Appendix G – Technical Methodology and Approach Document

Technical Methodology and Approach Document

CWS/CMS Technical Architecture Alternatives Analysis (TAAA)

California Health and Human Services Agency Data Center

Gartner

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Approvals

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Version 4	March 1, 2005	Update to incorporate Function Point Analysis Methodology	Eclipse

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1 Document Overview

The Technical Methodology and Approach Document describes the methodology that the Eclipse / Gartner team will be using to conduct the Child Welfare Services (CWS) / Case Management System (CMS) Technical Architecture Alternatives Analysis (TAAA) and the method to be used for soliciting and capturing the business, technical and financial requirements. This document will serve as the basis of understanding the work to be performed under the TAAA Statement of Work (SOW).

1.1 Background

The CWS / CMS was originally implemented in 1997 and has moved into the Maintenance and Operations (M&O) phase. The system supports all 58 California counties, the Department of Social Services and has over 19,000 users identified. Since its implementation, the system has incorporated all but four (4) of the most significant and critical SACWIS functionality required by federal requirements. The system's current technical architecture is comprised of technologies and concepts that were common for large mission critical systems in the mid 1990s. The limitations of the current system include:

- Depends significantly on legacy application technologies that are expensive to maintain and restricts strategies to meet program goals;
- Does not lend itself to enhancement using emerging technologies;
- Does not satisfactorily meet the changing business and technical needs of the system's end users.

The State has outlined an approach for analyzing the costs and benefits of alternative architectures that will address the limitations of the current system and the outstanding SACWIS requirements. The State believes that re-architecting the system may reduce maintenance costs, reduce the time and costs required for system upgrades, provide improved functionality and user access, allow the use of commercial off the shelf software, permit incorporation of web service components, and produce an open system architecture that is significantly easier to support than the existing system.

The State decided to conduct an independent analysis of the best approach to solving the problems and challenges faced by the existing CWS / CMS technical architecture. This analysis will be performed by the Eclipse / Gartner team, which possesses expertise in large system technical architecture alternatives analysis. The primary objective of the Eclipse/Gartner team will be to provide a Total Cost of Ownership (TCO) comparison between each of the three (3) alternatives defined by the State in the SOW, which include:

1. Continue with the Current CWS / CMS Technical Architecture
2. Evolve the Current CWS / CMS Technical Architecture to a Web Services Based Technical Architecture Over Time
3. Continue M&O of the Current CWS / CMS and Simultaneously Build a New System Using a Web Services Based technical Architecture

The Eclipse/Gartner team will document their analysis and provide their recommendations to the State in the form of several key deliverables that include:

- **Technical Methodology and Approach Document**
- Annotated Outline of the Analysis Report
- Draft Section of the TAAA Report for Alternative #1
- Draft Section of the TAAA Report for Alternative #2
- Draft Section of the TAAA Report for Alternative #3
- Draft and Final Versions of the TAAA Report.

In addition to the TAAA tasks and deliverables, the Eclipse/Gartner team will also provide CWS CMS with support for State and Federal Approval and Acquisition Support Documents that include:

- State Feasibility Study Report
- As-Needed Advance Planning Document Update
- Technical Requirements Document for a Request for Proposal.

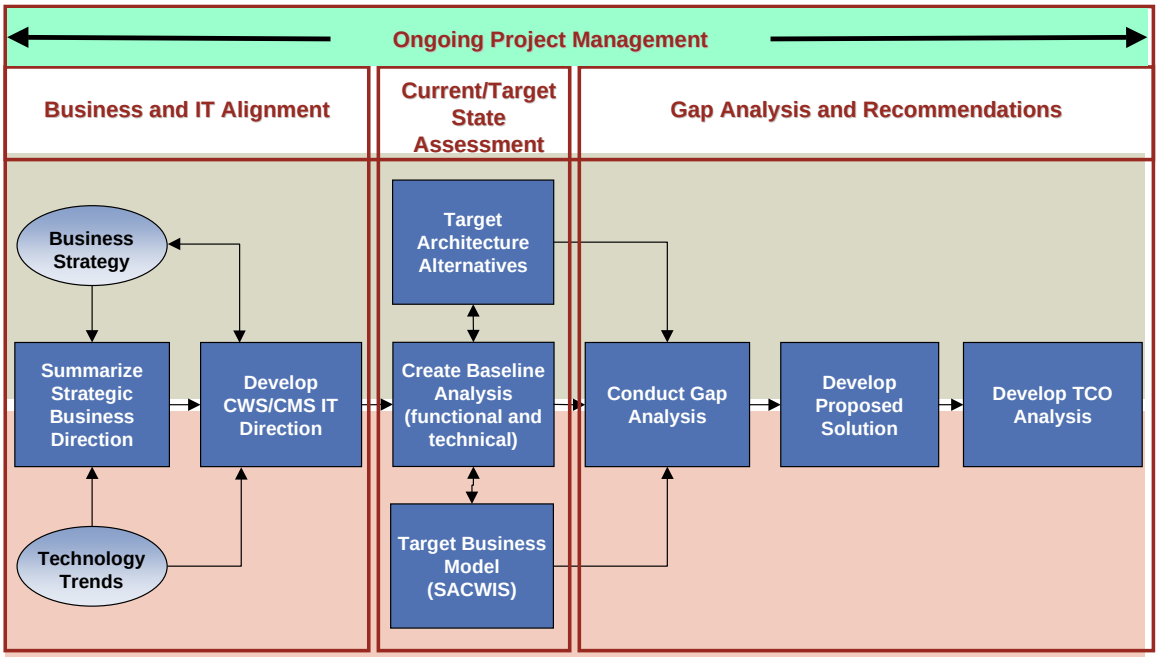
2 Approach and Methodology

2.1 Approach to Statement of Work

The Eclipse/Gartner team will follow a structured approach to defining the TAAA for CWS/CMS (see Figure 1 below). We will work closely with the State to clearly understand the current and future business and IT direction of the CWS/CMS program. Utilizing a well-defined and proven architecture analysis process, the team will assess the scope of the SACWIS functional requirements and conduct a detailed analysis of the supporting application architecture alternatives, including a total cost of ownership based on these alternatives. Each of the three (3) alternatives identified in the SOW will be analyzed to determine the technical and business benefits, limitations, and risks associated with implementing required remaining SACWIS functionality within the alternative, including cost comparisons that document the total cost of ownership over the expected life of the system for each associated alternative. The Eclipse/Gartner team will establish a decision-making process and criteria to aid stakeholders in selecting the most viable alternative; thereby, enabling the State to move forward in the approval and acquisition phases of the overall project. Further definition of the actual architecture definition approach is provided in Section 2.1.2.

Project planning and management are core functions throughout all lifecycle activities to ensure issues, risks, and resources are managed appropriately. Successful project planning and management will also ensure the identification and communication of work activities and schedules relating to the TAAA development, internal and external approvals, coordination with stakeholders, and the transition to the procurement phase of the project.

Figure 1. Project Management and Systems Engineering Analysis / Alternatives Analysis Approach

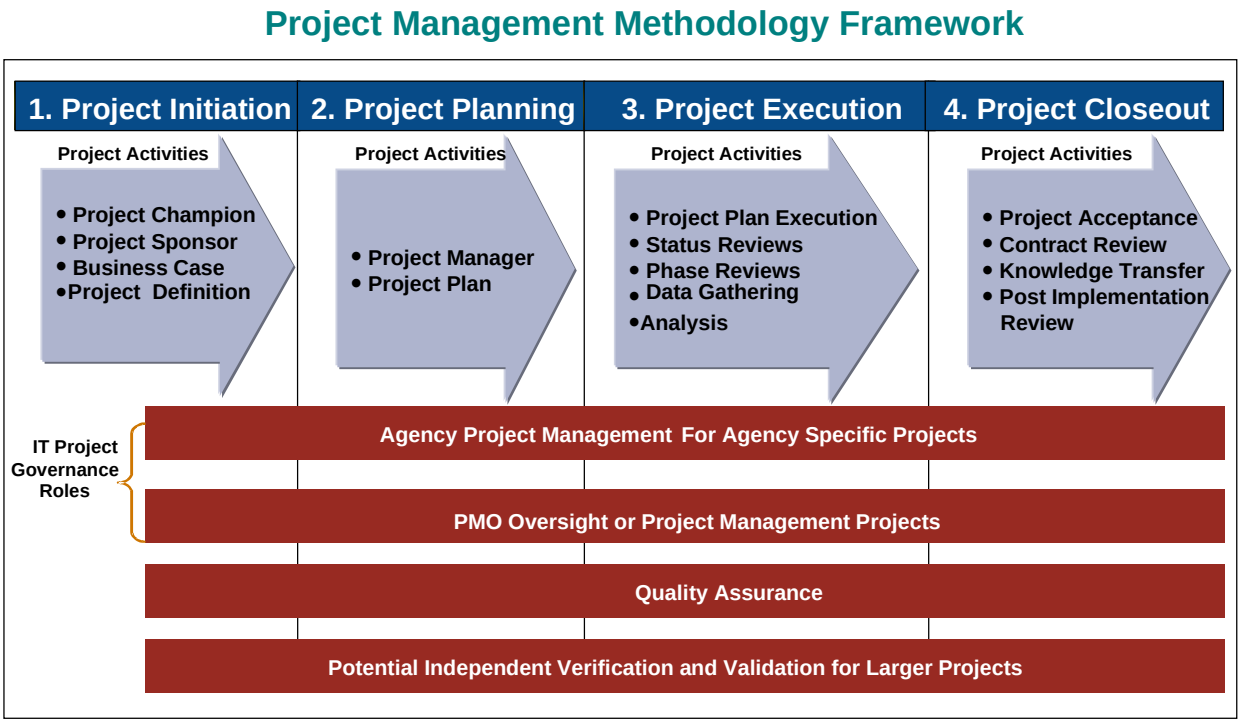


2.1.1 Task 1 – Project Management, Quality Assurance and Risk Management

Project Management Methodology

The following overview of our strategy for successfully managing this engagement is illustrated below.

Figure 2. Scalable Project Management Framework



Quality Assurance Methodology

The issue resolution and quality assurance (QA) approach and methodology is designed to meet our clients' diverse and demanding needs. Our QA services serve to mitigate potential issues to help ensure the quality of IT projects by providing, for example:

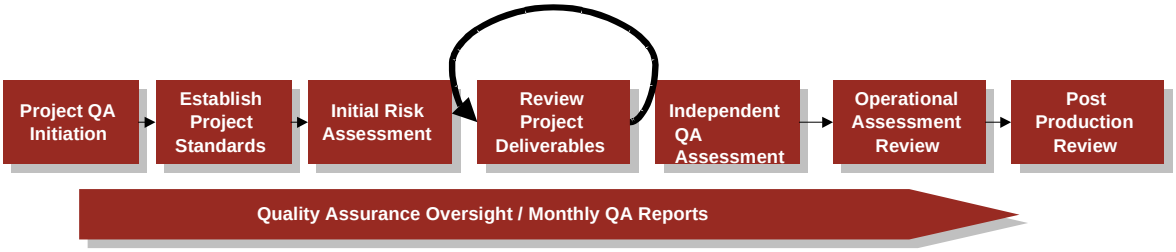
- A Quality Master plan for each assignment that details the work products, reviews, methodology, time frames, resources, and expected outcomes
- Recommendations for QA best practices, tools, and techniques
- Project plan input as it relates to building in QA best practices

The intent of the QA process is to verify and validate the interim work products of each major phase of the project. Typical of most large-scale efforts, it is assumed that agencies will rely on a formalized approach to monitor and review the quality of its own interim work products. QA is

intended to provide "another set of eyes" to review deliverables of all kinds, to ensure that they conform as closely as possible to best practices.

The Eclipse/Gartner team has adopted a proven, structured approach for performing QA services that is consistent with standards established by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and the Project Management Institute (PMI). Our QA methodology is tightly integrated with overall Project Management objectives. This methodology includes understanding and managing customer satisfaction and requirements; providing risk mitigation strategies that focus on avoiding problems rather than correcting them; clearly communicating responsibilities; and ensuring that the project has appropriate resources to succeed in a timely and cost-effective manner.

Figure 3. QA Methodology



Source: Gartner 2004

Risk Management and Issue Resolution Approach and Methodology

In addition to project management and quality assurance, risk management methods are integrated into our overall project management methodology. Risk identification, monitoring and resolution are key tools for successfully completing a project. Part of controlling a project is to have an established risk management process. This process is a primary part of project planning and management activities and is kept current until project closeout. The Eclipse/Gartner team will manage project risks on an ongoing basis throughout the engagement.

The key to risk management is having an understanding of all the potential risks to the project, and ensuring that these potential risks and risk mitigation strategies are communicated to key project stakeholders on an ongoing basis. An example checklist of action plan for risk management is included below.

Table 1. Risk Management Action Plan Checklist

	Action Plan Checklist:
1.	Create a central repository for risk information and associated documentation of risk items and resolution strategies
2.	Summarize information on a risk form
3.	Assign a risk manager, who should be either the project manager or a member of the status tracking/reviewing team (this assignment should have been done at project baseline, but definitely by the early days of performance)

Action Plan Checklist:	
4.	Include a risk summary in the regular status meetings
5.	Provide a consistent and ongoing evaluation of risk items and development of risk strategies
6.	Identify new risks (e.g., risk assessment)
7.	Evaluate new and existing risks
8.	Define/refine risk response strategies
9.	Select and obtain approval (from steering committee) for selected risk response strategies
10.	Implement approved risk response strategy
11.	Revise any related or impacted planning documents
12.	Conduct regular follow-up risk assessments based on magnitude of the project

Source: Gartner 2004

2.1.2 Task 2 – Systems Engineering Analysis/Alternatives Analysis

Architecture Approach

Our approach to IT architecture is to begin with a baseline analysis and work through the environmental trends and business drivers down into the requirements for the architecture. In this way, architectural discussions are tied directly to the business issues of the organization. In April 2003, the CWS/CMS Project completed a Technical Architecture Strategic Plan (TASP) that outlined a broad conceptual model for evolving the current CWS/CMS technical architecture to a web services based infrastructure over time. The TAAA will address the need to compare the business, technical, and cost implications of implementing new SACWIS functionality and addressing the business problems identified in the RFO and SOW (e.g., security, system access, system changes, etc.). Each alternative identified by the State will be compared in order to determine the best solution to resolve unmet needs in the CWS/CMS environment. Given that the three alternatives have only been defined in very broad terms, the Eclipse/Gartner team will develop more robust scenarios for each alternative that will be validated during the alternative analysis workshops. These validated scenarios will then form the basis for the TCO modeling and analysis.

The key principles of the Eclipse/Gartner approach are as follows:

1 The starting point must be to first define principles or strategy. The IT strategy clearly must support the overall business strategy, including resolution of business problems currently being experienced by CWS/CMS. Business and technology drivers provide a basis for determining the non-functional needs that are currently unmet by the existing application (i.e., remote access, mobile support, etc.)

2 The functional architecture is derived from the strategy (e.g., meeting SACWIS requirements). These functions become the focus of the assessment process, and provide a starting point for defining the scope and cost of each of the three alternative architectures. Federal SACWIS requirements and function point analysis for both SACWIS and Non-SACWIS requirements will be utilized.

3 The application architecture is comprised of the set of IT applications (bought or built) that deliver the functionality (plus a defined integration technology) that links the various applications and a coherent data model. For CWS/CMS, this includes relevant components of the logical and physical layers as illustrated in Figure 4 below (the enabling layer is discussed as the technical architecture). For example, in the physical layer we will discuss the original design principals and the rationale for constructing the application and allocating application logic, business rules, communication gateways and transactions, etc. In the physical architecture we will define the scope of SACWIS and Non-SACWIS in terms of function points, discuss location of where key processes and transactions occur (i.e., desktop, middle-tier, host tier) and the allocation of software components across the tiers. We will first define the baseline CWS/CMS application then validate the target state design principals and application logic that will comprise the Technical Architecture Alternatives Analysis 2 (TAAA2) and Technical Architecture Alternatives Analysis 3 (TAAA3) alternatives. We will describe the changes required for these alternative architectures in order to determine the TCO ramifications of the change.

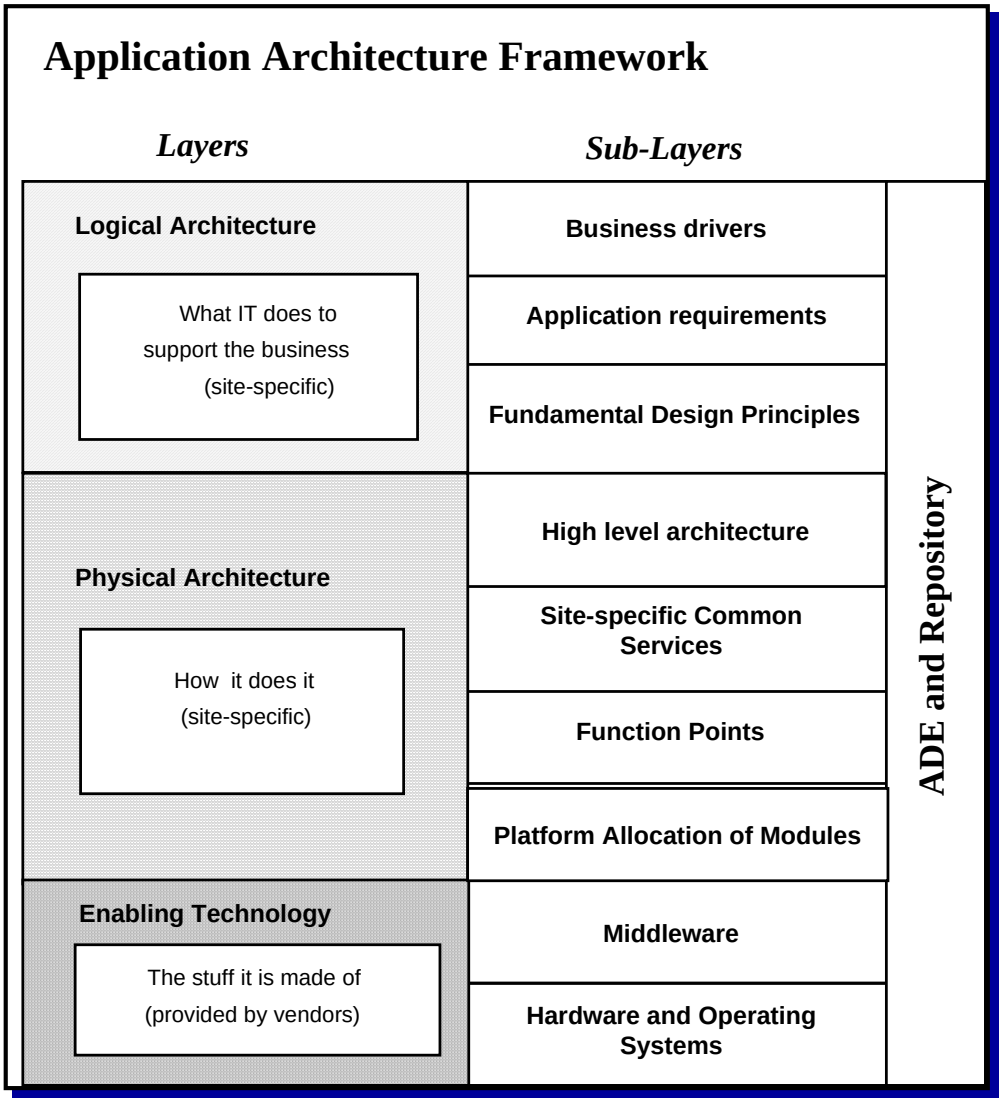
4 The technical architecture is the foundation upon which the application architecture is built. The analytical process is similar to that defined for the application architecture. Since the current CWS/CMS system has implemented a very robust infrastructure, we anticipate that the significant change will occur in this layer among the alternatives. The Eclipse/Gartner team will develop a detailed inventory of the major infrastructure components in order to determine the TCO implications of change under the TAAA2 and TAAA3 alternatives.

5 The organizational architecture refers to the set of management processes or governance rules by which the needs of the user constituencies are identified, analyzed, prioritized and satisfied by the IT delivery organizations (for this engagement, the Eclipse/Gartner team will address organizational architecture insofar as it applies to the decision-making process among architecture alternatives).

The Eclipse/Gartner team understands that the focus area for this effort is centered on the functional, application and technical architecture layers.

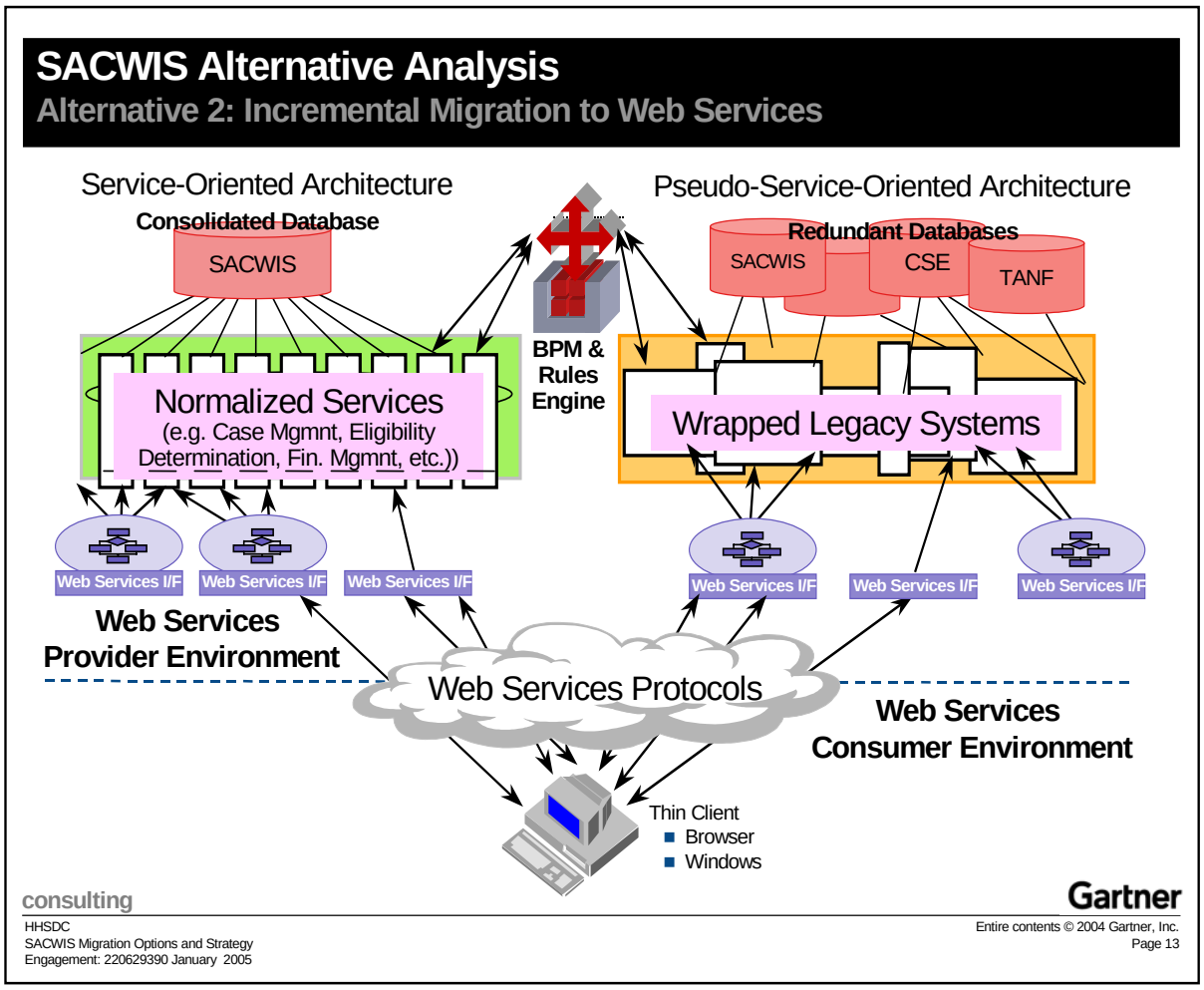
For each of the TAAA alternatives, the Eclipse/Gartner team will develop a taxonomy that subdivides the technologies into individual technology components. The figure below is an example of a taxonomy:

Figure 4. Application Taxonomy



The Eclipse/Gartner team of Technical Architects will then develop conceptual models of the architectural alternatives under consideration in order to develop a roadmap for the evolution of the environment. A high level illustration of TAAA2 is represented below:

Figure 5. Illustrative Conceptual Architecture Diagram



The Eclipse/Gartner team will then develop an evaluation framework to thoroughly review each alternative. The objective will be to develop a consensus model that will result in the selection of a proposed alternative. An illustrative example of such a framework is provided below:

Figure 6. Illustrative Alternative Evaluation Framework

	Evaluation Criteria	ALT X	ALT Y	ALT Z
Benefits	Business Alignment (1=low, 5=high)	1	4	2
	Functionality (1=low, 5=high)	2	3	2
	Flexibility (1=low, 5=high)	2	4	3
	Maintainability (1=low, 5=high)	1	4	3
	Technology Architecture Coherence (1=low, 5=high)	2	4	3
TCO	Implementation Costs (5=low, 1=high)	5	2	3
	Maintenance Costs (5=low, 1=high)	1	5	2
Time	Time to Benefit Realization (5=short, 1=long)	1	3	3
	Incremental Benefit Delivery (5=Frequent, 1=lengthy)	2	5	3
Risk	Financial Risk (5=low, 1=high)	4	1	3
	Technical Risk (5=low, 1=high)	2	4	4
	Operational Risk (5=low, 1=high)	4	3	3
	Schedule Risk (5=low, 1=high)	4	5	1
	Implementation Risk (5=low, 1=high)	5	3	3
	Total	**36**	**50**	**38**

The Eclipse/Gartner team will work closely with the State project team members to identify the appropriate evaluation criteria and the associated weighting for the framework. The project team will also identify and document the benefits, risks, limitations, total cost of ownership (including the unfulfilled SACWIS functional requirements), and any assumptions for each of the alternatives. Cost estimates for each alternative will be derived by triangulating a number of estimation techniques, including function point analysis focused on sizing, for estimating software development costs and time frames.

Function Point Analysis

The Function Point Analysis (FPA) methodology utilized for the TAAA project is an internally recognized methodology for determining the overall size of a software application. Function point analysis centers around seven basic steps: 1) Determining the type of function point count; 2) Identifying the counting scope or boundary; 3) Identifying data functions; 4) Identifying the transactional functions; 5) Determining the unadjusted count; 6) Determining the adjustment for complexity; and 7) Calculating the adjusted function point count. We used these results to size the current CWS/CMS application and then to develop estimates for the software development

projects in terms of effort, scheduling, and costs. The following paragraphs provide a description of the function point analysis background and process.

⇒ **Background**

In the mid-1970s, IBM commissioned an engineer, Allan Albrecht and his colleagues to explore software measurements and metrics. At the time, the main metric used for measuring software was the "lines of code" metric. The technique was exactly as it sounds; it counts the lines of source code to determine software sizing, programmer productivity, and development project progress.

The limitations inherent in the lines of code metric were quickly uncovered:

- Individual programmer's style greatly alter the counts
- Difficulties in agreeing on "what" constitutes a line of code
- Implementation choices in hardware and architecture greatly influence the source line counts

As a result of these limitations, the function point metric was intended to be independent of the amount of code in software applications. In October of 1979, Albrecht presented the paper "Measuring Application Development Productivity". The paper described how the function point metric could be useful for analyzing the full lifecycle of software projects – from requirements development through delivery, maintenance and enhancement. By 1984, the International Function Point User Group (IFPUG) was created.

In its simplest terms, function points count the externally visible aspects of software products: inputs to an application, outputs from an application, user inquiries, the data files updated by the application, and the number of interfaces to other applications. These items are then weighted by their complexity – the relative difficulty of implementing each. Once adjusted by their complexity factors, the total of all these represent the function point count of the application. We used these results to provide estimated project effort, scheduling, and costs.

⇒ **Function Point Counting Process**

Steps in function point counting:

- Determine type of function point count (application)
- Identify counting scope (application) and application boundary
- Identify data functions (ILF, EIF)
- Identify transactional functions (EI, EO, EQ)
- Determine unadjusted function point count
- Determine value adjustment factor
- Calculate adjusted function point count

⇒ **Types of Function Point Counts**

There are three possible types of function point counts:

- Development project counts
- Enhancement project counts
- Application counts

A development project count measures the end user functionality present at an application's first installation. This includes the application's basic functionality as well as the functionality needed for data conversion. An enhancement project count measures any modifications made to the existing application by adding new functions, deleting old functions, and modifying current functions. These counts are taken in context with the current application function point count and the new count reflects all these changes. An application count measures an existing application. The application count evaluates the current functionality provided to end users by the application. The application count is the type used for the CWS/CMS TAAA project.

⇒ **Determining Counting Scope and Application Boundary**

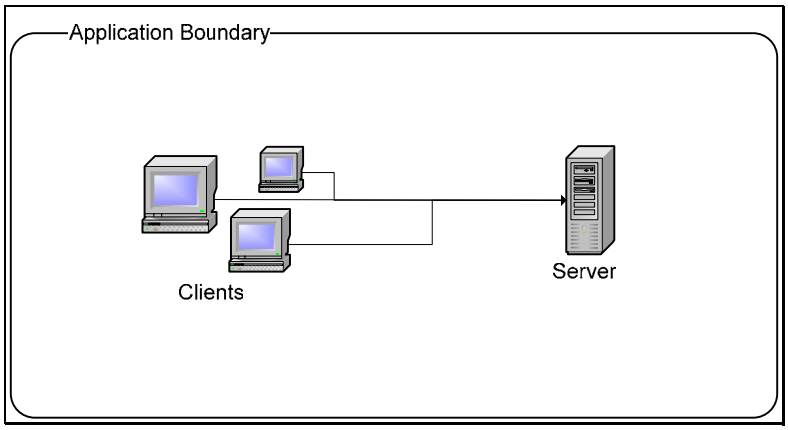
As noted above, the counting scope encompassed CWS/CMS as an application count. The next step in the process was to determine the application boundary. As with all aspects of function point analysis, the application boundary is defined by the end user's perspective of the system. Implementation choices or technical architecture do not influence the analysis.

According to the Counting Practices Manual (IFPUG):

- The application boundary for a client-server application includes the functionality of both the client and the server.
- A function point count of the application should be conducted from the perspective of the business solution versus the technical solution.
- The client-server environment and the various layers of the application are part of the physical environment and are not part of the functional requirements.
- All components need not reside on the same hardware platform.
- From a business perspective, the application boundary of a client-server application consists of all components that collectively meet the business requirements, regardless of physical implementation or platform.

Based on these criteria, we have defined the CWS/CMS application boundary as shown.

Figure 4 - Function Point Application Boundary



⇒ **Identify Data Functions (ILF, EIF)**

Data functions refer to those logical data stored and available to the application. The application can update, reference, or retrieve this logical data. The data functions are further defined below.

Internal Logical File (ILF)
An internal logical file (ILF) is a *user-identifiable* group of *logically related data* or *control information maintained* within the boundary of the application. The primary intent of an ILF is to hold data maintained through *one* or more *elementary processes* of the application being counted.

External Interface File (EIF)
An external interface file (EIF) is a *user-identifiable* group of *logically related data* or *control information* referenced by the application but *maintained* within the boundary of a different application. The primary intent of an EIF is to hold data referenced through one or more *elementary processes* within the boundary of the application counted. An EIF counted for an application must be in an ILF in another application.

⇒ **Identify Transactional Functions (EI, EO, EQ)**

Transactional functions perform the processes of an application: updating, retrieving, outputting, and receiving input from the user. External inputs (EI) process the incoming data of the application. External outputs (EO) send data outside the application boundary. The transactional functions are further defined below.

External Inputs (EI)
An external input (EI) is an *elementary process* of the application that processes *data* or *control information* that enters from outside the boundary of the application. Processed data *maintains* one or more ILFs; processed control information may or

may not maintain an ILF. The primary intent of an EI is to maintain one or more ILFs and/or to alter the behavior of the application through its *processing logic*.

External Outputs (EO)

An external output (EO) is an *elementary process* of the application that generates *data* or *control information* that exits the boundary of the application. The primary intent of an external output is to present information to a user through *processing logic* other than, or in addition to, the retrieval of data or control information. The processing logic must contain at least one mathematical formula or calculation, create *derived data*, *maintain* one or more ILFs, and/or alter the behavior of the system.

External Inquiries (EQ)

An external inquiry (EQ) is an *elementary process* of the application that results in retrieval of *data* or *control information* that is sent outside the application boundary. The primary intent is to present information to a user through the retrieval of data or control information from an ILF or EIF. The *processing logic* contains no mathematical formulas or calculations and creates no *derived data*. No ILF is *maintained* during processing, and the behavior of the application is not altered.

Table 2 - Function Point Term Definitions

Term	Definition
User-identifiable	Refers to defined requirements for processes and/or groups of data that are agreed on, and understood by, both user(s) and software developer(s).
Logically related	Refers to the requirement that each group should fit logically together within the descriptions provided. An ILF should not be dependent on or attributive to another ILF in order to maintain its existence. Entity types in second or third normal form typically represent ILFs.
Data	Refers to the collection of facts maintained within the application. Data is viewed as a logical grouping of information that is user-identifiable.
Control information	Refers to the user-identifiable data used by the application to influence an elementary process of the application. It specifies what, how, or when data is to be processed.
Maintained	Refers to the process of user-identifiable data modification (add, change, delete) by an elementary process of the application. The same user-identifiable data may be maintained by multiple applications, but may be counted only once per application.
Elementary process	The smallest unit of activity that is meaningful to a user. As an example, a particular activity may be decomposed into various subprocesses by the developer (create, read, update, and display) and touch numerous data and control information, but it is considered a single elementary process.

Term	Definition
Processing logic	The required data manipulation needed to complete an elementary process. Processing logic include such items as: data validation, mathematical calculation, data conversion, derived data creation, data retrieval and update.
Derived data	Refers to data that requires processing other than direct retrieval, conversion, or editing of current data. Created by the transformation of existing data into new or additional data.

⇒ **Determine Unadjusted Function Point Count**

Once the data and transactional functions have been identified, each is rated for functional complexity. This rating takes into account the number of data elements and record element types that are associated with the function. Data elements are user-recognizable, non-repeated fields or attributes. Record element types are user-recognizable subgroups of data elements contained within the function.

A rating of "low", "average", or "high" is given to each function, based on the number of data elements and record element types found in each. The function count for each function (EI, EO, EQ, ILF, and EIF) is then multiplied by the rating modifier. As an example, a low-rated EI has a modifier value of 3, an average-rated EI has a modifier value of 4, and a high-rated EI has a modifier value of 6.

Table 3 - Function Point Modifier Values

Function	Low	Average	High
ILF	x 7	x 10	x 15
EIF	x 5	x 7	x 10
EI	x 3	x 4	x 6
EO	x 4	x 5	x 7
EQ	x 3	x 4	x 6

⇒ **Determine Value Adjustment Factor**

The value adjustment factor (VAF) modifies the function point count by applying additional complexity factors to compensate for certain environmental or general system characteristics. The VAF is then used to adjust the function point count total. The 14 general system characteristics (GSC) are rated on a scale from 0 to 5. These are totaled and put into a formula that then adjusts the total function point count by ± 35 % to get the final adjusted function point count.

Table 4 - Function Point General System Characteristics

GSC	Description
Data communications	The degree to which the application communicates directly with the processor (batch, online, etc.).
Distributed data processing	The degree to which the application transfers data between components of the application (within the application boundary).
Performance	The degree to which response time and throughput performance considerations influence the application.
Heavily used configuration	The degree to which computer resource restrictions influence the application.
Transaction rate	The degree to which the rate of business transactions influence the application.
Online data entry	The degree to which data is entered through interactive transactions.
End user efficiency	The degree of consideration for human factors and ease of use.
Online update	The degree to which internal logical files (ILF) are updated online.
Complex processing	The degree to which processing logic influence the application.
Reusability	The degree to which the application and code within the application have been specifically designed, developed, and supported to be usable in other applications.
Installation ease	The degree to which conversion from previous environments influence the application.
Operational ease	The degree to which the application attends to operational aspects (startup, backup, and recovery).
Multiple sites	The degree to which the application has been developed to support multiple locations and user organizations.
Facilitate change	The degree to which the application has been developed for easy modification.

⇒ **Calculate Adjusted Function Point Count**

The total adjusted function point count is produced by multiplying the unadjusted function point count by the VAF. This measure can then be used to estimate the level of effort for the

development and maintenance processes, approximate number of lines of source code, differences in application sizing if created in different programming languages, as well as project productivity metrics with different programming languages.

The function point analysis was carried out by SPR, by the same Certified Function Point Specialist (CFPS) that conducted the function point analysis of the four California Statewide Automated Welfare Systems (SAWS). Using the same counting specialist, as well as having the function point counts for the SAWS systems, gave the TAAA Team valuable insight into the relative sizes and comparative functionality of CWS/CMS versus the four SAWS consortia applications. We will further explore the comparisons later in this document, when talking about the current technical baseline.

Later, as we explore the costing of each alternative, we use the SAWS sizing and costing, as well as the comparative costs received from other states for development of their SACWIS systems to triangulate and validate our cost model.

⇒ **Backfiring Function Point Counts**

Another technique used for determining function point counts is to "backfire" based on other known characteristics of a software application. Because function point analysis can be used for numerous software development project metrics – sizing, costing, duration, and resources – the methods used to estimate these values can also be used in the opposite direction.

Backfiring is a computed function point value based on total number of lines of code. The lines of code are compared based on the complexity level of the programming language. The backfired function point count value is the number of lines of code factored by a language complexity multiplier. For example, 'C' language count has been determined to average 66 lines of code per function point. If the lines of code in a particular language are known, the function point count can be inferred. However, it is important to note that under COCOMO.II source code line counting rules, lines of code generated by a source code generator should not be counted.

Another method for backfiring function point counts involves calculations of project cost in comparison to function point development costs. As noted previously, the function point count can be used to estimate the project sizing and costing. Working in the opposite direction, project cost divided by relative cost per function point can yield an approximate function point count. While a "rough" measure, cost per function point can be used to analyze similar projects in similar industries. Thus using costs, function points can be "backfired" for comparative analysis.

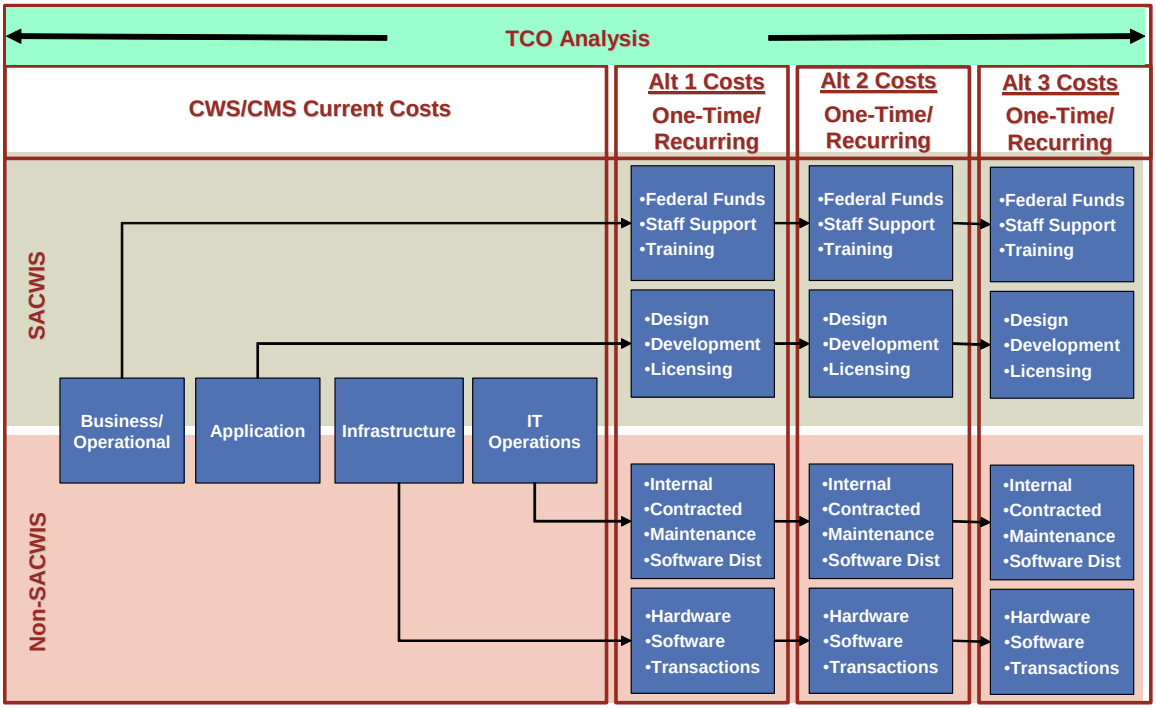
The TAAA Team used several of these backfiring techniques to validate the SPR function point counts against other state's SACWIS applications as well as the SAWS applications. By triangulating all these separate data points, we were able to double-check and validate our original findings.

TCO Analysis Approach

The Eclipse/Gartner team understands that the Total Cost of Ownership (TCO) for each of the defined alternatives is critical to the decision that CWS stakeholders must make with regard to the future direction of the CWS/CMS system. We have defined an approach that will leverage core capabilities of the Eclipse/Gartner team, while providing output data in a form that is consistent with State and federal cost/benefit standards.

Figure 7 below provides a high level conceptual framework for the TCO analysis. As depicted, the Eclipse/Gartner team will analyze and document existing CWS/CMS costs in terms of broad cost categories such as business operations, application, infrastructure and IT operations costs. For each alternative, one time and ongoing cost elements (i.e., staff, hardware, software) and funding implications will be considered for both SACWIS and Non-SACWIS options.

Figure 7. High Level TCO Framework



Given the criticality of the TCO analysis, the following more detailed approach is provided:

Step 1: Identify existing cost data

First, we will identify existing sources of data to determine whether the necessary cost information is readily available from the State or must be gathered through surveys distributed to

the State or counties. Given the aggressive schedule, the latter option will be pursued only as a last resort. The general categories of cost information include:

- Business/Operational – costs in this category include program costs such as staff, staff support, training, etc.
- Application – costs in this category include the original development costs as well as ongoing license and application maintenance costs
- Infrastructure – costs in this category include desktop and server infrastructure in the coexistent and dedicated counties, network costs, hosting costs, etc.
- IT Operations – costs in this category include ongoing operational costs, both internal and contracted.

The Eclipse/Gartner team assumes that the majority of cost data will be available in existing documentation. Furthermore, costs that are not reported by the counties through State and federal documentation requirements will not be included in the TCO (i.e., operational costs and technology initiatives not supported by federal funding). The Eclipse/Gartner team will document any findings based on observations during county site visits if necessary (i.e., significant use of non-funded technologies to support the CWS program).

Step 2: Develop TCO Model for each alternative.

Though each of the TAAA alternatives requires a different cost modeling approach, we will first define the common discrete costs elements within each broad cost category identified above. These costs and benefits will eventually be characterized as one-time and ongoing within the federal "System Life Profile" for each alternative. A short description of the cost modeling and estimating techniques for each alternative is provided below, and is based on our current understanding of the three alternatives given the broad definition of the alternatives identified by the State. As previously noted, the Eclipse/Gartner team will further refine the alternatives during the alternatives workshops, which will likely result in variations to the alternatives and cost models for each alternative.

- **Alternative 1:** The Technical Architecture Alternatives Analysis 1 (TAAA1) TCO will rely heavily on cost data that has already been documented from State and federal sources. Business problems and federal funding restrictions will also be included in the TAAA1 analysis.
  - **Current SACWIS.** For the status quo alternative of maintaining the existing CWS/CMS system, we will extend current business operations, IT operations, application and infrastructure costs over a ten-year period, using cost escalation projections. We will estimate the function points of the existing system to provide data that can be used for estimating TAAA2 and TAAA3 costs. Function points will be derived by Software Productivity Research (SPR) using SACWIS requirements already built into the CWS/CMS application, as well as line of code analysis and other comparable data.
  - **Non-SACWIS.** For the option of adding Non-SACWIS compliant functionality, we will develop projections based on a Function Point analysis that incorporates

data provided by SPR. Federal SACWIS requirements for adoptions, eligibility determination, and other non-compliant functionality will be provided to SPR in order to estimate the function points required to build this functionality. The development and maintenance costs for the non-SACWIS functionality will also be projected over a ten-year period.

- **Alternative 2:** The TAAA2 TCO requires more sophisticated techniques that involve modeling of business problems/opportunities, implementation phasing to the new architecture and estimates of development based on function points and assumptions about development costs for the given function points within the design paradigm (i.e., Service Oriented Architecture or SOA). As needed, we will research and collect additional information from SACWIS implementation vendors to obtain additional data points.
  - **Current SACWIS.** Using the baseline established in TAAA1, we will extend current SACWIS costs and incrementally transition costs into the new architecture paradigm over the ten-year period. .
  - **Non-SACWIS.** Using the function point analysis and development assumptions, we will model costs within the TCO framework. We will also include cost ramifications to business operations, IT operations, application, and infrastructure. The development and maintenance costs for the non-SACWIS functionality will also be projected over a ten-year period.
- **Alternative 3:** The TAAA3 TCO will require many of the same modeling and estimating techniques used for TAAA2, but will incorporate key considerations of whether software components are built or purchased and provide for maintaining the existing application until such time as a newly developed implementation could be cut-over within the counties.
  - **Current SACWIS.** Using the baseline established in TAAA1, we will extend current SACWIS costs and cut-over to the new system based on schedule and timeline estimates.
  - **Non-SACWIS.** Using the function point analysis and development assumptions, we will model costs within the TCO framework for a new development that incorporates all SACWIS requirements and that replaces the existing CWS/CMS application.

Step 3: Conduct TCO Analysis:

Once the TCO model for each alternative has been developed, we will populate cost data within the model by mapping existing cost data to the discrete cost elements necessary to accommodate the changes that each alternative represents. In other words, we anticipate that the available cost data will need to be manipulated in order to conform to our TCO model. We will then refine the TCO model, as well as assumptions within the model to conduct the TCO analysis.

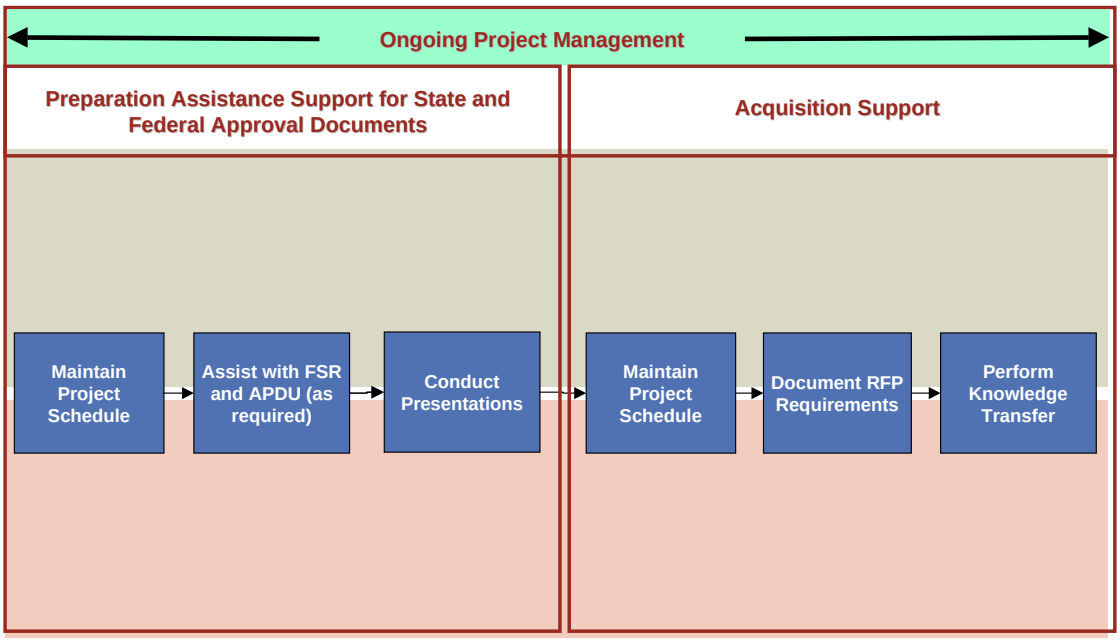
Step 4: Develop Final TCO:

Finally, the Eclipse/Gartner team will develop the final TCO output, which includes a roll-up of the cost data into the System Life Profile for each alternative. The System Life Profile includes financial calculations such as breakeven and net present value (NPV). In addition, we will assess the TCO output including findings concerning options that the State may consider that could have a substantive impact on the TCO.

2.1.3 Tasks 3 and 4 – FSR, APDU, and Request for Proposal Requirements

As noted previously, the Eclipse/Gartner team understands the full life cycle of the TAAA Project and will ensure that activities conducted in early steps of the project will support later project activities and requirements. The Eclipse/Gartner team possesses deep understanding and experience in developing State Feasibility Studies Reports (FSR), Federal Advance Planning Document Updates (APDU), and Request for Proposal (RFP) requirements for large, enterprise solutions.

Figure 5. Preparation Assistance Support and Acquisition Support Approach



As proposed, the Eclipse/Gartner team will create the State FSR and Federal As-Needed ADPU. These documents will be used by the state to receive needed financial approval. At this point in the project the FSR and As-Needed ADPU team will have collected and analyzed all of the data necessary to complete both reports.

In addition, the Eclipse/Gartner team will support the State in presentations that will provide the needed background to help stakeholders to better understand the methodologies used, alternatives considered and costing information gathered that drove the state to the solution they selected. Support activities include: assist in the creation, preparation and presentation of materials.

The Eclipse/Gartner team will also assist with the creation of the RFP requirements. This will require that the team assist the State with the process of refining the requirements developed early in the project making them "RFP ready" and writing the supporting administrative requirements required for an RFP. Refinement of the RFP requirements will allow the State to establish the priorities necessary to evaluate and determine which vendor will best deliver on the selected alternative.

3 Project Work Plan – Task Level Description

This section provides a detailed description of the activities the Eclipse / Gartner team will perform for each of the tasks identified in the RFO and SOW. Included in the description is a mapping to all project deliverables and the resources necessary to complete the task.

Task 1.0 Project Management

Project Management consists of on going project support to ensure project continuity, professional project management, and successful project completion. During this task the TAAA Project Manager will be responsible for positioning the project for success.

Task Number	Task Description	Deliverables
1.1.	As described in Attachment A of the RFO, the TAAA Project Manager will complete the Task Accomplishment Plan (TAP). The TAP will document the resources expenditures plan by expected labor costs, by month, for the duration of the engagement. Once the TAP is created, project resource utilization will be monitored and tracked monthly, in order to ensure the project is remaining within budget. The results of that project budget monitoring will be reflected in the Month Status Reports, as illustrated in Attachment B of the RFO.	➢ Task Accomplishment Plan (TAP)
1.2.	The TAAA Project Manager will develop a detailed project work schedule based on the CWS/CMS timeline. The project schedule will include tasks, subtasks, timelines, milestones, work efforts and resource assignment. The work plan will guide the work tasks undertaken throughout this project and will provide a vehicle for the State to measure the project's progress. The Project Manager will update the work schedule on a weekly basis and report this to the State's Project Manager during weekly status meetings.	➢ Project Schedule
1.3.	As described in Attachment B of the RFO, the TAAA Project Manager will complete Monthly Status Reports (MSRs). The purpose of the MSR is to provide a summary of the tasks accomplished in the previous month, including in-progress activities and planned activities. Budget and actual expenditures will be presented in addition to issues and risks. It is the TAAA Project Managers responsibility to ensure the State Team is made aware of issues on a timely basis and the team is working together to resolve those issues on an on-going basis.	➢ Monthly Status Reports

Task Number	Task Description	Deliverables
1.4.	The TAAA Project Manager will perform a series of management tasks in order to plan, direct, control, monitor and report on all tasks within the statement of work. Those tasks are outlined below:	➢ Updated Project Schedule
1.4.1	Conduct Project Initiation – To ensure close project communication from the start, we will conduct a project initiation meeting with key staff and stakeholders. The purpose of the meeting will be to confirm roles and responsibilities, discuss key dates and milestones, identify resources required and organize the project logistics.	➢ Project Initiation Meeting (not a RFO defined deliverable)
1.4.2	Create a Project Charter – the project charter will define the purpose and scope of the project, identifies the project organization, describes the project control mechanisms, roles and responsibilities and other key aspects of the project. The project charter will be used as a vehicle for communicating the internal and external stakeholders about the project to ensure communication with and stakeholder buy-in.	➢ Project Charter (not a RFO defined deliverable)
1.4.3	Create a Project Communication Plan. Communication with management and staff in the organization and with key stakeholders is critical to the overall success of the project. The Project Team will develop a plan that will clearly communicate the purpose, goals and objectives of the project, milestones, stakeholders, methods and frequency of communication and feedback mechanisms.	➢ Project Communication Plan (not a RFO defined deliverable)
1.5.	The project schedule will be updated on a weekly basis and weekly project status meetings will be held with the TAAA project team. During that meeting the updated project schedule and the weekly status report will be discussed. Topics will include: completed tasks, tasks in progress, weekly goals, previous goals not accomplished, the reason for not accomplishing them, and the plan for bringing them back on schedule, including associated risks and costs, issues and anticipated problems and recommendations for resolution of them, evaluation of task assignments in order to facilitate a timely project completion.	➢ Weekly Status Meeting and Reports
1.6.	The TAAA Project Manager is responsible for the timely identification, monitoring, tracking, resolving and escalation of issues. In addition, the TAAA Project Manager will be responsible for identifying, monitoring project risk,	➢ Risk and Issues Reporting during the Weekly and Monthly Status Reports ➢ Risk Tracking Reports and

Task Number	Task Description	Deliverables
	using the risk methodology described in the Approach section above. It will be the responsibility of the TAAA Project Manager to ensure issues and risks are being managed and resolved in a timely manner. The TAAA Project Manager will be responsible for resolving and escalating issues to the State Project Manager as appropriate.	ad hoc Meetings

Task 2.0 Systems Engineering Analysis/Alternatives Analysis

During this step a comprehensive business, technical and financial analysis will be performed in order to evaluate three alternatives for the purpose of making a solution selection. Data gathered during the process will provide the State with the needed fiscal and total cost of ownership information to support State and Federal funding documents.

Task Number	Task Description	Deliverables
2.1.	During this step, the Project Team will conduct business, technical and fiscal baseline analyses of the current environment. Data will be gathered by reviewing the existing documentation (as identified in the RFO SOW), as well as conducting a number of key business and technical interviews and workshops (see paragraph 4. for the interview and workshop schedule). The baseline analysis will be conducted as follows:	➢ Baseline Documentation Assessment Findings
2.1.1	➢ Business Baseline:	
2.1.1.1	Develop Business Requirements – the Project Team will gather and analyze all available information required to gain a complete understanding of the business and IT strategy and project objectives. The Team will leverage their expertise and understanding of CWS/CMS's business, technical and financial environments in order to document the requirements that must be satisfied by the new solution. These requirements will be incorporated into a decision model that CWS/CMS stakeholders will use to frame the solution decision.	
2.1.1.2	Document Current Business Functional Baseline (Non-SACWIS and SACWIS) – The Project Team will first baseline the current functions that are supported by CWS/CMS. We will conduct 2-3 workshops with key	

Task Number	Task Description	Deliverables
	stakeholders to identify functions and document the high level processes that are currently automated. During these workshops and interviews, we will identify any problems associated with the delivery of business functions. Based on this understanding of current functionality, the Project Team will be well positioned to analyze the scope and implications of adding SACWIS functionality from a business, technical and cost perspective. For the SACWIS functions not implemented in the current system (identified by the State), the Project Team will conduct interviews and focus group sessions, review existing documentation and confer with our internal SACWIS experts (The Center) in order to understand the new functionality requirements and impact to existing business and technical environments. The completed documentation of the current business processes will allow the Project Team to assess impact of the pending functional changes. Impact will not only include the costing of the change, but the benefits the change may bring.	
2.1.2	➢ Technical Baseline	
2.1.2.1	Conduct Function Point Analysis - The Project Team will conduct a function point analysis of the existing application in order to gain a better understanding of the size and impact of change on the existing system. Function points provide a language independent approach to estimating software development efforts. They are a measure of an application's functionality from a user's perspective. This measure can then be used to estimate the level of effort for the development and maintenance processes, approximate number of lines of source code, differences in application sizing if created in different programming languages, as well as project productivity metrics with different programming languages and architectural approaches. Once the function point analysis has been completed, we will use these results as one of the key inputs to provide estimated project effort, scheduling, and costs for each of the alternatives.	
2.1.2.2	Conduct Technical Environment Baseline – The purpose of this task is to become familiar with the existing hardware, software and data communications infrastructure, and critically assess the efficiency and effectiveness of the existing systems.	

Task Number	Task Description	Deliverables
	Information to be gathered for each component will include but is not limited to: ➢ Identification of current data structure ➢ Identification of internal and external interfaces ➢ Identification of the associated hardware and software layers ➢ Identification of planned or likely changes to external interfaces. As a result, the Project Team will be able to create a physical model of the current system. The Project Team will conduct a workshop with key stakeholders to confirm the current baseline and update the CWS/CMS architecture "bricks" as appropriate.	
2.1.3	➢ Financial Baseline	
2.1.3.1	In this task, the Project Team will work with State staff to develop a detailed understanding of the financial metrics associated with business and technical costs of current systems. Using available budget information, time accounting information, existing MIS and business system metrics, and TCO and cost modeling frameworks from Gartner and Eclipse, current CWS/CMS costs will be captured and documented. This high level snapshot of budget along with additional information required by the FSR, will be documented and available for later Cost/Benefit Analysis during evaluation of alternatives and implementation planning.	
2.2.	Once the Project Team has a complete understanding of the current environment and total cost of ownership, the team will develop a document that will describe the methodology that will be used to conduct the TAAA, including the proposed method for soliciting and capturing business, technical, and financial requirements. This document will serve as the basis of understanding of the work to be performed.	➢ Technical Methodology and Approach Document
2.2.1	Once the methodology has been identified a workshop will be held in order to validate the approach.	➢ Workshop materials (not a RFO deliverable)
2.2.2	Upon completion of the workshop, comments will be incorporated and a draft Technical Methodology and Approach Document will be completed.	➢ Draft Technical Methodology and Approach Document

Task Number	Task Description	Deliverables
2.2.3	Once the draft comments are received, the Project Team will incorporate comments and produce a final Technical Methodology and Approach Document.	➢ Final Technical Methodology and Approach Document
2.3.	Develop an outline of the final Technical Architecture Alternatives Analysis report to establish a format, table of contents, and level of detail to be included in the final report. This document will help ensure the needs of stakeholders are met and that all issues and requirements are adequately addressed. When the Project Team has prepared a draft document there will be a walkthrough conducted with selected CWS/CMS staff. Based on feedback from these sessions, the final draft documents will be updated as appropriate and routed for review and comments. Feedback will be incorporated as appropriate and the final documents will be delivered.	➢ Annotated Outline of Analysis Report
2.4.	Based on the approach and methodology defined in Task 2.1, the Project Team will develop the TAAA and evaluation framework for each of the three alternatives previously defined by the State. This includes the development of conceptual architecture roadmaps. For each alternative, we will assess the technical, business and cost ramifications of the candidate alternative, including separate scenarios of SACWIS versus Non-SACWIS functionality. Though the general approach for each alternative will be similar, the specific details of the methodology and level of effort required to determine the technical, business and cost ramifications will differ for each alternative. We will conduct 6-8 architecture workshops with key stakeholders in order to address the three alternatives. For purpose of illustration the analysis of Alternative #1 is provided below:	➢ Draft of Section of the TAAA Report for Alternative #1 – Current Baseline Application Technical Architecture
2.4.1	Business Ramifications: The Project Team will conduct an analysis of the business implications of continuing with the current CWS/CMS technical architecture. In addition to the business problems already identified by the State, we will assess the impact of incorporating new SACWIS functionality within the current architecture versus the business impact of not incorporating new SACWIS functionality.	
2.4.2	Technology Ramifications: The Project Team will conduct an analysis of the technical implications of continuing with the current CWS/CMS technical architecture. For the Non-SACWIS option, we will simply describe the technical baseline environment and	

Task Number	Task Description	Deliverables
	conduct an assessment of the technology risks inherent in the architecture based on factors such as extensibility, flexibility, performance, availability of support, etc. For the SACWIS option, we will identify the scope, impact and risks associated with building this new functionality into the existing architecture.	
2.4.3	Cost Ramifications: The Project Team will conduct a total cost of ownership analysis that includes: • TCO for continuing M&O on the current CWS/CMS technical architecture. • An assessment of the funding ramifications of completing SACWIS functionality within the architecture. • A determination of the costs associated with fulfilling all remaining SACWIS requirements (as defined by the State) versus not completing the requirements and receiving funding at the non-SACWIS rate. • An evaluation of the additional operating costs of running the updated SACWIS compliant system.	
2.5.	The analysis to be conducted for Alternative #2 is similar to that of Alternative #1: Business Ramifications: The Project Team will conduct an analysis of the business implications of evolving the current CWS/CMS architecture to a web services environment. The Eclipse/Gartner team will assess the impact of incorporating new SACWIS functionality versus not completing these requirements. Technology Ramifications: The Project Team will conduct an analysis of evolving the current CWS/CMS architecture to a web services environment. For the Non-SACWIS option, we will describe the new web services architecture (conceptual model) and describe the risks and benefits of evolving the current CWS/CMS application to the new architecture. For the SACWIS option, will identify the scope, impact and risks associated with building this new functionality into web services architecture. Cost Ramifications: The Project Team will conduct a total cost of ownership analysis for Alternative #2 that includes:	➢ Draft of Section of the TAAA Report for Alternative #2 – Evolving the Current CWS/CMS to a Web Services Based Technical Architecture

Task Number	Task Description	Deliverables
	• TCO for evolving the current CWS/CMS application to a web services based technical architecture over an 8-year period. • An assessment of the funding ramifications of completing SACWIS functionality within this architecture. • A determination of the costs associated with fulfilling all remaining SACWIS requirements (as defined by the State) versus not completing the requirements and receiving funding at the non-SACWIS rate. • An evaluation of the additional operating costs of running the updated SACWIS compliant system.	
2.6.	The analysis to be conducted for Alternative #3 is consistent with the analyses conducted for the other two alternatives: Business Ramifications: The Project Team will conduct an analysis of the business implications of continuing the maintenance and operations of the current CWS/CMS system and simultaneously building a new system using a web services based technical architecture. The Eclipse/Gartner team will assess the additional impact of incorporating new SACWIS functionality versus not completing these requirements. Technology Ramifications: The Project Team will conduct an analysis of continuing the maintenance and operations of the current CWS/CMS system and simultaneously building a new system using a web services based technical architecture. For the SACWIS and Non-SACWIS option, we will describe the new web services architecture and describe the risks and benefits of developing a new CWS/CMS application in the new architecture while maintaining the existing system. Cost Ramifications: The Project Team will conduct a total cost of ownership analysis that includes: • Continuing the maintenance and operations of the current CWS/CMS system while simultaneously building a new system using a web services based technical architecture. • An assessment of the funding ramifications of completing SACWIS functionality within this	➢ Draft of Section of the TAAA Report for Alternative #3 – Continuing to Maintain and Operate the Current CWS/CMS While Simultaneously Building a New System using a Web Services Based Technical Architecture

Task Number	Task Description	Deliverables
	architecture. • A determination of the costs associated with fulfilling all remaining SACWIS requirements (as defined by the State) versus not completing the requirements and receiving funding at the non-SACWIS rate. • An evaluation of the additional operating costs of running the updated SACWIS compliant system.	
2.7.	The Project Team will compile the results of the TAAA for all three alternatives and establish a process and schedule for review and incorporation of feedback from CWS/CMS stakeholders.	➢ First Draft of all Sections of the TAAA Report
2.8.	The Project Team will incorporate necessary changes and feedback and submit the TAAA for an additional round of stakeholder review.	➢ Second Draft of all Sections of the TAAA Report
2.9.	The Project Team will deliver the final TAAA Report.	➢ Updated and Deliver final TAAA Report

Task 3.0 Approval Support for State and Federal Approval Documents

The Eclipse / Gartner team will develop the documentation needed to complete the State and Federal financial documents. As directed, the Project Team will complete both the State's FSR document and the Federal ADPU.

Task Number	Task Description	Deliverables	Due Date	Resources
3.1.	As described in Attachment A, the TAAA Project Manager will complete the Task Accomplishment Plan (TAP). The TAP will document the resources expenditures plan by expected labor costs, by month, for the duration of the engagement. Once the TAP is created, project resource utilization will be monitored and tracked monthly, in order to ensure the project is remaining within budget. The results of	➢ Updated Task Accomplishment Plan (TAP)	4/4/05	

Task Number	Task Description	Deliverables	Due Date	Resources
	that project budget monitoring will be reflected in the Month Status Reports, as illustrated in Attachment B of the RFO.			
3.2.	The TAAA Project Manager will develop a detailed project work schedule based on the CWS/CMS timeline. The project schedule will include tasks, subtasks, timelines, milestones, work efforts and resource assignment. The work plan will guide the work tasks undertaken throughout this project and will provide a vehicle for the State to measure the project's progress.	➢ Updated Detailed Project Schedule	4/4/05	
3.3.	Once the alternatives analysis has been completed and a solution has been selected, the Project Team will support incorporation of the results into the required approval documents. For all approval documents developed, the Team will ensure each document is timely, informative, and concise and clarifies key factors.	➢ State FSR and Federal As-Needed ADPU Document	6/3/05 (45 elapsed days)	
3.3.1	The Project Team will develop the As-Needed APDU that reflects the selected alternative and will perform other modifications, as necessary, to respond to State and federal reviews. The As-Needed APDU will roll up all the alternatives analysis data to present a logical detailed description of CWS/CMS needs, impacts on existing operations and programs, the selected alternative solution, cost and benefits associated with the solution, and method of procuring selected solution. As part of the As-Needed ADPU, the Project Team will assist, as needed, in developing and/or	➢ As-Needed ADPU Document		

Task Number	Task Description	Deliverables	Due Date	Resources
	updating the cost allocation plan (CAP). The As-Needed APDU will adhere to the guidelines set forth in the "Feasibility, Alternatives, and Cost/Benefit Guide" published by the U.S. Department of Health and Human Services, Administration For Children and Families and the State Systems APD Guide. The State will provide support by supplying program subject matter experts, and review and approval.			
3.3.2	The Project Team will develop the draft Feasibility Study Report (FSR) that incorporates the results of the alternatives analysis. The FSR will include project information, a detailed description of the business case, the baseline analysis, proposed solution and rationale for selection, relevance to the State's strategic plans and plans for CWS/CMS, project management plan, risk assessment, risk management plan, project schedule, budget information, and economic analysis worksheets. The Project Team will ensure the FSR complies with all State and federal requirements. The FSR document will be prepared in accordance with DOF guidelines specified in the Statewide Information Management Manual (SIMM). The State will provide support by supplying program subject matter experts, and review and approval.	➢ State of California FSR		
3.4.	The Project Team will assist the State as required with presentations to the stakeholders to gain approval of the State FSR	➢ Hardcopy or media presentation	4/29 – 7/1/05 TBD	

Task Number	Task Description	Deliverables	Due Date	Resources
	and Federal As-needed APDU. Activities include: ➢ Working with the State to fully prepare all staff involved in presentations and approval processes. ➢ Developing presentation materials, as required, to support review and approval meetings with key stakeholders. ➢ Facilitating, as requested, the review and approval meetings to ensure full understanding of analysis methodologies, assumptions, processes, tasks, outcomes, and basis for recommendation. ➢ Assisting with response to any questions raised during the approval process. ➢ Resolving outstanding issues to meet State and Federal approval requirements. ➢ Providing any follow-up required in completing the State and federal approval cycles.	o CDSS o CWS/CMS Oversight Committee o DOF o ACF o Several informal presentations	TBD TBD TBD	

Task 4.0 Acquisition Support

The Eclipse / Gartner team will develop a detail level of both Business and Technical requirements. As directed by the State, the Project Team will assist in the refinement and confirmation of the systems requirements.

Task Number	Task Description	Deliverables	Due Date	Resources
4.1.	As described in Attachment A, the TAAA Project Manager will complete the Task Accomplishment Plan (TAP). The TAP will document the resources expenditures plan by expected labor costs, by month,	➢ Updated Task Accomplishment Plan (TAP)	6/14/05	

Task Number	Task Description	Deliverables	Due Date	Resources
	for the duration of the engagement. Once the TAP is created, actual hours will be monitored and tracked monthly, in order to ensure the project is remaining within budget. The results of that project budget monitoring will be reflected in the Month Status Reports, as reflected in Attachment B of the RFO.			
4.2.	The TAAA Project Manager will develop a detailed project work schedule based on the CWS/CMS timeline. The project schedule will include tasks, subtasks, timelines, milestones, work efforts and resource assignment. The work plan will guide the work tasks undertaken throughout this project and will provide a vehicle for the State to measure the project's progress.	➢ Updated Detailed Project Schedule	6/14/05	
4.3.	Once the TAAA is complete, the Project Team will conduct knowledge transfer sessions with staff, working one-on-one and in groups to ensure full understanding of the selected alternative solution and associated technical requirements and the positive and negative aspects associated with implementing or not implementing key portions of the technical solution. This level of understanding will provide staff with additional insight when evaluating responses to the RFP. The Project Team will then work closely with the staff to develop technical requirements and translate those requirements into a format that can be used in the RFP, as well as becoming part of a requirements traceability matrix	➢ Assist with Preparation and Delivery of RFP Technical Requirements document	10/4/05	

Task Number	Task Description	Deliverables	Due Date	Resources
	that can be used throughout system development. Requirements will be categorized and prioritized based on an understanding of the business needs. When developing system requirements, it is imperative that they be clear, understandable, and valuable. To ensure the development of such requirements, the Project Team will adhere to the following key guidelines. All requirements must be: ➢ Unambiguous – only one interpretation. ➢ Complete – must address all functionality, performance constraints and external interfaces. ➢ Verifiable – Requirements must be testable so that a determination can be made as to if the requirement has been met. ➢ Valid – Ensure that requirements can be validated.			
4.3.1	Identify Non-Functional Requirements – provide an understanding of various application requirements that relate to what an application must be (vs. what an application must do): ➢ Technical / System Requirements ➢ Security and Access Requirements ➢ Data Retention and Storage Requirements.	➢ Non-Functional Requirements (not defined as a RFO deliverable)		
4.3.2	Identify Functional Requirements – provide an understanding of the	➢ Functional Requirements		

Task Number	Task Description	Deliverables	Due Date	Resources
	different functions that the application must be able to perform, including, but not limited to: ➢ Input Requirements ➢ Processing Requirements ➢ Output Requirements.	(not defined as a RFO deliverable)		
4.3.3	Validate Requirements and Produce Final Requirements Report – once the Project Team has developed a complete draft of the requirements a series of workshop sessions will be conducted. The purpose of the workshops is to refine, validate and adopt the functional and non-functional requirements. During the workshops the requirements will be tested. Based on feedback from the workshops, the Requirements Report will be updated as appropriate and routed for review and comments. Feedback will be incorporated as appropriate, so that the Final Requirements Report can be produced.	➢ Requirements workshop (not defined as a RFO deliverable)		

4 Interview and Workshop Schedule

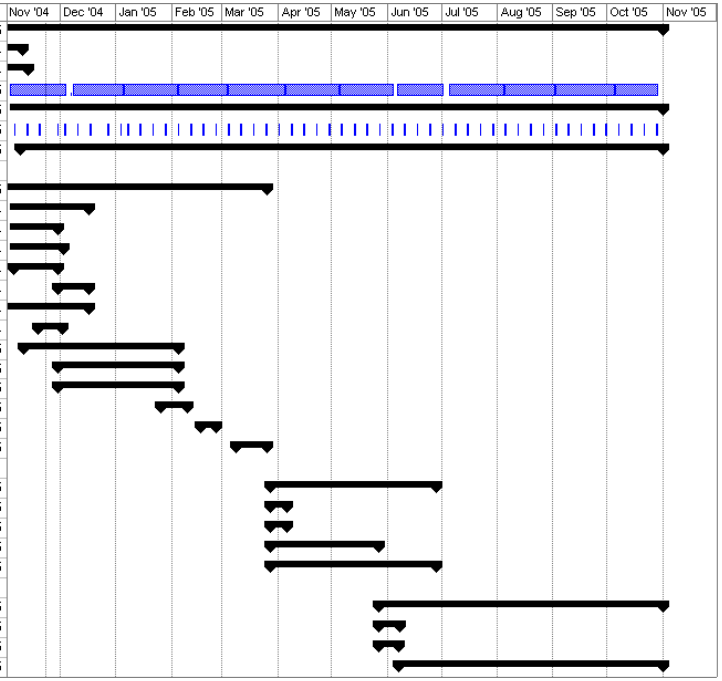
The Eclipse / Gartner team will use interviews and workshops as information gathering tools during the TAAA engagement. These sessions are instrumental for defining requirements and the needs of CWS / CMS users. Appendix B includes the Initial Schedule of Interviews and Workshops that Eclipse has scheduled as of the date of this document.

5 Project Schedule

The following Gantt chart provides a high level view of the TAAA Project Schedule. The detailed version of the MS Project schedule has been provided as an electronic attachment to this report as filename '*TAAA Baseline Project Schedule.mpp*'.

Figure 6. TAAA Project Gantt Chart

ID	WBS	Task Name	Duration	Work	Start	Finish
1	1	Project Management	250 days	537.82 hrs	Mon 11/1/04	Mon 10/31/05
2	1.1	Task Accomplishment Plan (TAP)	7 days	24 hrs	Mon 11/1/04	Tue 11/9/04
8	1.2	Project Schedule	9 days	50.48 hrs	Mon 11/1/04	Fri 11/12/04
14	1.3	Monthly Status Reports	247 days	97.53 hrs	Wed 11/3/04	Fri 10/28/05
28	1.4	Plan, Direct, Control, Monitor, & Report on SOW Tasks	248 days	110 hrs	Wed 11/3/04	Mon 10/31/05
33	1.5	Weekly Status Meetings	245 days	157.7 hrs	Fri 11/5/04	Fri 10/28/05
87	1.6	Risk and Issue Status Reporting	244 days	98.08 hrs	Tue 11/9/04	Mon 10/31/05
155						
156	2	Systems Engineering Analysis/Alternatives Analysis	98 days	2,782.53 hrs	Mon 11/1/04	Fri 3/25/05
157	2.1	Review Current Documentation	29 days	462.67 hrs	Wed 11/3/04	Thu 12/16/04
158	2.1.1	Review Docs and Conduct Business Baseline Analysis of Current Environment	16 days	211.12 hrs	Wed 11/3/04	Mon 11/29/04
164	2.1.2	Review Docs and Conduct Technical Baseline Analysis of Current Environment	19 days	42.3 hrs	Wed 11/3/04	Thu 12/2/04
169	2.1.3	Review Docs and Conduct Financial Baseline Analysis of Current Environment	14 days	32.02 hrs	Fri 11/5/04	Mon 11/29/04
173	2.1.4	Develop the CWS/CMS Baseline Analysis	13 days	177.23 hrs	Tue 11/30/04	Thu 12/16/04
180	2.2	Develop Methodology Doc & Evaluation Framework	31 days	289.68 hrs	Mon 11/1/04	Thu 12/16/04
192	2.3	Create an Annotated Outline of Analysis Report	7 days	149.98 hrs	Fri 11/19/04	Wed 12/1/04
198	2.4	Conduct Alternative #1 Analysis	56 days	580.82 hrs	Wed 11/10/04	Fri 2/4/05
220	2.5	Conduct Alternative #2 Analysis	46 days	419.75 hrs	Mon 11/29/04	Fri 2/4/05
234	2.6	Conduct Alternative #3 Analysis	46 days	349.6 hrs	Mon 11/29/04	Fri 2/4/05
248	2.7	Create Draft TAAA Report	11 days	209.33 hrs	Wed 1/26/05	Wed 2/9/05
253	2.8	Create 2nd Draft TAAA Report	6 days	148.22 hrs	Thu 2/17/05	Fri 2/25/05
257	2.9	Create Final TAAA Report	13 days	172.52 hrs	Wed 3/9/05	Fri 3/25/05
261						
262	3	State and Federal Approval Documents (Optional Task)	65 days	1,032.02 hrs	Mon 3/28/05	Mon 6/27/05
263	3.1	Update Task Accomplishment Plan (TAP)	7 days	14 hrs	Mon 3/28/05	Tue 4/5/05
269	3.2	Update Detailed Project Schedule	7 days	18 hrs	Mon 3/28/05	Tue 4/5/05
275	3.3	Prepare State FSR and Federal As-Needed APDU Document	44 days	944.02 hrs	Mon 3/28/05	Thu 5/26/05
288	3.4	Present Project Results	65 days	56 hrs	Mon 3/28/05	Mon 6/27/05
296						
297	4	Acquisition Support (Optional Task)	108 days	552 hrs	Fri 5/27/05	Mon 10/31/05
298	4.1	Update Task Accomplishment Plan (TAP)	7 days	14 hrs	Fri 5/27/05	Tue 6/7/05
304	4.2	Update Detailed Project Schedule	6 days	14 hrs	Fri 5/27/05	Mon 6/6/05
310	4.3	Develop Technical Requirements Document for RFP	102 days	524 hrs	Tue 6/7/05	Mon 10/31/05



Appendix A List of Acronyms

Acronym	Definition
ACF	Administration for Children and Families
ADE	Application Development Environment
APD	Advance Planning Document
BIA	Bureau of Indian Affairs
CDSS	California Department of Social Services
CEC	County Expense Claims
COTS	Commercial Off The Shelf
CPU	Central Processing Unit
CWS/CMS	Child Welfare Services / Case Management System
DGS	Department of General Services
DOF	Department of Finance
FFP	Federal Financial Participation
HHSDC	Health and Human Services Data Center
M&O	Maintenance and Operations
NPV	Net Present Value
PMO	Project Management Office
RFP	Request For Proposal
SACWIS	Statewide Automated Child Welfare Information System
SFY	State Fiscal Year
SPR	Software Productivity Research
SOA	Service Oriented Architecture
SOW	Statement of Work
TAAA	Technical Architecture Alternatives Analysis
TAAA1	Technical Architecture Alternatives Analysis 1
TAAA2	Technical Architecture Alternatives Analysis 2
TAAA3	Technical Architecture Alternatives Analysis 3
TASP	Technical Architecture Strategic Plan

Appendix B Interview and Workshop Schedule

Interview Type	WBS Reference	Interviewee(s)	Type	Work Plan Date Range	Scheduled Date / Time	Location	Team	Status
Project Initiation	1.4.1	Lauren Barton CWS/CMS CWS/CMS staff		12/2/04	12/02/04 9:00 – 10:00	Conf 3	All Team Members	Scheduled
BASELINE FUNCTIONAL (2-3)								
Business Strategy / Ops	2.1.1.3	Kathy Curtis CWS/CMS	S	11/22/04 to 11/24/04	11/23/04 10:00–11:00	Conf A	Jim Brown Janice Walker Wendy Battermann Christine Wilson	Done
Business Strategy / Ops	2.1.1.3	Lauren Barton CWS/CMS	S	11/22/04 to 11/24/04	11/22/04 3:00 – 4:00	Lauren's Office	Jim Brown Janice Walker Brett Rugroden	Done
Business Strategy / Ops	2.1.1.3	CDSS Management… Wes Beers Pat Aguiar Glenn Freitas Melissa Gamer Tom Burke	S	11/22/04 to 11/24/04	11/22/04 1:00 – 2:30	744 P St Rm 1441	Janice Walker Christine Wilson Cheryl Hofmann Jeff Hellzen Hamid Nouri Wendy Battermann	Done
Business Strategy / Ops	2.1.1.3	Bruce Wagstaff CDSS	S	11/22/04 to 11/24/04	TBD	TBD	Jim Brown Brett Rugroden	
Business Strategy / Ops	2.1.1.3	Catherine Mori IBM	S	11/22/04 to 11/24/04	11/24/04 1:00 – 2:00	TBD	Jim Brown Brett Rugroden	Tentative

Interview Type	WBS Reference	Interviewee(s)	Type	Work Plan Date Range	Scheduled Date / Time	Location	Team	Status
Business Strategy / Ops	2.1.1.3	Feds – TBD	F	11/22/04 to 11/24/04	TBD	TBD	Jim Brown	
Business Strategy / Ops	2.1.1.3	LA County – TBD	C	11/22/04 to 11/24/04	TBD	TBD	TBD	
Business Strategy / Ops	2.1.1.3	Yolo County – TBD	C	11/22/04 to 11/24/04	TBD	TBD	TBD	
Business Strategy / Ops	2.1.1.3	Contra Costa County – TBD	C	11/22/04 to 11/24/04	TBD	TBD	TBD	
Business Strategy / Ops	2.1.1.3	San Mateo County – TBD	C	11/22/04 to 11/24/04	TBD	TBD	TBD	
Baseline Functional Focus Group (2-3 groups)								
Baseline Functional	2.1.1.4	Dick O'Niel CWS/CMS Meg Sheldon CWS/CMS	C C	11/15/04 to 11/18/04	11/15/04 1:00 – 2:30	Rich Radden's Office	Cheryl Hofmann Janice Walker	Done
Baseline Functional	2.1.1.4	Melissa Gamer CDSS	S	11/15/04 to 11/18/04	11/17/04 4:00 – 5:30	CDSS	Janice Walker Cheryl Hofmann Wendy Battermann Christine Wilson	Done
Baseline Functional	2.1.1.4	Neola Leipus CWS/CMS	S	11/15/04 to 11/18/04	11/16/04 1:00 – 2:30	Neola's Office	Janice Walker Cheryl Hofmann	Done

Interview Type	WBS Reference	Interviewee(s)	Type	Work Plan Date Range	Scheduled Date / Time	Location	Team	Status
Baseline Functional	2.1.1.4	Judi Boring CDSS	S	11/15/04 to 11/18/04	11/19/04 8:30 – 10:00	CDSS	Cheryl Hofmann Janice Walker	Done
Baseline Functional	2.1.1.4	Penny Liles CWS/CMS	S	11/15/04 to 11/18/04	11/19/04 10:00–11:00	Penny's Office	Cheryl Hofmann Janice Walker	Done
Baseline Functional	2.1.1.4	Sacramento District Office	S	11/15/04 to 11/18/04	11/22/04 8:00 – 9:30	Sac District Office	Cheryl Hofmann Janice Walker Christine Wilson	Done
Baseline Functional	2.1.1.4	Oversight Steering Committee	S/C	11/15/04 to 11/18/04	12/08/04 9:00 – 3:00	CDSS	Janice Walker Cheryl Hofmann Wendy Battermann Christine Wilson	Scheduled
Baseline Functional	2.1.1.4	Thomas Graham CDSS Pam Ward CDSS Tom Burke CDSS	S	11/15/04 to 11/18/04	11/29/04 10:30–11:30	CDSS	Janice Walker Cheryl Hofmann Christine Wilson	Scheduled
Technology Validation Workshop (1)								
Baseline Technical	2.1.2.2	Dick O'Niel CWS/CMS	C	11/22/04 to 11/24/04	11/16/04 12:30 – 3:00	Rich Radden's Office	Christine Wilson Tim Shepich Hamid Nouri Eugene Martinez	Done
Baseline Technical	2.1.2.2	Jeff Lewis CWS/CMS	S	11/22/04 to 11/24/04	11/16/04 1:00 – 3:00	Jeff's Office	Hamid Nouri Eugene Martinez Christine Walker Tim Shepich	Done

Interview Type	WBS Reference	Interviewee(s)	Type	Work Plan Date Range	Scheduled Date / Time	Location	Team	Status
Baseline Technical	2.1.2.2	Fred Guice CWS/CMS	S	11/22/04 to 11/24/04	11/16/04	Rich Radden's Office	Hamid Nouri	Done
Baseline Technical	2.1.2.2	Bob Barker CWS/CMS	S	11/22/04 to 11/24/04	11/16/04	Bob's Office	Hamid Nouri	Done
Baseline Technical	2.1.2.2	Steve Painter Eclipse	S	11/22/04 to 11/24/04	11/22/04	(Email)	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen	Email
Baseline Technical	2.1.2.2	Craig Horox Independent		11/22/04 to 11/24/04	11/22/04	Rich Radden's Office	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen	Done
Baseline Technical	2.1.2.2	Subarrao Mupparaju IBM		11/22/04 to 11/24/04	TBD	TBD	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen	
Baseline Technical	2.1.2.2	Frank Petrus The Center		11/22/04 to 11/24/04	11/23/04 3:00 – 4:00	Conf 3	All Team Members	Scheduled
Baseline Technical	2.1.2.2	John Zimmerman SPR		11/22/04 to 11/24/04	12/09/04	744 P St Rm 1441	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen Wendy Battermann	Tentative

Interview Type	WBS Reference	Interviewee(s)	Type	Work Plan Date Range	Scheduled Date / Time	Location	Team	Status
Baseline Technical	2.1.2.2	Cal Rogers HHSDC	S	11/22/04 to 11/24/04	11/30/04 10:30–11:30	744 P St. Rm 1773	Jim Brown Brett Rugroden Jeff Hellzen	Scheduled
Baseline Technical	2.1.2.2	Debra Mack HHSDC Ben Ampong HHSDC	S	11/22/04 to 11/24/04	11/29/04 9:30 – 11:00	Conf 3	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen	Scheduled
Baseline Technical	2.1.2.2	Subarrao Mupparaju John McCready Jerry Cox Cynthia Hayden Ben Ampong Robert Barker Jeff Lewis Melissa Gamer Lauren Barton	S	11/22/04 to 11/24/04	11/24/04 9:00 – 12:00	Conf 3	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen Jim Brown	Scheduled
Financial Baseline (1-2 interviews)								
IT Financial	2.1.3.2	Julie Murata CWS/CMS Kathy Curtis CWS/CMS	S	11/15/04 to 11/18/04	11/23/04 3:00 – 4:00	Conf A	Hamid Nouri Magnus Karlsson Eugene Martinez Jeff Hellzen Wendy Battermann	Scheduled

Interview Type	WBS Reference	Interviewee(s)	Type	Work Plan Date Range	Scheduled Date / Time	Location	Team	Status
IT Financial	2.1.3.2	Jeff Lewis CWS/CMS	S	11/15/04 to 11/18/04	11/16/04 1:00 – 3:00	Jeff's Office	Hamid Nouri Eugene Martinez Christine Walker Tim Shepich	Done
Business Financial	2.1.3.2	Wendy Russell CWDA Onita Spake Santa Clara County	C C	11/15/04 to 11/18/04	TBD	TBD	Janice Walker Wendy Battermann	
Business Financial	2.1.3.2	Gloria Marks CDSS	S	11/15/04 to 11/18/04	TBD	TBD	Janice Walker Wendy Battermann	
Business Financial	2.1.3.2	Feds – TBD	F	11/15/04 to 11/18/04	TBD	TBD	Jim Brown Wendy Battermann	
Methodology, Framework, and Documents (1 each)								
TAAA Methodology	2.2.2	Lauren Barton CWS/CMS CWS/CMS staff	S	11/10/04 to 11/21/04	11/24/04	TBD	Jim Brown Brett Rugroden	
TAAA Evaluation Framework & Business Validation Workshop	2.2.6.3	Steering Committee CWS/CMS		12/14/04	12/14/04	TBD	Jim Brown Janice Walker Jeff Hellzen Cheryl Hofmann Brett Rugroden Christine Walker Hamid Nouri Magnus Karlsson	Tentative

Interview Type	WBS Reference	Interviewee(s)	Type	Work Plan Date Range	Scheduled Date / Time	Location	Team	Status
TAAA Outline Walkthrough	2.3.2	Lauren Barton CWS/CMS CWS/CMS staff	S	12/02/04	12/02/04	TBD	Jim Brown Brett Rugroden	12/02/04
Business Alternatives Analysis Meetings (6-8 groups)								
Alt 1: Functional Focus Group (Non-SACWIS)	2.4.1.2	Jeff Lewis CWS/CMS Lauren Barton CWS/CMS Meg Sheldon CWS/CMS CWS/CMS Staff	S	12/6/04 to 12/20/04	TBD	TBD	Jim Brown Brett Rugroden Janice Walker Cheryl Hofmann Christine Walker	
Technical Alternatives Analysis Meetings (2-day workshops – 1 each)								
Alt 1: Technical Focus Group	2.4.2.2	Jeff Lewis CWS/CMS Lauren Barton CWS/CMS Meg Sheldon CWS/CMS CWS/CMS Staff	S	12/15/04 to 12/16/04	12/15/04 – 12/16/04	TBD	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen	
Alt 2: Technical Focus Group	2.5.2.2	Jeff Lewis CWS/CMS Lauren Barton CWS/CMS Meg Sheldon CWS/CMS CWS/CMS Staff	S	12/21/04 to 12/22/04	12/21/04 – 12/22/04	TBD	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen	

Interview Type	WBS Reference	Interviewee(s)	Type	Work Plan Date Range	Scheduled Date / Time	Location	Team	Status
Alt 3: Technical Focus Group	2.6.2.2	Jeff Lewis CWS/CMS Lauren Barton CWS/CMS Meg Sheldon CWS/CMS CWS/CMS Staff	S	01/05/05 to 01/06/05	01/05/05 – 01/06/05	TBD	Hamid Nouri Eugene Martinez Magnus Karlsson Jeff Hellzen	