USDA Cooperative State Research, Education, and Extension Service

One Solution Initiative

DRAFT Project Plan

DRAFT:
FOR DISCUSSION PURPOSES ONLY

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CONTENTS

1 Introduction

1.1 What is One Solution?

The Cooperative State Research, Education, and Extension Service (CSREES) advances knowledge for agriculture, the environment, human health and well-being and communities by supporting research, education, and extension programs in the land-grant university system and other partner organizations. It accomplishes this mission by providing national coordination and program leadership and by providing Federal financial assistance to land-grant universities and other partners. This assistance allows them to perform research, education and extension activities. These funds are distributed through three funding mechanisms:

- *Competitive funding*, awarded based on panel review and recommendation of proposals submitted by eligible participants;
- *Formula programs*, distributed among cooperating institutions including land-grants on the basis of statutory formulas; and
- *Congressional line-item funds*, administered as special and competitive grants.

For each type of funding provided to land-grant and other colleges and universities, research laboratories and other partners, CSREES collects reporting data to manage programs, ensures proper use of Federal funds, and assesses progress, outcomes and impacts of CSREES-funded activities. Among other purposes, this data is used to assess compliance with the regulations, terms and conditions of each grant or allocation of formula funds. Further, it demonstrate to Congress, the Office of Management and Budget (OMB), and citizens the impacts of CSREES activities and how funded activities are helping to achieve the Agency's and the United States Department of Agriculture's (USDA) missions.

Reporting is critical to achieving the Agency's mission. Collecting appropriate data from grantees ensures that funds are being used correctly, that funded activities support CSREES' goals and the purposes for which funds were awarded, and enables CSREES to better provide coordinated, national program leadership. Reports created for Congress and others demonstrate the impacts of CSREES funding and allow the public to understand how its funds have been used to advance knowledge for all Americans.

Current reporting processes will be improved for CSREES and its partners to more effectively manage reported data in support of the Agency's mission and better illustrate the impacts and outcomes of its programs to the public. One of the more pressing issues facing the Agency is the need to more directly tie together programmatic and financial reporting processes. The last two Farm Bills and current appropriation process provide greater flexibility, while presenting new fiscal management and reporting challenges. Further, inefficiencies in current processes create a significant time burden for partners in completing reporting and for staff in managing incoming data and creating oversight and accountability reports.

These reporting issues and inefficiencies are exacerbated by the increasing demands for accountability data placed upon CSREES and its partners. Congress, OMB, and others are increasingly looking to the Agency to provide data linking program inputs, outputs and outcomes to the Agency's strategic goals through the Budget and Performance Integration initiative and the Program Analysis Rating Tool (PART) process. Although the Agency and its partners have worked hard to provide the necessary data, a lack of Agency-wide reporting capabilities and insufficient data collection, particularly regarding extension work, has resulted in increasing workloads requiring consultation with multiple sources and manually calculated results.

One Solution proposes to address such issues through an integrated approach to improving reporting at CSREES, which will be accomplished primarily through the development and launch of the CSREES Information System (CIS). CIS will serve as the reporting and information system for CSREES and its partners which ties together reporting systems and processes across all CSREES programs. Specifically, the initiative includes technology improvements to reduce staff and partner reporting burdens. Additionally, it aims to

- enable the creation of integrated reports reflecting all of the Agency's activities;
- report process changes to improve and standardize forms and reporting requirements across programs; and
- develop data management strategies and structures to enable Agency-wide reporting and analysis.

Together, these efforts will not only address specific issues, but also enable the Agency to use reporting to better fulfill legislative requirements and support achievement of its mission.

1.2 History of the One Solution Project

Congress created CSREES through the 1994 Department Reorganization Act. The former Cooperative State Research Service (CSRS) and the former Extension Service (ES)—two unique USDA agencies—were combined that year into a single agency. This move united the research, education, and extension portfolios of both agencies and consolidated their expertise and resources under one leadership structure. CSREES' unique mission is to advance knowledge for agriculture, the environment, human health and well-being, and communities by supporting research, education, and extension programs in the Land-Grant University System and other partner organizations. CSREES doesn't perform actual research, education, and extension but rather helps fund it at the state and local level and provides program leadership in these areas.

In response to growing interest, both on the part of CSREES program leaders as well as that of research, education, and extension partners, CSREES has begun to develop One Solution – a focused, integrated business solution. One Solution seeks to address the shortcomings of the existing reporting environment by tying together reporting systems and processes across all CSREES programs via CIS. One Solution aims to fulfill three major goals:

- simplify reporting and reduce burdens for grantees;
- improve the quality of accountability data and better equip the Agency to meet increasing performance and budget reporting expectations; and

- reduce effort required to complete reporting-related processes, allowing staff members to focus on program leadership and active, portfolio-based management.

In April 2005, a business case was developed to frame the One Solution initiative. It analyzes the existing reporting operations and illustrates the strategic and financial value added from streamlining the business processes and updating the technology supporting the data entry and reports.

2 Objectives of the Project Plan

2.1 Why Write a Project Plan?

One Solution is a multi-phased approach to providing reporting capabilities for the various CSREES audiences. As such, One Solution must look forward through the process of long-range project planning to determine vision, direction, risk, action steps, and possible outcomes. This planning will assist the stakeholders of One Solution as well as the management team and staff in understanding the steps to be taken to move forward toward success.

2.2 Goals of the Project Plan

The long-range project plan will:

Articulate a vision of what One Solution should be after three phases of work.
As indicated in the business case, there are currently distinct processes for the 100 data collections conducted. It is important to establish a clear direction of how to proceed and how to divide the effort among the phases before the actual implementation takes place. This will frame the implementation and provide goals against which progress can be measured.

Articulate One Solution values.
The One Solution initiative aims to serve both internal and external stakeholders and integrate several disparate systems together. The project plan should present values that capture the interest of all audiences and equally represent the different groups of stakeholders.

Define and map the key processes required to achieve the vision.
A key component of the One Solution initiative is streamlining the effort required for data entry and report publishing. Before the technology can be selected and built, the business processes should be defined, so that the technical solution may capture the functional requirements to make data collection and reporting less burdensome.

Develop key performance measures.
In any organization, stakeholders and leadership want to see progress and results. One Solution is no different. Its stakeholders will want to know that the investment made in this initiative is paying off. Indicator measures will be put into place surrounding the implementation of One Solution and the CIS solution. The measures quantify how well the system meets its initial goals and provide information necessary for decisions and corrective actions needed for success.

Establish goals and priorities.
Establishment of performance indicators and measures enable One Solution to set goals for the phases of work. The performance measures monitor progress toward each goal. Priorities and resource allocations can be adapted based upon the individual performance measures.

One Solution's flexibility can also be reflected in response to changing priorities, issues, and national events.

Develop action steps, assign responsibilities and establish timelines.
The roadmap described through the establishment of the One Solution vision, goals, and priorities must be further enhanced with strategic elements determining who will do what and by what time. These action steps, determined through long-term planning, will be assigned to staff and One Solution leaders with clear deadlines for the project.

Build a budget and allocate funds and resources according to priorities.
With a clear project plan laid out, One Solution management will have no difficulty in allocating resources to achieve success. With a broad view of the future of the initiative, areas where additional resources are necessary will become clear.

Monitor, take corrective action, look for continuous improvement, and evaluate processes.
One Solution will monitor the progress of the project plan, evaluate this progress, and shift direction, if necessary. The project plan will offer flexibility and fluidity, yet provide a structure to foster project progress at all times.

The plan laid out in this document will, through the various components that follow, detail One Solution's short- and long-term direction, goals and objectives.

2.3 Process for Completing the Project Plan

The following is a timeline articulating how the project plan will be completed:

March 2006: CSREES hired Accenture to assist in the development of the One Solution long-range project plan. A "Statement of Work" developed by the One Solution team contained the goals, objectives, specifications and schedule for plan development. The goals of the long-range plan provide clarity of purpose, communicate a vision of the initiative which One Solution stakeholders can embrace, and establish a roadmap to guide and assess project development.

April 2006: Accenture submitted a Draft Project Plan and Project Plan Summary for review and further discussion. The Project Plan Summary is an executive summary that outlines the milestones for the One Solution initiative and records any questions or issues that have been raised over the course of the plan development, along with responses. Accenture will then facilitate One Solution Planning Workshops and conference calls. The workshops and conference calls will provide the One Solution stakeholders with an opportunity to discuss the general principles and strategies of the initiative, learn about high-level concepts related to planning an Project and garner feedback on the Draft Project Plan. A representative group of Agency and partner personnel are expected to share their various perspectives and requirements at the workshops, particularly from Budget, OEP, Program, Technology, and Planning and Accountability departments. The conference calls will target the external

stakeholders that work with CSREES including land-grant universities, non-land grant universities and colleges and other eligible institutions and agencies.

May 2006: CSREES and Accenture will conduct One Solution Workshops at the CSREES offices in Washington, DC on May 9-17. Conference calls will also be held with CSREES collaborative organizations on May 23-31. The work groups include:

- Senior Leadership;
- Programs (All) and Awards Management;
- Budget, FMB and Oversight;
- Planning & Accountability (P&A), PART and Portfolio;
- Budget, P&A and FMB;
- Education, Research and NPLs;
- ISTM, Office of Extramural Programs (OEP), Awards Mgmt and Admin; and
- Technology.

Partner calls will include:

- Administrators and Directors;
- Administrative, Budget and Financial Offices
- Technology;
- Communications Staff; and
- Faculty and Program Staff.

The Project Planning Workshops are expected to help the One Solution team refine the Project Plan. We expect the sessions to provide the group with a great deal of momentum as it works to finalize the Project. The agenda focuses on business and organizational development, data entry and reporting requirements, technology infrastructure, communications and marketing, and evaluation.

***June 2006*:** Accenture will revise the Project Plan based on the input to be received at the Workshops and the conference calls and distributed to appropriate One Solution stakeholders.

July – August 2006: Once the Project Plan is revised with the help of the CSREES Business Sponsors and a Final Draft is completed, Accenture will present the Project Plan to the Executive Committee.

2.4 Project Plan Maintenance

The Project Plan is a working plan and will be revisited at the end of each Phase. For each phase, the One Solution team will develop and review a new individual project workplan and budget.

3 Mission, Vision, Values, Goals, and Guiding Principles

3.1 Mission

One Solution seeks to provide enhanced reporting and information-sharing capabilities to CSREES, its partners and other stakeholders by integrating reporting systems and processes across all CSREES programs via the CSREES Information System (CIS).

3.2 Vision

The One Solution vision is to rapidly provide key functionality in time to meet regulatory deadlines and to ensure that CSREES staff and partners begin realizing system benefits within the first year of implementation. There are several audiences for One Solution. One Solution will provide all of these audiences access to CSREES-required information and reporting through a user-authenticated, web-based data entry and reporting storefront. The individual vision for each is outlined.

CSREES Senior Leadership, NPLs and other staff in the following work groups will be able to:

Budget

- Access up-to-date financial information for CSREES-funded programs and projects.
- Create budget crosscuts and other accountability reports more quickly.
- Automate portions of the Explanatory Note tables.

Office of Extramural Programs (OEP)

- Create reports that integrate data from across all CSREES reporting and project management systems. This enables staff to instantly get a full picture of all activities related to a project, program, funding line, institution or individual.
- Gain better insight into partners' formula-funded activities, particularly One Solution work, through a new, database-driven Plan of Work, which will provide more structured and detailed program and activity information.

Planning and Accountability

- Streamline reviews of CSREES reporting, particularly Plans of Work and Annual Reports of Accomplishment, through use of a structured, standardized format for these reports.

Technology

- Streamline the report review processes through the use of electronic routing and approval features.

Program

- Collect data directly from partners through a web-based reporting 'storefront'.
- Access a single location to obtain and generate information to manage programs.

- Use standardized, streamlined, Agency-wide processes and systems to eliminate the effort and frustration many staff members currently face in managing their own, program-specific reporting processes.
- Receive automatic notification of reports submitted by an awardee.
- Review, edit, and comment on incoming reports, thereby improving the quality of reporting data.
- Perform automated validation and completion checks as institutions submit them.

CSREES' land-grant university partners and other grantees will be able to:

- Provide all CSREES-required reporting through a single, password-accessible web-based reporting 'storefront'.
- Reduce effort required to complete the required reports through the use of a more structured, standardized format.
- Streamline data provided to the Agency through pre-population of reports, reuse of common data, such as institution name, address, and point of contact in all reports, and linking key information across reports to eliminate redundant data requests. For example, using Hatch project data currently submitted via CRIS for the Annual Report of Accomplishments.
- Have more flexibility in submitting reports, such as including attachments and some confidential data within reports. Additionally, this flexibility will potentially eliminate some character or formatting limits and re-design forms to better capture project or program data.
- Be automatically notified of upcoming reports due, overdue reports, follow-up requests for information, report approvals, and other key event information.
- Receive quicker approval of new research projects and other projects requiring approval.
- Check the status of report receipt, review, and approval processes online, which eliminates the need to manually call or e-mail CSREES staff.
- Use XML-based data transfer to submit bulk data directly from internal project- and program-tracking systems.
- Access, analyze, and download extensive institution-specific information, as well as many cross-institution reports.
- Receive automated assistance in classifying project and programs. This simplifies the use and increases the understanding of Knowledge Areas and other taxonomies.

Congress, OMB, and the public will be able to:

- Receive improved accountability information, with data that better links program activities to strategic and performance goals and budget items.
- Search for data across all CSREES programs specific to individual needs and interests. For example, citrus growers will be able to instantly locate all research, education, and extension activities related to citrus fruit.
- Obtain greater value from research, education, and extension funds, as CSREES staff and partners will be able to reduce time spent on administrative tasks and focus more on program management and advancing knowledge.

3.3 Values

- Embrace the values of the land-grant philosophy—learning, discovery, and engagement.
- Expand access to reporting technology and make reporting obligations less burdensome.
- Use interoperable, standards-based technology, where possible.
- Replace disparate systems with a one-stop-shop for reporting.

3.4 Goals

- Standardize reporting and streamline report and business processes to reduce work.
- Set consistent standards for staff responsibilities for reporting-related tasks.
- Enforce consistent data standards across systems and data collections.
- Create methods for linking programmatic and financial data.
- Implement a data dictionary detailing all data elements collected in CSREES reports, including key characteristics of each element. This includes type of data collected, unit of measure, and report(s) where data is collected.
- Utilize a standard, XML-based data exchange format which will allow transfer of data between CSREES systems and external systems, such as NIMSS, and with partners.
- Enable more active reporting review and management.

3.5 Guiding Principles

Our guiding principles include Information Technology and adherence with the Draft Federal Register Notice on Research Progress Reporting.

3.5.1 Information Technology

- **Cost savings**
  - Acquire or reuse enterprise licenses.
  - Develop shared infrastructure.
  - Ally with other organizations with shared mission/goals.
  - Develop common tools for use by CSREES and partner institutions.
  - Use open-source technology, where possible.
- **Collaboration/Cooperation**
  - Agree on standards and procedures.
  - Adopt protocols to enhance system-wide communication.
  - Develop shared services to create a better functioning integrated system.
  - Develop services that no one entity would have a motive to develop separately.

- Explore new and emerging information technologies with the potential for broad use in CIS.

3.5.2 Draft Federal Register Notice on Research Progress Reporting

- **Standardized Reporting**
  - Adhere to standard, government-wide categories for performance progress reporting on Federal grants and cooperative agreements awarded under research programs.
  - Minimize difference between categories, though specific categories are possible.
- **Technical Integration**
  - Remain aware of possible future need to facilitate CIS interaction with other Federal government electronic collection systems.

4 Our Approach: Major Milestones

In developing this project plan, major milestones have been identified for each phase of the plan. These milestones are presented here in two forms: a gameboard and a written narrative.

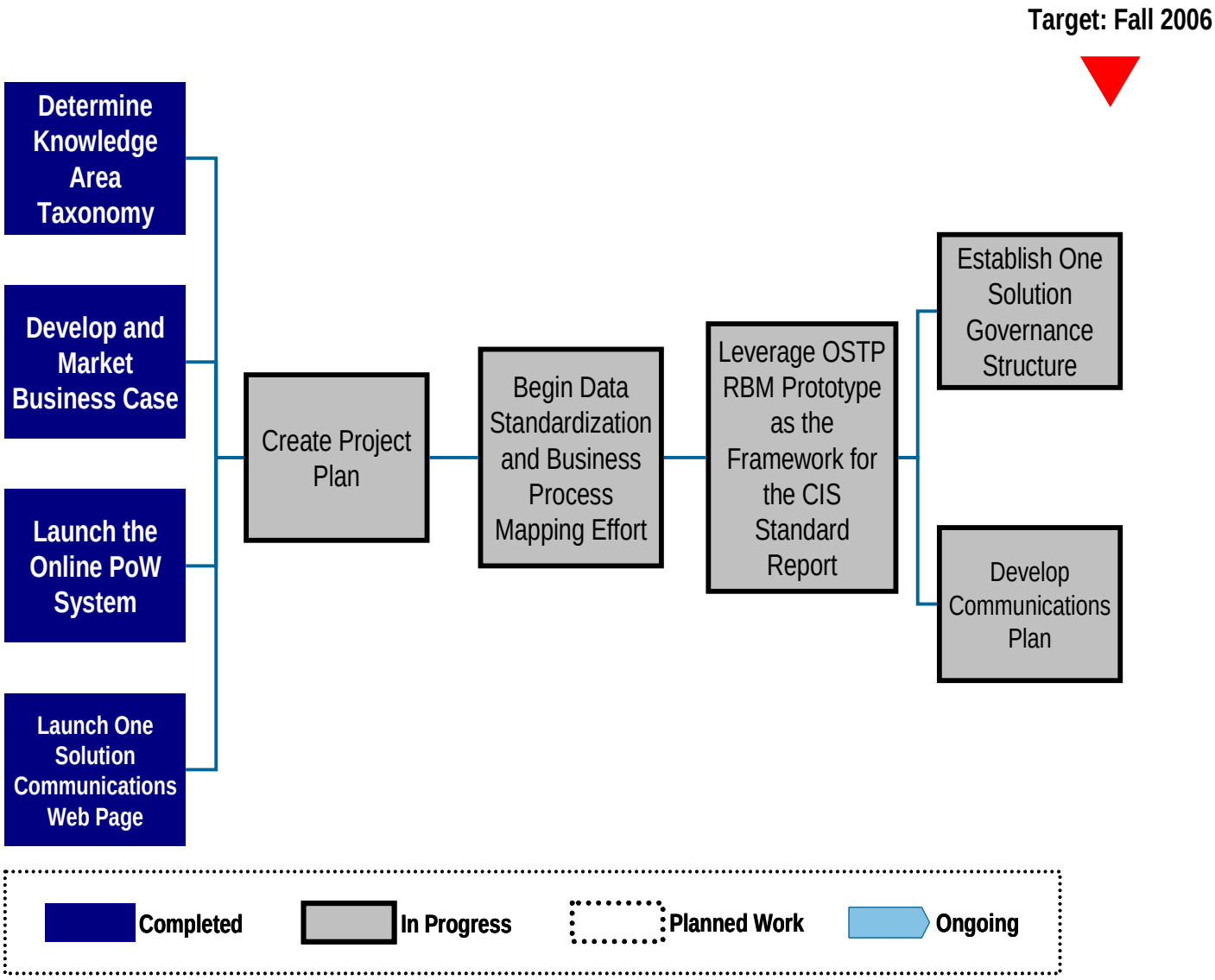
The visual presentation of our strategy via the gameboard will give the reader a strategic view of the progress planned for One Solution. The gameboard does not assign completion dates. Rather, it gives the reader a view of progress within the context of all related activities.

The written narrative and associated tables that follow the gameboards for each phase provide additional critical details on the planned completion dates for various steps. The narrative will describe the milestones in further detail.

As stated earlier, this project plan is a dynamic document. While it serves as a roadmap for One Solution at this point in time, there is an expectation that it may change to reflect the future priorities of the initiative.

4.1 Phase 1

4.1.1 Gameboard



4.1.2 Expected Phase 1 Milestones Completion Dates

Milestone	Status	Completion Date
Develop and Market Business Case	**Completed**	April 2005
Launch the Online PoW System	**Completed**	January 19, 2006
Leverage OSTP RBM Prototype as the Framework for the CIS Standard Report	**In Progress**	To be completed at the end of Phase 1
Determine Knowledge Area Taxonomy	**Completed**	July 2005
Launch One Solution Communications Web Page	**Completed**	April 2006
Create Project Plan	**In Progress**	To be completed at the end of Phase 1
Begin Data Standardization and Business Process Mapping Effort	**In Progress**	To be completed at the end of Phase 1
Establish One Solution Governance Structure	**In Progress**	To be completed at the end of Phase 1
Develop Communications Plan	**In Progress**	TBD

4.1.3 Phase 1 Milestone Descriptions

For FY 2006, a number of critical milestones have been identified to begin the One Solution Initiative. Together, they form an integrated and interdependent set of activities and deliverables designed to set One Solution on the path toward becoming a successful data entry and reporting system.

1. Develop and Market Business Case
The Business Case was created to identify the impacts and benefits of revamping the reporting processes for CSREES. The development process included a legislative analysis and an assessment of ongoing inbound and outbound business processes. Along the way, numerous peer reviews and focus group sessions were conducted with some CSREES staff, and conference calls occurred in the fall. The Business Case itself outlined three alternative CIS scenarios; the team recommended the one with the greatest return on investment and best cost-benefit ratio. The Business Case was then presented to partners.

2. Launch the Online Plan of Work System
The Plan of Work system will serve as a Proof of Concept for the CSREES Information System as a whole. This web-based application allows for easier access for Plan of Work users to complete data entry, and also serves as a model for the future deployment of additional data entry capabilities. Along with the tool itself, communications products were developed to deliver information to CSREES staff and partners about the new system.

3. Leverage OSTP RBM Prototype as the Framework for the CIS Standard Report
The goal with creating the Office of Science and Technology Policy (OSTP) RBM prototype is to use this OMB report as a framework to add to and create the CIS standard report. The draft

specifications have been widely circulated internally for comment. Specifically, the draft was presented to Senior Leadership and at an all-hands meeting. As a result of the feedback received, wireframes were mocked up. The working committee continues to collaborate with the Business Owner on this effort.

4. Determine Knowledge Area (KA) Taxonomy

The problem area classification system has been augmented to include extension and education topics and knowledge areas. They are now named KAs (knowledge areas) to encompass these topics while maintaining the integrity of the existing research problem areas. This taxonomy serves to provide standardized classifications to be used for reporting and data entry.

5. Launch One Solution Communications Web Page

The One Solution Communications Web Page is a centralized location for all materials related to the One Solution effort. The business case, project plan, standard report, CSREES update articles, and communications products, such as the workshops and conference calls minutes and the briefing PowerPoint, are posted.

6. Create Project Plan

The Project Plan will include a workplan that will detail the tasks to be executed for Phase 2 efforts. The team will revisit this at the end of Phase 2 and update for the next phase of work.

7. Begin Data Standardization and Business Process Mapping Effort

The complete cataloguing of data elements in primary systems is underway. This will comprise a Data Dictionary that will capture the data used by the disparate systems and formatting. There is also an Enterprise Architecture endeavor in progress for the data mapping. The data mapping effort will serve to create a Data Reference Model. Enterprise Architecture staff are also in the process of documenting existing business processes.

8. Establish One Solution Governance Structure

The system outlined in this document has been named the CSREES Information System (CIS). The One Solution Coordinating Committee has been set up to manage the overall initiative and coordinate its individual components. Program coordination responsibilities include leading overall project planning, managing contracts and leading communication and change management efforts. Furthermore, it involves coordinating the development of individual components to ensure that they support the overall vision and reporting to Agency executives on CIS progress. The implementation plan, once finalized, will serve as the core document and the basis for the One Solution Coordinating Committee in managing the implementation effort. The One Solution Executive Committee has also been formed to review progress and make policy decisions. Other existing groups that will oversee the One Solution project include Capital Information Technology Investment Review Board (CITIRB), Change Control Board (CCB), Information Collection Review Board (ICRB), and Planning and Accountability Coordination Team (PACT). Committees still need to be formed to oversee Data Management and Classification/Taxonomy. Once these groups are set up, periodic meetings will be established for ongoing coordination with the executive governance group. A key task for the governance

organizations at the outset of One Solution will be to draft a directive to get 3d and all other Extension programs to publish reports within the existing reporting structure.

9. Develop Communications Plan

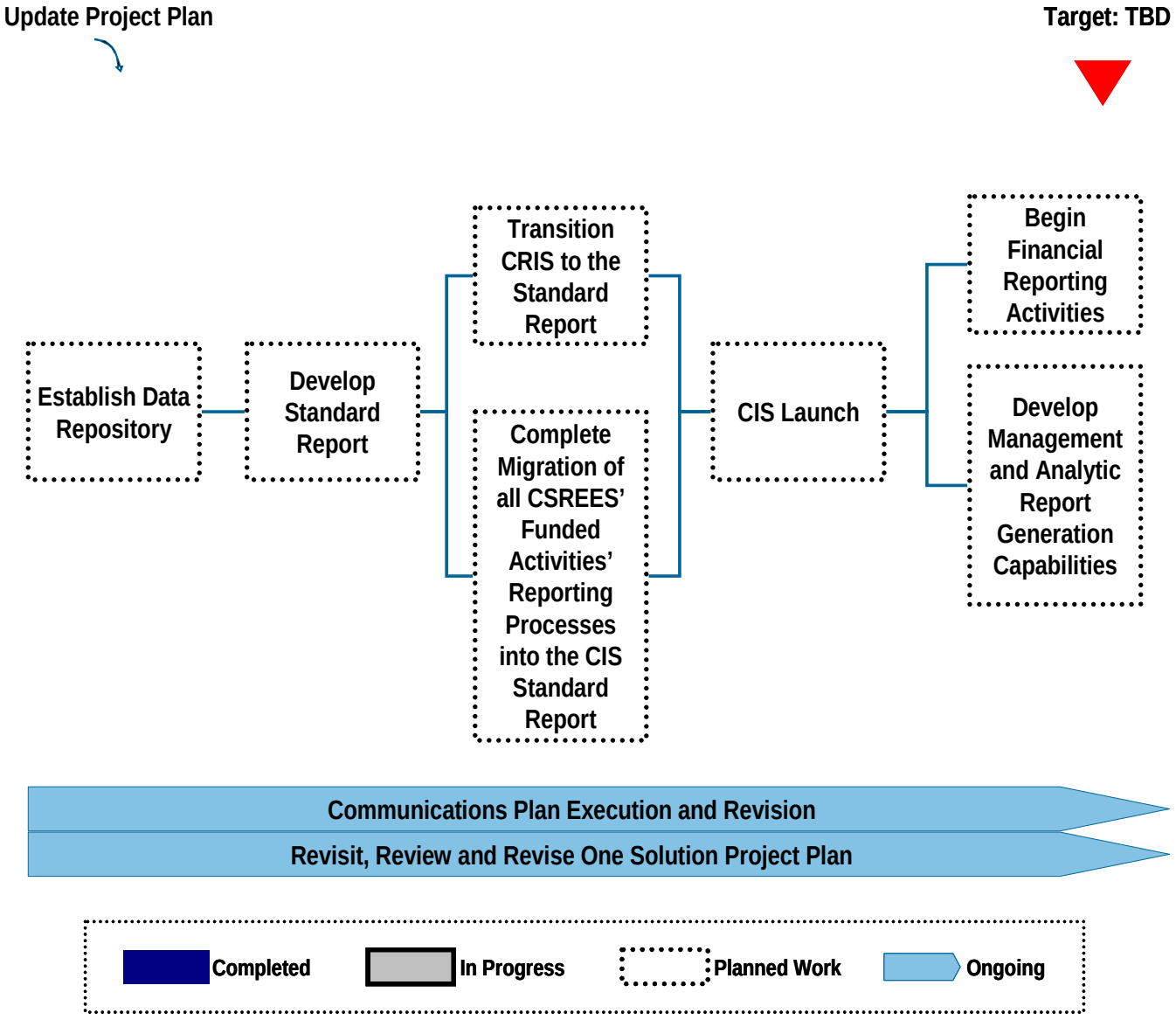
The communications plan for the One Solution initiative will gradually increase the depth and breadth of stakeholder knowledge, provide a compelling vision of the future state, and build trust in the solution and the project leadership, ultimately increasing the readiness of CSREES' stakeholders to own and sustain the initiative. Key features of the communications approach will include the identification of key sponsors and stakeholders, a stakeholder analysis, consistent messages that communicate the benefits of change, and communication effectiveness and feedback mechanisms.

Identifying key sponsors and stakeholders will provide a clear understanding of which key audiences and work groups will help drive the One Solution initiative. The stakeholder analysis will provide an understanding of the specific needs of each internal and external stakeholder group, provide insight for how to most effectively tailor communications messages, and indicate which communication vehicles will have the greatest impact. Developing consistent messages that communicate the benefits of change will minimize misunderstanding and rumors, build excitement and momentum, and instill a commitment to change. Finally, communication effectiveness and feedback mechanisms will measure message comprehension and provide visible evidence to stakeholders that their reactions and suggestions are valued.

Based on the progress in Phase 1 and input from the stakeholders, the plan will be revisited and revised if needed at the beginning of Phase 2 and again at the start of Phase 3.

4.2 Phase 2

4.2.1 Gameboard



4.2.2 Expected Phase 2 Milestones Completion Dates

Milestone	Status	Completion Date
Develop Standard Report	**Planned Work**	TBD
Transition CRIS to the Standard Report	**Planned Work**	TBD
Begin Financial Reporting Activities	**Planned Work**	TBD
CIS Launch	**Planned Work**	TBD
Establish Data Repository	**Planned Work**	TBD
Develop Management and Analytic Report Generation Capabilities	**Planned Work**	TBD
Complete Migration of all CSREES' Funded Activities' Reporting Processes into the CIS Standard Report	**Planned Work**	TBD
Communications Plan Execution and Revision	**Planned Work**	TBD
Revisit, Review and Revise One Solution Project Plan	**Planned Work**	TBD

4.2.3 Phase 2 Milestone Descriptions

In Phase 2, the internal reporting capabilities are piloted. Additionally, integrating the financial and compliance system begins.

1. Develop Standard Report
Using the framework created in Phase 1 for the CIS standard report (from the OSTP RBM prototype), the primary task in Phase 2 will be to create a draft standard report. The draft standard report will be reviewed by all programs from research, education and extension, including NRI, 3d and Extension, SBRI, Planning & Accountability, and Plan of Work. The team will then incorporate comments from the key stakeholders into an advanced draft of the standard report and finalize it for release.

2. Transition CRIS to the Standard Report
CRIS, USDA's main system for tracking agricultural research and higher education projects, is currently based on legacy architecture first implemented in 1967 and is scheduled for transition to a modern database platform. This effort, coinciding with the One Solution initiative, will improve the reporting technology and processes related to agricultural research and projects. With respect to CIS, the first task needed to transition CRIS to the standard report is reconciling the data elements between the current CRIS fields (Forms 416, 417, 419, 421, etc.) and the CIS Standard Report based on the OSTP RBM report. The data fields needed for CRIS need to map to existing fields or be added to the data repository. CRIS legacy data then needs to be migrated to the modernized CIS data repository to meet current needs and take advantage of updated technology.

3. Begin Financial Reporting Activities
The benefits of incorporating financial reporting are aligning reported expenditures against

obligations and reducing redundant financial collections from partners. Financial data will be integrated with the Standard Report. This will require reverse engineering from existing budget justification tables to identify the data schema and its sources.

4. CIS Launch

A key feature of the One Solution initiative is to establish web-based data collection and reporting. This application allows for easier access for Plan of Work users to complete data entry, and also serves as a model for the future deployment of additional data entry capabilities. Over time, One Solution will enhance existing reporting systems, such as REEIS, with data coordinated across systems by a central data repository and with all users, both internal and external, accessing CSREES reporting systems through a single web-accessible reporting system. It will provide access to all CSREES-required reporting, such as Plan of Work Annual Reports, through a single, user-authenticated, web-based reporting storefront. This will present customized home pages for each major Agency audience (staff members, grantees, and the public), including personalization for individual users showing all reports requiring completion or review. It will allow access to all reporting systems via a single location and with a uniform 'look and feel', including systems not directly modified as part of One Solution, such as FAEIS. For example, the web-based storefront will provide the NPLs and professional staff with a dashboard where they can view all available reports and their respective status. This view can show them if there are activities for their review as well as alerts and notifications. Workflow and electronic notifications will also be introduced internally for CSREES staff members. Program and Financials data will be combined to allow for better oversight of program expenditures. This will provide an enhanced Intranet experience.

Cooperative Research, Education, and Extension Management System (C-REEMS) is the Agency's main system for tracking grant proposal, generating grant awards, and managing the funds management process. Data will continue to be entered through the current C-REEMS interface, as it currently is a staff-only system. CIS will integrate with C-REEMS award data and eGrants to provide staff easier access to the system's data, and National Program Leaders will be able to access the data more readily if the C-REEMS data is integrated into the CIS application.

Under CIS, Research, Education, and Economics Information System (REEIS) will be leveraged as the foundation for the repository and will be the Agency's main system for data reporting and analysis, making data from an increasing number of sources available to the public to run individual queries and reports. As a reporting system, REEIS has fulfilled a legislative mandate and provides a central location to analyze much of CSREES' data. The usefulness of the system is limited by the lack of data collected by the Agency for extension programs, availability of outcome data for many programs, and the separate storage of data across programs. The One Solution initiative can augment the existing REEIS capabilities to increase the amount of data available and leverage existing data for reporting and workflow capabilities.

5. Establish Data Repository

The completed data repository will encompass the data model, organization, storage, and processing needed to maintain accurate and consistent reports. Through improved capabilities

and the data management strategy, the repository will intelligently match related database records from across systems, linking data from the various systems for each project or program. This will also provide for common standards for data collection, storage, usage, and management, as well as frame report creation and usage. The first step is to identify the "Data Universe", to identify all tables and data points to be included in all outbound reports, including explanatory notes, NRI, 424 R&R, CRIS Reports and a host of other forms to be considered. Next, the One Solution initiative will adopt agency data standards and policies on data management. For the physical and logical setup, the CIS will leverage C-REEMS data standards and the REEIS physical platform as the data repository. In addition, the CIS data repository will be configured to accept feeds from external systems and partners via XML transmission in a standard format.

6. Develop Management and Analytic Report Generation Capabilities

In addition to supporting the existing reporting capabilities, the One Solution initiative aims to increase management oversight and accountability over program activities. The integration of program and financials data will greatly assist with this effort. The team will identify outbound reporting requirements, such as the functional requirements for Program, Budget, Planning & Accountability, and Finance (FMB). In addition, the form, tables, graphs, and images that are needed for these reports will be identified. This will outline the information needed to compose the reports. In addition, this activity will also include the vendor selection process for Data Search and Mining tools, which will provide the additional analytical capabilities needed for these types of outbound reports.

7. Complete Migration of all CSREES' Funded Activities' Reporting Processes into the CIS Standard Report

In addition to its grant management systems, CSREES also manages numerous systems which assist in the coordination and oversight of several extension programs. Many of these systems collect only a limited amount of demographic data from states, focusing on program activities and outputs. This can limit data available on program outcomes. Further, states participating in these programs provide only aggregated data, and so information necessary to answer detailed queries received from Congress and others often cannot be generated. Many program leaders have indicated that they would much prefer to use a centrally-managed system, which will allow them focus directly on leading their programs, instead of managing reporting processes or IT systems. As part of this effort, reports for Smith-Lever, 3d, Plan of Work Annual Report of Accomplishments, and other extension programs will be brought into the common reporting functionality.

8. Communications Plan Execution and Revision

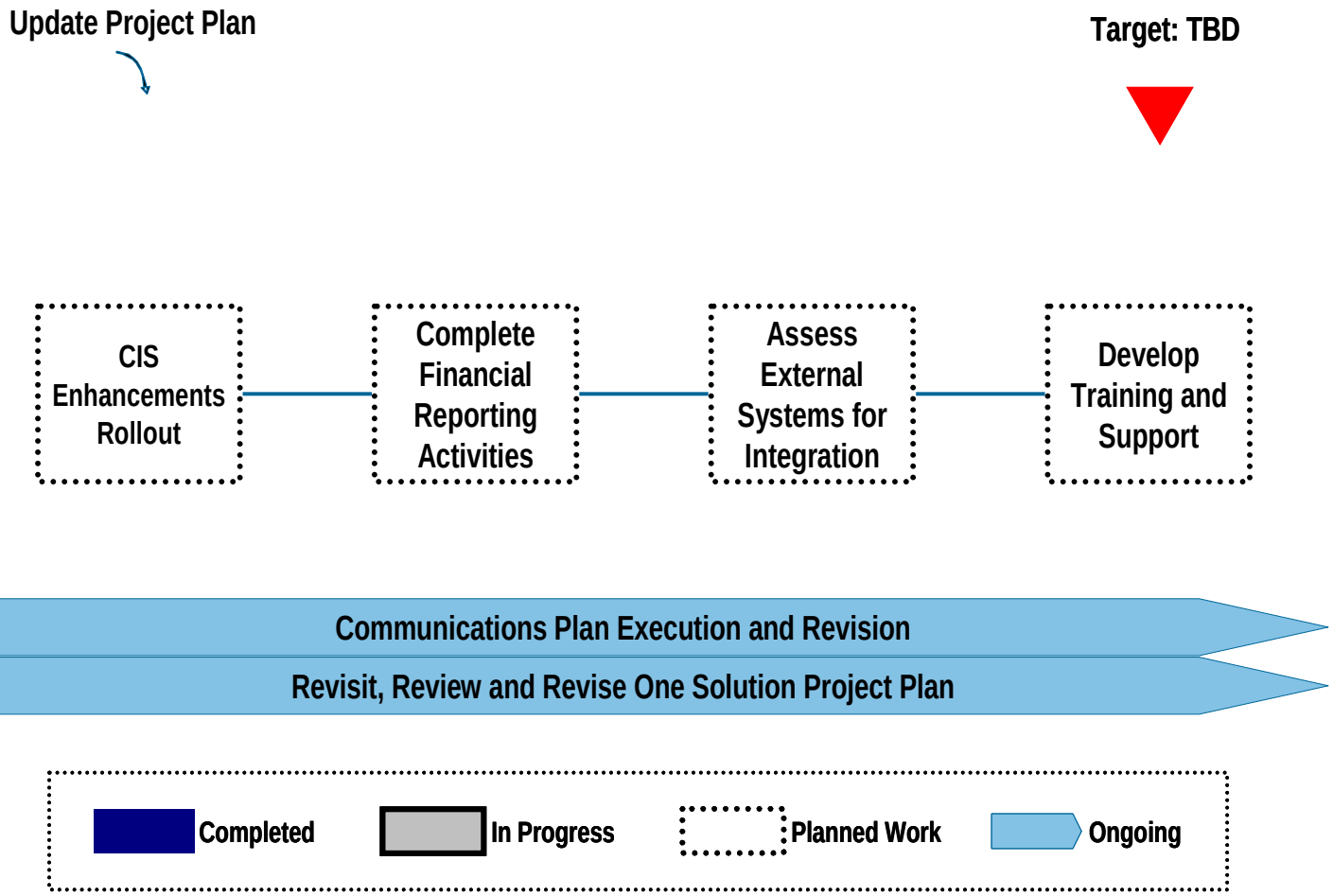
Utilizing the Communications Plan developed during Phase 1, necessary communication tasks will be executed during Phase 2 to advance the One Solution initiative. Based upon the results of ongoing communication effectiveness and feedback mechanisms and general initiative progress, the Communication Plan will be revised for this and future phases of the One Solution, as necessary. Areas that may be revised will include, but are not limited to, the identification of key sponsors and stakeholders, the stakeholder analysis, message consistency, and expressed benefits.

9. Revisit, Review and Revise One Solution Project Plan

As Phase 2 wraps up, the One Solution Project Plan will also be revisited to examine Phase 3 milestones and adjust activities based on any new or modified requirements or goals. Creating an overall plan ahead of time has allowed for a broad-reaching vision and sets a general direction for the One Solution initiative. Analyzing the plan at this time allows flexibility to focus efforts for the next phase based on accomplishments and input from Phase 2.

4.3 Phase 3

4.3.1 Gameboard



4.3.2 Expected Phase 3 Milestones Completion Dates

Milestone	Status	Completion Date
CIS Enhancements Rollout	**Planned Work**	TBD
Complete Financial Reporting Activities	**Planned Work**	TBD
Assess External Systems for Integration	**Planned Work**	TBD
Develop Training and Support	**Planned Work**	TBD
Communications Plan Execution and Revision	**Planned Work**	TBD
Revisit, Review and Revise One Solution Project Plan	**Planned Work**	TBD

4.3.3 Phase 3 Milestone Descriptions

Critical milestones will continue to be addressed in the One Solution Initiative. This next group of activities and deliverables continue One Solution on the path to a successful customer-centered Internet-based education and information delivery system. This phase focuses on providing services for external partners.

1. CIS Enhancements Rollout
The initial CIS Launch was a major milestone of Phase 2. Among other accomplishments, it established web-based reporting, integrated with existing internal systems and enhanced the internal internet experience. In Phase 3, the One Solution team will solicit the stakeholders for suggested improvements and enhancements to the initial CIS launch in an attempt to identify any other reporting requirements to be included in CIS and to eliminate any duplicate requirements. Further, any additional unique data needs that were not previously identified will be applied as a part of the enhancement rollout.

After all requirements and data needs are identified, the dashboard will be enhanced to integrate better with external systems. Each of the agencies who collaborate with CSREES and provide data may have very distinct information technology systems. To integrate with external systems, an extensible open framework allows for more rapid deployment. Using XML as the standard for transmitting data from CSREES' partners into the data repository allows for integration without as much concern for the platform each agency has implemented, especially if it vastly differs from One Solution's configuration. The XML data transfer will most likely be in the form of web services. These are XML standardized data transferred between two different systems that are independent of the platforms of each system. An alternate method will be assessed for those partners whose technology limitations prevent them from utilizing XML for data transfer.

The workflow and notification system will also be enhanced within Phase 3. Along with additional reports and views, more complex review and approval processes may be necessary for incoming reports. This will allow more flexibility and increased controls over both data entry and report publishing assisting both internal CSREES staff and external partner staff. In addition, views applicable for management review will be deployed to allow for greater accountability and oversight.

The pilot dashboard and workflow notification capabilities will be extended to partners. In Phase 2, internal users were provided with a dashboard catered to their reporting and information needs. This "myCIS" concept will now be offered to external users, making their jobs easier. The One Solution team will collect requirements from land-grant universities and colleges, as well as other users to determine a standard set of user needs. This capability will allow external users a password-enabled individual site with access to report forms for data input as well as all previously submitted data. Data can be accessed across submitters and for individual programs.

Finally, additional reports, particularly those with more complex data and processes, will be rolled out. In Phase 2, more commonly used reports and those with less complex data are addressed. Waiting until Phase 3 to integrate the complex reports will allow the lessons learned in Phase 2 integration to be applied to the remaining reports.

2. Complete Financial Reporting Activities

In Phase 2, the One Solution team began the financial reporting activities by integrating financial reports with the Standard Report. References from the budget justification tables were reverse engineered to identify the entire data universe and the sources of that data. This information was used to align reported expenditures against obligations and reduce any redundancy associated with financial collections from partners. In Phase 3, One Solution aims to continue integrating financial reporting activities with CIS, using the work performed in Phase 2 as the backbone. Included in Phase 3 will be the functionality to allow NPLs access to program expenditure data. Entitled users could then compare the awarded dollars with the amount that was spent to date, allowing for better decision-making based on more accurate information. Further, it will allow user-specific views of financial data. This includes budget justifications within the explanatory notes. It will enable the accurate cross-cuts of financial data, creating a system that is mutually exclusive and collectively exhaustive. Finally, the CIS will align with Portfolio Analysis, Program Analysis Rating Tool (PART), and Budget Performance Integration (BPI).

3. Assess External Systems for Integration

The One Solution initiative aims to address the shortcomings of the existing reporting environment through an integrated approach that ties together reporting systems and processes across all CSREES programs via the CSREES Information System. The primary reports and reporting systems that One Solution incorporates throughout the first 2 phases includes legacy internal systems such as CRIS, C-REEMS, REEIS and Plan of Work. However, there are other external reports and systems that are not used as extensively as those already addressed, which may merit consideration for integration with CIS. A thorough analysis of any other identified systems and reporting solutions that interact with CSREES, such as NIMSS and iEdison, will be conducted to determine whether one or more can be successfully and cost-effectively integrated with CIS. Allowing access to One Solution and integrating the external system's respective data decreases the reporting burden on the external partners and makes data entry and submission easier. This will in turn allow external partners to focus more on their core missions.

4. Develop Training and Support

In conjunction with a major business initiative such as One Solution, a major effort to educate all affected users and stakeholders of the system changes will be conducted. For CIS, this will

include training for key systems users. USDA's AgLearn system may be used to develop and offer in-service educational training for CSREES and USDA staff. The system may also provide benefit for reaching certain external audiences. This will allow for self-service support that will reduce the burden on Customer Support services and allow end users to answer inquiries and resolve issues faster. In addition to training, support tools will be created to assist users and stakeholders in using the new CIS system. The following support modules will be created: Classification Wizard, Data Content Thesaurus, Reports Available Thesaurus, On-line Outboard Report Creation OLAP, and a KA Wizard.

5. Communications Plan Execution and Revision

Utilizing the Communications Plan developed during Phase 1, necessary communication tasks will be executed during Phase 3 to advance the One Solution initiative. Based upon the results of ongoing communication effectiveness/feedback mechanisms and general initiative progress, the Communication Plan will be revised for this and future phases of the One Solution, as necessary. Areas that may be revised will include, but are not limited to, the identification of key sponsors and stakeholders, the stakeholder analysis, message consistency, and expressed benefits.

6. Revisit, Review and Revise One Solution Project Plan

The One Solution team will revisit the Project Plan and the workplan and review them to verify that all pre-defined milestones were met and each task is completed. They will make revisions based on any changes made to the Project Plan throughout the One Solution initiative. A final review is conducted to ensure that the Project is complete. The final draft will be saved and documented, so that all project knowledge is retained.

5 Phase 2 Plan

The team has created a detailed workplan, staffing plan, and budget forecast using the key milestones defined for Phase 2.

5.1 Workplan

FUTURE CONTENT

A workplan describes in detail the tasks needed to complete a project. The Phase 2 workplan has been broken down into tasks and sub-tasks and divided it by project. The projects encompass all of the major milestones to be met in Phase 2.

This workplan will serve as a guide to the daily and weekly development of One Solution and CIS for the first year.

* See attached file: OneSolution_projplan_appendix_1.xls

5.2 Staffing Plan

The staffing plan is a series of organizational charts highlighting the various roles to be brought on board to execute our projects. It may be necessary to augment the plan with outside resources for roles where CSREES does not plan to hire resources to the core team. This includes in-kind resources from university partners or private organizations.

5.2.1 Business Process and Policy Group

Lead: FUTURE CONTENT

Milestones:

- Develop implementation plan.
- Define functional requirements – “look and feel”.
- Help manage the project through deployment.

5.2.2 Governance

Lead: FUTURE CONTENT

Milestones:

- Manage the overall initiative and coordinate its individual components.
- Lead the overall project planning.
- Manage contracts.
- Coordinate the development of individual components of CIS to ensure that they support the overall vision.
- Report to Agency executives on One Solution progress, and lead communication and change management efforts.
- Review progress and make strategic initiative decisions.
- Draft a directive to get all programs to report to 3d or other Extension programs and capture any policy issues at the outset of the One Solution initiative.

5.2.3 Data and Reporting

Lead: FUTURE CONTENT
Milestones:

- Define data model, relationships, and standards.
- Identify reports to be created, including layout, access rights, and data fields.

5.2.4 Technology

Lead: FUTURE CONTENT
Milestones:

- Develop technology to achieve and support One Solution goals and objectives.

5.3 Budget

The following table illustrates the summary of labor and expenses for both "core staff" and "projects." For the purposes of this document, "core staff" is defined as full-time resources, and "projects" utilize third party resources, whether they are from within the One Solution system or from private contractors. "Expenses" also include any capital expenditures, such as hardware and software.

FUTURE CONTENT

Core Staff				
Category	**Labor**	**Operations**	**Capital and Grants**	**Subtotal**
Executive and Business Administration				
Marketing and Communications				
Technology Development				
Strategy				
Total				

FUTURE CONTENT

Projects (for Phase 2 efforts)				
Category	**Labor**	**Operations**	**Capital and Grants**	**Subtotal**
Implementation Plan				
Business Center				
One Solution Management Office				
Communications and Marketing				

Evaluation				
Report/Process Development				
Technology Development Support				
Internal IT				
Total				

6 Performance Metrics

Performance metrics are used to evaluate how effectively One Solution is meeting its strategic goals. The following table shows what we will specifically measure to determine if each goal is being met. Please refer to section 4.3.2 of the One Solution Business Case for a summary of the categories upon which these performance metrics are based.

1. Enable the creation of integrated reports reflecting all of the Agency's activities.
TBD
TBD
TBD

2. Report process changes to improve and standardize forms and reporting requirements across programs.
TBD
TBD
TBD

3. Develop data management strategies and structures to enable Agency-wide reporting and analysis.
TBD
TBD
TBD

7 Risks and Mitigation Strategies

The following risks have been identified in the attempt to achieve milestones for the One Solution initiative. This table will be updated after each phase to describe the potential risks that lay ahead.

Risks	Mitigation Strategies
Data / Information Risks	
Initiative's data integration goals may not be realized if data from existing CSREES systems cannot be transferred to CIS's planned central data repository or if data structures and formats complicate efforts to integrate data across multiple sources	• Develop plan for normalization or transformation of data stored in each existing system to allow integration as part of CIS data repository • Develop and enforce data management standards and governance processes to be used across systems
CSREES staff may not be able to utilize CIS for all of their project management needs if electronic records, content or other electronically stored material is erroneously deleted or destroyed	• Incorporate sufficient authentication and authorization levels into CIS, workflow processes, and standards for deletion or destruction of content or documents • Ensure adequate archiving, backup and recovery mechanisms for business critical data
Dependencies / Interoperability Risks	
The newly launched system may not function properly if the existing systems and new CIS components cannot be adequately integrated	• Develop data management standards and governance structure to support integration • Develop integration architecture detailing all required links between systems • Use lessons learned (planning, testing, etc.) from previous database migration efforts to overcome issues associated with dependency and interoperability of multiple systems
Stakeholders may not be able to utilize the new system if CIS cannot support staff or partners' supporting requirements	• Predefine interface protocols and standards, based on standards such as XML, for external systems to work with CIS • Define specific integration and legacy system modification requirements • Use web-based architecture
Project Resource Risks	
Staff time and knowledge capital may be lost if there is high turnover of project team members and other key CSREES or contractor personnel during the CIS	• Identify key resources and skill sets required to maintain CIS • Use performance-based contracts or other measures to ensure that contractors deliver

Risks	Mitigation Strategies
implementation	adequate staff levels • Use collaboration and knowledge management system to ensure transition of knowledge capital • Monitor retirement plans to anticipate needs for new project staff as current staff leaves
CIS implementation may not be completed according to schedule and quality expectations if the CSREES project manager or team members do not have sufficient project management experience	• Ensure that implementation is led by a manager with Project Management Professional (PMP) or similar certification • Define technical expertise requirements in advance of determining them • Select staff with prior experience and utilize current CSREES staff to aid transition
Business / Strategy Risks	
Agency may not achieve its streamlining and standardization goals if CIS does not align with CSREES' envisioned business processes	• Conduct Agency requirements and process analysis to determine the processes with which CIS must align
Project may not be delivered on schedule if the CIS implementation lacks sufficient funding	• Develop support documentation to address all actions and processes required to obtain funding • Ensure continued support of One Solution vision by Agency staff and executives
CIS may no longer effectively support the Agency's mission and operations if accountability requirements, Federal-wide reporting processes, other external factors or Agency reporting needs change	• Use a modern system architecture that separates business rules from core technical components • Use a modular system design that allows for individual components to be modified or replaced if necessary • Ensure that developed CIS system is flexible and scalable to integrate new forms, reports and accompanying business processes
Cost Risks	
Initial implementation cost may exceed expectations if there are project delays or other unforeseen circumstances or estimates do not account for the complexity of the effort	• Develop cost estimates for initial deployment planning based on past successful implementations, market research and other sources • Seek out best practices based on previous Agency experiences migrating to a new system • Issue Requests for Information (RFIs) to potential vendors seeking cost estimates to

Risks	Mitigation Strategies
	confirm Agency plans and estimates • Use performance based contracts, which encourage contractors to complete tasks on schedule and under budget
Overall system costs may exceed current projections if current CSREES systems require more extensive enhancement or modification than estimated or system operations requires greater effort than estimated	• Closely examine existing CSREES systems to identify all possible enhancement needs • Include potential data management complexities in maintenance and operations cost estimates
Schedule Risks	
Transition to CIS may be delayed or take longer than expected if scheduled tasks are not appropriately planned (including hardware / software, staff roles, and knowledge transfer / training), then the transition to CIS may be delayed or take longer than expected	• Develop realistic timelines for implementation tasks based on past experiences and analysis of Agency data, systems and architectures • Communicate required tasks to staff • Assess all prerequisites for implementation and deployment so that all potential sources of delay are identified and addressed
Security / Privacy Risks	
Data, content and documents may be accessed and used improperly by unauthorized users if CSREES does not maintain active security controls within CIS	• Use an intrusion detection system (IDS) and the USDA eAuthentication solution to manage roles, permissions, and system users • Conduct certification and accreditation for CIS • Continuously review and update the One Solution security plan • Use best industry practices for data security, and develop robust security mechanisms within the technical architecture
Personally-identifiable or other sensitive data could be accessed by unauthorized persons if CSREES does not maintain security controls within CIS over private or confidential public information	• Conduct a Privacy Impact Assessment (PIA) to identify weaknesses and develop action plans to respond to those weaknesses • Include rules and guidelines in the system to minimize the possibility of system users performing unauthorized actions
Organization / Change Management Risks	
CSREES' reporting processes will not realize planned benefits if partner institutions are resistant to using CIS or if their individual	• Provide frequent communications to partner institutions to ensure their understanding of One Solution's CIS

Risks	Mitigation Strategies
staffs are not aware of how to properly use the new system	reporting system and the progress of the transition • Develop and execute an integrated change management, training and communications plan • Provide online help for web applications and a help desk for the questions and queries
Systems Reliability Risks	
Critical reporting processes may not be fully completed if the system does not provide necessary scalability, stability, and uptime levels	• Create a Continuity of Operations Plan (COOP) • Maintain regular system backups and redundancy • Conduct stress testing and load balancing on the system to ensure that it will work to scale and provide durability
Risk of Creating a Monopoly	
CSREES may be tied to one technology, vendor or system integrator in the future if CIS relies on vendor-specific or highly customized technology	• Avoid the use of vendor-specific or highly customized solutions • Implement CIS with industry-standard technologies and a modular design that allows components to be more interchangeable • Require contractors to thoroughly document design and other activities to enable transition if necessary • Enter into software and maintenance agreements that include long-term pricing or other vendor controls
Surety / Asset Protection Risks	
Hardware and software may be vulnerable to natural disaster, theft or other loss and damage if CSREES does not maintain appropriate physical security controls and protection for CIS	• Use physical site protections for server and network hosting centers • Maintain off-site backup system and data backups
Technology Risks	
The system may become unreliable and/or may not be able to continue to fulfill the needs of the stakeholders over time if CSREES does not implement CIS with sufficient flexibility necessary to upgrade and/or replace its components with modern technology	• Migrate existing systems, such as CRIS, to modern platforms and technologies • Use a modular implementation approach, allowing some system components to be replaced as necessary (while maintaining other components)
It may become necessary to make costly	• Define CIS system architecture to meet

Risks	Mitigation Strategies
system modifications if CIS is implemented without conforming to CSREES or USDA Enterprise Architecture standards	Enterprise Architecture standards and requirements
Systems may become obsolete or may be unable to continue meeting Agency needs if CIS is not implemented based on modern technologies	• Develop CIS with modern, industry-standard technology • Migrate existing systems, such as CRIS, to modern platforms and technologies • Regularly evaluate each system component for potential version upgrade or platform migration considerations
Overall Feasibility Risks	
Stakeholders may not be able to utilize the new system if CIS cannot support staff or partners' supporting requirements	• Conduct a requirements analysis to ensure that CIS meets the needs of its stakeholders • Evaluate all architectures, vendor solutions, and system components to ensure that they will deliver required functionality
The implementation may not be accomplished as planned if One Solution loses the support of CSREES staff and partners or planned enhancements are not completed in a timely manner	• Ensure that CSREES staff and partners are aware of, and committed to, the implementation of One Solution and CIS • Plan system to rapidly obtain high-profile benefits to maintain support

8 Quality and Issue Management Strategy

8.1 Purpose

The Quality and Issue Management Strategy for One Solution outlines the methods and procedures that will ensure that stakeholder expectations and performance objectives are met, that project staff and business partners perform in accordance with metrics set forth in the requirements documents, and that measurable indicators are systematically tracked to assess progress and promote accountability. It helps to ensure that the project is focused on improving delivery capability in terms of people, processes, and technology.

Although the approach for the Quality and Issue Management Strategy is created in the early stages of the project, it will be updated and managed throughout the project lifecycle. The Quality and Issue Management Strategy describes quality assurance at the system level, software level, and data level. It also identifies the type of quality assurance support that is necessary for effective project management.

8.2 Application Standards and Policies

Application standards and policies consist of the standards, rules, and guidelines to be followed during the application development process for programming and documenting programs. Application standards and policies are not meant to be used for training purpose, but rather, as a reference manual for the standards set by the development architecture.

Application standards and policies will provide a consistent way of designing, documenting, and programming over the different areas of work, such as user interface design, database design, and application development. Quality reviews may be derived from these standards and policies.

The application standards and polices will consist of the following:

- Programming standards;
- Performance design guidelines;
- File/Directory naming standards;
- Application program interface (API) description and use;
- Procedures for using the development architecture and its operations support components (e.g., checking in and out code, when backups occur and how to retrieve archived files, compiling programs);
- Data standards; and
- User interface (UI) standards.

8.3 Configuration Management

Configuration management is the process for controlling changes that occur during the project. This includes managing changes to several types of project deliverables, including the work agreement/ arrangement letter, project plan, design documents, application modules, and other components of the business capability.

Configuration management relies on a systematic approach for controlling the changes that occur during the project. The process defines the configuration management activities are to be completed, how they are to be accomplished, who is responsible for performing specific activities, when the activities are to happen, and what resources are required.

The configuration management process is determined during project planning. The process enforces the integrity of the project's work products throughout all stages of development and maintenance. The cornerstone of configuration management is the change control process to manage and track changes to all work products. The change control process will be coordinated with issue tracking processes.

8.4 Testing

Testing is the primary step for evaluating compliance with requirements and ensuring overall quality. Testing for the One Solution initiative will be conducted at several levels. There are three generic test phases, which will be conducted for both application development and technology infrastructure delivery. These phases include:

- Component or Unit Testing;
- Assembly Testing; and
- Product or System Testing.

The same basic steps are followed for each phase of testing. The driver of every test phase is a specification, and the output of every test phase is an executed test model that includes test conditions and expected results, a cycle control sheet, test scripts, and actual results. This allows the testing activities to be described generically throughout this section of the Quality and Issue Management Strategy, with unique considerations or techniques listed in the tasks related to each test phase.

Specifically, the activities common to all phases of testing in the application and architecture segments are as follows:

- **Develop test approach**: Provide the objectives, schedule, environment requirements, and entry and exit criteria for the test stage.
- **Plan test**: Identify test conditions and test cycles for the test stage.
- **Prepare test**: Define input data and expected results, scripts the test cycles, defines stubs and job streams, and prepares the cycle control calendar.
- **Establish test environment**: Ensure the environment is established and tested before test execution.
- **Execute test**: Perform the scripts contained in the test model, compares the actual results to the expected results, and identifies and resolves discrepancies.

8.4.1 Component (Unit) Testing

A component test is the test of an individual component of the solution. The objective of a component test is to ensure that the component correctly implements the design specifications.

All components of a business capability including technology infrastructure, application

programs, conversion programs, input/output (I/O) modules, and job control language are subject to component test. Some human performance and business process components may need to be tested with other components of the business capability. All of the capabilities of the component should be exercised during component test to ensure that the component meets the functional and quality requirements of the specification.

It is important that the driver of a component test be the detailed design specification documents and not the component itself. If, for instance, one sets out to exercise all of the paths through a particular component as written, the component may pass the tests successfully and yet not implement the specifications from which it was supposed to be created.

8.4.2 Assembly Testing

The assembly test verifies the interaction of related components to ensure that the components function properly when integrated. As in the case of component testing, this can occur at different levels depending upon ones perspective. Considering the business capability as a whole, assembly testing occurs when all of the business capability elements are brought together for the first time in the business capability release test. Within each business capability element (business process, technology and application), the assembly tests are a function of integrating individually developed components and making sure they work together properly.

In testing either the technology infrastructure or applications, assembly test ensures data is passed correctly between screens in a conversation or batch process and messages are passed correctly between a client and a server(s). The application flow diagram within the application architecture will depict the assemblies—either online conversations or batch assemblies—that will be assembly tested.

By the completion of assembly testing, the object of the test should be technically sound and the information flow throughout should be correct. Component and assembly testing ensures that all transactions, database updates, and conversation flows function accurately.

8.4.3 Product (System) Testing

The product or system test ensures that all requirements have been met. Like the aforementioned tests, product testing may also occur at multiple levels. However, within these multiple levels, the purpose of testing is the same: to ascertain that the requirements have been met.

The product test verifies the actual functionality of the solution as it supports the various cycles of transactions, the resolution of suspense items, the workflow within organizational units and among these units. The specification against which the product test is run is the specification of all applicable requirements.

User Acceptance Testing, or focused user verification of capabilities, is accomplished through a final iteration of product (system) test execution. In this test, users execute a sub-set of the system test scenarios that represent more end-to-end capabilities. A simulated production environment with production data is used for this iteration of testing.

8.4.4 Test Plan Quality Assurance

Designated reviewers will participate in all formal testing and qualification activities. These activities include the following verifications:

- Ensure that test plans adequately verify the software requirements;
- Confirm test environment has a controlled configuration;
- Validate that test data supports all test cases;
- Maintain the integrity of and adherence to test plans during testing; and
- Ensure accurate documentation of test results.

8.5 Reviews, Walkthroughs, and Audits

The goal of the Quality and Issue Management Strategy is to deliver an error-free system that meets all requirements and satisfies the needs of the stakeholders and users. As part of that goal, the quality of the project will be subjected to review, audits, and walkthroughs. Both processes and technical solutions will be reviewed for quality assurance. Within the Quality and Issue Management Strategy, objective measures of quality will be used to:

- Monitor compliance;
- Identify deficiencies;
- Correct problems; and
- Avoid repetition of errors by identifying and eliminating their causes.

All reviews, walkthroughs, and audits will be documented. If an issue is identified, it will be entered into the issue management process and formal project documentation will be updated.

8.5.1 Reviews

Full reviews will be conducted to verify CIS system functionality. To comply with the issue management process, any issues that are identified will initiate the creation of a system change order. Functionality reviews will begin at the end of the development phase and any issues or concerns will be identified and corrected during the product test phase.

8.5.2 Walkthroughs

The One Solution Technical Implementation team will be responsible for conducting walkthroughs to support the development and change process. Walkthroughs consist of a structured series of peer reviews to enforce standards, detect errors, and improve system quality. The final responsibility of the walkthroughs lies with the eLearning project management.

8.5.3 Audits

A technical advisor or other designated technical auditor may be requested to conduct internal audits of the processes for development, issue management, and integration activities to verify compliance with USDA standards. The project management will create an audit schedule and

coordinate the schedule with the auditor. Detailed results will be reported to management and appropriate team members in a written report.

8.6 Verification and Validation

Verification and validation are performed to ensure that the total collection of deliverables is consistent with the specifications. The deliverables are verified against the requirements, facilitating stakeholder sign-off. This process helps ensure that the current and future design work products are produced as planned. In some cases, a separate contract for independent verification and validation may be considered.

The outcomes of this process are:

- Reconciled gaps between design and intent;
- Documented stakeholder buy-in; and
- Verified and validated application design.

8.7 Issue Tracking Process

The issue tracking process documents any issues, open points, or decisions that will have a significant effect on the project. It also records design rationale for later stages of development, particularly maintenance.

An issue tracking process along with issue management is used to ensure that all issues are tracked and resolved. A separate document, the Summary Project Plan Topics and Issues report, captures this catalogue of issues. A separate issue entry will be created for each issue. These entries will be used as a reference for use by those working and reviewing issues. When creating an issue entry, the following information should be incorporated:

- **A general description of the problem to be resolved.** A brief and a full description, the issue class (e.g., management), and the items and areas of the project affected by the issue are all included here. Also noted are those groups and individuals that have a stake in the solution of this problem: management, development teams, and business representatives. Other information defined includes the issue's priority, status, date created, author, and date due for resolution, and the responsible party for resolving the issue.
- **A list of possible, proposed, and final solutions to the problem**. In the sample, the process by which the staffing shortfall issue was resolved has been documented. Listed here are several possible alternative solutions to the problem and a brief description of the final resolution of the problem. A brief timeline of the resolution process is also provided.

9 Gap Analysis

The selected implementation strategy leverage existing CSREES systems to provide all envisioned features of One Solution via CIS through a centralized data repository, reporting storefront, and additional support modules that tie existing systems into an integrated solution. partners and Agency staff will access all reporting tools through a single location and will experience seamless integration though a single username and password, standard look-and-feel, and data integration across systems. The systems leveraged will include: CRIS, C-REEMS, REEIS, and Plan of Work.

CRIS

Definition: CRIS is the U.S. Department of Agriculture's documentation and reporting system for ongoing agricultural, food and nutrition, and forestry research.

Background: As USDA's main system for tracking agricultural research, CRIS allows CSREES and other USDA staff, as well as members of the public, to find up-to-date information on over 10,000 current and recent research projects. First developed in 1969, it has been upgraded to enable web-based data entry and to accommodate program changes but remains similar to the initial system released over 30 years ago. CRIS data is used for many purposes, across all research programs - used by NPLs to review and assess project / program performance and progress, used by OEP to ensure performance / compliance, used by P&A and Budget Office to determine outcome and spending measures. Citizens can search CRIS through its web site to locate projects based on desired criteria. Data can also be searched and synthesized through REEIS, allowing identification of trends and other composite data CRIS data is used to create reports to OMB, USDA, and the public.

Future Role in CIS: FUTURE CONTENT

Gap Analysis: FUTURE CONTENT

C-REEMS

Definition: C-REEMS integrates all aspects of the proposal review and award process (from appropriation to disbursement, from proposal receipt to post-award, reporting on all aspects) into a single grants management system.

Background: C-REEMS is the agency's main system for managing the grant proposal, award, and funding process. C-REEMS itself is not a data collection/reporting system (but does track receipt of some required reporting documents). It is focused on managing the grants process, including all pre-award and award processes and to track post-award financial management (but not performance management). C-REEMS shares some data with CRIS to provide links to project records stored in one system while working in the other. As the system providing much of CSREES' official financial data, financial information stored in C-REEMS is used in creating reports for the budget process.

Future Role in CIS: FUTURE CONTENT

Gap Analysis: FUTURE CONTENT

REEIS

Definition: REEIS is a Congressionally mandated system designed to serve USDA, its partner institutions, and the public by providing an integrated system for monitoring and evaluating research, education, and extension activities conducted or supported by USDA.

Background: REEIS is intended to provide performance, accountability, and outcome information for USDA's research, education, and extension programs. Although originally envisioned as the base for wider data reorganization, the system was eventually designed to focus on reporting and analysis of data from extracted a number of existing source systems. REEIS is not used to collect any data directly from the public. The system obtains its source data from other databases and IT systems, including CRIS, FAIES, and databases for the EFNEP and 4-H programs. Although REEIS itself is not used to manage internal processes, CSREES staff access the system to perform concept searches and obtain data 4-H and CRIS data.

Future Role in CIS: FUTURE CONTENT

Gap Analysis: FUTURE CONTENT

Plan of Work

Definition: The Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA) amended the Smith-Lever Act, the Hatch Act, and the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (the funding authorities for Extension and Research activities) to require approved Plans of Work from Extension and Research in order to receive Federal funding.

Background: CSREES' newest system, the Plan of Work system is a structured, form- and database- driven web-based system that will be used for both the 5-year annual rolling update to POW plan and annual report. Among other benefits, this system reduces the burden for many funding recipients, enables automated storage of Plan of Work data in a database, provides automated completeness checks to streamline review, and provides a standardized format that will enable aggregation and comparison of data across submissions. The format for both the plan and annual report will also require funding recipients more to provide more specific data for extension activities, enabling improved budget and activity reporting for the agency.

Future Role in CIS: FUTURE CONTENT

Gap Analysis: FUTURE CONTENT

APPENDIX I: Detailed Workplan

*See OneSolution_projplan_appendix_1.xls

APPENDIX II: Phase 2 Functionality

Insert key Phase 2 information here, including description, timeline, and features.

The following is a description of the functionality being planned for Phase 2:

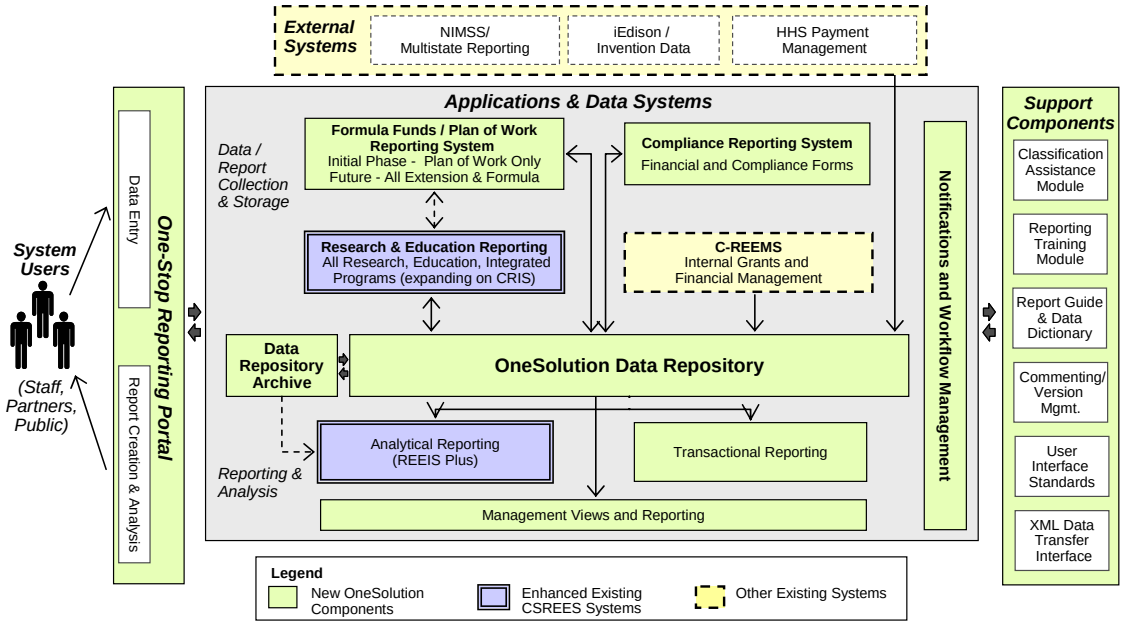
CSREES One Solution home page. This web front-end acts as the gateway to the reporting system. It provides a unifying look and feel for all audiences and reports, and will allow access to data entry and reports, based on permission. In addition, it will pre-populate fields based on user profile during data entry.

Internal One Solution reports. The reports will be based on internal data from REEIS, CRIS, C-REEMS, Smith-Lever 3(d), and all other CSREES programs. In addition, data entry and report creation will kick off the appropriate workflow, depending on the audience. The workflow steps will trigger notifications to be sent to the appropriate reviewers, to alert them of their pending tasks.

APPENDIX III: Proposed Technical Architecture

The following diagram illustrates a draft of the proposed physical architecture based on our proposed budget and planned functionality.

There are three environments planned: a development environment, a test environment, and a production environment. Geographic location and hosting arrangements for these environments have not yet been finalized. These three environments will allow One Solution to follow an appropriate development and deployment methodology. The following is a diagram showing a draft of the Phase 2 technical architecture for CIS:



APPENDIX IV: Glossary

CSREES (*http://csrees.usda.gov*): Cooperative State Research, Education and Extension Service: unites the research, higher education, and extension education and outreach resources of USDA. Its mission is to advance knowledge for agriculture, the environment, human health and well being, and communities. CSREES contributions are strengthened by a broad spectrum of public and private partnerships, including other USDA agencies, Federal and State government departments, nonprofit organizations, and private sector entities.

Intranet (*http://en.wikipedia.org/wiki/Intranet*): A website that is used for internal communication and collaboration within an organization.

Metadata (*http://en.wikipedia.org/wiki/Metadata*): Data about data, it is increasingly used to describe a resource on the Web so that it can be discovered by searching or automatically organized for browsing.

NASULGC: (*http://www.nasulgc.org*) National Association of State Universities and Land-Grant Colleges: the nation's oldest higher education association whose membership comprises 212 institutions, including state universities, all of the nation's land-grant colleges and universities, and several public university systems. It is a voluntary non-profit association of major public research universities with campuses located in all 50 states, the U.S. territories, and the District of Columbia. (pronounced: na-SUL- jick)

One Solution: An Internet-based, integrated reporting approach that ties together currently disparate reporting systems and processes to simplify reporting for CSREES staff and partners and improve the usefulness of reporting data. The One Solution vision will be delivered through the CSREES Information System (CIS).

Web Service (*http://en.wikipedia.org/wiki/Web_services*): A standard method or protocol for the interchange of data and other forms of information between computer applications connected by networks. Most typically they are used to share resources between Web servers.