



## NJUG CASE STUDY

### CASE STUDY 66: Scottish Community Apparatus Data Vault (VAULT)

#### *Winner of the NJUG 2012 Avoiding Damage Award*

The National Joint Utilities Group (NJUG) is the UK industry association representing utilities on street works issues. The 38 utility companies and 17 contractors<sup>1</sup> 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. Utilities deliver consistent high quality
3. Utilities work together and in partnership with local authorities and contractors to minimise disruption
4. Utilities keep the public informed on all aspects of works
5. Utilities maximise the use of sustainable methods and materials
6. Damage to the underground assets is avoided

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

#### Overview

Vault is a system which stores both road authority and utility electronic underground apparatus on the Scottish Road Works Register (SRWR) and makes it available to those organisations which require access to this information, thus increasing safety when digging in the road.

#### Case Study

#### **PROJECT VAULT - Instant access to maps of underground cables and pipes**

Scotland is leading the world with a new way to share and access information on the location of underground pipes and cables. This major new development known as the Scottish Community Apparatus Data Vault (or VAULT), will make underground pipe and cable information accessible via the Scottish Road Works Register (SRWR)- Scotland's existing national database for the electronic transfer, retention and management of road works data. The aim of the service is to allow access to information about all underground pipes and cables from one centralised location.

#### **The importance of utility records**

The pipes and cables in roads are necessary to supply the services we take for granted in a modern society – electricity, water, gas, sewers, and telecommunications. In Scotland, there are 33 roads authorities and 34 utility companies, who own such pipes and cables. Within the 55,500 km of roads in Scotland there are over 120,000 km of gas, water and drainage pipes and over 200,000 km of electricity and telecommunication cables.

Before any excavation takes place, it is essential the workers on site have accurate and up to date information about what lies beneath a road. This is a requirement under Health and Safety regulations and helps prevent injury to operatives carrying out work. Sadly, there are a significant number of incidents every year where workers are injured or even killed as a result of damage to underground pipes and cables. Even in instances where no one is hurt a strike to a pipe or cable can often lead to costly damage with lengthy disruption to services vital to the community.



Emergencies can occur at any time of the day or night, so fast access to underground information can be crucial. At the planning stage of works this information is vital, allowing utility companies to select routes for new cables and pipes in the full knowledge of where existing cables and pipes are located.

<sup>1</sup>NJUG's current members are Energy Networks Association (representing electricity and gas), Water UK (representing all water and wastewater companies), National Grid, BT Openreach, and Virgin Media. Our associate members are Clancy Docwra, Skanska, Balfour Beatty, Carillion, First Intervention, Laing O'Rourke, Compass, AMEC, Enterprise, Morrison Utility Services, Fastflow Pipeline Services, May Gurney, CLC Ltd, PJ Keary and Murphy Ltd. Including members through trade associations, NJUG represents thirty-eight utility companies, seventeen utility contractors.

## The Challenge

Currently underground apparatus information is provided in a variety of formats including:

- Maps provided via e-mail
- CDs containing Geographic Information System (GIS) data
- Separate web sites showing the location of apparatus
- Traditional paper copies of plans

Until recently Scottish roads authorities and utility companies have never had a common approach to the recording and storage of this information. GIS are now commonplace for the storage of underground pipe and cable information, however

- what is stored;
- how it is stored; and
- how it is represented

can vary considerably from one organisation to the next. For example, although Ordnance Survey (OS) maps are commonly used as the standard background layer for these plans, different types of OS maps to different standards of accuracy are used by different organisations.

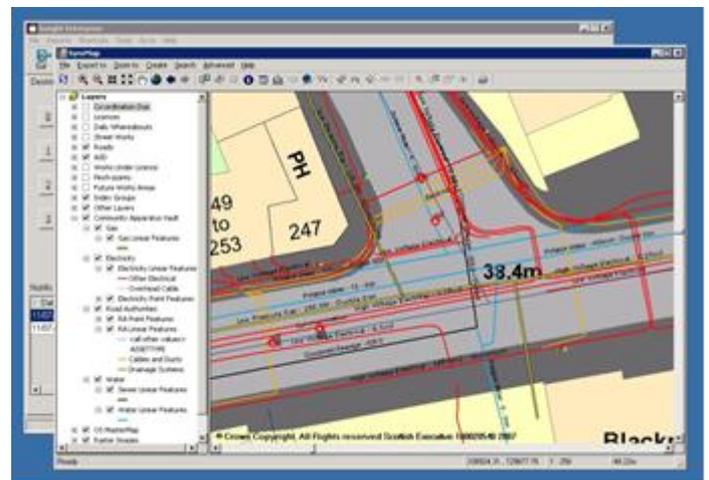
## WHAT DOES VAULT DO?

VAULT takes the information from each individual GIS and transforms it into a common GIS format as shown on the following diagram. The information is then available to users via the SRWR internet interface.

This development will provide significant administrative benefits to those who currently produce such records and those who use them. It also means that with the aid of a handheld device or laptop, anyone needing to dig in a road will be able to access the records on site and instantly see what pipes and cables are likely to be encountered, providing significant safety benefits when excavating.

The picture shows how the underground pipe and cable information on the SRWR is displayed. Each type of apparatus is held as a separate layer within the system and users can view all plant or a specific type of plant as required. On the map, layers of other information, such as works proposed in the future or the details of the locations of bus stops, can also be accessed as individual or overlying layers.

All information can be interrogated on-line or can be printed as A3 or A4 maps.



## Implementation

Following the success of two trials, RAUC(S) and the Scottish Road Works Commissioner gave approval in the spring of 2011 for VAULT functionality to be included in the SRWR permanently.

Access to VAULT will be limited to roads authorities and utility companies and will be securely controlled using existing SRWR security systems. A full audit trail of what information was accessed, when and by whom is also available. A demonstration of VAULT can be seen here: [http://www.youtube.com/watch?v=nck0nsDo\\_gQ](http://www.youtube.com/watch?v=nck0nsDo_gQ)

## Avoiding Damage

The definition of "VAULT" is an underground storage place for valuables. In this case the valuables are the pipes and cables in roads which provide us with our gas, water, electricity, telecoms and drainage. To date, VAULT now holds the details of 7.89 Million individual assets and 281,000 km of pipes and cables.

The fact that up to date underground apparatus information is now immediately available in the office and on site to everyone who requires it, means this revolutionary system will certainly reduce the damage caused by road works to underground apparatus.

VAULT was only launched in March 2012 but we already have very positive feedback from the Scottish Road Works Community. As of March 2013 there were 29 out of 32 roads authorities on board and the majority of major utilities apart from the telecoms organisations. There has been a significant increase in the number of "read only" users of the system who are accessing purely to be able to access the VAULT records.

