



SPATIAL INFORMATION DAY 2010

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Spatial Information Day 2010 Abstract

Title: Adelaide Central Reinforcement (ACR) Program
Session: 1 – Emergency Information Management & Infrastructure
Presenter: David Floreani and Rachael Potts – Parsons Brinckerhoff
Abstract:

Introduction

Adelaide Central Reinforcement (ACR) program is one of South Australia's largest and most significant infrastructure projects at a total estimated cost of \$250m. The program is a response to the Electricity Transmission Code's requirement for a back-up power supply to the Adelaide CBD. As the owner and manager of SA's electrical transmission systems, ElectraNet engaged professional services company Parsons Brinckerhoff (PB) to assist in the site selection of a new substation on the CBD's fringe and route selection of a high voltage cable from the new substation to one of four major existing substations across metropolitan Adelaide. Throughout the process of high level route selection, detailed route design, planning and environmental approvals, community consultation, procurement and construction management, GIS has been used by the project team as an integral decision support, data management and data visualisation tool.

Methodology

Initially spatial analysis methods were applied to assess and determine the most feasible route corridor from the CBD to one of four major substations across metropolitan Adelaide. This involved performing proximity analysis to "sensitive receptors" such as schools, health centres, heritage sites, reserves etc. Once the preferred corridor was selected, GIS assisted in the detailed route design by locating and displaying under and above ground services, such as electrical and data cables, gas pipelines, water pipes and telecommunications infrastructure. To aid collaboration and assist in the procurement process for the subsequent construction phase, an innovative GIS mapping product was developed for supply to prospective tenderers containing the project's spatial and non-spatial data. This allowed tenderers to make more informed costing decisions, which ultimately will assist the project budget. The use of this product is ongoing and is being further developed to aid the construction management phase.

Results

The delivery of the project not only achieved the objectives set by ElectraNet but also emphasised the value and importance of GIS in a project of this nature. Using GIS helped identify a new substation at Keswick Terminal as well as the design of a route alignment for a high voltage underground cable from the new substation to the Torrens Island Power Station.

Conclusion

The ACR program is an excellent example of how GIS can be used from inception to delivery on a large infrastructure project. It has also shown how Geospatial tools can be used to contribute to a collaborative data sharing environment between client, consultant and contractor. Ultimately and most importantly, GIS helped ElectraNet achieve their outcome more efficiently and accurately than would have otherwise been possible using traditional methods.

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