

## Automation driving safety and efficiency in essential streetworks for Northern Gas Networks



Case Study: Northern Gas Networks

*“The ability for our own designers, planners and engineers to generate traffic management plans, at the click of a button, is a potential game-changer for the industry. Working together, Northern Gas Networks combined their technical expertise with 1Spatial’s automation technology to produce this award-winning and innovative system.”*

Richard Hynes-Cooper, Head of Innovation, Northern Gas Networks

**Industry:** Utilities

**Customer:** Northern Gas Networks (NGN)

**Challenge:** Making the planning of streetworks safer, more consistent and more cost effective

**Solution:** An automated system to create compliant traffic management plans at the click of a button

**Key Benefits:**

- ▶ Time taken to create traffic management plans reduced from days to minutes
- ▶ Automated and consistent compliance with industry regulations ensures safety and reduces delays and fines
- ▶ Improved customer satisfaction thanks to targeted communications to impacted addresses
- ▶ Quickly identify if any vulnerable customers or key addresses will be impacted and plan accordingly
- ▶ Reduction in carbon emissions due to less site visits

## Northern Gas Networks (NGN)

Northern Gas Networks is the gas distributor for the North of England, supplying 2.7 million homes and businesses and managing a pipeline measuring 37,000km.

At the heart of NGN are three core values:

- ▶ To meet the needs of customers and network users
- ▶ To maintain a safe and resilient network
- ▶ To deliver an environmentally sustainable network

Ensuring the delivery of gas safely, whilst providing excellent customer service and minimising disruption on the network are therefore vital.

### Challenge

Whether responding to emergencies or maintaining underground pipes, excavating roads to access underground assets is often unavoidable, inconvenient and can lead to fines if work unexpectedly overruns.

In the UK, there are millions of these digs which take place every year. Each one must be meticulously planned and many require an approved, standards-compliant traffic management plan. These plans are currently guided by the Chapter 8 Health and Safety Regulation. Its interpretation however is subjective both in terms of design and construction and this can lead to delays in approval and heavy fines if constructed incorrectly. Typically, this is a manual process using CAD and is often outsourced to third party companies, adding an additional layer of cost.

In addition to this, whilst carrying out any streetworks, NGN has an important responsibility to not only inform customers of works in their area but also communicate as quickly as possible with any identified vulnerable customers or key addresses that will be affected and put in place plans to minimise impacts accordingly.

NGN wanted to make the current process for completing traffic management plans more efficient, consistent and cost effective. After releasing a Call for Innovation, 1Spatial came forward as specialists in automating data-driven business processes. The two organisations then designed a prototype for the innovative solution.

### The Solution

Northern Gas Networks worked with the Energy Innovation Centre (EIC) and 1Spatial to build a prototype system. The system combines OS data and 1Spatial's automation technology to create compliant traffic management plans, at the click of a button.

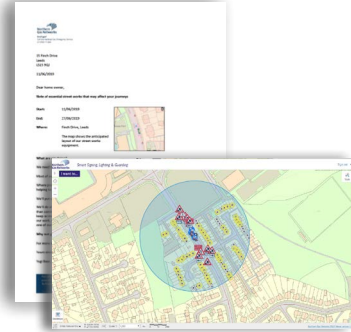
**Step 1:** Select your dig area on the map and let the solution create a compliant plan within seconds. By encoding industry regulations, 1Spatial's automation technology ensures that all plans produced consistently meet current legislation.

Equipment Type	Quantity	Unit	Notes
1.5m Traffic Sign	1	EA	
3m Traffic Sign	1	EA	
5m Traffic Sign	1	EA	
7.5m Traffic Sign	1	EA	
10m Traffic Sign	1	EA	
12.5m Traffic Sign	1	EA	
15m Traffic Sign	1	EA	
17.5m Traffic Sign	1	EA	
20m Traffic Sign	1	EA	
22.5m Traffic Sign	1	EA	
25m Traffic Sign	1	EA	
27.5m Traffic Sign	1	EA	
30m Traffic Sign	1	EA	
32.5m Traffic Sign	1	EA	
35m Traffic Sign	1	EA	
37.5m Traffic Sign	1	EA	
40m Traffic Sign	1	EA	
42.5m Traffic Sign	1	EA	
45m Traffic Sign	1	EA	
47.5m Traffic Sign	1	EA	
50m Traffic Sign	1	EA	
52.5m Traffic Sign	1	EA	
55m Traffic Sign	1	EA	
57.5m Traffic Sign	1	EA	
60m Traffic Sign	1	EA	
62.5m Traffic Sign	1	EA	
65m Traffic Sign	1	EA	
67.5m Traffic Sign	1	EA	
70m Traffic Sign	1	EA	
72.5m Traffic Sign	1	EA	
75m Traffic Sign	1	EA	
77.5m Traffic Sign	1	EA	
80m Traffic Sign	1	EA	
82.5m Traffic Sign	1	EA	
85m Traffic Sign	1	EA	
87.5m Traffic Sign	1	EA	
90m Traffic Sign	1	EA	
92.5m Traffic Sign	1	EA	
95m Traffic Sign	1	EA	
97.5m Traffic Sign	1	EA	
100m Traffic Sign	1	EA	

**Step 2:** Based on the compliant layout, calculate an inventory list of the equipment needed and its associated cost. This is important in both the planning stages and to reduce fines for equipment left on site.



**Step 3:** Automatically identify customers who may be impacted and therefore need informing of the streetworks. Then produce a correspondence.



### Benefits

- ▶ Ensures safety by fully automating end-to-end production of traffic management plans that meet Health and Safety legislation and industry regulations
- ▶ Saves time and costs as multiple on-site discussions, visits with third parties and additional back-office activities are no longer required. Importantly this also means a significant reduction in carbon emission
- ▶ Reduces production time and costs of traffic management plans as automated system does not require multiple amendments
- ▶ Enables rapid, accurate and efficient decision-making using one clear, unambiguous format accessible to all stakeholders
- ▶ Allows utilities to work with local authorities to plan works in a way which minimises disruption to the public whilst controlling the cost of the job
- ▶ Rapidly reduces time taken to identify vulnerable customers and priority addresses such as schools, so that plans can be created and quickly actioned to minimise impact
- ▶ Reduces complaints and improves customer satisfaction scores with targeted, up-to-date communications, as well as fewer delays and disruptions

The innovative prototype system was nominated for multiple awards and won **'Best Digital Application'** at the **UK Society of Trench-less Technology Awards 2019** and was a finalist for **'Social Impact'** at the **UK Energy Innovation Awards 2019**.

### Moving Forward

- ▶ 1Spatial is refining the prototype system so that it can be adopted by other utilities, local authorities or any company engaged in streetwork excavation
- ▶ Northern Gas Networks is implementing this solution across operational activities

