



## Questions and Answers

### 1. General Product Information

#### 1.1 What is CAiCE Visual Roads?

CAiCE™ Visual Roads® software is a comprehensive design tool that enables you to interactively create design models for transportation projects of all types. You can use it for projects ranging from simple roads to complex highways and interchanges, as well as railroads, airport runways, canals, and dikes. The software's powerful capabilities are well suited for complex jobs with intricate details and large data sets, and its unique fragment technology makes it completely customizable to any level of detail. CAiCE Visual Roads is easy to use and provides robust engineering and modeling capabilities for every phase of the design process.

#### 1.2 Who uses CAiCE Visual Roads?

Civil engineers with consulting firms, county and municipal agencies, and departments of transportation use CAiCE Visual Roads for transportation projects of every type, including simple roads, complex highways and interchanges, rehabilitation and widening, and subdivision and site development.

Many state departments of transportation (DOT) currently use CAiCE Visual Roads software, including Caltrans, Wisconsin DOT, Georgia DOT, and Washington DOT.

#### 1.3 Why should I buy CAiCE Visual Roads?

CAiCE Visual Roads eliminates the need to use templates or criteria files for creating typical sections. CAiCE Visual Roads unique fragments technology provides an easy way to design a roadway by plugging in ready-made components such as raised or depressed medians, travel lanes, shoulders, ditches, catch slopes, berms, and benches. This design modeling approach saves time and simplifies roadway design. It also provides interactive, component-based modeling for easy adaptation to changes in conditions.

Using CAiCE Visual Roads software's customization tools, you can adjust the software to fit your workflow requirements and ensure that field standards are being met. CAiCE Visual Roads helps your engineers work faster and smarter.

#### 1.4 Is CAiCE Visual Roads a stand-alone product?

Yes, CAiCE Visual Roads is a stand-alone system and does not require any other application to operate. It provides general-purpose automation tools that you can use for all transportation design projects.

CAiCE Visual Roads can also run with the Visual CADLinks application, which eliminates the need for import/export translators. Visual CADLinks runs CAiCE Visual Roads and your CAD system simultaneously, linking the systems together. While you have a DWG or DGN file open in your CAD program, CAiCE also has access to its own project database. You can use simple toolbar functions to control whether to produce CAiCE graphics in the CAD window, the CAiCE window, or both simultaneously. You can collapse the CAiCE application window to show only menus and toolbars, leaving all the graphics to the CAD system, or you can

take advantage of the software's graphics speed and rendering capabilities for visualization and drive-through functionality. This combination offers the best of both worlds; the design modeling capabilities of CAiCE Visual Roads and the drafting capabilities of a CAD system.

### **1.5 What are fragments?**

A fragment is a user-definable macro that either inserts surfaces into the cross-section file at a station or performs an intermediate part of the process of inserting surfaces. You can use fragments to analyze the surfaces in a cross-section file to produce reports, such as a milling and pavement overlay report for a contractor. Each fragment can have user-defined input parameters that determine their dimensions and behavior in particular situations.

Fragments respond flexibly, based on existing conditions and design parameters. They can be customized to match your organization's specific components. Setting the slope criteria enables fragments to respond to specific conditions and automatically blend into your design.

### **1.6 What is the IHSDM ToolBox**

CAiCE Visual Roads includes the IHSDM ToolBox, which gives you the ability to analyze horizontal and vertical alignment data against various safety models defined by the Federal Highway Administration's (FHWA) Interactive Highway Safety Design Model (IHSDM).

### **1.7 How does CAiCE Visual Roads manage and maintain project files?**

The CAiCE Visual Roads project management system enables project creation and archiving capabilities as well as many other project-level items, including project unit conversions on the fly. In addition, you can use CAiCE Visual Roads to create and archive project segments.

CAiCE Visual Roads software can create several types of compression files. The default format is ZIP using WinZip® software. Two other commonly used formats are ARC and DSN, where ARC is the complete database, and DSN is the complete database without the segment file and folders within the project folder.

### **1.8 What are feature codes?**

CAiCE Visual Roads uses feature codes to control elements such as color, symbology, line style, line weight, or level/layer for all elements in the database.

A *feature code* is a user-defined classification of an object. It can consist of up to eight alphanumeric characters. The feature code plays an important role in automatically assigning graphical attributes to a geometry object. You can also use it to group objects for operations such as drawing, describing, and plotting.

### **1.9 Do the DTMs handle curved breaklines?**

Digital terrain model (DTM) technology was developed by CAiCE and restructured over many years based on real-world experience with large transportation design projects. CAiCE has excellent routines for generating breaklines and was the first to introduce curved breaklines, providing the ability to model real-world curved features such as curbs, edges of pavements, and so forth. CAiCE's DTMs can handle an extremely large number of points.

### **1.10 What type of visualization tools does CAiCE Visual Roads have?**

The high-speed graphics and rendering capabilities in CAiCE Visual Roads software offer 2D and 3D visualization with realistic renderings of existing terrain and help you quickly identify potential design problems. CAiCE's powerful and easy-to-use visualization tools map images to real-world coordinates for real-time visualization of proposed designs. You can drape images onto surfaces and view background files for a realistic touch to flybys and drive-throughs for presentations.

**1.11 How does CAiCE Visual Roads handle cross sections?**

CAiCE Visual Roads software uses fragments for roadway design modeling. Based on user-defined macros, each fragment can model a particular type of roadway component and is adaptable to diverse design conditions. Each fragment also has its own list of input parameter values, which enable you to modify the design and functionality of the fragment.

Many organizations build a library of fragments that match their design standards for typical sections. Different fragments are provided for different types of medians, travel lanes, shoulders, catch slopes, and so forth.

**1.12 Can CAiCE Visual Roads be customized to fit my organization's standards and processes?**

Yes. A major advantage of CAiCE Visual Roads software is its Microsoft® Visual Basic® for Applications (VBA) integration. VBA macros can quickly and easily be developed to customize the system to meet your organization's unique standards and practices through various types of settings, tables, libraries, and macros.

**1.13 How do I quickly make the transition from my existing software?**

CAiCE Visual Roads provides many translators that make it easy to bring your existing data into CAiCE Visual Roads. CAiCE Visual Roads software's flexible file format utility is a convenient tool for easily importing various kinds of data into CAiCE. Users can also use the CAiCE LandXML interface to easily transfer CAiCE survey, design, and DTM information to other LandXML-compatible design systems.

Autodesk recognizes the unique problems that organizations face when acquiring new technology. Autodesk has the knowledge and experience to work closely with you to help ensure a smooth transition.

**1.14 What type of plans production capabilities does CAiCE Visual Roads provide?**

CAiCE Visual Roads software's plans production utilities enable you to produce hard copies of drawings. CAiCE Visual Roads provides complete flexibility in creating customized sheets for plotting plans, profiles, and cross sections. You can save the settings for the various types of plots to an *.ini* file and customize them to suit your organizational standards.

**1.15 Does CAiCE Visual Roads offer COGO functionality?**

CAiCE Visual Roads includes a full suite of coordinate geometry (COGO) commands and capabilities for design engineers. Its coordinate geometry tools for defining points, lines, curves, spirals, and chains are simple, powerful, and completely interactive. You can define points by known coordinates, latitude and longitude, locating by direction and distance, angle and distance, alignment stations and offsets, intersections, projections onto other objects, and tangencies on curves. CAiCE Visual Roads also provides many ways of storing circular curves and has numerous utilities for defining and editing chains.

**1.16 How can CAiCE Visual Roads be adapted to individual client standards?**

Since many organizations work with multiple public and private clients, customization capabilities are important. CAiCE Visual Roads uses feature codes, feature tables, cell libraries, system settings, toolbars, color tables, text libraries, sheet format, and plans production settings to make it easy for users to comply with standards that are designed, developed, and supported by a client organization.

### **1.17 Does CAiCE Visual Roads offer DTM functionality?**

CAiCE Visual Roads functionality provides advanced terrain modeling capabilities. Its unique methodologies used for triangulation and breakline processing produce accurate terrain models with a high degree of flexibility. The points and triangles created are shared as a network in a database for quick access to information about the surface cross sections, freehand cross sections, profiles, elevations, and feature codes.

### **1.18 What types of reports does CAiCE Visual Roads generate?**

CAiCE Visual Roads technology provides several built-in report formats but also enables you to customize reports based on your organization's requirements and specifications. Any specific report format not already supported can be handled easily through a customized VBA macro. CAiCE Visual Roads generates a complete set of stakeout reports for construction layout. These include radial stakeout of points, curves, and spirals, stakeout of curves and spirals by tangent offsets, radial stakeout of chains, stakeout of chains by even stations, stakeout from one chain to another, and slope stake reports for design sections.

## **2. Purchase Information**

### **2.1 How do I purchase CAiCE Visual Roads software?**

You can purchase CAiCE Visual Roads through your local Autodesk CAiCE Authorized Reseller. To locate the reseller nearest you, visit [www.autodesk.com/reseller](http://www.autodesk.com/reseller).

### **2.2 What is the value of purchasing a maintenance contract with CAiCE Visual Roads product?**

A maintenance contract includes all software releases and interim updates that become available during the contract period; complete technical support by telephone, email, or fax (from 8 a.m. to 8 p.m. EST, Monday through Friday, excluding holidays); and access to the customer-only website, which provides an extensive knowledgebase, downloads, and a user discussion forum.

### **2.3 Where is CAiCE Visual Roads sold?**

CAiCE Visual Roads software product is currently sold in the United States and Canada.

## **3. Compatibility and System Requirements**

### **3.1 What are the minimum system requirements for CAiCE Visual Roads?**

- Intel® Pentium® II processor or better
- Microsoft® Windows® XP, Windows 2000, Windows 98, or Windows NT® 4.0
- 128 MB RAM
- 700 MB free disk space for complete installation
- SVGA display, 256 colors

### **3.2 What other products and formats is CAiCE Visual Roads compatible with?**

- AutoCAD® DWG (including 2004)
- DGN (including V8)
- DXF™
- LandXML

## 4. Customization, Consulting, Training, and Support

### 4.1 How do I get customized development done for CAiCE Visual Roads?

A major advantage of CAiCE Visual Roads is the ability to customize the software to meet unique standards and practices through various settings, tables, libraries, and macros.

CAiCE Visual Roads includes Microsoft's VBA as its macro development language. Because the software combines VBA and user-accessible functions for database access, graphical interaction, and geometric computations, you can develop macros that customize the CAiCE Visual Roads application to meet the needs of your organization.

CAiCE Visual Roads also uses VBA to open direct links between the software and other Windows applications such as Microsoft Excel, Word, Access, and ArcView™. Format translators, data import/export utilities, customized plans production tools, special geometric computation utilities, and many other applications can be written exactly to your organization's specifications. Furthermore, these applications are simply added to a macro library for immediate access.

#### Customization Examples

- Smart objects
- Feature tables and cell libraries
- VBA macros
- Fragments
- Visual WebBoats and Visual Tugboat® macros
- Format translators
- Plans production tools

### 4.2 Are professional consulting services available for CAiCE Visual Roads?

Yes. Experienced Autodesk/CAiCE consultants are available to work with your group at several different levels. Users with specific organizational needs can construct an on-site consulting program that fortifies available internal resources. The Autodesk/CAiCE consultants become an integral part of your team to help you become productive on the software as quickly and as cost effectively as possible.

Using experience from other implementation projects, consultants work with you to develop a comprehensive project plan tailored to your requirements. Autodesk's proven methodology helps you eliminate unnecessary documentation, paper-based design sessions, and inflexible project plans that result in higher costs.

#### Consulting Examples

- Workflow analysis
- Implementation strategy
- Installation support
- Transition planning
- Import/export translators

### 4.3 Does Autodesk offer training classes for CAiCE Visual Roads?

Autodesk offers both standard and customized training classes for CAiCE Visual Roads software. Training classes for new and advanced users consist of lectures, demonstrations, and hands-on tutorials and range from three to five days. The standard classes are typically offered at the Autodesk CAiCE office in Tampa, Florida, or at preselected venues throughout North America.

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