

# Corps Water Management System (CWMS)

Budget year: FY2002

Agency: 202

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## Exhibit 300: Capital Asset Plan and Business Case Summary Part I: Summary Information And Justification

### Section A: Overview

1. Date of submission: **Sep 8, 2008**
2. Agency: **202**
3. Bureau: **00**
4. Name of this Capital Asset: **Corps Water Management System (CWMS)**
5. Unique Project (Investment) Identifier: **202-00-01-02-01-1051-00**
6. What kind of investment will this be in FY2010? **Operations and Maintenance**
7. What was the first budget year this investment was submitted to OMB? **FY2002**
8. Provide a brief summary and justification for this investment, including a brief description of how this closes in part or in whole an identified agency performance gap: **The "Corps Water Management System" (CWMS) is the Corps data management, decision-support analysis, and information dissemination system supporting requirements associated with the Corps water resources/water control management mission. CWMS directly supports all Corps water resources management decision making related to reservoir regulation, flood control, hydro power, navigation, water quality, water supply, environmental, recreation, irrigation, fish and wildlife and other project related water resources objectives of the Corps water resources infrastructure. CWMS is deployed to operate 24/7 in each of the Corps district/division offices (36) with water control management responsibilities. This project modernizes a loosely coordinated "Water Control Data System" with a standard suite of software and workstations. The modernization project is designed to improve execution of the water control management mission, and provide for staff utilization efficiency improvements. CWMS replaces locally developed, disparate and incompatible data management, analysis and decision-support systems with a Corps standardized software system that is centrally maintained and supported, thus reducing costs of on-going improvements, maintenance, and technical support. Also, the use of CWMS frees district water control management staff to concentrate on decision support analysis for improved mission execution from prior duties involving software development, maintenance, and support.**
9. Did the Agency's Executive/Investment Committee approve this request? **yes**

- a. If "yes," what was the date of this approval? **Feb 22, 2008**
10. Did the Project Manager review this Exhibit? **yes**
11. Contact information of Program/Project Manager?  
 Name **[Redacted]**  
 Phone Number **[Redacted]**  
 E-mail **[Redacted]**
- a. What is the current FAC-P/PM (for civilian agencies) or DAWIA (for defense agencies) certification level of the program/project manager? **Waiver Issued**
- b. When was the Program/Project Manager Assigned? **Jan 25, 2003**
- c. What date did the Program/Project Manager receive the FAC-P/PM certification? If the certification has not been issued, what is the anticipated date for certification? **Sep 1, 2010**
12. Has the agency developed and/or promoted cost effective, energy efficient and environmentally sustainable techniques or practices for this project. **yes**
- a. Will this investment include electronic assets (including computers)? **yes**
- b. Is this investment for new construction or major retrofit of a Federal building or facility? (answer applicable to non-IT assets only) **[Not answered]**
1. If "yes," is an ESPC or UESC being used to help fund this investment? **[Not answered]**
  2. If "yes," will this investment meet sustainable design principles? **[Not answered]**
  3. If "yes," is it designed to be 30% more energy efficient than relevant code? **[Not answered]**
13. Does this investment directly support one of the PMA initiatives? **yes**  
**Human Capital**  
**Expanded E-Government**  
**Financial Performance**
- a. Briefly and specifically describe for each selected how this asset directly supports the identified initiative(s)? **Human Capital: A common Community of Practice evolves around this system maximizing the ability of water managers to exchange knowledge, processes and information. Expanded E-Government: CWMS data stored in the corporate database can be accessed using COTS web enabled the implementation of software providing near real-time data to the public. Financial Performance: Maintaining a corporate system allows economies of scale to reduce costs to maintain and operate a common enterprise level system.**
14. Does this investment support a program assessed using the Program Assessment Rating Tool (PART)? (For more information about the PART, visit [www.whitehouse.gov/omb/part](http://www.whitehouse.gov/omb/part).) **no**
- a. If "yes," does this investment address a weakness found during a PART review? **[Not answered]**
  - b. If "yes," what is the name of the PARTed program? **[Not answered]**
  - c. If "yes," what rating did the PART receive? **[Not answered]**
15. Is this investment for information technology? **yes**

For information technology investments only:

16. What is the level of the IT Project? (per CIO Council PM Guidance) **Level 3**
17. In addition to the answer in 11(a), what project management qualifications does the Project Manager have? (per CIO Council PM Guidance) **(1) Project manager has been validated as qualified for this investment**

18. Is this investment or any project(s) within this investment identified as "high risk" on the Q4-FY 2008 agency high risk report (per OMB Memorandum M-05-23)? **yes**
19. Is this a financial management system? **no**
- a. If "yes," does this investment address a FFMIA compliance area? [Not answered]
1. If "yes," which compliance area: [Not answered]
2. If "no," what does it address? [Not answered]
- b. If "yes," please identify the system name(s) and system acronym(s) as reported in the most recent financial systems inventory update required by Circular A-11 section 52 [Not answered]
20. What is the percentage breakout for the total FY2010 funding request for the following?
- Hardware **3**
- Software **31**
- Services **66**
- Other [Not answered]
21. If this project produces information dissemination products for the public, are these products published to the Internet in conformance with OMB Memorandum 05-04 and included in your agency inventory, schedules and priorities? **n/a**
22. Contact information of individual responsible for privacy related questions:
- Name **[Redacted]**
- Phone Number **[Redacted]**
- Title **Privacy Act Officer**
- E-mail [Redacted]
23. Are the records produced by this investment appropriately scheduled with the National Archives and Records Administration's approval? **no**
24. Does this investment directly support one of the GAO High Risk Areas? **no**

## Section B: Summary of Spending

1.

<b>Table 1: SUMMARY OF SPENDING FOR PROJECT PHASES (REPORTED IN MILLIONS)</b>									
(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)									
	<b>PY-1 and earlier</b>	<b>PY 2008</b>	<b>CY 2009</b>	<b>BY 2010</b>	<b>BY+1 2011</b>	<b>BY+2 2012</b>	<b>BY+3 2013</b>	<b>BY+4 and beyond</b>	<b>Total</b>
Planning:	0	0	0	0	[*]	[*]	[*]	[*]	[*]
Acquisition:	7.347	0	0	0	[*]	[*]	[*]	[*]	[*]
Subtotal Planning & Acquisition:	7.347	0	0	0	[*]	[*]	[*]	[*]	[*]
Operations & Maintenance:	7.175	1.34	1.346	0.211	[*]	[*]	[*]	[*]	[*]
<b>TOTAL:</b>	<b>14.522</b>	<b>1.34</b>	<b>1.346</b>	<b>0.211</b>	<b>[*]</b>	<b>[*]</b>	<b>[*]</b>	<b>[*]</b>	<b>[*]</b>
<b>Government FTE Costs should not be included in the amounts provided above.</b>									
Government FTE Costs	11.655	0.573	0.59	0.609	[*]	[*]	[*]	[*]	[*]
Number of FTE represented by Costs:	117	6	6	6	[*]	[*]	[*]	[*]	[*]

2. Will this project require the agency to hire additional FTE's? **no**
- a. If "yes", How many and in what year? [Not answered]

3. If the summary of spending has changed from the FY2009 President's budget request, briefly explain those changes: **N/A**

**Section C: Acquisition/Contract Strategy**

1.

<b>Contracts/Task Orders Table:</b>	
<b>Contract or Task Order Number</b>	W91238-06-A-0019
<b>Type of Contract/Task Order (In accordance with FAR Part 16)</b>	BPA
<b>Has the contract been awarded</b>	yes
<b>If so what is the date of the award? If not, what is the planned award date?</b>	Oct 1, 2006
<b>Start date of Contract/Task Order</b>	Oct 1, 2006
<b>End date of Contract/Task Order</b>	Sep 30, 2011
<b>Total Value of Contract/ Task Order (\$M)</b>	0.259
<b>Is this an Interagency Acquisition?</b>	no
<b>Is it performance based?</b>	yes
<b>Competitively awarded?</b>	yes
<b>What, if any, alternative financing option is being used?</b>	NA
<b>Is EVM in the contract?</b>	no
<b>Does the contract include the required security &amp; privacy clauses?</b>	yes
<b>Name of CO</b>	[Redacted]
<b>CO Contact information (phone/email)</b>	[Redacted]
<b>Contracting Officer FAC-C or DAWIA Certification Level</b>	NA
<b>If N/A, has the agency determined the CO assigned has the competencies and skills necessary to support this acquisition?</b>	[Not answered]

2. If earned value is not required or will not be a contract requirement for any of the contracts or task orders above, explain why: **CWMS is a steady state capital investment and EVM is not required for this type of project.**
3. Do the contracts ensure Section 508 compliance? **yes**
- a. Explain why not or how this is being done? **The BPA contract utilized for CWMS is a general Engineering and Software BPA. Section 508 compliance would be specified in the individual calls written against the contract when appropriate.**
4. Is there an acquisition plan which reflects the requirements of FAR Subpart 7.1 and has been approved in accordance with agency requirements? **yes**
- a. If "yes," what is the date? **Jul 16, 2007**
1. Is it Current? **yes**
- b. If "no," will an acquisition plan be developed? **[Not answered]**
1. If "no," briefly explain why: **[Not answered]**

**Section D: Performance Information**

<b>Performance Information Table</b>							

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
2010	2007 USACE Campaign GOAL #2: Develop Sound Water Resources Solutions Mission & Business Results	Mission and Business Results	Water Resource Management	Number of offices indicating they use CWMS for mission modeling purposes	Will use 2009 results.	Continue to grow the number of offices showing +90% reliance on CWMS	TBD 1Q FY11
2010	USACE Campaign Goal #1 to Support Stability, Reconstruction, and Homeland Security by providing highly adaptable and effective technical support , responsive to National Strategies and interests	Customer Results	Timeliness	Number of CWMS Helpdesk Requests received and answered	Respond and resolve all cwms-helpdesk and 24x7 calls.	+95% customer satisfaction	TBD 1Q FY11
2010	USACE Campaign Goal #1 to Support Stability, Reconstruction, and Homeland Security by providing highly adaptable and effective technical support , responsive to National Strategies and interests	Technology	Reliability	Number of CWMS Helpdesk Requests received and answered	24x7 CWMS Helpdesk established in this FY. Baseline will be established this FY	+95% customer satisfaction	TBD 1Q FY11
2008	USACE Campaign GOAL #2: Develop Sound Water Resources Solutions	Mission and Business Results	Water Resource Management	Number of offices indicating they use CWMS for mission modeling purposes	In FY07, eight offices show 90% reliance on CWMS modeling for one or more watersheds	Continue to grow the number of offices showing +90% reliance on CWMS	In FY08, eight offices continue to show 90% reliance on CWMS modeling for one or more watersheds.
2008	USACE Campaign Goal #1 to Support Stability, Reconstruction, and Homeland Security by providing highly adaptable and effective technical support , responsive to National Strategies and interests	Customer Results	Timeliness	Number of CWMS Helpdesk Requests received and answered.	All help requests answered, including responses to 24x7 after hours requests.	+95% customer satisfaction	All cwms-helpdesk requests were answered including afterhours 24x7 requests. 100% satisfaction was attained.
2009	USACE Campaign GOAL #2: Develop Sound Water Resources Solutions	Mission and Business Results	Water Resource Management	Number of offices indicating they use CWMS for mission modeling purposes	FY08 Results showed eight offices using 90% reliance on at least one of their watersheds.	Continue to grow the number of offices showing +90% reliance on CWMS	TBD 1Q FY10

2009	USACE Campaign Goal #1 to Support Stability, Reconstruction, and Homeland Security by providing highly adaptable and effective technical support , responsive to National Strategies and interests	Technology	Reliability	Number of CWMS Helpdesk Requests received and answered.	FY08 Results will be used.	+95% customer satisfaction	TBD 1Q FY10
2008	USACE Campaign Goal #1 to Support Stability, Reconstruction, and Homeland Security by providing highly adaptable and effective technical support , responsive to National Strategies and interests	Technology	Reliability	Number of CWMS Helpdesk Requests received and answered.	All help requests answered, including responses to 24x7 after hours requests.	+95% customer satisfaction	All requests were answered and resolved with customer satisfaction.
2009	USACE Campaign Goal #1 to Support Stability, Reconstruction, and Homeland Security by providing highly adaptable and effective technical support , responsive to National Strategies and interests	Customer Results	Timeliness	Number of CWMS Helpdesk Requests received and answered	Respond and resolve all cwms-helpdesk and 24x7 calls.	+95% customer satisfaction	TBD 1Q FY10
2010	USACE Campaign Goal #1 to Support Stability, Reconstruction, and Homeland Security by providing highly adaptable and effective technical support , responsive to National Strategies and interests	Processes and Activities	Savings and Cost Avoidance	Number of locally developed, disparate and incompatible water management systems.	Many systems, including individual support requirements.	Single CWMS system, with centralized support.	TBD 1Q FY11
2009	USACE Campaign Goal #1 to Support Stability, Reconstruction, and Homeland Security by providing highly adaptable and effective technical support , responsive to National Strategies and interests	Processes and Activities	Savings and Cost Avoidance	Number of locally developed, disparate and incompatible wather management systems.	Many systems, including individual support requirements.	50% Reduction in systems and associated support costs.	TBD 1Q FY10

**Section E: Security and Privacy**

1. Have the IT security costs for the system(s) been identified and integrated into the overall costs of the investment?: **yes**
  - a. If "yes," provide the "Percentage IT Security" for the budget year: **5**
2. Is identifying and assessing security and privacy risks a part of the overall risk management effort for each system supporting or part of this investment?. **yes**

<b>3. Systems in Planning and Undergoing Enhancement(s), Development, and/or Modernization - Security Table(s):</b>			
<b>Name of System</b>	<b>Agency/ or Contractor Operated System?</b>	<b>Planned Operational Date</b>	<b>Date of Planned certification and accreditation (C&amp;A) update (for existing mixed life cycle systems) or Planned Completion Date (for new systems)</b>
<i>There are no Systems in Planning.</i>			

<b>4. Operational Systems - Security Table:</b>							
<b>Name of System</b>	<b>Agency/ or Contractor Operated System?</b>	<b>NIST FIPS 199 Risk Impact level</b>	<b>Has C&amp;A been Completed, using NIST 800-37?</b>	<b>Date Completed: C&amp;A</b>	<b>What standards were used for the Security Controls tests?</b>	<b>Date Completed: Security Control Testing</b>	<b>Date the contingency plan tested</b>
CWMS	Government Only	Moderate	yes	Mar 14, 2006	Other	May 14, 2008	Aug 5, 2008

5. Have any weaknesses, not yet remediated, related to any of the systems part of or supporting this investment been identified by the agency or IG? **no**
  - a. If "yes," have those weaknesses been incorporated into the agency's plan of action and milestone process? **[Not answered]**
6. Indicate whether an increase in IT security funding is requested to remediate IT security weaknesses? **no**
  - a. If "yes," specify the amount, provide a general description of the weakness, and explain how the funding request will remediate the weakness. **[Not answered]**
7. How are contractor security procedures monitored, verified, and validated by the agency for the contractor systems above? **N/A**

<b>8. Planning &amp; Operational Systems - Privacy Table:</b>					
<b>Name of System</b>	<b>Is this a new system?</b>	<b>Is there a Privacy Impact Assessment (PIA) that covers this system?</b>	<b>Internet Link or Explanation</b>	<b>Is a System of Records Notice (SORN) required for this system?</b>	<b>Internet Link or Explanation</b>
CWMS	no	yes	Army policy directs the Corps to submit PIAs to Army for posting to the DoD PIA website. They are not to be posted for public review due to the fact that they contain FOUO information	no	SORN not needed.

**Section F: Enterprise Architecture (EA)**

1. Is this investment included in your agency's target enterprise architecture? **yes**
  - a. If "no," please explain why? **[Not answered]**

2. Is this investment included in the agency's EA Transition Strategy? **yes**

a. If "yes," provide the investment name as identified in the Transition Strategy provided in the agency's most recent annual EA Assessment. **CWMS Corps Water Management System**

b. If "no," please explain why? [Not answered]

3. Is this investment identified in a completed and approved segment architecture? **yes**

a. If "yes," provide the six digit code corresponding to the agency segment architecture. The segment architecture codes are maintained by the agency Chief Architect. For detailed guidance regarding segment architecture codes, please refer to <http://www.egov.gov>. **103-000**

**4. Service Component Reference Model (SRM) Table :**

Agency Component Name	Agency Component Description	FEA SRM Service Type	FEA SRM Component	Service Component Reused		Internal or External Reuse?	BY Funding Percentage
				Component Name	UPI		
Mathematical	CWMS provides the water manager with the ability analyze water resource data.	Analysis and Statistics	Mathematical	[Not answered]	[Not answered]	No Reuse	10
Graphing / Charting	Hydrometeorologic data can be plotted and/or charted to provide the water manager with a quick and detailed overview of a watershed's condition	Visualization	Graphing / Charting	[Not answered]	[Not answered]	No Reuse	10
Mapping / Geospatial / Elevation / GPS	The CWMS interface presents the user with a watershed map representing the pertinent features (e.g., rivers, streams, dams, levees, towns) pertinent to the watersheds regulation.	Visualization	Mapping / Geospatial / Elevation / GPS	[Not answered]	[Not answered]	No Reuse	10
Simulation	CWMS uses hydrologic, hydraulic, and reservoir simulation models to simulate the real world conditions. HEC-HMS, HEC-ResSim, HEC-RAS	Knowledge Discovery	Simulation	[Not answered]	[Not answered]	No Reuse	15
Decision Support and Planning	Results from watershed models are used by water managers to evaluate and prepare release/operational decisions. HEC-HMS, HEC-ResSim, HEC-RAS	Business Intelligence	Decision Support and Planning	[Not answered]	[Not answered]	No Reuse	15
Ad Hoc	Ad Hoc reports are prepared by CWMS users to assist in the analysis of real time data or simulation results.	Reporting	Ad Hoc	[Not answered]	[Not answered]	No Reuse	5
Standardized / Canned	Reports are produced providing relevant information on watersheds for decision makers, other agencies, and the public	Reporting	Standardized / Canned	[Not answered]	[Not answered]	No Reuse	10
	Data can be extracted from the CWMS Database in Standard Hydrologic	Data			[Not		



Data Exchange	Exchange Format (SHEF) for interchange with Corps offices and/or federal/state agencies.	Management	Data Exchange	[Not answered]	answered]	No Reuse	5
Data Cleansing	Incoming data streams undergo data quality checking, which flags suspect (erroneous) data.	Data Management	Data Cleansing	[Not answered]	[Not answered]	No Reuse	10
Extraction and Transformation	Data editors allow users to effectively review and edit hydrometeorologic data	Data Management	Extraction and Transformation	[Not answered]	[Not answered]	No Reuse	10

#### 5. Technical Reference Model (TRM) Table:

FEA SRM Component	FEA TRM Service Area	FEA TRM Service Category	FEA TRM Service Standard	Service Specification
Mathematical	Service Access and Delivery	Access Channels	Other Electronic Channels	Java Client Application Server to Server
Graphing / Charting	Service Access and Delivery	Delivery Channels	Intranet	Ssh, sftp, ftp, xterm, Java rmi
Mapping / Geospatial / Elevation / GPS	Service Access and Delivery	Service Requirements	Authentication / Single Sign-on	UNIX System Authentication via U-Pass
Simulation	Service Access and Delivery	Service Transport	Service Transport	ftp, Java RMI
Decision Support and Planning	Service Platform and Infrastructure	Support Platforms	Platform Independent Technologies	Java, FORTRAN, C++
Ad Hoc	Service Platform and Infrastructure	Software Engineering	Software Configuration Management	Perforce
Standardized / Canned	Service Platform and Infrastructure	Delivery Servers	Application Servers	SUN Sparc Architecture
Data Exchange	Service Platform and Infrastructure	Database / Storage	Database	Oracle9i moving to Oracle10g
Data Cleansing	Service Platform and Infrastructure	Hardware / Infrastructure	Application Servers	Sun Sparc Servers
Extraction and Transformation	Component Framework	Security	Supporting Security Services	Ssh, sftp
Graphing / Charting	Component Framework	User Presentation / Interface	Content Rendering	Java GUI

6. Will the application leverage existing components and/or applications across the Government (i.e., USA.Gov, Pay.Gov, etc)? **yes**

- a. If "yes," please describe. **CWMS is heavily reliant on data from USGS and other state and local agency fielded stream and reservoir gages and the data collection platforms managed and maintained by these agencies. CWMS also relies upon NOAA river and weather forecasts when evaluating and forecasting reservoir operations. Corps generated reservoir release schedules are then used by NOAA and other state and local water interests to help improve river forecasts and warning as well as to manage water supply, irrigation, and river navigation forecasts.**

### Part III: For "Operation and Maintenance" investments ONLY (Steady State)

#### Section A: Risk Management (All Capital Assets)

1. Does the investment have a Risk Management Plan? **yes**

- a. If "yes," what is the date of the plan? **Aug 14, 2006**
  - b. Has the Risk Management Plan been significantly changed since last year's submission to OMB?  
**no**
  - c. If "yes," describe any significant changes: **[Not answered]**
2. If there currently is no plan, will a plan be developed? **[Not answered]**
    - a. If "yes," what is the planned completion date? **[Not answered]**
    - b. If "no," what is the strategy for managing the risks? **[Not answered]**

**Section B: Cost and Schedule Performance (All Capital Assets)**

1. Was operational analysis conducted? **yes**
  - a. If "yes," provide the date the analysis was completed. **Aug 1, 2007**
  - b. If "yes," what were the results? **Analysis Approved by CIO**
  - c. If "no," please explain why it was not conducted and if there are any plans to conduct operational analysis in the future: **[Not answered]**
2.
  - a. What costs are included in the reported Cost/Schedule Performance information (Government Only/Contractor Only/Both)? **Contractor and Government**

**2. b Comparison of Plan vs. Actual Performance Table:**

Description of Milestone	Planned		Actual		Variance	
	Completion Date	Total Cost (\$M)	Completion Date	Total Cost (\$M)	Schedule:Cost (# days/\$M)	
Design, develop	Jul 15, 2001	14.9	Jul 15, 2001	14.9	0	0
Deployment	Dec 31, 2002	0.98	Dec 31, 2002	0.98	0	0
Maint FY02	Sep 30, 2002	0.5	Sep 30, 2002	0.5	0	0
Maint FY03	Sep 30, 2003	0.75	Sep 30, 2003	0.75	0	0
Maint FY04	Sep 30, 2004	0.75	Sep 30, 2004	0.75	0	0
Maint FY05	Sep 30, 2005	0.75	Sep 30, 2005	0.75	0	0
Maint FY06	Sep 30, 2006	0.75	Sep 30, 2007	0.75	0	0
Maint FY07	Sep 30, 2007	0.75	Sep 30, 2007	0.75	0	0
Maint FY08	Sep 30, 2008	0.77	Sep 8, 2008	0.71	0	0.04
Maint FY09	Sep 30, 2009	0.8	[Not answered]	[Not answered]	[Not answered]	[Not answered]
Maint FY10	Sep 30, 2010	0.82	[Not answered]	[Not answered]	[Not answered]	[Not answered]
Maint FY11	Sep 30, 2011	0.84	[Not answered]	[Not answered]	[Not answered]	[Not answered]