Hawkes, M.¹ and Marr, W. Allen²

Data Acquisition and Management for Geotechnical Instrumentation on the Central Artery/Tunnel Project


Abstract: Boston’s Central Artery/Tunnel Project has implemented a unique method of subcontracting for monitoring geotechnical instrumentation. The M026J contract includes a provision for the collection of 1.3 million readings over a six-year period. The contract uses a fixed unit cost per reading. This paper describes some aspects of the data acquisition and management processes that handle the flow of data for the project.

Keywords: instrumentation, data management, databases

Introduction

The Central Artery/Tunnel Project in Boston is one of the largest, most complex and technologically challenging highway projects in American history. The project design reduces traffic congestion and improves mobility in one of America’s oldest and most congested major cities, improve the environment and support economic growth for New Englanders. The project has two major components:

An eight-to-ten-lane underground expressway replaces an existing six-lane elevated highway. The new expressway is directly beneath the existing road, culminating at its northern limit in a 14-lane, two-bridge crossing of the Charles River. When the underground highway is finished, the crumbling elevated road will be demolished.

I-90 (the Massachusetts Turnpike) will be extended from its current terminus south of downtown Boston through a tunnel beneath South Boston and Boston Harbor to Logan Airport. The first link in this new connection – the four-lane Ted Williams Tunnel under the harbor – was finished in December 1995.

¹ Manager and Geotechnical Instrumentation Engineer, GEOCOMP-Brown, JV – CA/T Instrumentation Monitoring Contract M026J – 421 Dorchester Ave., South Boston, MA 02127

² Chief Engineer, GEOCOMP Corporation, 1145 Massachusetts Ave., Boxborough, MA 01719