introducing accessible Electric Vehicle (EV) charging points across the City to support the general uptake of EVs. Locations of all charging points are available on commercial sites such as Zap Map @ <https://www.zap-map.com/>

## Winter Maintenance (Gritting)

This season we have secured a suit of 9 brand new gritters. These modern vehicles are fitted with the latest technology allowing for automatic spreading rates based on their exact location across the network. All vehicles are tracked improving performance monitoring and management capability.

## Escooters and Bike Share



Woman riding an electric scooter in Victoria Square

Roll out of the Escooter trial and bike share programmes across the region is ongoing and will soon be visible in Wolverhampton. Units are fitted with telematics allowing a rich source of usage data. From the initial trial in Birmingham it has been shown that there have been considerable uptake with over 60,000Km covered by 30,000 individual trips (upto November 2020). Based on a trial of 2000 units and a 12-16% car replacement rate this could equate to a carbon saving of between 256

and 525 tonnes of CO<sub>2</sub> in Birmingham over the course of the trial.

The data being collated during the trial will inform future programmes to ensure investment is focused in areas of demand and where they will have the greatest impact.

## Discussion

The above examples represent only a small sample of the ways in which digital technology enhances the efficiency and effectiveness of our highway network. It is intended to provide a vehicle for discussion and to generate questions regarding how technology is used and other areas in which development should be considered.