

IV. PROPOSED SYSTEM

A. *Functionality*

The proposed Roadway Design Software (RDS) is to replace the existing CAiCE software, and is expected to provide at least equivalent functionality. The new software will be used by roadway design engineers, bridge engineers and surveyors in Caltrans to produce timely and quality Plans, Specifications and Estimates (PS&E) for transportation improvement projects statewide. The new software, which will be a vital tool used extensively for project delivery, will allow the roadway design engineers and surveyors to do the following tasks:

- Project setup
- Photo/field data import and digital terrain modeling (DTM)
- Create digital design modeling (DDM)
- Coordinate geometry/horizontal alignment
- Original ground cross sections
- Vertical alignment
- Super elevation
- Design cross sections
- Contour Grading
- Earthwork quantities
- Drainage design
- Right of way engineering
- Slope stake notes
- Cross section plots
- Plans production
- Create survey engineer file

B. Workload Requirements and Growth Expectancies

The user base is about 4,000. Workload supported by the software is dependent on the number of projects being executed by Caltrans and is not expected to increase significantly in the foreseeable future.

Software performance is not expected to be affected by workload, as it is expected to reside on individual workstations with individual users manipulating individual files. The performance will be evaluated based on response times for activities performed in this manner.

C. Security and Privacy

The software solution will comply with the Caltrans Agency Information Management Strategy (AIMS) dated August 2007, which is located in the Bidder's Library. Security for the software will be provided by existing workstation and network access controls. Workstation access is controlled locally via Windows logon security. Network access is controlled by Novell and Windows Active Directory network security software. IT staff responsible for supporting the application will be granted the access to the software and hardware necessary to perform system administration activities. There is no confidential information stored in the RDS.

Key elements of RDS security will include:

- Physical security will be achieved by locating the hardware for the new system within controlled State facilities.
- Network access security will be maintained at various levels by using firewalls, a Virtual Private Network (VPN), and a network directory structure to facilitate a secure network environment.
- Application security will be achieved using workstation logon controls to prevent unauthorized access. Existing user logon security and password requirements will be used.
- Security of data will be maintained using established procedures for existing Caltrans systems including:
 - System will be housed in secure locations.
 - Backup tapes and other media will be protected.
 - Access to application software and data will be authorized by supervisors and system administrators.
 - Critical data will be encrypted as appropriate.
 - Data transmitted over the network will be encrypted as appropriate.

- Auditing and logging will be used to track and log access to the system and to any sensitive data.

D. Reliability and Backup

Caltrans' RDS software is mission critical. The application is assumed to be available at all times except during scheduled maintenance periods. Maintenance will be scheduled to minimize the impact on end users and business processes.

E. General Hardware/Software for Support of the Above Elements

The proposed software is expected to run as a desktop application on workstations deployed statewide. The ~~proposed software shall meet the~~ Caltrans configuration as listed below. ~~Although 80% of the workstations are still configured as shown in Section III.C, workstations are continually being upgraded. Due to budgetary constraints, Caltrans will upgrade hardware in phases. By the time the contract is awarded, it is anticipated that at least 50% of the workstations will meet the proposed configuration as listed below. Caltrans intends to upgrade all workstations to these specifications as funding becomes available.~~

- Deleted: bidder shall provide their version of software that
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1. Hardware:

- HP xw4600 or equivalent:
 - Intel Core 2 Duo E6550 (2.33 GHz) Dual-Core CPU
 - 4 GB RAM
 - 80 GB Hard Drive (Partitioned 40GB C: Drive, 40GB D: Drive)
 - Nvidia Quadro NVS290 256 MB Video Card
 - 10/100/1000 Broadcom NetXtreme Gigabit Network Interface
 - RealTek Sound Card

2. Operating System:

- Microsoft Windows XP Professional SP3 and Vista SP1 (32 bit versions)

3. Installed Software:

- Microsoft Office Professional 2003
- Bentley MicroStation V8i
- Autodesk CAiCE Visual Transportation 10 SP6
- Microsoft Internet Explorer 7
- Novell Client 4.91 SP4
- Novell ZenWorks Client 7.0.1.4
- McAfee Enterprise Viruscan 8.5.0.781
- Hummingbird NFS Maestro Ver. 10
- Bentley InterPlot Client 8i
- ESRI ArcGIS 9.3
- Transoft Solutions AutoTURN 6.0
- SignCAD 8.18
- Lotus Notes 6.5.4

4. Network:

- Novell Directory Services
- NFS by mapped drive.
- Windows Active Directory (CIFS/SMB)

Project files are expected to be stored by work locations on file servers located in the respective Districts and Headquarters (HQ). Access is through mapped network resources. Once projects have been constructed and accepted by Caltrans, files are archived for future reference. These same resources will be used for the new application.

F. Production Environment

The proposed solution will include installation and initial production deployment of the configured software in the existing hardware environment and development of a deployment strategy to implement the proposed software throughout the state. Following initial installation and training of Key Support Users, Caltrans staff will support continuing deployment to complete the statewide rollout.

G. Configuration and Testing Environments

As part of the solution, the Bidder will specify the proposed software configuration and testing environments. This will include all minimum hardware and software required for configuration and testing (including unit, integration, system, and performance testing).

Caltrans will provide the acceptance testing environment utilizing existing hardware onsite at the Headquarters office in Sacramento, CA.