ExeVision’s integrated Project Development (iPDWeb™) is a comprehensive construction project development and management solution for government transportation agencies. As a fully integrated web solution, it provides all functional aspects of road and bridge construction starting with estimate creation and electronic bidding, through construction management, and concluding with processing final contractor payments during project closeout.

iPDWeb was designed by practicing construction management professionals to meet their day-to-day project management requirements. Agencies that need to carefully manage infrastructure projects, find that iPDWeb provides unique capabilities and a highly efficient, cost effective process.

While recognizing that many construction management practices are similar across many departments of transportation, iPDWeb has been architected to allow precise customization for those unique business processes found in each individual department of transportation. iPDWeb integrates end-to-end project management control using a centralized database model for seamless workflow across contracting, estimating, electronic bidding, construction, materials, and civil rights activities.

The complete solutions includes the following integrated subsystems:

- Project Cost Estimate Subsystem (PCES)
- Electronic Bidding Subsystem (EBS)
- Construction Management Subsystem (CMS)
- Materials Management Subsystem (MMS)
- Civil Rights Subsystem (CRS)
- Management Reporting Subsystem (MRS)
- Integrated Contractors Exchange (iCXWeb™)
- SecureVault™
- System Maintenance Subsystem (SMS)
**Project Cost Estimate Subsystem (PCES)**

The Project Cost Estimate Subsystem is used by agency personnel to prepare cost estimates, detailing all bid and non-bid items associated with a project. This subsystem is based on a user-friendly web-based interface that allows users to add categories and items, enter pricing information, identify funding sources, and review all bid and non-bid items from a single location. PCES includes tools to help project estimators make informed decisions when adding unit prices to their estimates based on historical pricing data. The subsystem allows the estimator to establish various criteria that can be used to analyze historical item costs including item history, quantity, awarded bid vs. all bids, specific date ranges, and the location of the project. Once the estimate is approved, the bid item file is locked in PCES and made available for bidding and advertising in the Electronic Bidding Subsystem (EBS). For agencies required to create accurate, long-range project estimates based on few known parameters, ExeVision also has a full parametric estimating system available.

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**Electronic Bidding Subsystem (EBS)**

The Electronic Bidding Subsystem provides three main functions associated with the bidding process: contract preparation, bid advertising, and bid opening and award.

The bid advertising functionality includes all internal efforts needed to let a project. These processes include creating project advertising documents for publication to the web, creating bid package documentation including the Notice to Contractors, and preparing other schedule and item related materials. As part of the pre-bid process, EBS can be used to verify that contractors are pre-qualified to bid on projects and create a plan holder report or bidders list.

At bid opening, EBS tabulates the unofficial bid opening results and creates bid analysis/tabulation and unofficial result documentation. The results can be electronically published to a bid opening website with a mouse click. EBS creates a complete bid abstract detailing all bidders’ prices. Project managers can analyze the information and determine if the bid information is complete, mathematically and materially balanced, and the prices are reasonable. When the project is awarded, EBS automatically creates the contract documents needed for execution. After the contract is executed, the awarded contractor’s bid and bid item prices are automatically loaded into the Construction Management Subsystem (CMS).

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**integrated Contractors Exchange (iCXWeb™)**

iCXWeb is a powerful solution for facilitating communication between contractors and the agency. Far more than a tool that contractors use solely for managing their bids on construction projects, iCXWeb is a portal that contractors use for virtually all critical construction project communication with the agency. It begins with receiving information about upcoming projects that are available for bidding through the iCXWeb dashboard, downloading and preparing project bids, and verifying that bids are responsive for submission to the SecureVault™, including acknowledgment of the latest addenda. Once contractors are awarded a project, they use iCXWeb for project-related communications such as: submitting subcontractors with the items to be subcontracted, receiving approval for subcontracts, documenting payments to subcontractors, validating payments received, receiving notifications of change orders, reviewing and approving change orders, reviewing pay estimates, and exchanging documents with the agency. ExeVision continues to explore new ways to extend this powerful platform to empower seamless communication between contractors and the agency.

iCXWeb substantially reduces the strain on agency resources by increasing bid accuracy, ensuring responsive bid submissions and practically eliminating software-related support calls for installs and upgrades. By using a standard browser, contractors are always assured that they are using the most current application without the headaches of downloading, upgrading, or installing bidding applications on their local device.
Construction Management Subsystem (CMS)

The Construction Management Subsystem tracks and maintains construction data including daily diaries, project ledger, and contractor pay estimates and utilizes the Electronic Field Book application (eFieldBook™) to gather and synchronize field data with the home office CMS.

CMS accumulates daily work activities including the quantities of work performed and processes pay estimates. It also calculates the overall percent of project complete and percentage of work complete by categories (i.e. earthwork, base, surface, structures, incidental construction, landscaping, traffic control and safety, traffic signals and highway lighting, and drainage). CMS can calculate the percent of contract time used based on working day, calendar day, or completion date and details all project activities by month, day, and year. Documented activities include weather, temperature, verified pay quantities, item and diary comments, equipment and labor used on the project, and the name of the inspector documenting the activity. CMS provides various reports used by the project manager, resident engineer, and contract administrator to analyze the project status including the progress and pay estimate reports, and supports processes that allow contractors to approve/disapprove payments and time charges if the agency uses such processes.

The Electronic Field Book application (eFieldBook) facilitates and streamlines the work of office and field personnel by enabling engineers to document daily work activities at the project site, including pay items and quantities of work performed, labor and equipment used by the contractor and subcontractors, daily time charges, daily weather conditions and temperatures, diary information including project inspections, and instructions to the contractor. Because engineers often document projects in remote areas, eFieldBook does not require Internet connectivity in the field. The application downloads project pay items and stationing information from CMS to the handheld device (iPad, etc.) and subsequently uploads daily work information through the device’s syncing functionality. Information collected and synchronized from the handheld is used in CMS to prepare contractor pay estimates.

Civil Rights Subsystem (CRS)

The Civil Rights Subsystem (CRS) utilizes iPdWeb’s single database architecture to track civil rights data from project setup through project closeout. During the preconstruction and bidding phases of a project, CRS is used to analyze and assign realistic project Disadvantaged Business Enterprise (DBE) and On-Job-Training (OJT) goals which become a part of the advertised bidding package. After the project is awarded and proceeds, CRS manages and documents project compliance with various reporting requirements including DBE affirmative action programs, on-site inspections (i.e. employee interviews, bulletin boards, Equal Employment Opportunity (EEO) and labor compliance interviews, harassment, intimidation, and coercion), training hours, and training programs. CRS tracks and manages DBE applications and generates a DBE directory that is dynamically sent through the SecureVault to the integrated Contractors Exchange (iCXWeb) for bidding contractors to use when preparing their DBE commitment, and can be exported for posting to the agency’s website. CRS includes the approval process for DBE/WBE/OJT commitments and change orders modifying commitments. Finally, with a few mouse clicks, CRS automatically generates the FHWA Uniform Report and civil rights performance measurements.
Materials Management

The Materials Management Subsystem (MMS), provides automated data collection and analysis services related to the acceptance of materials, quality control, and roadway testing. It is used to record the receipt of product documentation and certifications corresponding to the materials received on construction projects. MMS keeps track of testers on the project and their certified training status. Processes are in place to ensure correlation of contractor and agency testers for aggregate gradations and core densities, and the system provides a central repository for all aggregate and core density test samples. ASTM and AASHTO-based statistical analysis is done on the samples that indicate whether the material is accepted or rejected, calculates the material’s pay factor and pay adjustments, and when approved, sends them to the CMS project ledger to be reflected on contractor pay estimates. MMS includes a Laboratory Information System (LIMS) that agencies use to define their own material tests and provides a highly flexible test definition engine that enables users to configure tests with virtually any combination and format of questions and answers.

Management Reporting Subsystem (MRS)

The Management Reporting Subsystem (MRS) provides the ability to view project based information including Key Performance Indicators (KPIs), information used to understand the business flow from high-level overview information about all projects in the system to time, cost, and scope information regarding individual projects. MRS is composed of three interacting parts: customizable dashboards, project overview, and ad hoc reporting. It can also produce information relevant to upper management regarding late projects, missed deadlines, and upcoming dates. Project information can be accessed directly through reports or through the drill-down capabilities of the dynamic, user-defined dashboards, each providing detailed information at the level needed for individual job responsibilities.

System Maintenance Subsystem (SMS)

SMS provides the necessary capabilities for system administrators or assignees to define system access, maintain company and employee information, and modify other foundational data (e.g. construction item lists) used by the iPDWeb system. User access rights are granted based on individual roles, group roles, organizational assignments and/or project assignments. Access passwords are also set and maintained for system users. The company information section manages account information for companies that the agency interfaces with throughout the course of the construction process including newspapers, consultants, contractors, utility companies, suppliers, surety companies, etc. Employee information contained in SMS is designed to be a central resource for all people associated with a specific project, including resident engineers, project managers, all other agency employees, and external personnel such as bonding agents and FHWA employees. SMS also manages code table information and populates dropdown menus (e.g. DBE work types, weather on the work site, reasons to create project addenda, and the types of companies working with the agency). Other system-wide information is also maintained in this subsystem including contractor prequalification.

SecureVault™

The SecureVault services are the vehicle for the secure link and data exchange between the agency’s integrated Project Development solution (iPDWeb) and the integrated Contractors Exchange (iCXWeb) used by contractors. The SecureVault accepts encrypted bids from contractors and holds them as a secure repository until the date and time of bid opening. Other functions provided by SecureVault include providing current, updated information to the contractor including contractor lists, certified DBE lists, automated supplemental and addenda updates, and electronic agency bid package downloads. Contractors submitting bids to the SecureVault are assured that their bid information is not seen by any agency party before the official bid opening and, of course, are never seen by any other individuals other than designated agency personnel.

Certified Payroll

ExeVision has developed certified payroll functionality under contract for various state departments of transportation. This functionality is not included as a standard subsystem in the iPDWeb solution but is available as customized functionality.

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