

Introduction

CAiCE (Computer Aided Civil Engineering) was selected by the Ministry in December of 1997.

The Ministry currently uses CAiCE Visual Transportation in four integrated engineering disciplines: Survey, Design and Construction. Approximately 90 copies of Visual Transportation are installed throughout the province.

Custom VBA (Visual Basic for Applications) macros and fragments have been developed by the Ministry to customize and automate various functions. These VBA libraries, combined with Ministry standard CAiCE files (feature tables, cell libraries, etc...), make Visual Transportation a powerful tool for Highway Engineering that meets the requirements of the Ministry's Highway Design Standards.

Current CAiCE Status

The Ministry is continuing to maintain and enhance its library of CAiCE macros and fragments and provide technical support to Ministry and Consultant CAiCE users.

Autodesk is maintaining CAiCE with one or two service packs per year. The Ministry has been actively involved in each service pack to ensure that CAiCE bugs are fixed. Another priority has been to verify that CAiCE functions properly under Windows Vista.

CAiCE Replacement Project

Since CAiCE Software Corporation was acquired in 2002, the Ministry has been closely monitoring the development direction of Autodesk's engineering software.

We are currently investigating newer engineering software technologies. CAiCE is still supported by Autodesk, but it is a mature product. It is not being developed, only maintained with regular service packs. Therefore, we are not able to take advantage of newer software technologies. There is also increasing uncertainty and risk associated with CAiCE running with newer computer hardware and operating systems

Future Engineering Software

Next-generation engineering software has many features that are not available in CAiCE Visual Transportation. Some of these features include:

- 3D Dynamic Engineering model
- Intelligent and enhanced flow of data
- Advanced visualization
- GIS integration
- Automated production drafting
- Support for large data sets
- Green Design capability

AutoCAD Civil 3D

AutoCAD Civil 3D is Autodesk's flagship model-based product that will eventually replace Land Desktop and CAiCE. Autodesk started development of Civil 3D 5 years ago, and since then, significant functionality has been added each year. The Ministry completed a high-level evaluation of Civil 3D two years ago, and since then, Autodesk has been making good progress to resolve deficiencies identified by the Ministry.

Much of the CAiCE core technology has been integrated into Civil 3D. It is also based on AutoCAD, which is a familiar engineering platform for the Ministry and its consultants.

Current BCMoT Civil 3D Initiatives

In an effort to maintain close contact with Autodesk, the Ministry has monthly meetings with Autodesk management. We are currently investigating translating our CAiCE feature table into Civil 3D styles, and we will be translating a small set of roadway fragments into Civil 3D subassemblies. Autodesk is also developing a CAiCE to Civil 3D translator that will directly convert a CAiCE project into a LandXML format for import into Civil 3D.

Civil 3D Pilot Project

Depending on Autodesk development progress, the Ministry could initiate a joint Ministry/Consultant Pilot in Fall of 2009. This would coincide with the release of Civil 3D 2010 Service Pack 1. The pilot project would span one year and would be used to identify any further functional deficiencies not discovered during our high-level evaluation. Autodesk would be required to address these functional deficiencies.

Civil 3D customization will be required to satisfy Ministry Highway Survey, Design and Construction Supervision standards. A Civil 3D Survey and Design Format Terms of Reference will also be required to replace CAiCE TOR documents

Future of CAiCE

The Ministry is well-positioned to support the use of CAiCE for foreseeable future. We also have the internal resources required to maintain technical and customized programming support for CAiCE. We have well-developed CAiCE policy documents including the General Survey Guide, CAiCE Design Project Data Format TOR and Construction Supervision Survey Guide.

Autodesk has stated that CAiCE will be maintained and supported until Civil 3D has functional parity with CAiCE. This has not yet been fully achieved. The Ministry will continue to use CAiCE, and will be pursuing a further 5-year renewal of our CAiCE Master Agreement which expires on March 31, 2009. This should allow ample time for a full implementation of Civil 3D if the Ministry chooses to take this path.