



NJUG CASE STUDY

CASE STUDY 7: Field Based Mobility Solutions

The National Joint Utilities Group (NJUG) is the UK industry association representing utilities on street works issues. The thirty-eight companies¹ we represent work to deliver gas, electricity, water and telecommunications to both individual consumers and UK plc.

NJUG members need to continue to drive forward further improvements. We have therefore developed the NJUG Vision for Street Works, which revolves around six main principles:

1. Safety is the number one priority
2. Damage to underground assets is avoided
3. Utilities work together and in partnership with local authorities to minimise disruption
4. Utilities deliver consistent high quality
5. Utilities maximise the use of sustainable methods and materials
6. Street works in the UK are regarded as world class

This case study is an example of NJUG delivering on these principles and turning the Vision into a reality.

Overview:

In 2007 Skanska Utilities 'Systems Solution Centre' was approached to develop and deliver a field-based mobility solution that would significantly improve the timeliness of provision and quality of data captured on site.

The project's primary objectives were to:

- Increase faster turn-around of the provision of final reinstatement details (ensuring 100% compliance with the code of practice).
- Improve accuracy and consistency of data captured.
- Enable the capture of GPS co-ordinates (longitude and latitude).
- Create a time-stamped photographic audit trail of work undertaken and associated quality.

The Skanska Utilities System Solution Centre department have been actively involved in delivering innovative field based mobility solutions to the Skanska business and have deployed over 350 devices, capturing approximately 33,000 photographs per month and associated data in real-time from the field.

Drawing on such experiences, Skanska's Systems Analysts undertook a detailed review of the requirements and the paper-based processes being used at the time. The review revealed the need for, and provided the basis to create, new processes which included the use of a handheld computing device or web portal, to schedule surveys and review the real-time data returned from the field.



¹ NJUG's current members are Energy Networks Association (representing electricity and gas), Water UK (representing all water and wastewater companies), National Grid, Openreach, Virgin Media and THUS, a Cable and Wireless Business. Our associate members are Clancy Docwra, Skanska McNicholas, Balfour Beatty, Morrison, Morgan Est, NACAP, PJ Keary, First Intervention, Carillion and Enterprise. Including members through trade associations, NJUG represents thirty-eight utility companies.

Case Study

In order to meet the requirements of this project, Skanska needed a cost effective and simple technology solution that was easy to implement and deploy within the given timescales. Therefore, the project was broken down into five technology elements:

1. **Mobility Devices:** Having looked at the mobile devices on the market, Skanska opted for a semi-rugged Personal Digital Assistant (PDA) with built in camera and Global Positioning Satellite (GPS).
2. **Mobility Software:** Skanska developed an intuitive user interface that could easily be used by field operatives. This included building in the satellite navigation software which uses the postcode or latitude and longitude to navigate the driver to site.
3. **Scheduling Software:** In order for the solution to be effective, a web-based scheduling portal was developed to 'sweep' up the works within Skanska's Works Management System that need to be carried out and be scheduled against each operative. When on operative logs on to their device, the list of jobs are shown and they are able to capture data and take the pictures so they are referenced back into the system with the required data.
4. **Over the air transport mechanism:** In addition, a 'transport' mechanism was required to transfer the scheduled jobs (over the mobile GPRS network) in real-time to each operative's mobile device and for the return photograph and metadata. Skanska chose to use a Nokia product that fulfilled all the requirements for reliability, security and device management.
5. **Web Portals:** Finally, a facility was needed in order to view the photographs and returned data, so a suitable web-portal was devised internally.

With the deployment of the mobility solution, Skanska were able to schedule the works through their Scheduling web portal to each site operative's mobile device. Using the satellite navigation, the drivers arrive at site via the best possible route, which has resulted in less fuel costs and therefore reduced carbon emissions. When an operative arrives on-site, they take a photograph and again on leaving site, along with capturing the reinstatement survey information including GPS longitude and latitude coordinates. With the use of the handheld solution and web portals, Skanska have:

- Reduced fuel costs by the use of navigation and thus reduced the damage to the environment.
- Reduced the length that street works are in place and the requirement to re-visit sites.
- Significantly reduced the number and value of street works fines by using the real-time data / regulation GPS coordinates and pictures to monitor the progress of the works to ensure completion on time.
- Ensured a reliable and photographic audit history of past jobs.
- Been able to undertake additional desk-top assessments of Health, Safety and Quality aspects of works.
- Significantly increased the overall quality of works as each operative is now conscious that the pictures are being viewed by their managers / supervisors.

