CAiCE to InRoads Project Archive & Checklist

Archiving CAiCE Projects

Overview

This documentation and checklist provides guidance for archiving CAiCE projects. The process should be applied to all CAiCE projects prior to archiving the design and survey data. Project cleanup and archiving is necessary because your CAiCE project will be ready to import directly into InRoads for the construction phase.

These CAiCE project archiving steps should also be performed retroactively on currently shelved and archived CAiCE projects.

For specific details about some of these conversion work flows, refer to the **Converting CAiCE Data to InRoads** Tech Note on the WSDOT CAE website:

http://www.wsdot.wa.gov/publications/fulltext/design/cae/TechNotes/IR_CAiCEData2InRoads.pdf

Workflow

In CAiCE:

1. Run the **Project Cleanup** macro

   The **Project Cleanup** macro is located in the *Utilities* > *Project Tools* category of the **WSDOT Macro Toolbox**. If the toolbox is not visible, toggle on the **Window > Explorer Center/Snap Bar** and click on the **Toolbox Explorer** tab.

   The **Project Cleanup** macro is a ten-step wizard that guides you through the process of backing up project data and saving only the necessary design elements and files into a new, clean project.

2. Run the **Project Documentation** macro

   The **Project Documentatio**n macro is located in the *Project Tools* location of the **WSDOT Macro Toolbox**. This macro is a multi-step process for identifying and documenting project information, alignments, drainage, structures, survey segments, monuments and surfaces. This documentation is written to a CAiCE Project Spreadsheet and is crucial to downstream uses of the CAiCE project.

3. Archive the superelevation and profile information

   Use the *Geometry* > *Profile* >*Store/Edit* tool to load each vertical alignment one at a time. In the table grid portion of the dialog box, select the **Table > Export to CSV** option.

   This text file provides information about the CAiCE vertical alignment.

   Use the *Geometry* > *Geometry Chains* > *Edit Superelevation for Alignment* command to store superelevation information. Load the alignment, CAiCE superelevation and runoff tables in the Store/Edit Alignment Superelevation dialog. Right-click in the table grid portion of the dialog box and select the **Table > Export to CSV** option. This text file does not load directly into

InRoads, but it can be hand-entered into the **WSDOT Superelevation Calculator**, which can then be directly imported into InRoads.

4. Update non-standard codes

   With the **WSDOT WA_0003.ftb** feature table attached, set the default color to number **8** (pink). View all of the points and survey chains, and note the pink non-standard elements. Review the point features and update accordingly. It is important that all necessary project data has a valid feature code assigned so that the data can be imported properly into InRoads. At the completion of this step there should be no pink data (data with no features assigned) left in the project.

5. Create LandXML files

   Use the Visual LandXML Writer in the **LandXML Toolbox** to export points, survey chains, DTM's, parcels and alignments. This tool creates a LandXML schema version 1.0 file which can be read into InRoads.

   The XML Export tool in the **WSDOT Macro Toolbox** provides a higher degree of functionality for exporting geometry chains and points. Specifically, this macro converts all of the geometry chains to alignment chains before the conversion, and then restores them to their original state. This is useful for geometry chains that contain spiral curves.

6. Create an SRV file for the topographic data

   Use the *File > Save > Survey Points/Chains* command to write the data to an SRV ASCII file. This file will be useful for importing the topographic data into InRoads using the WSDOT **SRVtoWAS.exe** utility.

7. Create an Endarea Documentation report

   CAiCE endarea templates will not translate directly into InRoads. This roadway design must be recreated in InRoads. In order to facilitate this process, a documentation tool is available in CAiCE that will identify the fragments used in the design and capture the widths, slopes, layers and point configurations from the fragments. There are no corresponding InRoads components or templates, but the source fragment parameters and information can be used to develop comparable InRoads components.

   Use the **End Area Documentation** macro that is located in the *Reports > Endarea Documentation* folder of the WSDOT Macro Toolbox.

8. Create a MicroStation DGN file

   A DGN file containing CAiCE screen graphics is useful as a reference file. Note that while CAiCE has an export process for available for MicroStation version 2004, WSDOT does not have the resources required for this translation. CAiCE is only compatible with MicroStation version 7 in the 63-level CAD environment.

   View the relevant CAiCE elements. You can create multiple DGN files that contain specific CAiCE data, including geometry, topographic points and chains and DTM contours.

   Use the *File > Export Translators > to Intergraph/MicroStation > Screen Graphics to V7 DGN File* command to create the DGN files. The WSDOT CAiCE resources are no longer automatically downloaded with user CAE resource files. They are located on the WSDOT corporate drive in

the *W:\DOTApps\CAE\CAiCE_V10\Resource\CAE_RSC\CAiCE_V10* folder structure. If you cannot find the applicable files, contact the WSDOT CAE Help Desk at (360) 709-**8013**.

Use the appropriate seed file that is located in the *W:\DOTApps\CAE\CAiCE_V10\Resource\CAE_RSC\CAiCE_V10\Seed* folder, and use the appropriate cell library that is located in the *W:\DOTApps\CAE\CAiCE_V10\Resource\CAE_RSC\CAiCE_V10\CELL\To CADD Cell Libraries* folder. Save the DGN in the V7 format.

The CAiCE DGN files can be opened with MicroStation V8 in the 63 level environment. The file can also be opened directly in MicroStation in the Expanded Levels environment, and translated to the latest CAD environment using the **WSDOT Convert 63 to Expanded** macro. This tool is in the *File Utilities* category of the MicroStation **WSDOT Toolbox**.

9. Create a project archive zip file

   This zip file should only contain the clean, condensed version of the project. This data should be the result of the processes described above. Include the feature table, cell library and command table (if used). Archive the project to a location outside of the project folder.

10. Create a backup zipped file for the relevant resources

    To prepare for the possibility that CAiCE will be used when the project is reopened, capture the latest version of the fragments and other resources that were used to develop the CAiCE design. In Windows Explorer, add the relevant resources from the *W:\DOTApps\CAE\CAiCE_V10\Resource\CAE_RSC\CAiCE_V10* folders.

Checklist

Place the CAiCE documentation that was created in the work flow above into your project's Project_Documentation folder. Create a dedicated archive folder for the CAiCE data files, including the DGNs, zip, SRV, PT4, KCMs, XML and CSV files in the EngDataDesign location.

File Type	Format	Archive Location	Included?
<*ProjName*>CAiCE report	Excel *.xlsx	\EngDataDesign\ _DesignEngDoc	
Profile data	Text *.csv	\EngDataDesign\ _DesignEngDoc	
Superelevation data	Text *.csv	\EngDataDesign\ _DesignEngDoc	
LandXML	XML	\EngDataDesign\ _Deliverables	
Topographic data	SRV	\EngDataDesign\ _Deliverables	
Topographic points	PT4	\EngDataDesign\ _Deliverables	
Geometry	KCM	\EngDataDesign\ _Deliverables	
End Area Documentation report	HTML, XML	\EngDataDesign\ _DesignEngDoc	
MicroStation Design File	DGN	\EngDataDesign\ _Deliverables	
Project archive	ZIP	\EngDataDesign\ _Deliverables	
Resource archive	ZIP	\EngDataDesign\ _Deliverables	

InRoads Import Options for CAiCE Data

Translators

File > Translators > LandXML Translators - import LandXML schema 1.0 surfaces and geometry.

File > Translators > Import SRV – this native InRoads utility imports CAiCE SRV data into breakline and random points. After you import the data, change the feature styles to the InRoads standard styles.

Bentley Civil Tools

Data Acquisition – create a field book and load the field book from a CAiCE SRV, a PT4 or KCM file.

Import Survey Data

WAS – file format generated from the WSDOT **SRVtoWAS.exe** utility.

For questions or comments on this tech note, contact your regional CAE Support Coordinator or the WSDOT CAE Help Desk at (360) 709-**8013**.