



Engineering Business Requirements
For an
Engineering Content Management System (ECMS)
(Project 0093-0164)

6/20/08

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Executive Summary

The purpose of this document is to clearly describe the scope and needs of the engineering business related to the proposed Engineering Content Management System (ECMS) and Digital Design Environment Development in the scope of Federally Funded SPR Project 0093-0164. [Appendix A - Functional Specifications for an Engineering Content Management System \(ECMS\)](#), outlines the detailed system requirements that need to be met. Additionally, we hope that this document can further assist the Office of Information Systems (OIS) better develop OIS staffing roles and requirements. The intent of the document is not to serve as a formal DOIT System Development Methodology (SDM) material, but rather to supplement the development of those documents.

The goal of the project is to transform the Bureau of Engineering and Highway Operations, streamlining and organizing project development and delivery. It is understood, an ECMS (In full Production) can potentially enable numerous other enterprise wide data applications. At this time the focus is solely on engineering content as it pertains to the development and the delivery of capital improvement projects for the Bureau. These projects require Computer Aided Design applications, the development of high value data (3D CAD files, digital terrain models, drainage databases and quantity databases), special provisions (specifications) and legacy data. Expansion into other application uses should only be considered after a production system is in place, successfully piloted and adequately staffed.

For the proposed project and piloting, Engineering Applications (EA) is requesting OIS to assume technology partner responsibilities and be the lead with the following priorities:

1. Direct Cost Accounting System Technical Conversion and Transition to ProjectWise
2. Development of the existing and proposed technical IT infrastructure and architecture schematic for both the development and production system.
3. Gaining system architecture schematic, security, approval through DOIT.
 - a. Guidance in the development and submittal of required DOIT SDM documentation in consideration that this may be a federal sponsored research project.
4. System hardware cost estimate development
5. System hardware specification development
6. System hardware installation and maintenance
7. Oracle System Integration and Testing
8. Application deployment (including Oracle 10g or higher) and testing for both the development and production system
 - a. Automated Application Deployment (i.e. script logic)
9. Guidance and Technical Assistance with ProjectWise Security Model Development
10. ProjectWise Data Back-Up and Recovery

EA responsibilities, which have been documented in [Appendix B Engineering Applications Roles in Project 0093-0164/SPR 2253 – ProjectWise Phase 1 and 2 and the DDE Development](#), includes engineering end-user representation, system workflow documentation, testing, application usage support and training etc. Although further discussion is needed; EA's role assumes the majority of the business partner functions as prescribed in DOIT's recommended IT Project Team: [\(DOIT Recommended IT Project Team Composition\)](#)

[Appendix C – Definition of Key Terms](#), provides an overview of key terms used throughout the document.

Direct Cost Accounting System Transition to ProjectWise

A critical part of the scope of the project is to successfully continue and/or transition the Direct Cost Accounting System to usage in ProjectWise, so that system maintenance costs can be reimbursed from federally funded projects.

General Overview – CTDOT Projects Datasource

Project 0093-0164 will focus on piloting several active construction projects (To be determined) and developing the construction plan archive system, which would contain scanned imagery with associated metadata of the archived mylars located at the Engineering Records Center. See Figure 1 below:

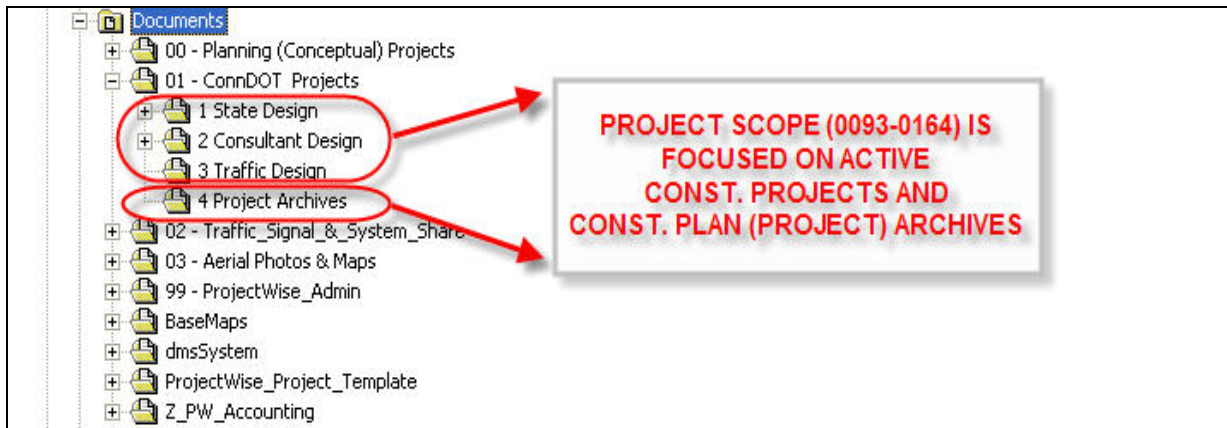


Figure 1

Project Template Overview

The primary engineering business is based on CTDOT's Standard Project Template (Figure 2). This template will be used with every project for both in-house engineering production and external engineering production. This project template is already in production on CTDOT_Projects on SH3DGS18 and is being used for Pilot Project 0092-0619 and 0107-0158 in the ProjectWise Development System. Potential end-user numbers can be done by observing the windows network groups set-up on CTDOT_Projects on SH3DGS18.

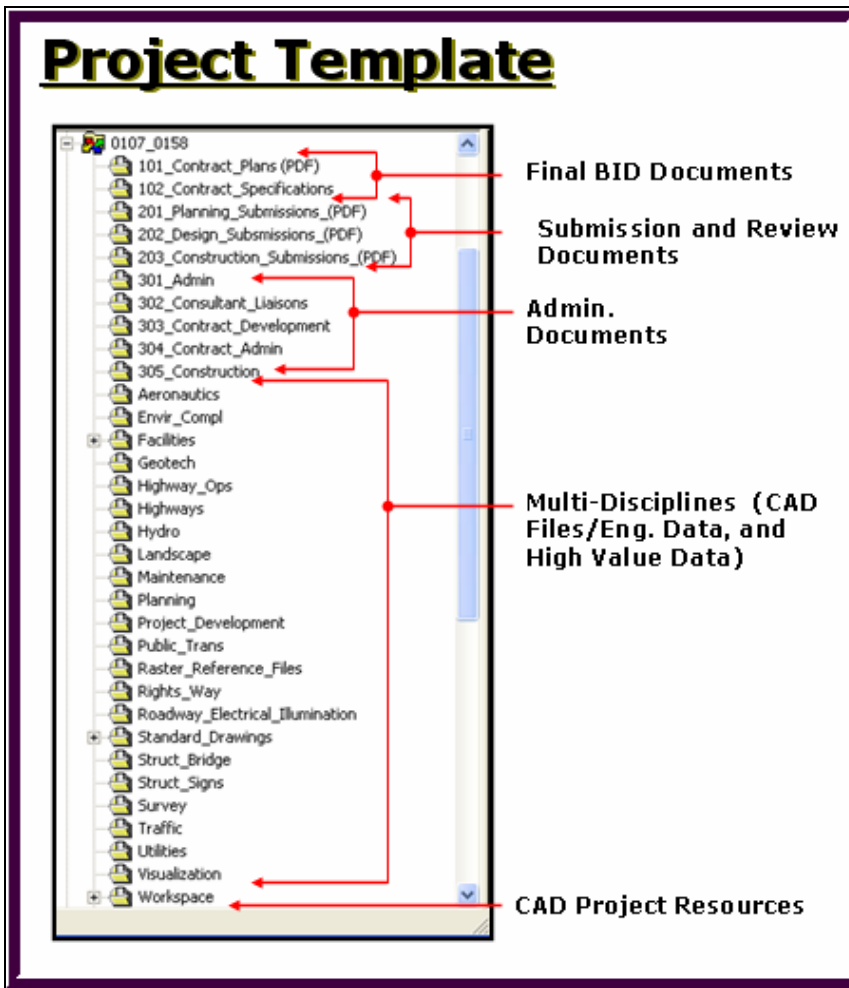


Figure 2

Final Bid Documents - Business and Security Requirements

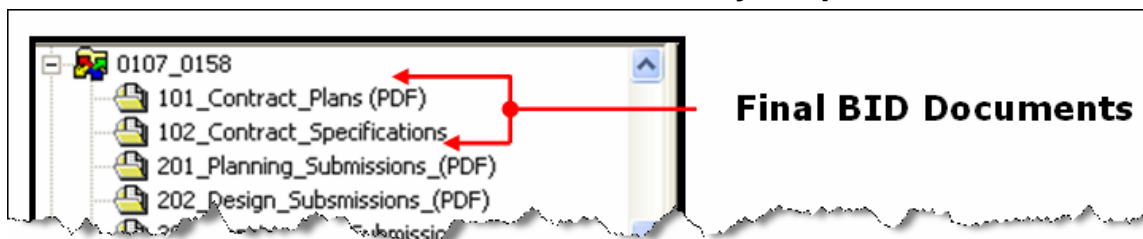


Figure 3

The primary purpose of the folders in Figure 3 above is to store the Department’s Final Contract Plans (Drawings) and Specifications in PDF format. These folders and documents will be “read only” to internal DOT employees who have ProjectWise. External Contractors and Consultants will not have access to these folders until it has been determined that a contract has been successfully awarded to a contractor. For the future, “Outside Access Requests” application procedures will need to be established at the appropriate time proper system architecture is place.

Engineering data in these storage areas will require only uploads “check-ins” by Engineering Applications (EA), Contract Development, or Contract Admin staff. For the piloting, Engineering Applications Staff will be handling all the engineering data management. At the same time, Engineering Applications will provide all training (classroom based, hands-on, and support based).

The future goal is for Engineering Records staff to download (export) copies of the PDF files and either burn the data to a DVD and/or print the engineering plan sets. Testing has occurred with the existing ProjectWise Development System at the Engineering Records Center. It was determined the network connections would need to be upgraded to reach the desired download speeds. OIS Network Staff is currently working on ordering a new wireless connection to continue testing. OIS Eng. Support is also evaluating a development scenario in which file caching servers could be placed at Pascone Place (and other Offices) with the purpose of having the documents ready for quick download. Bentley Systems should be consulted with these two scenarios with the development of a revised network/system schematic for both the development and production system. At this time, EA Staff is carrying DVD's to Engineering Records for set-up and reproduction. A solution to better this is required.

[Appendix D – Existing Network Infrastructure and User Functions by Location](#), outlines the potential concurrent end-users and functions (upload/downloads) file sizes per location assuming ProjectWise is full production. This is a joint document developed by OIS Network and EA.

EA is involved with the development of very detailed digital signature and submission procedures for engineering data. A link to the Draft Document can be found here: [Draft Digital Submission Procedures](#). This document covers the addendum and construction order process. Digital Signatures is not part of the scope of this project.

[Appendix H – Preliminary Security Model](#) outlines the ProjectWise Security Model under development.

Design Submission and Review – Business and Security Requirements

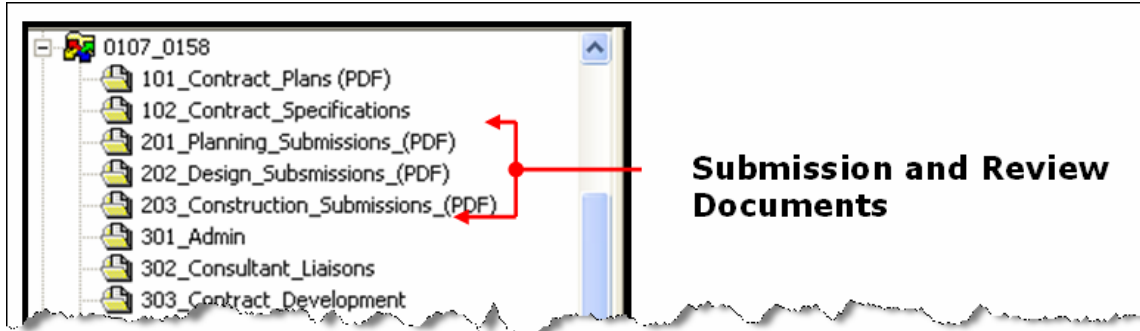


Figure 4

Design Submissions:

The three folders denoted in Figure 4 above represent the majority of benefits associated with increasing productivity, quality and collaboration during project design submissions and reviews. The primary purpose of the above folders is to facilitate the transmission (uploading) of electronic design submissions for external CTDOT business partners (i.e. Consultant Engineers and Contractors) involved in the project development and construction process (future shop and working drawing process). Alternatively internal DOT staff will also use the folder for the receipt of the data, and for transmission of internal design submissions. At this time, EA is only considering the design submission process as a part of the scope of this project. Future development will consider both planning and construction submissions.

The primary access point for the external business partners would be via ProjectWise's Web Explorer Lite (WEL). External business partners will only have access to the above denoted folders during the preliminary design phases. The type of documents they will be submitting to those folders will generally be Microsoft Word (Special Provisions), Excel (Eng. Calcs), MicroStation (Design Files), and Adobe PDF (Design Submissions).

The existing development system uses DOIT's VPN FOB keys. Both EA, OIS and DOIT have had numerous meetings regarding the FOB key issue. The present VPN FOB key solution will not fulfill Engineering Business Requirements. The reasons why it will not work have been documented in [Appendix F – DOT/Bentley response to DOIT's Security Concerns Letter](#). While EA is opposed to the VPN FOB key solution, EA is not opposed to alternative two factor authentication solutions or single factor authentication solutions (Core-CT). Suggested solutions to remediate the disagreements between DOT and DOIT are the following:

1. Develop a single factor authentication solution and architecture acceptable to DOIT and DOT.
2. RFI/RFP alternative two factor authentication solutions that do not require a VPN FOB keys.
3. Prepare a rebuttal to DOIT's Commissioner Letter, have DOIT revise the letter for the Commissioner to sign off on.

Submission Reviews:

Engineering's future intent is for internal engineers to apply Adobe Acrobat's Shared Review application using an email link not an email attachment to the ProjectWise storage location of the design submission. Engineering Applications has piloted the solution under Project 0107-0158 and 0092-0619. An internal server share has been set-up to facilitate Adobe Design Reviews.

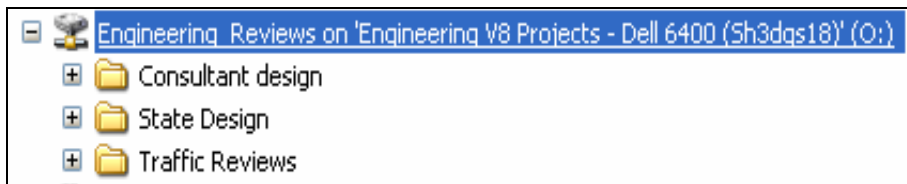


Figure 5

Early feedback from District 4 has revealed an approximate 50% time savings in design review time. In their opinion, every design review should be done in this fashion. While the results are promising, customization of both ProjectWise and Adobe Acrobat will likely be required and has been identified on the project plan as a possible RFP item. The following bullets outline a list of potential future application development/customization needed for both ProjectWise and Adobe Acrobat:

- Acrobat relies primarily on a windows environment. The following are Acrobat bugs and desired features have been identified with the software:
 - Two comment tools (text box and call-out tool) do not work with Engineering's Approval workflow. Adobe is aware of this; however, the proposal of a version 10 release is unacceptable.
 - Provide comment summary functionality in Adobe Reader 8.0.
 - Provide better formatting options and layout for comment summary reports in Acrobat 8.0.

- Provide the ability to batch comparison analysis of multiple separate files or PDF Packages.
- Provide the ability to initiate a shared review of a PDF Package and/or a multiple page PDF document.
- The following are ProjectWise desired features:
 - ProjectWise I-desktop integration with Acrobat similar to MS Office Products.
 - Direct integration between a ProjectWise data folder and Adobe Acrobat’s Shared Review Functionality to mimic what EA has already started on.

Project Administration – Business and Security Requirement

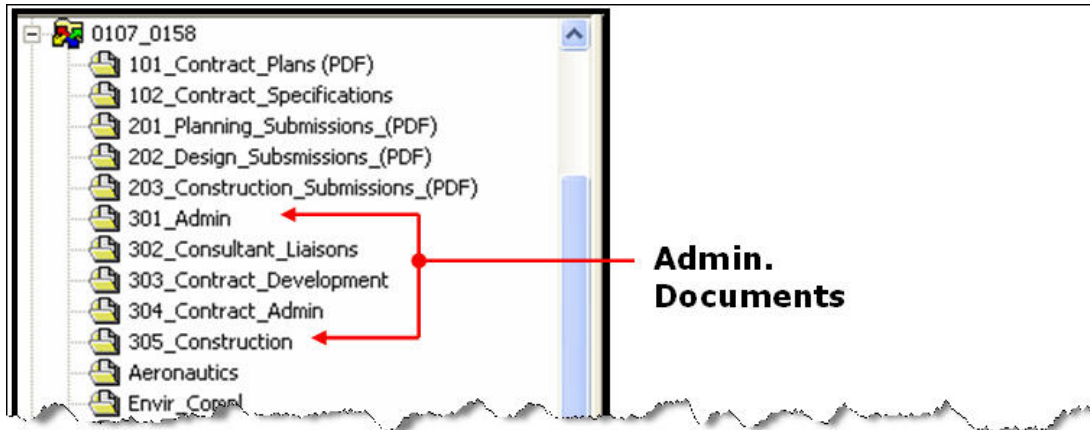


Figure 6

The purpose of the Administration folders outlined in Figure 6 above is for the storage of general project related source documents (i.e. MS Word, MS Excel etc) that relate to a project. Since digital signatures have not progressed to the use on general documents, the functions of these folders will have not have high importance.

Both the Contract Development folder and the Contract Admin folder will be used for reviews and changing the statuses (security) of final contract documents as they move from stage to stage. ProjectWise “State Change” functionality needs to be evaluated to determine if it will work in their desired workflow. At this time, the Contract Development folder (security model) can only be seen by their designated security group and administrators.

During the piloting of Project 0092-0619, Contract Development provided the Federal Highway Administration a DVD disk of the Final Contract Plans (PDF)(close to 1000 sheets), Specifications (PDF), and Estimates. While the solution was successful, Engineering Applications position is that a future solution would allow FHWA to access the data in a specific folder in ProjectWise. A “State Change” in ProjectWise would have triggered an automated email to them, that the data was ready. Current ProjectWise network infrastructure does not allow for this.

Engineering Disciplines CAD and High Value Data – Business and Security Requirements.

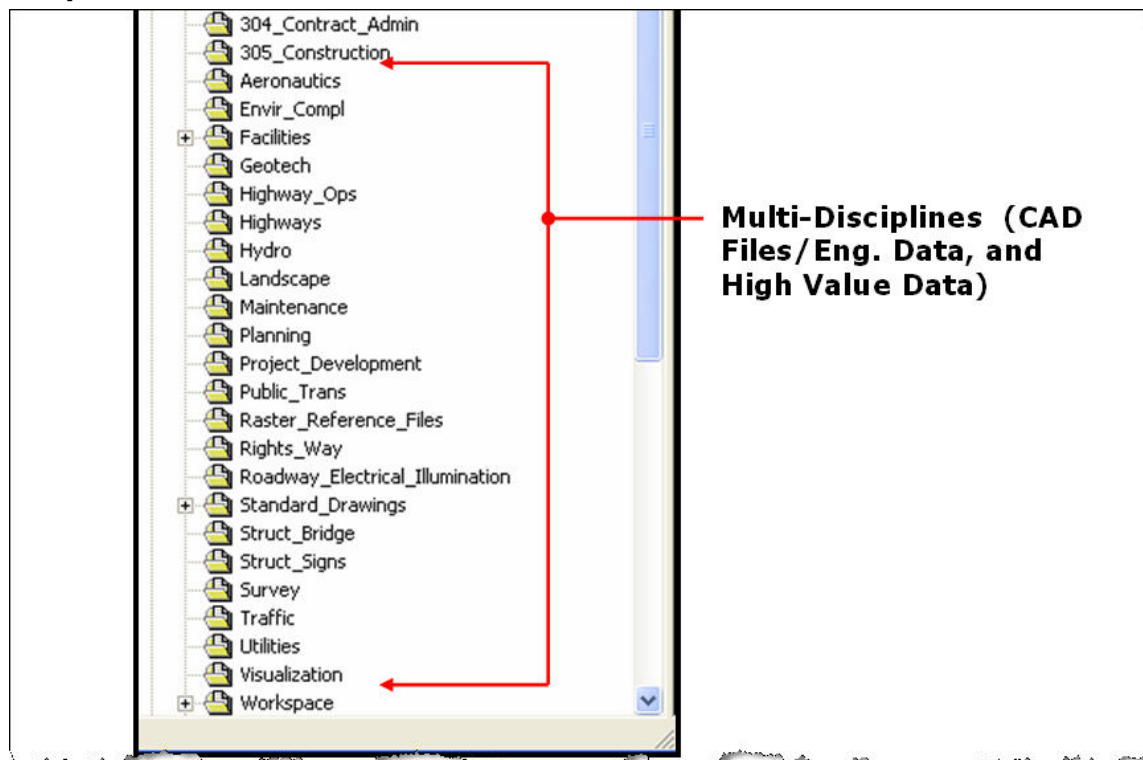


Figure 7

The folder structures outlined in Figure 7 provides Engineering and Design Disciplines a storage area for their electronic 3D Design models, Contract Sheet models, additional high value data production and storage of project correspondence and specifications. These folders contain mainly .MicroStation, InRoads, Microsoft Word and Excel, Raster Imagery, and PDF files. File naming conventions for these folders has been standardized on for CAD files, while design submissions and project correspondence is a “Work-in-Progress” (WIP). The Digital Design Environment Guide (http://www.ct.gov/dot/lib/dot/documents/deng/CTDOT_DDE_Guide.pdf) provides listings of both standard and WIP naming conventions.

It is these project folders that are the foundation for CTDOT’s project storage standard. The files within these folders require the Engineering Content Management System (ECMS) to function in a manner that allows integration with the design applications. This integration and functionality are documented in Appendix A - Functional Specifications for an Engineering Content Management System (ECMS) . This integration with CTDOT’s foundation CAD software Microstation, Survey and Roadway design software InRoads and Microsoft Office Applications allows Engineering to automate and enhance production of engineering contract designs and documents.

It should be noted that while in-house project design is currently utilizing these folders during production on CTDOT_Projects on SH3DGS18. Conversely without ProjectWise, CTDOT has no clear way of obtaining CAD or High Value data that was paid for by Consultant Engineers. Transmission of a DVD or CD containing CAD or High Value data is not a desirable solution since it is not efficient and there are no guarantees that project data confluence remains intact.

The lack of data makes it virtually impossible for the Department to be able to take advantage of 3D high value data that can potentially be used for inspecting construction projects and difficult to

maintain infrastructure. ProjectWise will serve as the vehicle for the department to begin to preserve and utilize CAD and High Value Data.

Security for these folders is read/write access per discipline. The security model currently used on SH3DGS18 will be carried over to ProjectWise. The proposed security model is outlined in Appendix H – Preliminary Security Model

CAD Resources – Business and Security Requirements



Figure 8

CAD Resources are critical in the development of project designs since they contain all the necessary fonts, linestyles, and custom working units as projects are designed. This data needs to be kept with the project before and after completion in order to maintain project data confluence.

Again, integration of the ECMS is required so that the design applications can be configured to locate this data within the ECMS.

Security to this folder is set to read-only for all disciplines with exception to certain sub folders that have read/write privileges for plotting output.

Project Location and Construction Staging Representation using ProjectWise Geospatial

Every project location survey or design typically contains graphical location information in MicroStation format. Additionally, every project has attribute information that is associated with its phase (i.e. planning, design, or in-construction). Within the application, ProjectWise has the ability to both present the survey location shape and color code the status information (phase) on a Connecticut geospatial interface (See Figure 9 below).

ProjectWise also has the ability (via the Oracle Spatial Connector) to export the graphical coordinate information of the shape directly into the Oracle database. The short term goal of the project is to be able to port this information easily to the web for further research, testing and presentation to management. The testing and research can be done with either ESRI or Bentley Geospatial Products as long as the necessary workflows and information gets automatically sent to the Oracle Spatial database correctly.

The longer term goal is to be able to provide this information to the general public for viewing a projects status and information. In addition, the Office of Engineering and FHWA have indicated they want the ability to view simultaneously Project and Construction Staging Limits (CAD information) simultaneously, with “real time” accident history.

For the scope of the project, System Architecture will need to be developed for the development and production system, which takes into consideration hardware for Bentley and Oracle’s necessary Geospatial Applications. Consideration should also be given to ESRI’s necessary hardware requirements to facilitate interoperability.

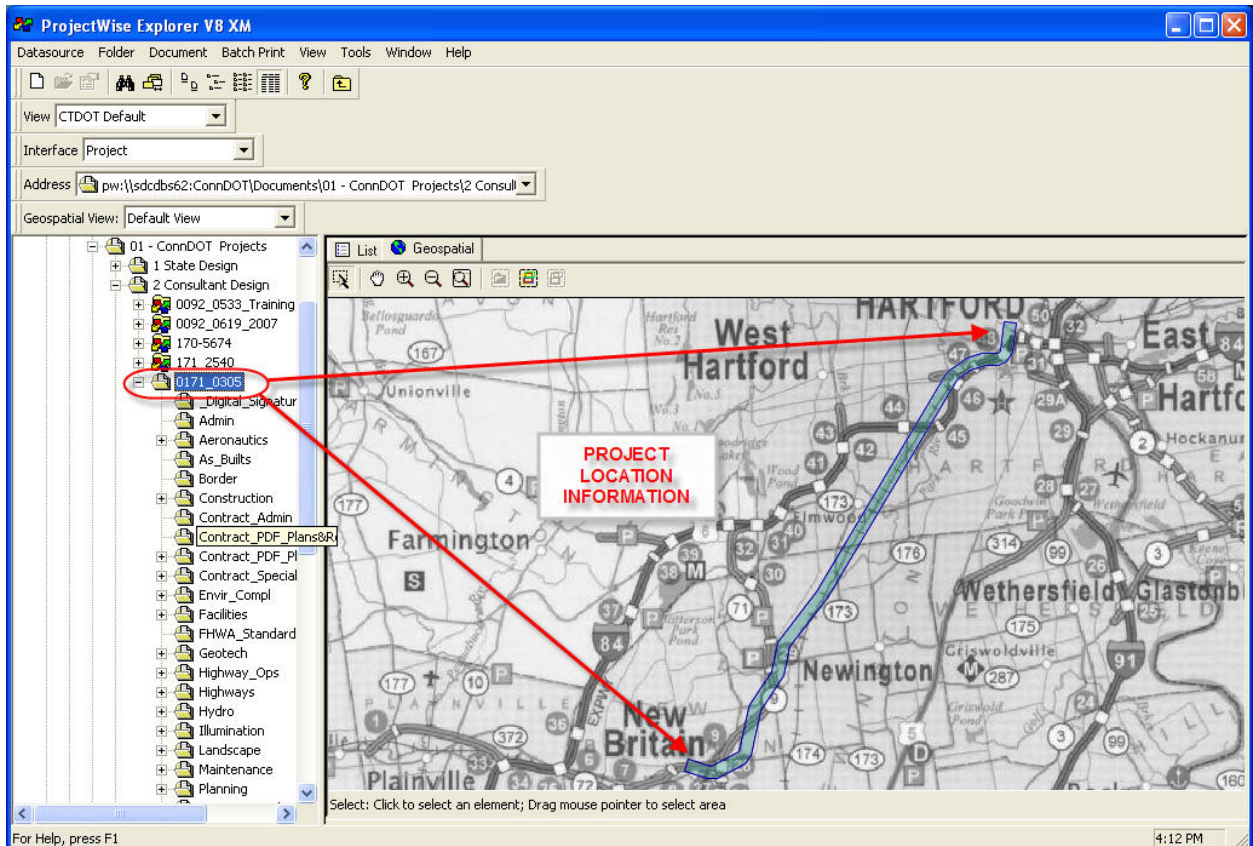


Figure 9

Project and Infrastructure Attributes – Integrating ProjectWise Attribute Fields with existing Department Databases

ProjectWise has the ability to integrate with existing Microsoft and Oracle databases. Rather than having engineers enter redundant information about projects, EA would rather integrate the attribute fields so they are reading information from existing department databases or systems. Figure 10 below depicts a screen shot of ProjectWise Attribute fields.

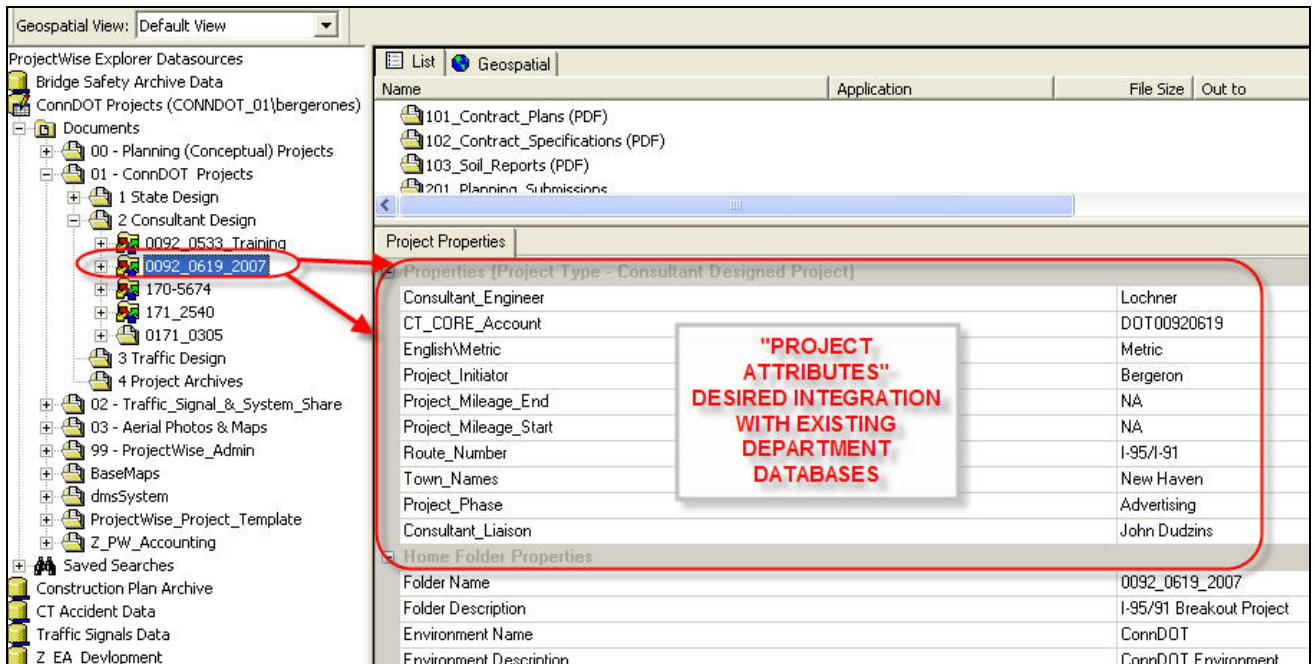


Figure 10

EA with OIS would develop a schema which will define the desired attributes and integration per ProjectWise Environment. OIS would pursue the technical integration. For the active projects environment, the concept is to integrate with all or some of the following existing databases:

1. CORE Project Costing – (Intermediate Table)
2. Fin. Man. Obligation Plan – (Assuming Oracle Conversion)
3. Possible Roadway Network Database
4. Joblog
5. PCMS remnants

The following other ProjectWise data sources need to be developed and tested with the existing database integration:

1. Bridge Safety - SYS Information System. Bridge Safety would like to begin utilizing ProjectWise for data storage.
2. Traffic Signal Intersection Database
3. Existing Dbase Construction Plan Archive Database
4. Possible IRM Database

Legacy Data (Construction Plan Archive System)

A significant component of the project scope is scanning a sample set of the approximate 600,000 Mylar construction plans located at the Engineering Records Center and uploading them into ProjectWise. EA will develop an Implementation Plan and handle the data storage and security structure in ProjectWise. It is desired to perform the scanning and attribute data entry outside of ProjectWise using Adobe Acrobat or other application capable of creating a multi-page pdf and assigning specific metadata to the file. The pdf files would then be uploaded into ProjectWise and the associated metadata would need to be automatically imported (copied) into the ProjectWise Oracle database.

Kentucky DOT performed a similar project using ProjectWise System as the ECMS for the scanned archives. Information can be provided regarding Kentucky's ProjectWise Implementation.

A vendor (via an RFP) will be needed to perform the scanning in a desired timeframe. Existing Engineering Records staff will need to have a role in the project. At this time, their roles in the project will need to be identified in the implementation plan.

Bridge Safety and Traffic Signal Intersection Data

The ECMS also needs to accommodate active and historical bridge safety inspection reports (PDF) and traffic signal design CAD, analysis and documents. Both data sets should also be able to integrate with their respective existing informational databases (SIS for Bridge Safety Data and the Traffic Signal Log). In both cases it will be desired to bulk load all the approx. 4,000 traffic signals folders and approx. 6,000 bridge folder and attribute information in one process. Figure 11 and Figure 12 below provides screen shots of the desired integration of both datasets.

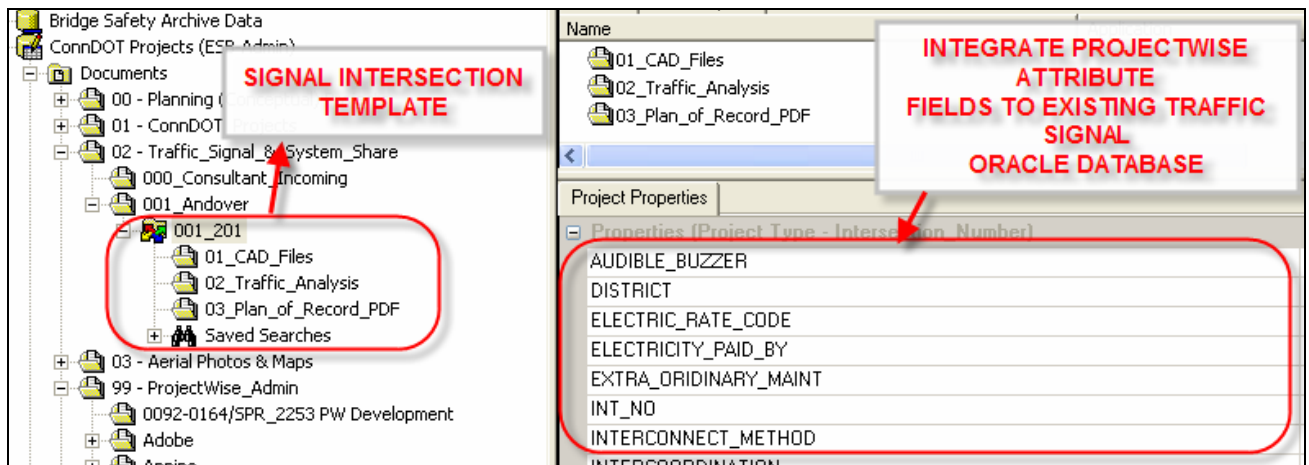


Figure 11

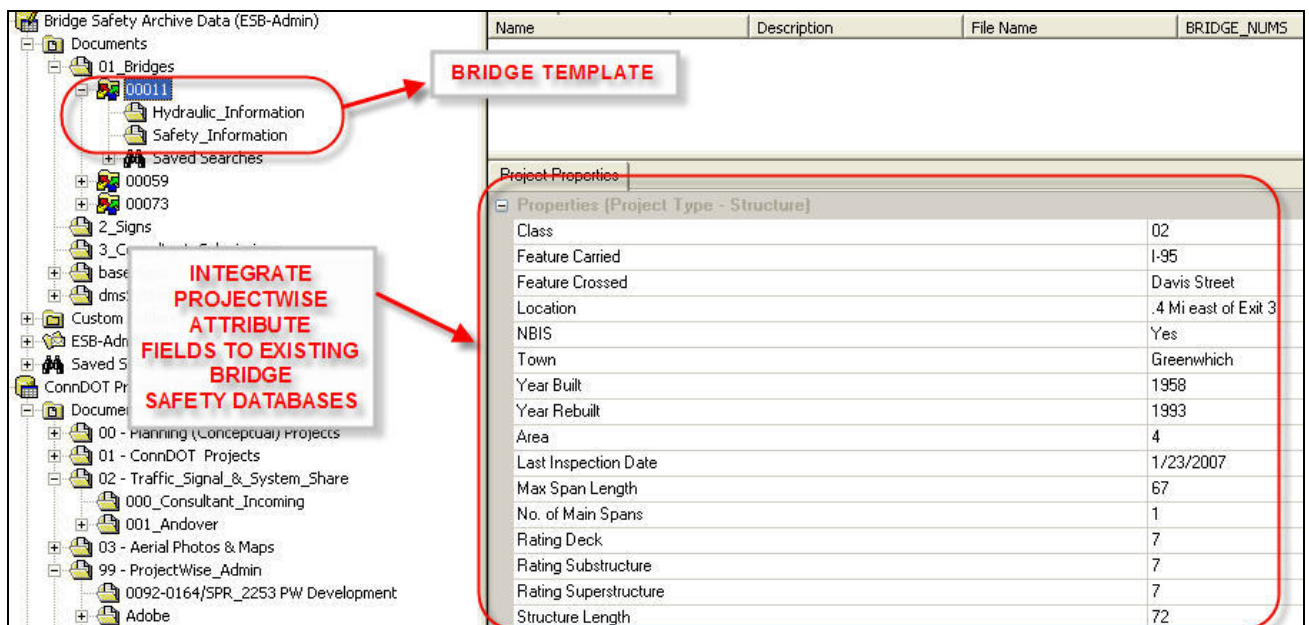


Figure 12

Quality Assurance, Control and additional Architectural, Engineering, and Construction (AEC) Applications for the Digital Design Environment

EA has identified areas of needed application development associated with CAD production, quality assurance, and efficiency. These proposed applications may need to consider soliciting an RFP from

third party Task Based Consultants. Below is a list of possible applications that need additional development:

1. Digital Design Environment Installer – More efficiency and assistance is needed configuring remote computers to CTDOT CAD Standards.
2. AutoCAD DDE Environment Development – EA would like to begin entertaining the submission of AutoCAD files that are capable of working in the Digital Design Environment.
3. CAD File Quality Assurance and Control Applications – Numerous DOT's have developed or purchased quality control applications associated the checking the integrity of CAD submission.
4. More efficient PDF Batch Plotting - Similar to how ProjectWise functions, an application is desired which will provide an end-users an option to export project CAD files to a users local machine to take advantages of more efficient local computer power publishing.
5. MicroStation based applications that are capable of streamlining the placement features (via cells or specialized line styles) and providing the ability to harvest quantities using Bentley Inc's InRoads and Quantity Manager or other application.
6. Adobe Acrobat and ProjectWise customization as identified in the Design Submission and Review – Business and Security Requirements above.
7. MicroStation XM workspace and configuration development for the DDE.

Appendix A - Functional Specifications for an Engineering Content Management System (ECMS)

The Bureau of Engineering and Highways has identified the need to provide an Engineering Content Management System (ECMS) for all engineering electronic data, including application integration. The system should be adaptable to reach outside of engineering to warehouse project planning and construction data also.

In order to accomplish this, any system will require the following (but not limited to):

General Application Functions and Integration

- The proposed system shall provide desktop application integration such that all file access functions are hooked to the Content Management System. This should include (but not be limited to) File> New, Open, and Save As. This should include Microsoft Office, Bentley MicroStation, IRAS/B, and Descartes, and Autodesk AutoCAD.
- The proposed system shall provide support for Multiple Document Interface, where applicable. This should include (but not be limited to) Microsoft Office, Adobe PDF and AutoCAD applications.
- In addition to the aforementioned integration, the proposed system shall provide attribute exchange for MicroStation, AutoCAD, and Microsoft Office document types. More specifically, the system shall provide the ability for attributes in the content management system to populate intelligent title blocks within CAD format documents, and custom fields within Office format documents.
- The proposed system should provide the capacity to specify both an edit, a redline, and a view application for each file type.
- The proposed system shall provide support for multiple versions of desktop applications. More specifically, the system should support multiple versions of MicroStation and AutoCAD, and provide a mechanism to distinguish between different versions of the same file type. For example, the system should be able to correctly launch AutoCAD 2004 to edit a DWG file of that vintage, and AutoCAD 2007 to edit a DWG file of that vintage.
- The system must be capable of the centralized creation and storage of electronic plan and specification packages throughout the entire contract development process (addendums and construction orders). The said electronic plan and spec packages are then enabled for possible transmission to DAS Web Portal (or other) in accordance with the above law.
- System shall provide ability for document comparisons between files with detailed specific output.
- System shall provide ability for tracking of versions and all their related files, as they existed when that version was created. For example, version 4 of a master file may currently be related to version 3 of one of its reference files. However, when the master file was at version 2, the reference file may have been at version

CAD Application Integration

- In addition to the general integration items, the proposed system shall provide CAD reference file support for Bentley's MicroStation, and Autodesk's AutoCAD. MicroStation versions supported should include MicroStation/J, V8

- 2004 Edition, and V8 XM Edition). AutoCAD versions supported should include AutoCAD 2000, 2002, 2004, 2005, and 2007.
- Reference file support should be broken down into the following specific functions, and itemized as supported or not, for both MicroStation and AutoCAD:
 - Attach/Detach Reference – should allow user to access content management repository, or optionally access local storage
 - Attach/Detach Reference should provide for immediate or delayed update of content management database, such that reference attachment changes are automatically recorded to the content management system
 - Attach/Detach Reference should support both Raster and Vector reference attachments
 - Local Caching – The proposed system should support the concept of local caching such that performance is enhanced, and network transfers are minimized when working on compound document sets.
 - Reference Deletes – The proposed system should warn the user if they are attempting to delete a file that has been referenced to another file
 - Reference Moves – The proposed system should automatically heal broken linkages as a result of moving a previously referenced file to a different folder.
 - Reference Renames - The proposed system should automatically heal broken linkages as a result of renaming a previously referenced file.
 - Nested References – The proposed system should support the concept of nested reference files. More specifically, if file B references file C, should file B be attached to file A, then the user viewing/editing file A should see files B, and C.
 - Real-time notifications – The proposed system should support the concept of notifications such that the user is made aware when one of the files referenced in the active session has been modified by another user.
 - CAD Workspace support – The proposed system shall provide the ability to associate a MicroStation Workspace, or AutoCAD profile with a given file, or folder. Subsequent edit sessions for the file should then be forced to activate the specified workspace
 - In addition, Workspace/Profile support should feature inheritance such that the Workspace can be assigned at any level in the folder structure, and will inherit to all files/folders below it in the folder tree.
 - CAD Workspace management – The proposed system shall provide the capability to store designated workspace files (cell/block libraries, font resource files, linetype resource files, etc.) within the content management system. Required workspace files shall then be automatically downloaded to the client workstation when needed, based upon the workspace being assigned to a file or folder.
 - InRoads Preferences – The proposed system must be capable of reading and writing Bentley InRoads preference files for the successful development, delivery and completion of High Value Data (Digital Terrain Models (.dtm) and coordinated geometry files (.alg).
 - Shall provide tracking abilities to view and monitor changes through viewing various versions in succession.

Legacy Data

- The proposed system shall provide a means of bulk-loading legacy documents into the content management repository. Bulk import methods should support (but not be limited to) the following functions:
 - Support import of individual files, or entire folder structures in a single operation
 - Import of simple files, or import of files with associated metadata (in either a delimited text file, or Excel spreadsheet)
 - Support of CAD documents including pre-existing raster and vector reference attachments. In the event of pre-existing reference file relationships, the system should provide a batch-mode reference discovery tool.

Indexing/Searching

- The proposed system shall provide an easy means of viewing all files checked out to a given user.
- The proposed system shall provide an easy means of determining the list of files attached as reference to the file in question (forward look-up)
- The proposed system shall provide an easy means of determining the list of files that are referencing the file in question (reverse look-up)
- The proposed system shall be capable of performing full text searches on Microsoft Office document types, Bentley MicroStation documents, and Autodesk AutoCAD documents.
- Where applicable, the proposed system shall display “thumbnail” views of documents to aid in the search process. This shall include (but not be limited to) MicroStation, and AutoCAD document types.
- The proposed system shall provide the capacity for folder or “project” level attributes that can be inherited at the document level.
- The proposed system shall provide the capacity for custom document attributes, to be defined by the System Administrator
- The proposed system shall provide the capacity to further define custom attributes by:
 - Providing default values based on system attributes, or administrator defined values.
 - Limiting users to a defined list of choices
 - Forcing formatting options (such as upper case)
 - Determining the value list for an attribute based on the value chosen for another attribute
- The proposed system shall provide the capacity to automatically index documents based on their Windows/Operating System level file properties.
- The proposed system should provide the capacity to save searches, and execute them again with minimal effort on the user’s part
- The proposed system should provide the capacity for both global (visible to all), and personal saved searches.
- The proposed system should provide the capability to generate indexes based on CAD file content. More specifically, features on a drawing or map should be indexed against the file, and available for subsequent search operations. As an

example, one might need to know on which drawing(s) a particular transformer appears.

Geospatial Referencing / Indexing

- In addition to traditional document indexing, the proposed system shall provide support for Geospatial referencing/indexing. More specifically, the system should provide the capacity to display documents on a map view, in addition to the traditional file list view.
 - Geospatial Map views – The proposed system shall provide the capacity to configure a background map on which to display coordinate aware documents. Coordinate aware documents should be displayed as polygons, or alternately as pushpins
 - Non-geospatial documents – For display of documents that are not coordinate system aware (typically Office documents), the proposed solution should provide a means of adding geospatial reference information in order to properly display the document on the map view.
 - Coordinate Systems – In support of the map view, the proposed system should provide support for those coordinate systems in common use throughout North America. In addition, the solution should be able to transform documents between coordinate systems on the fly in order to properly display on various background maps.
 - Geospatial Searches – In addition to traditional metadata-based searches, the proposed system should provide the capacity to search for documents based on their geospatial location.
 - Map View Re-symbolization – When documents are displayed as polygons on the map view, the system should provide the capacity to re-symbolize the polygons (change the color) based on other metadata.

Batch Plotting / Automation

- The proposed system should support batch printing of engineering drawings/maps. Batch printing support should include (but not be limited to) the following functions:
 - The proposed system shall provide integration with the MicroStation batch plotting engine for output to paper drawings, or PDF files.
 - The proposed system shall provide integration with the Bentley Digital InterPlot production plotting solution for output to paper drawings, or output to PDF files. InterPlot integration should include support for InterPlot Organizer, Design Scripts, Settings files, and color tables.
 - The proposed system should support automated plotting processes based on document, or project milestones. More specifically, the system should support automatic generation of paper drawings, or PDF files at specified workflow events. PDF files created at project milestones should be tagged with metadata from the original native format CAD document.

Web Access

- The proposed system shall provide the capacity to access the content management repository from a Web browser, for only those projects they have been granted access for. Web access shall include (but not be limited to) the following functions:

- New Documents – The proposed system shall provide the capacity for web users to create/upload new documents
- View/Edit Document metadata – The proposed system shall provide the capacity to view and/or edit document metadata, both standard and that defined by the user organization
- Searches – The proposed system shall provide the capacity for web users to execute interactively defined searches, as well as previously saved searches. This should include metadata based searches, as well as full text searches, and component-based searches and provide results for only the data they are authorized to view.
- Document check out/in – The proposed system shall provide the capacity for web users to check out/in simple (non-compound) documents.
- CAD Viewing – The proposed system shall provide the capacity for users to view CAD document types (DGN and DWG files) without having installed viewing technology. Further, the viewing technology should provide the capacity to zoom in/out without loss of resolution. Lastly, the viewing technology should provide the capability to display multiple versions of the same drawing and highlight changes between versions.

Redlining/Commenting

- In support of the engineering review process, the proposed system shall provide commenting tools for common engineering drawing/map formats. Redlining functionality shall include (but not be limited to) the following:
 - Non-intrusive commenting for MicroStation DGN and AutoCAD DWG format files. Non-intrusive commenting involves integrating with redline applications that create new files in which to store user comments.
 - The proposed system should support non-intrusive commenting via an installed/integrated desktop application (thick-client approach), as well as from a web browser (thin-client approach).

Integration with Existing Systems

- The system should be capable of integrating with the existing systems:
 - a. CORE Project Costing
 - b. SYS – Bridge Safety Report Database
 - c. Traffic Signal Intersection Database
 - d. Possible Legacy PCMS Data
 - e. Financial Obligation Plan – Database
 - f. AASHTO Trns*Port

Security/Auditing/Backup's and Recovery

- The proposed system shall provide security on an individual basis through “roll” definition. Users will be set up to be able to read and/or write to only those files required for them to process their work, both at the discipline level and individual projects.
- Further breakdown of security shall be required during the electronic workflow routing. Based on status of document and type, the security of the document automatically changes. Security must allow either specific users access or groups to read/write/print or deny access based on status.
- System will allow individual files to be password locked as well as specific folders where necessary to help prevent unauthorized access.

- Password for such security of files and folders must be able to be assigned and administered at discipline level with ability for system security administrators to delete password should it be forgotten.
- Audits must be created when user 'checks out' and 'checks in' document. Showing on audit should be (but not limited to) date and time stamp, user name, if document was changed and computer number (IP address?).
- For files that have sensitive data, audits must also be written when document is read and/or printed. In these instances, an export to local drive is not permitted.
- Reporting capabilities on audit stored information by (but not limited to) user name and date parameters.
- System must have automated daily backup capabilities as well as ones that can be administered on demand. This includes both full system back up or individual folders/files.
- Recovery also should allow full system recovery as well as individual folders/files and allow choice on version of files.
- System shall provide mechanism for electronic routing of document or group of documents. When a document(s) is completed at one stage, its status changes. Automatic notification of individual or project can be set up as well as having document(s) sent to a specified folder, based on state.

Appendix B Engineering Applications Roles in Project 0093-0164/SPR 2253 – ProjectWise Phase 1 and 2 and the DDE Development

Business Project Manager - Eric Bergeron

Assistant Project Manager – Tony Servidone

Responsibilities / Functions:

- Expert Knowledge of “Engineering” Business functions and the associated development and delivery of Capital Improvement Infrastructure Projects using AEC Applications (ProjectWise, MicroStation, Adobe Acrobat, InRoads, On-Site).
- Serves as Power User of AEC Applications (ProjectWise, MicroStation, Adobe Acrobat, InRoads, On-Site).
- All procurement development and purchasing associated with specialized Engineering Applications related to Computer Aided Design (CAD), plotting and the further development of the DDE and possible scanning services associated with Engineering Records Center. See project deliverable schedule.
- Completion of the Final SPR Work Plan and all associated Reports that need to be transmitted to FHWA for final authorization/approval of funding.
- Responsible for the development of a “shareable” project schedule and assuring that critical dates are being met and documenting why dates are not being met.
- Responsible for coordinating bi-weekly project team meetings and monthly – Supervising Engineer / DOIT Manager meetings.
- Act as a Liaison to FHWA for the Development Project Funding Approval and to report as the success of deliverables via SPR Reporting Procedures.
- Coordinate all Hardware / Software / Equipment / Purchase approval through OIS - Research - FHWA.
 - Reviews recommended project purchases by others.
- Coordinating all Engineering Application Software Interoperability with ProjectWise.
- Testing and approving all ProjectWise functionality with Engineering Applications.
- Represent OOE and the OOC End Users in the Development and Implementation of ProjectWise.
- End User Training and Work Flow Development for related Engineering Applications.
- Serves as a technical lead contact for Bentley Systems Inc. for the implementation of ProjectWise.
 - Responsible for developing scopes of work and deadlines for any required work Bentley is to perform.
- Developing scopes of work and deadlines for any work required by consulting services related to Engineering Applications.
- Responsible for Web Content Development and Publishing associated with the DDE, ProjectWise workflows, and application procedures.

- Specifying required ProjectWise Environments and Attributes for possible Oracle Systems Integration.
- Coordinating a bi-monthly PW and PDF Development Working Group (focused on Engineering Data Management) composed of stakeholders from Planning, Engineering, Construction, Contract Dev. and Admin.
- Coordinate the development of documentation regarding CDS (Digital Signature) piloting results, digital signatures and electronic submission guides, policy and procedural development.
- Provide feedback on PW Engineering User Security Models.
- ProjectWise Plotting Workflows.
- ProjectWise SPR Reporting and the development and submittal of quarterly SPR project reporting to FHWA.
- The development of an Implementation, Procedural and Quality Control Plan for scanning the Engineering Records Center (Pascone Place).
- As needed, may delegate tasks and responsibilities to others within Engineering Applications.

ProjectWise Administrator – Julie Annino

- ProjectWise Account Set-up.
- ProjectWise Project Container initiation requests and application procedures.
- To provide feedback, direction and offer knowledge as to the development of ProjectWise Geospatial.
- End User Training and Work Flow Development for related Engineering Applications.
- ProjectWise End-User Install Coordination.
- Consultant Engineering application procedures.
- To coordinate and provide end-user Training.

ProjectWise and MicroStation Configuration Lead – John Rinaldi

- Research optimal configuration settings for ProjectWise and MicroStation.
- Implement optimal configuration settings for ProjectWise and MicroStation.
- Plotting Configuration Expert.
- ProjectWise Environment Configuration Development
- Engineering Records Center quality control procedure development and plotting configuration expert.
- ProjectWise and MicroStation Support

ProjectWise InRoads and Bentley OnSite Development Team – Elaine Richard

Assistant: Gregory Sardinkas

- Lead in Bentley InRoad's migration/interoperability with ProjectWise.
- Lead in Bentley OnSite Development with ProjectWise and migration of InRoads 3D models (High Value Data) to the Office of Construction.
- Lead in developing naming convention standards for engineering data

ProjectWise Direct Cost Accounting System Transition and Integration – Kathleen Zimmerman

- Lead in coordinating the transition of the Direct Cost Accounting System to ProjectWise's Audit Tracking or other alternative.
- Coordinate Bentley Services on the above.

ProjectWise CAD Standards Development and BIM Development – Bruce Bourgoin

- Lead in providing end-user training for ProjectWise and MicroStation.
- Lead in CAD standards development for structural and facilities design and the research into using BIM for Facilities Design.

Appendix C – Definition of Key Terms

1. **Architectural, Engineering, and Construction (AEC)** - Generally used as term to describe the field of developing and constructing capital improvements.
2. **Computer Aided Design (CAD)** - The applications, hardware, tools used in the Engineering, Architectural, and Construction field to develop oversee and maintain capital improvement projects.
3. **Digital Design Environment (DDE)** - A system of files and folders that configures a client computer to CTDOT's CAD Standards. The Digital Design Environment (DDE) is also an environment that allows the creation, modification, and exchange of high-value electronic engineering data. The information contained in CTDOT's DDE was developed for use with CTDOT's foundation CAD platform MicroStation from Bentley Systems Inc.
4. **High Value Data** - A term that is becoming more important within many state DOT's is "High Value Data (HVD)". HVD is electronic data that is a byproduct of the design process. HVD includes digital terrain models (DTM's), alignments (ALG's) and others. These files can be used during the construction phase of the project for digital terrain queries and optional GPS driven earth moving equipment. More importantly, these files can also be used in the life cycle maintenance of a designed transportation facility. Coming full circle, these files can be used for any rehabilitation or modification of the existing project in the future. Previously, CTDOT has only supplied the paper contract drawings and specifications to the Contractor and Construction Inspectors. With CTDOT's project container electronic file storage approach, this data is now in place and searchable for future queries. HVD can be used in a Management Information System (MIS) and Geographical Information System (GIS).
5. **Direct Cost Accounting System** – The system used to journal voucher PE Projects for the direct in-house hourly charges to obtain the cost reimbursement of CAD Systems.

Appendix D – Existing Network Infrastructure and User Functions by Location

<u>Main Network Sites</u>	<u>Existing Data Circuit Types</u>	<u>Hosts Per Site</u>	<u>Potential Concurrent Users**</u>	<u>End User Functional Descriptions</u>	<u>User Frequency of Transactions</u>	<u>Desired Transmission Time</u>	<u>Recommended Data Circuit Type for PW</u>	<u>Comments</u>
Contractors	Indeterminable		2 Users Per Site	Frequent Upload of PDF Shop Drawings to the Construction Submissions Folders of the Project template. File download (check-in) of "access granted" Contract Plans and Specs Folder and Construction Plan Archives System. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 15mb Maximum Download (check-out/read): 200mb	2 Transactions Per Day	30min		
Consultant Engineers	Indeterminable		5 Users Per Site	Frequent Upload of PDF Contracts Plans and Specs to the Planning, Design and Construction Sub Folders of the Project template. File download (check-in) of "access granted" Construction Plan Archive System. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200mb Maximum Download (check-out/read): 50mb	2 Transactions Per Day	30min		
Headquarters	20GB Ether to Data Center	964						
Basement - 30			15	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files (200kb) and general office documents (50kb) to Highway Operations Sub folder of the Project Directory. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	1 Transaction per hour	Max 1 min		
1st Floor - 202			75	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of MicroSoft Office documents (50kb) to PDF Documents (10mb) in size. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 10mb Maximum Download (check-out/read): 200mb (very rare)	20 Transactions Per Day	Max 1 min		
2nd Floor - 215			100	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files (200kb) and general office documents (50kb) to Aeronatics/Public Trans Folders Sub folder of the Project Template. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	50 Transactions Per Day	Max 1 min		
3rd Floor - 282			170	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files, imagery ext, and PDF Contract Documents and general office documents to various engineering discipline sub directory folders of the Project Template. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200mb Maximum Download (check-out/read): 200mb	70 Transactions Per Hour	Max 1 min		

4th Floor - 235			100	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files, imagery ext, and PDF Contract Documents and general office documents to various engineering discipline sub directory folders of the Project Template. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200mb Maximum Download (check-out/read): 200mb	50 Transactions Per Hour	Max 1 min		
DOIT Connection/Internet	OC3 25 Mbytes	0	0					
District 1	1 ADSL Premium & 1 T1	77	30	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files (200kb) and general office documents (50kb) to Construction Discipline Project Folder. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	10 Transactions Per Hour	Max 1 min		
District 2	1 ADSL Premium+ & 1 T1	74	30	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files (200kb) and general office documents (50kb) to Construction Discipline Project Folder. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	10 Transactions Per Hour	Max 1 min		
District 3	2 T1's	91	30	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files (200kb) and general office documents (50kb) to Construction Discipline Project Folder. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	10 Transactions Per Hour	Max 1 min		
District 3A	Site to be determined	Not on line yet	20	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files (200kb) and general office documents (50kb) to Construction Discipline Project Folder. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	5 Transactions Per Hour	Max 1 min		

District 4	1 ADSL Premium+ & 1 T1	67	30	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files (200kb) and general office documents (50kb) to Construction Discipline Project Folder. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	10 Transactions Per Hour	Max 1 min		
Research Lab	OC3 15 Mbytes	60	20	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of CAD files (200kb) and general office documents (50kb) to Construction Discipline Project Folder. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	5 Transactions Per Hour	Max 1 min		
Pascone Place	1 T1	10	5	Frequent Download (Read) of PDF Contracts Plans (for plotting) and Specs from the Proposed Active Project Subdirectories for Contract Plans and Specs. File upload (check-in) of pdf scans associated with scanning the construction plan archives. Average file size upload (check-in): 10mb Maximum file size upload (check-in): 200mb Maximum Download (check-out/read): 200mb	10 Transactions Per Day	Max 1 min		
FHWA	1 ADSL Premium	To be Determined	20	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of misc. office type files. Average file size upload (check-in): 2mb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	2 Transactions Per Day	Max 1 min		
Future Trailers (General)			8	Infrequent Download (Read) of PDF Contracts Plans and Specs from the Proposed Active Project Subdirectories and the Const. Plan Archive System. File upload (check-in) of misc. MS Office type files. Maximum file size upload (check-in): 200kb Maximum file size upload (check-in): 200kb Maximum Download (check-out/read): 200mb	2 Transaction Per Day	Max 1 min		
			**Potential Concurrent - Actual Installations could be actual Hosts Per Site					

Appendix H – Preliminary Security Model

CTDOT ProjectWise Project Template / Folders	No Access (Everyone)	Read-Only (Everyone)	Read/Write Eng Discipline (ProjectWise Group)	ProjectWise Group Name
101_Contract_Plans (PDF)		X		
102_Contract_Specifications		X		
201_Planning_Submissions(PDF)		X	Project Manager, Future CE Group	
202_Design_Submissions(PDF)		X	Project Manager, Future CE Group	
203_Construction_Submissions(PDF)		X	Project Manager, Future CE Group	
301_Admin			TBD	
302_Consultant Design			Consultant Design (GDGS_CDS)	GDGS_CDS
303_Contract_Development	X		Contract Development (GDGS_CEST)	GDGS_CEST
304_Contract_Administration	X		Contract Development (GDGS_EST), Contract Administration (GDGS_Contract_Admin)	GDGS_CEST, GDGS_Contract_Admin
305_Construction			TBD	
Aeronautics		X	Aviation & Ports (GDGS_AVN)	GDGS_AVN
Border			TBD	
Envir_Compl			TBD	
Facilities		X	Facilities Design (GDGS_SFC)	GDGS_SFC
Geotech			TBD	
Highway_Ops		X	Traffic Operations (GDGS_TRA_OPS)	GDGS_TRA_OPS
Highways		X	State Highways (GDGS_SHW)	GDGS_SHW
Hydro		X	Hydraulics & Drainage (GDGS_DHD)	GDGS_DHD
Landscape		X	Facilities Design (GDG_SFC)	GDGS_SFC
Maintenance			TBD	
Planning		X	Intermodal Planning (GDGS_IPL)	GDGS_IPL
Project_Development		X	Project Development (GDGS_PJC)	GDGS_PJC
Project_Resources		X	TBD	
Public_Trans		X	Public Transportation (GDGS_PDS)	GDGS_PDS
Rster_Reference_Files			TBD	
Roadway_Electrical_Illumination		X	Illumination (GDGS_ILL)	
Struct_Bridge		X	Structural Bridge (GDGS_SBR)	GDGS_SBR
Struct_Signs		X	Structural Bridge (GDGS_SBR)	GDGS_SBR
Survey		X	Surveys (GDGS_SUR)	GDGS_SUR
Traffic		X	Traffic Engineering (GDGS_Traffic)	GDGS_Traffic
Utilities		X	Utilities (GDGS_UTIL)	GDGS_UTIL
Visualization		X	Engineering Applications (GDGS_DGS)	GDGS_DGS

Appendix F – DOT/Bentley response to DOIT’s Security Concerns Letter

After reviewing DOIT’s draft letter of Security Vulnerabilities, DOT agrees with DOIT's security concerns, although feels there are risks that are overstated.

The first statement indicating that DOT is putting “other clients” at risk with our ProjectWise application is misleading. ProjectWise is as much of a risk to other DOIT clients as some other DOT applications, such DOT C-Vision, and CORE-CT. The statement that two factor authentication would limit potential hacker attempts to **only** people with a key fob is also untrue. There have been well known attacks that have successfully penetrated two factor authentication using man in the middle attacks and Trojan horses.

The problem we have is not with two factor authentication, but in the physical key fob that DOIT strongly recommends for access to its managed DMZ. It has been proven that in an e-business environment that physical key fobs are an administration burden. These burdens include lost, broken, and out of sync key fobs. Our office tested multiple key fobs ultimately ending up with unusable fobs, and associated delay with lost key fobs which lead to no means of accessing our application until a replacement is obtained.

ConnDOT is receptive to two factor authentication but only if the technology used doesn’t adversely affect our e-business initiatives. Our recommendation for two factor authentication is to use adaptive authentication from RSA that is a server side product that provides two factor authentications without the use of key fobs. Currently there are multiple applications running within state agencies that only employ single factor authentication, using SSL encryption via a third party (i.e. VeriSign), some of these applications include Judicial’s E-Docket System, DRS – E-Tax Filing, DOT C-Vision, and CORE-CT. The data handled by these applications include tax information, payroll, and money transfers that are more sensitive and damaging if stolen than ProjectWise data.

Included in the next few paragraphs are responses from both DOT and Bentley Systems Inc. to all the numbered items in the draft letter. We feel that DOIT has not properly assessed.

1. **ProjectWise does not support “strong passwords”**
 - a. **to move to strong passwords, Active Directory would have to be integrated into the solution;**
 - b. **DOT is currently working on implementing Active Directory, but we are not aware of the status of that project;**

Bentley Response: There are a couple of approaches that can help mitigate this:

1) Domain Accounts: An “Extranet” domain could be established in the DMZ. This would be separate from the internal domain and allow the state to create user accounts for consultants with strong password policies in place. So long as there is a trust between the internal and external domains we can synchronize the accounts into ProjectWise.

2) Native ProjectWise Accounts: ConnDOT can create user accounts for the consultants natively in ProjectWise and establish strong passwords. Bentley can edit the ProjectWise Web Server interface to remove the ability for users to change their passwords (an easy task).

2. **ProjectWise does not limit the types of files which can be uploaded (see 3b below);**

DOT Response:

Yes it is true that ProjectWise currently does not limit the types of files which can be uploaded, but neither does the VPN SSL solution. Since two factor authentication is not completely secure files containing trojans, worms, and viruses could still be uploaded to the ProjectWise system if forced to use VPN SSL

Bentley Response: The firewall could possibly be configured to block certain file extensions from passing in externally.

3. Without the appropriate level of security (VPN with fob) the application server is exposed to the entire World-wide Web (WWW). This allows any individual or group to attempt to gain access to the ProjectWise servers—literally millions of people from all over the world. If they gain access:

Bentley Response: The user would need a valid account to gain access to ProjectWise - this can be tracked using Intrusion Detection System (IDS). If using the extranet domain option the accounts can be disabled after a certain number of failed attempts. There is also a way we can track the connections to ProjectWise and record them using “DMSTracing”. The DMSTracing utility will not automatically disable accounts after X number of bad attempts.

a. They can upload any files because ProjectWise does not limit by type;

See Response for 2.

b. These files could include those containing false data or, worse, viruses, “Trojans” or other “malware.” (While Bentley has indicated that their software would not open such files, they have not shown how they would intercept “self extracting” files to keep them from executing.)

Bentley Response: The ProjectWise server software will write the file to a Windows folder on a server running Antivirus software. ProjectWise software will not prevent the AV software from cleaning or removing an infected file. Transferring the file to the ProjectWise storage area will never execute the file itself. Nothing on the server-side will ever execute the file. The only way possible to execute a file through ProjectWise would be to upload it – have the AV software miss it – have a client perform a copy-out function to their local PC – have the AV software on the local PC miss it and then execute it.

c. In addition, these uploads could change or delete existing files and specifications, access confidential information, or change contact information (e-mail addresses could be redirected without anyone’s knowledge).

Bentley Response: We would need to know more specifics on how this would happen. We cannot see a way of doing this without some very advanced script that possibly finds a way to self-execute and then somehow pulls information about user accounts from the database. In the case of domain accounts we do not store the passwords in the database as they get authenticated to the domain in real-time. In the case of native ProjectWise accounts the script would have to perform a crack on the md5 hashed password, which (if successful) would only grant them access to the ProjectWise documents.

d. There appears to be no anti-virus protection to protect the rest of the DOIT network, potentially allowing an intruder to “spoof” a DOT user (use their official e-mail and access rights) to move further into the system.

Bentley Response: Our customers typically run a commercially available Antivirus software package on all servers and desktop systems. Our software is designed to work much like many other Windows client/server offerings by not interfering with those products.

e. ProjectWise server can only restrict access AFTER the validation by the Integration server, after passing through the firewall.

Bentley Response: There are several topics here. First, we have authentication, which is the ability to log into ProjectWise. This requires user accounts to be created by the administrator and specifically added to ProjectWise. After a user is authenticated, their access rights within the system are controlled by the administrator (which folders and documents can be seen). Our Integration Server and Gateway Server (often deployed in DMZ scenarios) can also filter addresses of client connections for allow/disallow).

Summary

We believe the language in the draft letter was extreme and in some cases misleading. We agree to a letter for “Acceptance of Risk”, but believe the language should be structured in a way that illustrates the risk in comparison to other existing applications running within the State Agencies.

