USDA Cooperative State Research, Education, and Extension Service

One Solution Initiative

Project Plan

November 2006

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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.
- 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, collected data are used to assess compliance with the regulations, terms, and conditions established for each grant or allocation of formula funds. Further, the data demonstrate to Congress, the Office of Management and Budget (OMB), and citizens, the impacts of CSREES activities and how funded activities are helping achieve the Agency's mission and the United States Department of Agriculture's (USDA) mission.

Reporting is critical to achieving the Agency's mission and measuring its impacts. 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 coordinate 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 to better illustrate to the public the impacts and outcomes of its programs. 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 the 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 the required 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

increasingly look to the Agency to provide data linking program inputs, outputs, and outcomes which fit the Agency's strategic goals through the Budget and Performance Integration (BPI) 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 increased workloads requiring consultation with multiple sources and manually calculated results.

One Solution proposes to address such issues through an integrated approach to improve reporting at CSREES. This 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. It will tie together reporting systems and processes across all CSREES programs. Specifically, the initiative includes technology improvements that will reduce staff and partner reporting burdens. Additionally, it aims to:
- Create integrated reports reflecting all of the Agency's funding activities.
- Incorporate report process changes to improve and standardize forms and reporting requirements across programs.
- Develop data management strategies and structures to enable Agency-wide reporting and analysis.

Together, these efforts will not only address specific issues, but they will also enable the Agency to use reporting to better fulfill legislative requirements while supporting 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. The 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 does not perform actual research, education, and extension. Through national program leadership, CSREES establishes research, education, and extension priorities and helps fund and leverage these priorities at the state and local levels.

In response to growing interest, both on the part of CSREES program leaders and its 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.

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

In April 2005, the One Solution Business Case was developed to frame the One Solution initiative. It analyzed the existing reporting operations and illustrated the strategic and financial value added from streamlining the business processes and updating the technology supporting both 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 One Solution 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 captures the functional requirements and makes 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 goals will reflect and respond 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 to 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 began developing the One Solution Project Plan. 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: A Draft Project Plan and Summary Project Plan Topics and Issues were completed and reviewed with key initiative stakeholders. The Summary Project Plan Topics and Issues 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.

May 2006: CSREES conducted One Solution Workshops at the CSREES offices in Washington, DC, on May 9-17. Conference calls were also held with CSREES collaborative organizations on May 23-31. The workshops and conference calls provided 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 a Project, and garner feedback on the Draft Project Plan. A representative group of Agency and partner personnel shared their various perspectives and requirements at the workshops, particularly from Budget, Office of Extramural Programs (OEP), Program, Technology, and Planning and Accountability departments. The conference calls targeted the external stakeholders who work with CSREES, including land-grant universities, non-land grant universities and colleges, and other eligible institutions and agencies. The work groups included:
- Standard Program Report.

- Financial Collections and Uses.
- Awards and Program Management.
- Budget Performance Integration.
- Budget Development.
- Quality Assurance.
- Policy.
- Technology.

Partner calls included:
- Administrators and Directors
- Administrative
- Budget, and Financial Offices
- Technology
- Communications Staff
- Faculty and Program Staff

The Project Planning Workshops helped the One Solution team refine the Project Plan and provided the initiative with a great deal of momentum. The agendas of these sessions were focused on business and organizational development, data entry and reporting requirements, technology infrastructure, communications and marketing, and evaluation.

June 2006: An additional workshop was held for F4HN personnel and other staff members who had requested another session. After all workshops and conference calls were completed, a report of key findings from all workshops and conference calls was completed and used as an input for amendments to the Project Plan.

July – August 2006: Once the Project Plan was revised with the help of the CSREES Business Sponsors and a Final Draft was completed, the One Solution Project Plan was presented to the Executive Council with plans for posting on the CSREES One Solution web page.

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 work plan 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, all of which will be able to access CSREES-required information and reporting through a user-authenticated, web-based data entry and reporting storefront.

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 view the status 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 of 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 the 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 telephone 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 projects 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.
- Use 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 to 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.

o 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**
  - o Adhere to standard, government-wide categories for performance progress reporting on Federal grants and cooperative agreements awarded under research programs.
  - o Minimize the difference between categories, though specific categories are possible.
- **Technical Integration**
  - o 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 provide a strategic view of the progress planned for One Solution. The gameboard does not assign completion dates; rather it provides 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 each of 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 expand and change over time to reflect the future priorities of the initiative.

4.1 Phase 1

4.1.1 Gameboard

Target: Fall 2006

Develop and Communicate Business Case	
Determine KA Taxonomy	Establish One Solution Governance Structure
Launch One Solution Communications Web Page	Make One Solution Policy Decisions
Launch the Online PoW System	

Create Project Plan

Leverage OSTP RBM Prototype as the Framework for the CIS Standard Report

Begin Data Standardization Effort

Finalize Business Process Mapping

Develop Communications Plan

Develop Training Plan

| ■ Completed | ■ In Progress | ⁝ Planned Work | ➤ Ongoing |

4.1.2 Expected Phase 1 Milestones Completion Dates

Milestone	Status	Completion Date
Develop and Communicate Business Case	Completed	April 2005
Determine Knowledge Area Taxonomy	Completed	July 2005
Launch One Solution Communications Web Page	Completed	April 2006
Launch the Online PoW System	In Progress	Initial PoW System launched January 2006; other tasks In Progress
Establish One Solution Governance Structure	In Progress	To be completed at the end of Phase 1
Make One Solution Policy Decisions	In Progress	To be completed at the end of Phase 1
Create Project Plan	In Progress	To be completed at the end of Phase 1
Leverage OSTP RBM Prototype as the Framework for the CIS Standard Report	In Progress	To be completed at the end of Phase 1
Begin Data Standardization Effort	In Progress	To be completed at the end of Phase 1
Finalize Business Process Mapping Effort	In Progress	To be completed at the end of Phase 1
Develop Communications Plan	In Progress	To be completed at the end of Phase 1
Develop Training Plan	In Progress	To be completed at the end of Phase 1

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 Communicate Business Case
The One Solution 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 and communicated to the rest of the Agency.

2. 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 Knowledge Areas (KAs) 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. As part of this milestone, CSREES is to develop policies to make the KAs as mutually exclusive as possible and to determine whether or not KAs can truly serve as the foundation of the taxonomy.

3. 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. This Web site will be regularly updated with important communications and documents related to One Solution.

4. 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. It 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.

Several specific tasks are included as part of the Plan of Work milestone:
- Post the Five-year Plan of Work data from 2000 onto REEIS' content manager (ConceptSearching) to attempt to map KAs and outcomes to goals.
- Devise a better way to meaningfully relate Plan of Work information to other Agency-collected data.
- Set up a methodology to track reporting based on issues so accurate grant results can be recorded.
- Determine how the Plan of Work, Annual Report of Accomplishment, and Hatch project data can be linked back to a database.
- Build a database to house historical Plan of Work data. This will serve as a pilot for demonstrating the data and reporting benefits for this portion of One Solution. Develop an ad hoc query tool for accessing and pulling Plan of Work data.

5. Establish One Solution Governance Structure

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 reports 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 also has been formed to review progress and make policy decisions. Other existing groups that will oversee the One Solution project include the Capital Information Technology Investment Review Board (CITIRB), Change Control Board (CCB), Information Collection Review Board (ICRB), and the Planning and Accountability Coordination Team (PACT). Committees still need to be formed to oversee Data Management and Classification/Taxonomy. Once these groups are established, periodic meetings will be held for ongoing coordination with the executive governance group.

Further, there is a need to include representatives from the partnership in the governance structure, to ensure that their feedback is incorporated over time. A key task for governance at the outset of One Solution will be to draft a directive for 3(d) and all other Extension programs to publish reports within the existing reporting structures as CSREES moves toward a final solution. Another task is to identify how the quality of data received from the partners can be improved. A short-term task is for the CSREES Office of the Administrator to establish a high-ranking CSREES official to serve as the official 'gatekeeper' through whom all reporting requests should be coordinated. This will cut down on unreasonable requests and help in the data standardization effort.

6. Make One Solution Policy Decisions

In order to accomplish many of the goals of One Solution, important decisions need to be made by CSREES leadership and One Solution governance. These decisions include not only departmental decisions, but also decisions as to which reports and data elements will be included. Additionally, this will address any definitions for these related reporting and data elements. These decisions and definitions will shape every milestone in the Project Plan and will serve to shape the direction of the initiative. Some of the decisions to be made are:

- Define the differences between impacts, outcomes, and outputs in research, education, and extension. Those involved should consider a way to give users the ability to aggregate impacts. There is also a need for FAQs about research reporting in the Communications Plan.
- Define, Agency-wide, what an impact statement should be; draw input from both NPLs and Planning & Accountability. The Policy group should involve P&A in making reporting guidelines to create uniformity in reporting between institutions.
- Define what each group would expect in an impact statement and what CSREES would red flag as something that is incomplete.
- Clarify the definition of a 'program' and its relationship with a 'project.'
- Perform analysis to determine the 'reporting unit' or 'unit of measure' for education and extension that will coincide with the existing research version.
- Determine a way to tie data to a specific impact. Using the University of Wisconsin's Logic Model could be a workable model for reporting impacts over the short-, medium- and long-term. The committees should follow up with those program portfolios which have already gone through a process to identify program impacts and outcomes for advice on the process. An outreach program should be developed to meet with NPLs

who represent regions of the country which have begun to identify common outcomes and indicators used for specific programs. This avoids rework and/or duplicate effort.

- Identify how performance indicators can and should be improved. Develop common, uniform performance indicators and roll them out to the partners. Partners may then report outcomes against these common indicators.
- Finalize the records disposition schedules for systems/documents involved in One Solution. C-REEMS is very close to being approved by the National Archives and Records Administration, while REEIS and Plan of Work are still drafts. CRIS was completed in the early 1990s, but needs to be rewritten. The Fiscal Management and Accounting Records schedule is very close to being approved by the National Archives and Records Administration. This was written mainly for accounting records in OEP/FMS, and it may not be appropriate for the financial records involved in One Solution.
- Develop a policy and management plan regarding uncommon programs, systems, and reports, such as 4-H, to determine whether they will be included in One Solution. If yes, then establish a timeline for these programs.
- Determine a way to provide incentives to grantees for providing data. This specifically includes post-termination data, such as impact statements. There currently is little motivation to provide quality post-termination data, because it is not legally required.
- Develop a policy that addresses timing differences in reporting. For example, transactional data are reported on a constant basis, versus other data collections (such as annual reports), where data represent a snapshot as of a certain point in time.
- Develop a way to make research reporting data quantifiable. The National Institute of Health (NIH) format has successfully accomplished this, and so it could serve as a resource.
- Determine whether 'Departmental Review' data for partners should be made accessible to other CSREES staff and NPLs.
- Create a policy on updating entry information after its initial input as it will affect everything downstream.
- Communicate all policy decisions and changes to the Agency and partnership.

7. Create Project Plan

The One Solution Project Plan, which will be constantly evolving throughout the One Solution initiative, will include a work plan that will detail the tasks to be executed for Phase 2 efforts. Some key considerations and tasks in the Project Plan include considering how to phase the implementation and training. The best identified approach for implementing One Solution involves an enterprise-wide rollout over the next two to four years. Additionally, CSREES should investigate whether there are other major programs being implemented at the same time as One Solution within CSREES, USDA, and OMB or with major partners, as each of these will have a major effect on any Project Plan. These factors, as well as the timing of progress report receipt during the year, can affect report-generation loads and the implementation as a whole. Reporting burdens will likely double when newly mandated Extension reporting commences. Finally, the Agency should research the problems associated with the EASE (Evaluation and Accountability System for Extension) rollout, applying any lessons learned, specifically political, in the One Solution rollout. 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.

8. Leverage OSTP RBM Prototype as the Framework for the CIS Standard Report

The goal with using the Office of Science and Technology Policy (OSTP) Research Business Model (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. A draft of the OSTP RBM, modeled after the National Science Foundation (NSF) Fastlane, was presented to Senior Leadership at an all-hands meeting. As a result of the feedback received, wire frames were mocked up. The working committee continues to collaborate with the business owners (NPLs and Program Specialists) on this effort. The following tasks will be included in this milestone:

- Ensure that the CIS Standard Report applies to all CSREES activities, including education and extension.
- Transition the CRIS system to One Solution. This will start with the immediate name change to the CSREES Information System (CIS).
- Start moving toward the standard report wherever possible. Pre-populate the 'Research Resume' CRIS form with the 424 R&R form from eGrants. Also pre-populate the Plan of Work for planned programs, where possible, using the 424 R&R to replace as many reports as possible. Map the three topic area text boxes in the AD-421 report within CRIS to the criteria of the standard report.
- Incorporate 3(d) programs into the Standard Report.
- Decide whether the Standard Report will eventually be incorporated into eGrants. If so, further planning will be required surrounding this task.
- Establish and participate in an annual process collaborating with the office of Extramural Programs (OEP) and Planning and Accountability (P&A) to review and update templates for RFAs and Terms & Conditions to include and consider enhancements for data collection.
- Analyze and determine the best way to collect financial data relating to all Grants and Formula Funding, including sources of data, timing of reporting, use of data collected, and how to associate financial information to programs and projects and their outcomes.
- Further engage with the partners by providing updates of progress on the Standard Report and select groups to help with pilot programs.

9. Begin Data Standardization

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. Data standardization involves researching which data elements are used in reporting and collections; defining them in a data dictionary (underway); conceptualizing how data linkages should be set up (i.e. linking data by program vs. location); and ultimately, mapping the relationships between these data elements. Specific tasks to be accomplished as part of this milestone are:

- Conduct a review of all legislative requirements for CSREES data collections.

- Determine which CSREES reports are 'standard' and collect the data elements included in these reports. Determine any other reports which are regularly used but are not considered 'standard' and collect the data elements for these. Identify any reports that need to be created manually, those which are nonstandard, and those that contain some elements which are standard and some that are non-standard. Also determine the reliability of the key reporting elements.
- Using surveys and interviews, solicit CSREES staff and partners for any other reports they currently need the CIS system to generate: standard weekly, monthly, semi-annual, or annual reports (including Plan of Work, Annual Report of Accomplishments, Initiation Reports, etc.) AND, separately, frequent ad hoc reporting requests.
- Identify the report information that is truly needed for the Agency's work in providing evidence on the effectiveness of the investment to OMB, Congress, and other interested parties. The Information Collection Board will examine all collected reports and make strategic decisions on what absolute minimum reporting will encompass in order to meet the needs of the agency. Those involved should review all data collections and determine why they are being conducted so CSREES will only collect required data, going forward.
- Start putting these required data elements into electronic format.
- Determine how program dollars are appropriated, obligated, expended, and dispersed.
- Determine data via security entitlements to determine who can view data in the new system. At the outset, this may just be public vs. CSREES, rather than breaking it down on an individual basis. Later in the process, create an identity management structure for data and report access to ensure only appropriate people can see data.
- Reconcile data between CRIS projects, PoW programs, OSTP RBM-based Standard Report, and the Logic Model.
- Create a 'Company ID' field that makes each institution unique in the database. Define business contexts in the data dictionary and examine linkages between projects and data. Consider how to organize grant data to show where a partner's program dollars are going toward an impact/outcome/output.

The data standardization effort will be completed in Phase 2 when the Data Repository is finalized.

10. Finalize Business Process Mapping Effort

In addition to the data standardization effort underway, Enterprise Architecture staff is also in the process of documenting existing business processes. Once the current, or As-Is, business processes have been mapped, the appropriate future, or To-Be, processes will be documented to detail the goal for where the Agency needs to go in adjusting its processes to support CIS as part of One Solution. Specific business process mapping tasks are:

- The Agency needs to agree on and make business process decisions to determine who will own each activity and which naming and data conventions that they will use.
- Develop and document requisite security capabilities and define the roles and privacy set-up for individuals.
- Determine how the financial and budget team reporting burden can be reduced given their constraints and responsibilities. Schedule detailed discussions with the involved parties, including P&A, OEP, and Budget staff. This includes determining whether tables within the Explanatory Notes can be automated.

- Clearly map budget cross-cuts and other activities in order to begin assessing opportunities for automation. Determine how cross-cuts are currently conducted and discern which cross-cuts could be automated.
- Tie outcomes and impact statements to financial data and track the impact of dollars spent.
- If external systems, such as NIMSS, will be included in One Solution, map the business processes of the states and CSREES as they relate to NIMSS. Determine what information CSREES actually needs from NIMSS and target incorporating that data rather than trying to integrate the entire system.
- Once the As-Is process mapping is complete, develop the To-Be process map. Set up processes for records management and data maintenance.

11. Develop Communications Plan

The communications plan for the One Solution initiative will gradually increase the depth and breadth of stakeholder (internal staff and partners) 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. Priorities of the communications approach include the identification of sponsors and stakeholder subsets (ie administrators, financial officers, and faculty), 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 are essential to 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 communication 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.

One task to be undertaken in Phase 1 of the Communications Plan is developing communications newsletters similar to the existing Plan of Work Newsletter to distribute to partners. Getting buy-in from the partnership is required for the success of this initiative. One Solution Newsletters will detail all news and design documents associated with the initiative. Another desired communications tool is the Planning and Accountability (P&A) newsletter, which can be used to help describe the differences between research and extension impacts and new policy changes. Communications newsletters will leverage some of the existing eXtension communications tools for external communications, along with the CSREES intranet, CSREES Update, and the CSREES Administrator's Report to the Partnership for internal communications.

Key communications messages should include:
- Clearer, more thorough report guidance for the partners.

- An explanation for partners regarding why certain information collection processes are important and required.
- Updated uniform performance indicators to the partners, explaining how performance indicators will be used.
- Changes to systems/processes/requirements/policy, provided as early as possible to give advance notice of impending changes to partners and staff.
- Detailed report examples from Planning & Accountability to the partners to show how CSREES uses the data; for what purpose; and the evaluation process.

The Agency will develop periodic updates emailed to partners to include important status information plus any updates to the Website. It will also integrate One Solution into the Marketing and Communications Plan being developed for the Impacts Database. Additionally, CSREES will facilitate ways for partners to share best practices in reporting. Agency leadership will represent One Solution at regional meetings and be available to answer any questions on the initiative.

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.
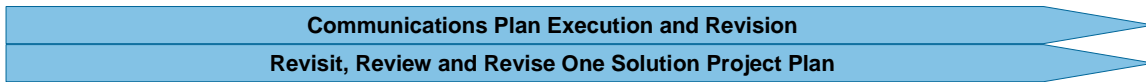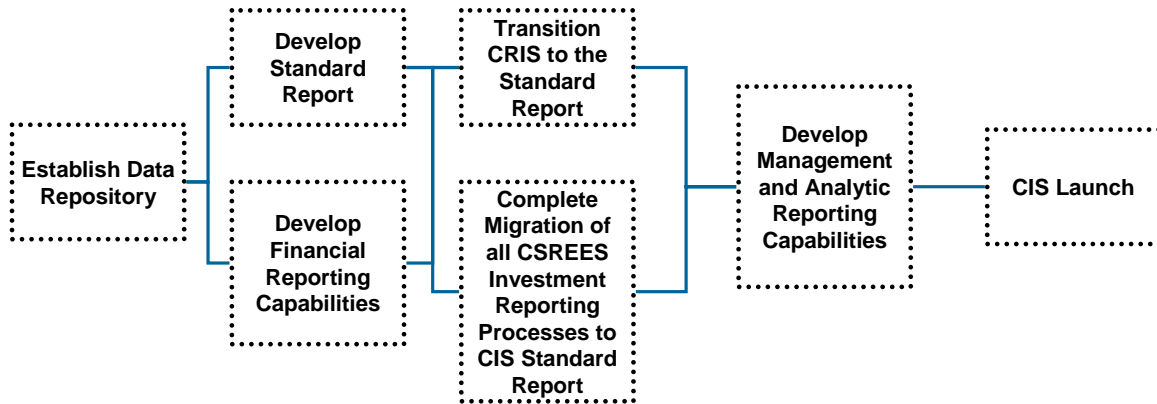
12. Develop Training Plan

As with any major business initiative such as One Solution, a major effort will be conducted to educate all affected users and stakeholders of the system changes. For CIS, this will include training for key systems users that will include CSREES staff and partners. Training and learning modules will be provided early in the One Solution initiative to keep the users apprised of any changes to current business systems and processes and so they can anticipate future process changes. Some training tools should include: Help Screens modeled from the Plan of Work (with more detailed instructions), a CIS wizard, One Page Tip Sheets, FAQ documents, and Online Tutorials. Training and learning modules may be broken down into several staff levels - Administrative and Directors, Faculty, and Administrative Support staff.

4.2   Phase 2

4.2.1   Gameboard

Update Project Plan   **Target: TBD**

| Develop Standard Report |
| Transition CRIS to the Standard Report |
| Establish Data Repository |
| Develop Financial Reporting Capabilities |
| Complete Migration of all CSREES Investment Reporting Processes to CIS Standard Report |
| Develop Management and Analytic Reporting Capabilities |
| CIS Launch |

Communications Plan Execution and Revision

Revisit, Review and Revise One Solution Project Plan

Completed   In Progress   Planned Work   Ongoing

4.2.2   Expected Phase 2 Milestones Completion Dates

Milestone	Status	Completion Date
Establish Data Repository	**Planned Work**	TBD
Develop Standard Reports	**Planned Work**	TBD
Develop Financial Reporting Capabilities	**Planned Work**	TBD
Transition CRIS to the Standard Report	**Planned Work**	TBD
Complete Migration of all CSREES' Funded Activities' Reporting Processes into the CIS Standard Report	**Planned Work**	TBD
Develop Management and Analytic Report Generation Capabilities	**Planned Work**	TBD
CIS Launch	**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 and the CIS system is launched.

1. 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.

Several CSREES staff commented on the need to improve the quality of data collected. Underlying these tasks, the One Solution initiative will adopt agency data standards and policies on data management. This is especially important for data that require a consistent unit of measure to allow aggregation or comparison. In addition, consider what types of training and support should be provided to partners so that the quality of data provided can be improved. Also, consider a process for identifying data validation methods that can be included to allow a computer to programmatically enforce data quality standards during data collection.

The first step is to determine the physical and logical organization of the data. Phase 1 will provide a starting point by providing a listing of the universe of data that exists in CSREES reporting. There are currently several existing databases in production which are used to support disparate reporting activities. For the physical and logical setup, the CIS will leverage the data dictionary inventory and the Enterprise Architecture Data Reference Model. The REEIS physical platform will be leveraged as the data repository. The key accomplishment will be determining how to reuse the existing data stored in other systems and linking them together in

an easy and efficient manner. Where disparate databases have compatible data, they may be linked together. Where data is not directly compatible, extract-transform-load tools may be used to create a new database table from legacy input. The data will be organized so that aggregation and drill-down can be easily accomplished within the analytical and management reporting tools (see Milestone 6). In addition, the CIS data repository should be configured to accept feeds from external systems and partners via XML transmission in a standard format.

The next effort will be to identify the information and data needed for all outbound reports, internal reports to Management and Program staff, explanatory notes, and other reports within the scope of the One Solution initiative. For each report, it is necessary to identify the combinations and linkages of data among the various databases and source systems that are necessary to provide adequate and correct information.

2. Develop Standard Reports

Using the framework created in Phase 1 for the CIS standard reports from the OSTP RBM prototype, the primary task in Phase 2 will be to develop the data entry and report publishing capabilities for the standard reports. CIS may not be able to fulfill all reporting requirements, such as Explanatory Notes, but it should at least provide the information required to pull these types of reports together.

A key feature of the One Solution initiative is to establish web-based data collection and reporting.   In Phase 1, Plan of Work's online data entry was launched. This application allows easier access for Plan of Work users to complete data entry and also serves as a model or pilot for the future deployment of additional data entry capabilities. Pre-population of data from legacy or previously entered data will further reduce the burden of data collection. The data identified for the standard reports should be captured in the data entry screens.

Continue the effort recommended in Phase 1 to establish and participate in an annual process collaborating with the Office of Extramural Programs (OEP) and Planning and Accountability (P&A) to review and update templates for RFAs and Terms & Conditions to include and consider enhancements for data collection.

Report workflow and publishing will be conducted online as well. There will be a set of steps for each report to ensure the data are reviewed and confirmed at several levels. To accommodate the approval process, approvers will be able to 'park' partially completed records and print out pages. Additionally, there will be capabilities to forward approval or comment steps to others. Once approved, the standard reports will be posted online for the appropriate audiences.

The development of CIS and design reporting capabilities should be made with Executive Branch and Congressional staffers in mind. Many regular and one-time reporting requests come from these sources.

3. Develop Financial Reporting Capabilities

The primary benefits of incorporating financial reporting in the One Solution initiative are to align financial data with programs and projects and to reduce redundant financial data collections from partners. Financial data will be integrated with the Standard Reports to provide better

reconciliation among financial reporting and program and project reporting. CSREES will be able to associate the outcome and impacts of grant and formula monies among the goals and objectives represented by the myriad of funded programs and projects. This has been identified as a high priority because of the relevance and usefulness of the information. It is also critical to focus on the following tasks:

- Capture the right information and ensure that the data tie back to the various official financial records.
- Capture breakdowns of how money is appropriated, obligated, and expended by each project or program.
- Associate impacts and outcomes to grant and formula funding.
- Analyze and determine the best ways to collect financial data relating to all grants and formula funding, including extension, education, and research programs and projects.
- Determine which financial information is available from partner universities' accounting systems and how it is formatted in order to decrease duplication of effort and reduce outlays.
- Identify the universe of financial reports needed.
- Determine all of the data elements required to populate financial reports.

These tasks will begin to account for financial reporting information as part of One Solution. Due to the immense effort required to fully incorporate financial reporting activities, they will be concluded in Phase 3.

4. Transition CRIS to the Standard Report

CRIS, USDA's main system for tracking agricultural research projects, is currently based on legacy architecture first implemented in 1967. It is scheduled for transition to a modern database platform, and this effort which coincides with the One Solution initiative will improve the reporting technology and processes related to agricultural research and projects.

With respect to CIS, some specific tasks needed to transition CRIS to the standard report include:

- Reconcile the data elements between the current CRIS fields, including Forms 416, 417, 419, 421, etc., and the CIS Standard Report (based on the OSTP RBM prototype).
- Adding the fields needed for CRIS to map to existing fields to the data repository.
- Migrate the modernized CRIS legacy data to the CIS data repository, where necessary, to meet current needs and take advantage of updated technology.

5. 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 sometimes excessive program activity and output data with a limited focus on outcome and impact information. Further, states participating in these programs may only be required to provide aggregated data. As a result, 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 to focus directly on leading their programs, instead of managing

reporting processes or IT systems. As part of this effort, reports for Smith-Lever, 3(d) programs such as McIntire-Stennis funds, Plan of Work Annual Report of Accomplishments, and other Extension programs will be brought into the common reporting functionality.

Other tasks to be accomplished in this milestone include:
- Dissect each identified report to be included as part of One Solution to determine the data elements it provides and requires.
- Map data to the data repository.
- Develop reporting functionalities.
- Reconcile data elements between the current remaining reports' fields and the CIS Standard Report (based on the OSTP RBM prototype).
- Migrate identified reports' legacy data to the modernized CIS data repository.

The partners also stated a desire to view the submitted reporting data of its multi-state program partner states/institutions to ensure consistency. The benefits of data sharing outweigh protecting privacy and security in many cases. The Ohio State system was suggested as a solution for this. The functionality to set up appropriate security entitlements to the data between multi-state partners will be added to the CIS system.

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 financial 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). Key reports and information will be pulled together onto a "dashboard" to display relevant information for each user and in an easily digestible format. For example, this will provide the NPLs and professional staff with a view of all available reports and their respective status. This view can show a user if there are activities pending for his/her review as well as providing alerts and notifications.

Some suggestions received for management and analytic views on the dashboard are:
- A view for reconciliation among project/program budget, outlays, and expenditures.
- Notifications for reports submitted, received, reviewed, upcoming, and due.
- Automatic calculations of award entry information, such as percentage of award dollars dedicated to research, education, and extension programs/projects for integrated programs.
- Uniform performance indicators (there is a need to develop common indicators to report outcomes against and the ability to aggregate impacts).
- Divide the grant data to show where a partner's program dollars are going toward an impact/outcome/output.
- Important communications for programs or projects.
- View of fully approved project proposal, including budget

As part of this milestone, the following additional tasks were identified:
- Integrate program and financials data.
- Identify the forms, tables, graphs, and images that will serve as an outline of the information needed to compose the reports.
- Analyze and select intelligent search and data mining tools. These tools will provide the supplemental analytical capabilities needed for these types of outbound reports.
- Enable increased capabilities to integrate with statistical analysis packages, such as SAS and SPSS. The combination of CIS, search/data mining tools, and statistical analysis packages will provide the robust reporting capabilities that CSREES staff and partners need in their day-to-day reporting activities.

7. CIS Launch

The best approach for rolling out the One Solution initiative to all appropriate audiences involves incremental implementation and system adjustments over the next two to four years. Over time, One Solution will enhance existing reporting systems, such as REEIS, with data coordinated across systems by a central data repository and by allowing all users, both internal and external, to access 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 of Accomplishment, through one single, user-authenticated, web-based reporting storefront. This will present customized home pages for each major Agency audience, i.e. Agency Budget, Program, Financial, Planning and Accountability, grantees, and the public. It will include personalization for individual users showing all reports requiring completion or review. Program

and Financial data will be integrated to allow for better oversight of program expenditures. This will provide an enhanced intranet experience. It will allow access to all reporting systems via a single location and with a uniform 'look and feel,' including identified systems not directly modified as part of One Solution.

This is the largest and most complex milestone of the One Solution initiative. While more detail will follow, the high-level tasks for the CIS Launch milestone are:
- Develop and document requisite security capabilities.
- Integrate CIS with C-REEMS award data and eGrants.
- Develop the CIS system for CSREES data reporting and analysis, leveraging the existing REEIS system.
- Launch CIS based on the Implementation schedule.
- Account for records management and data maintenance.

As part of this milestone, identified tasks are to develop and document required security capabilities and define the roles and privacy set-up for individual users. Develop the ability to print reports at different stages in the approval process. Workflow and electronic notifications will also be introduced internally for CSREES staff members as well as the partner based on their secure profiles.

The Cooperative Research, Education, and Extension Management System (C-REEMS) is the Agency's main system for tracking grant proposals, 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. National Program Leaders will be able to access the data more readily when C-REEMS data are integrated into the CIS application.

Under CIS, REEIS will be leveraged as the foundation for the repository and will be the Agency's main system for data reporting and analysis; thus, making data from an increasing number of sources available to the public to run individual queries and reports. As a reporting system, REEIS fulfills 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, the unavailability of outcome data for many programs, and the separate storage of data across programs. The One Solution initiative can augment existing REEIS capabilities to increase the amount of data available and to leverage existing data for reporting and workflow capabilities.

Several additional applications have been requested by CSREES staff and partners. These will be included as a "toolbox" so end-users with different needs and levels of computer skills can take advantage of a wider range of functionality. A classification wizard that automatically recommends classification categories based on the project content will be included to assist states with the selection of the most appropriate classification codes. CSREES could also consider a "partial wizard" as part of the notification system. The wizard would send update emails and display alerts for projects when a notice needs to be issued. In addition to report viewing capabilities, CIS will include the functionality to edit reports for other uses and

dynamically build reports based on user-provided criteria. As mentioned in Milestone 6, (Management and Analytics), CIS should provide increased statistical analysis capabilities.

Several groups have indicated their willingness to test and review the system before it is released, including CSREES staff and partners at the state land-grant institutions. The goal is to pull together a subset of the population who will eventually use CIS to serve as a pilot group. These individuals and institutions can provide much needed feedback and insight on the system, throughout the development lifecycle. After launch, the training and support designed in Phase 1 should be rolled out so that the users have adequate knowledge and issue resolution capabilities.

Moreover, once the system is live, consideration needs to be given to records management and data maintenance. There may be legislative requirements on how long reports and data must be maintained. It would serve CSREES well to develop its own policies on this area, if none exist. Part of this effort may involve data warehousing for archiving data. Additionally, this will involve creating policies and business processes around the storage and eventual purge of records once they reach a certain age.

After all tasks in this milestone are completed and successful testing commences, the CIS system will be rolled out to users based on an implementation schedule. Appropriate communications and training will accompany the launch to maximize its effectiveness. These will be detailed in the Communications Plan.

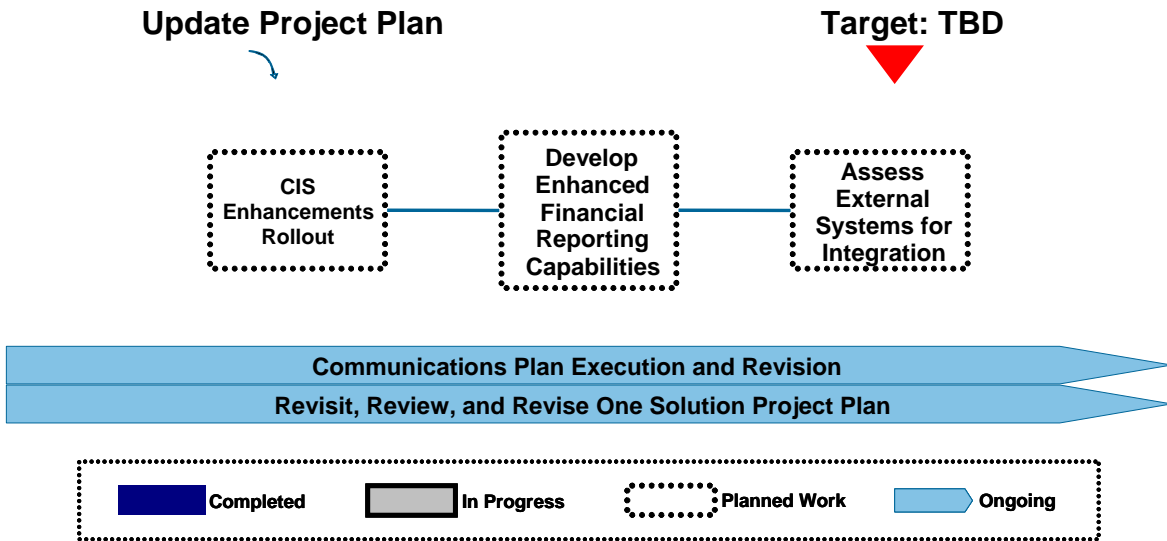## 8. Communications Plan Execution and Revision

Using 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 communications effectiveness, feedback mechanisms, and general initiative progress, the Communications Plan will be updated and revised for this and future phases of the One Solution initiative, as necessary. Areas that may be revised will include, but are not limited to, the identification of key sponsors and stakeholders, 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

Update Project Plan   **Target: TBD**

| CIS Enhancements Rollout | — | Develop Enhanced Financial Reporting Capabilities | — | Assess External Systems for Integration |

Communications Plan Execution and Revision

Revisit, Review, and Revise One Solution Project Plan

| Completed | In Progress | Planned Work | Ongoing |

4.3.2 Expected Phase 3 Milestones Completion Dates

Milestone	Status	Completion Date
CIS Enhancements Rollout	**Planned Work**	TBD
Develop Enhanced Financial Reporting Capabilities	**Planned Work**	TBD
Assess External Systems for Integration	**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 continues One Solution on the path to a successful customer-centered Internet-based information delivery system. This phase focuses on providing services for external partners and enhancing CIS financial reporting capabilities.

1. CIS Enhancements Rollout
The initial CIS Launch was a major milestone of Phase 2. Among other accomplishments, it established web-based reporting, integrated that reporting 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 include 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.

The major tasks included in the CIS Enhancements Rollout are:
- Solicit stakeholders for suggested improvements and enhancements to the initial CIS launch.
- Enable XML data transfer via dashboard to better integrate with external systems.
- Enhance workflow and notification system.
- Extend password authenticated pilot dashboard and workflow notification capabilities to partners.

After all requirements and data needs are identified, the dashboard will be enhanced so it is better integrated with external systems. Each of the agencies that 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 that 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 using 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 "my CIS" 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. Develop Enhanced Financial Reporting Capabilities

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.

In Phase 3, the following tasks are:
- Align CIS with Portfolio Analysis, Program Analysis Rating Tool (PART), and Budget Performance Integration (BPI).
- Evaluate vendors to determine additional hardware or software needs to enable additional financial reporting capabilities.
- Enable authorized NPLs access to program expenditure data.
- Develop data entry and reporting interfaces.

In this milestone, the functionality to allow NPLs access to program expenditure data is to be developed. 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) to create a fully enabled financial and program performance reporting solution.

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 (CIS). The primary reports and reporting systems that One Solution incorporates throughout the first two phases include 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. Communications Plan Execution and Revision

Using the Communications Plan developed during Phase 1 and revised during Phase 2, necessary communication tasks will be executed during Phase 3 to advance and complete the One Solution initiative. Based upon the results of ongoing communications effectiveness, feedback mechanisms, and general initiative progress, the Communications Plan will be updated and revised for the final phase of the One Solution initiative, as necessary.

5. Revisit, Review, and Revise One Solution Project Plan

As Phase 3 concludes, the One Solution Project Plan will also be revisited to examine the Phase 3 milestones to determine if all were completed and to 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 this final phase based on accomplishments and input from Phases 2 and 3.

5 Implementation Plan

A detailed work plan, staffing plan, and budget forecast can be developed using the key milestones defined in each of the three phases of the Project Plan.

5.1 Work plan

A work plan describes in detail the tasks needed to complete a project. In order to develop a work plan for the milestones described in the project plan, each milestone is sub-divided into the operable tasks and activities that comprise it. The work plan will serve as a guide to the daily and weekly development of One Solution and CIS throughout each of the three phases.

5.2 Staffing Plan

The staffing plan is a series of organizational charts highlighting the various teaming arrangements and roles that can be used to execute and deliver each milestone of the Project Plan. Of note, it may be necessary to augment the plan with outside resources for roles where CSREES does not plan to use its core team. These outside resources may include in-kind resources from university partners or other private organizations as well as private contractors.

The various milestones defined in the One Solution Project Plan can be categorized as either technical or functional milestones.

5.2.1 Technical Milestones: Sample Staffing Plan

Technical milestones include all development activities:
- Develop implementation plan.
- Define requirements – "look and feel."
- Help manage the project through deployment.
- Define data model, relationships, and standards.
- Identify reports to be created, including layout, access rights, and data fields.
- Develop technology to achieve and support One Solution goals and objectives.

A sample staffing plan for technical milestones includes five outside resources.
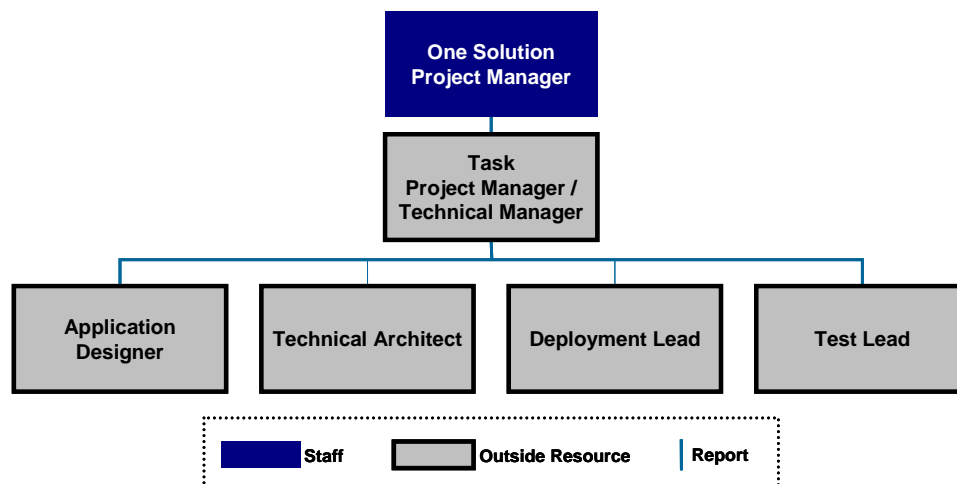
5.2.2 Functional Milestones: Sample Staffing Plan

Functional milestones include all business process redesign and general project management activities:

- Develop Business Case and Project Plan.
- Report to Agency executives on One Solution progress and lead communication and change management efforts.
- Review implementation progress and make strategic initiative decisions.
- Assist with key policy decisions.
- Facilitate business process mapping.
- Develop training initiatives.
- Facilitate stakeholder working sessions and workshops.

A sample staffing plan for functional milestones includes two outside resources.
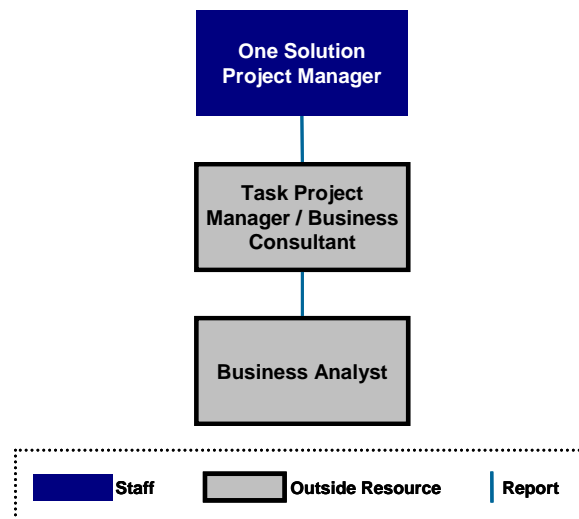
5.3 Budget Estimate

A budget estimate can be calculated by determining the duration of each milestone, the composition of each milestone's project team, and any necessary capital expenditures, such as hardware and software.

6 Performance Metrics

Performance measurement is an iterative process that spans the lifecycle of the initiative, and performance metrics are used to evaluate how effectively One Solution is meeting its strategic goals. For a full description of the performance measurement process used in the One Solution initiative and a summary of the performance metric categories, please refer to the One Solution Business Case.

The following tables detail performance metrics that will be gauged at the conclusion of each phase of the initiative. These metrics were originally provided in the One Solution Business Case and have since been amended to correspond with the Project Plan.

6.1 Phase 1 Performance Metrics

PHASE	MEASURE-MENT AREA	MEASURE-MENT CATEGORY	MEASUREMENT INDICATOR	EXISTING BASELINE	IMPROVE-MENT TO BASELINE
Phase 1	Customer Results	Customer Burden	Reduction in burden-hours for Plan of Work and Annual Report of Accomplishments	1,367 hours per institution for Plan of Work; 167 hours per institution for the Annual Report of Accomplishments.	10% overall reduction in burden-hours for both Annual Report and Plan of Work.
Phase 1	Processes and Activities	Productivity and Efficiency	Reduction in CSREES staff review time for Plan of Work and Annual Report of Accomplishments	TBD based on estimates of review time per NPL and average number of reviewers.	15% reduction in staff review time for Plans of Work and Annual Reports of Accomplishments.

6.2 Phase 2 Performance Metrics

PHASE	MEASURE-MENT AREA	MEASURE-MENT CATEGORY	MEASUREMENT INDICATOR	EXISTING BASELINE	IMPROVE-MENT TO BASELINE
Phase 2	Customer Results	Customer Burden	Reduction in burden-hours for Plan of Work and Annual Report of Accomplishments	1,367 hours per institution for Plan of Work; 167 hours per institution for the Annual Report of Accomplishments.	Continued10% overall reduction in burden-hours for both Annual Report and Plan of Work.
Phase 2	Processes and Activities	Productivity and Efficiency	Reduction in CSREES staff review time for Plan of Work and Annual Report of Accomplishments	TBD based on estimates of review time per NPL and average number of reviewers.	Continued15% reduction in staff review time for Plans of Work and Annual Reports of Accomplishments.

PHASE	MEASURE-MENT AREA	MEASURE-MENT CATEGORY	MEASUREMENT INDICATOR	EXISTING BASELINE	IMPROVE-MENT TO BASELINE
Phase 2	Mission and Business Results - Support Delivery of Services	Controls and Oversight	Program Evaluation and Monitoring: Collection of classification information (and other data necessary to enable analysis) across CSREES programs	Project classification and progress reporting collected for all research and higher-education programs, comprising 44% of the agency's formula funds budget. Only limited, unstructured narrative data, without classifications, collected for programs comprising 56% of formula funds.	Classification and progress reporting data collected for all formula-funds programs included in the Plan of Work process (Smith-Lever 3(b)/(c), Hatch Act, 1890s Extension, Evans-Allen), as well as all other research and higher education projects (comprising approximately 85% of the agency's FY04 funding).
Phase 2	Mission and Business Results - Support Delivery of Services	Legislative Relations and Public Affairs	Increase in Congressional questions for which a full answer (without manual calculations) can be provided	Approximately 1800 questions (and sub-questions) received each year; amount estimated TBD.	10% reduction in answers provided as estimates (vs. actual data).
Phase 2	Customer Results	Customer Satisfaction	Improvement in grantees' satisfaction with reporting processes and tools (based on ACSII or other satisfaction index)	TBD based on initial baseline customer satisfaction survey.	10% improvement in customer satisfaction (based on relative change from initial score to new score).
Phase 2	Processes and Activities	Productivity and Efficiency	Improvement in time spent routing and reviewing inbound reports	TBD based on CSREES estimates of per-employee review and routing time.	Continued 15% reduction in staff review time for Plans of Work and Annual Reports of Accomplishments; 20% reduction in time devoted to routing and approval of other inbound reports.
Phase 2	Technology	Data Standardization	Percentage of CSREES data collections reviewed and standardized	No agency data currently standardized.	50% of CSREES data collections standardized and included in new data management processes.
Phase 2	Technology	Data Sharing and Data Standardization	Percentage of CSREES program / project data stored in central data repository	As the One Solution repository is being created through this project, no data are currently stored in it; data for a subset of programs included in separate REEIS databases.	80% of project and program data (based on size of program and project funding) incorporated into repository.

6.3   Phase 3 Performance Metrics

PHASE	MEASURE-MENT AREA	MEASURE-MENT CATEGORY	MEASUREMENT INDICATOR	EXISTING BASELINE	IMPROVE-MENT TO BASELINE
Phase 3	Customer Results	Customer Burden	Reduction in burden-hours for Plan of Work and Annual Report of Accomplishments	1367 hours per institution for Plan of Work; 167 hours per institution for the Annual Report of Accomplishments.	Continued10% overall reduction in burden-hours for both Annual Report and Plan of Work.
Phase 3	Processes and Activities	Productivity and Efficiency	Reduction in CSREES staff review time for Plan of Work and Annual Report of Accomplishments	TBD based on estimates of review time per NPL and average number of reviewers.	Continued15% reduction in staff review time for Plans of Work and Annual Reports of Accomplishments.
Phase 3	Mission and Business Results - Support Delivery of Services	Controls and Oversight	Program Evaluation and Monitoring: Collection of classification information (and other data necessary to enable analysis) across CSREES programs	Project classification and progress reporting collected for all research programs, comprising 44% of the agency's formula funds budget. Only limited, unstructured narrative data, without classifications, collected for programs comprising 56% of formula funds.	Classification and progress/ performance reporting data collected for 100% of CSREES programs.
Phase 3	Mission and Business Results - Support Delivery of Services	Legislative Relations and Public Affairs	Increase in Congressional questions for which a full answer (without manual calculations) can be provided	Approximately 1800 questions (and sub-questions) received each year; amount estimated TBD.	20% reduction in answers provided as estimates (vs. actual data).
Phase 3	Customer Results	Customer Satisfaction	Improvement in grantees' satisfaction with reporting processes and tools (based on ACSI or other satisfaction index)	TBD based on initial baseline customer satisfaction survey.	15% improvement in customer satisfaction (based on relative change from initial score to new score).
Phase 3	Processes and Activities	Productivity and Efficiency	Improvement in time spent routing and reviewing inbound reports	TBD based on CSREES estimates of per-employee review and routing time.	Continued 15% reduction in staff review time for Plans of Work and Annual Reports of Accomplishments; 20% reduction in time devoted to routing and approval of other inbound reports.
Phase 3	Technology	Data Standardization	Percentage of CSREES data collections reviewed and standardized	No agency data currently standardized.	100% of CSREES data collections standardized and included in new data management processes.

PHASE	MEASURE-MENT AREA	MEASURE-MENT CATEGORY	MEASUREMENT INDICATOR	EXISTING BASELINE	IMPROVE-MENT TO BASELINE
Phase 3	Technology	Data Sharing and Data Standardization	Percentage of CSREES program / project data stored in central data repository	As the One Solution repository is being created through this project, no data are currently stored in it; data for a subset of programs included in separate REEIS databases.	100% of project and program data (based on size of program and project funding) incorporated into repository.

7 Risk Management

For CSREES to successfully implement One Solution, it is critical that the project team is aware of and can actively manage the risks involved. Indeed, given the complexity of implementing One Solution and the importance of integrating reporting to the Agency and its partners, it is critical to assess all areas of risk prior to implementation and to develop strategies to manage these risk factors if and when they do arise. Actively identifying risks and taking steps to mitigate them reduces the possibility of issues arising either during system development or operations. For a full description of the risk management process used in the One Solution initiative and a summary of risk categories, please refer to the One Solution Business Case.

The following table details identified risks and their respective mitigation strategies sorted according to risk priority. This table will be updated throughout the implementation as new risks and mitigation strategies are identified and the characteristics of existing risks evolve over time. Many of the risks in the table were originally provided in the One Solution Business Case and have since been amended to correspond with the Project Plan.

7.1 Risks and Mitigation Strategies

AREA OF RISK	DESCRIPTION	PROB.	IMPACT	MITIGATION STRATEGY
Significant Risks				
Data / Information	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	High	Medium	• 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
Dependencies and Interoperability	The newly launched system may not function properly if the existing systems and new CIS components cannot be adequately integrated	Medium	High	• 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
Project Resources	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 implementation	High	Medium	• Identify key resources and skill sets required to maintain CIS • Use performance-based contracts or other measures to ensure that contractors deliver 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

AREA OF RISK	DESCRIPTION	PROB.	IMPACT	MITIGATION STRATEGY
Moderate Risks				
Business	Agency may not achieve its streamlining and standardization goals if CIS does not align with CSREES' envisioned business processes	Low	High	• Conduct Agency requirements and process analysis to determine the processes with which CIS must align
Business	Project may not be delivered on schedule if the CIS implementation lacks sufficient funding	Low	High	• 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
Capability of Agency to Manage Investment	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	Low	High	• 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 use current CSREES staff to aid transition
Dependencies and Interoperability	Stakeholders may not be able to use the new system if CIS cannot support staff or partners' supporting requirements	Medium	Medium	• 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
Feasibility	Stakeholders may not be able to use the new system if CIS cannot support staff or partners' supporting requirements	Low	High	• 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
Initial Costs	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	Medium	Medium	• 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 confirm Agency plans and estimates • Use performance based contracts, which encourage contractors to complete tasks on schedule and under budget
Lifecycle Costs	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	Low	High	• Closely examine existing CSREES systems to identify all possible enhancement needs • Include potential data management complexities in maintenance and operations cost estimates
Overall Risk of Investment Failure	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	Low	High	• 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

AREA OF RISK	DESCRIPTION	PROB.	IMPACT	MITIGATION STRATEGY
Schedule	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	Medium	Medium	• 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 all potential sources of delay are identified and addressed
Security	Data, content, and documents may be accessed and used improperly by unauthorized users if CSREES does not maintain active security controls within CIS	Low	Medium	• 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
Strategy	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	High	Medium	• 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
Minimal Risks				
Data / Information	CSREES staff may not be able to use CIS for all of their project management needs if electronic records, content, or other electronically stored material are erroneously deleted or destroyed	Low	Medium	• 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
Organizational and Change Management	CSREES' reporting processes will not realize planned benefits if partner institutions are resistant to using CIS or if their individual staffs are not aware of how to properly use the new system	Medium	Low	• Provide frequent communications to partner institutions to ensure their understanding of One Solution's CIS 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
Privacy	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.	Medium	Low	• 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
Reliability of Systems	Critical reporting processes may not be fully completed if the system does not provide necessary scalability, stability, and uptime levels	Low	Medium	• 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

AREA OF RISK	DESCRIPTION	PROB.	IMPACT	MITIGATION STRATEGY
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	Low	Medium	• 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 and Asset Protection	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	Low	Medium	• Use physical site protections for server and network hosting centers • Maintain off-site backup system and data backups
Technical Obsolescence	Systems may become obsolete or may be unable to continue meeting Agency needs if CIS is not implemented based on modern technologies	Low	Medium	• 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
Technology	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	Low	Medium	• 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)
Technology	It may become necessary to make costly system modifications if CIS is implemented without conforming to CSREES or USDA Enterprise Architecture standards	Low	Medium	• Define CIS system architecture to meet Enterprise Architecture standards and requirements

8   Quality Assurance Strategy

8.1   Purpose

The Quality Assurance Strategy for One Solution outlines the methods and procedures which 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. This strategy will help ensure that One Solution is focused on improving delivery capability in terms of people, processes, and technology.

Although the approach for the Quality Assurance Strategy is created in the early stages of the project, it will be updated and managed throughout the project lifecycle. The Quality Assurance 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 purposes, 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 across 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.
- User interface (UI) standards.

8.3   Configuration Management

Configuration management is the process for controlling changes that occur during the project from managing changes to several types of project deliverables. This includes 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 that 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 Assurance 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:
- **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, script the test cycles, define stubs and job streams, and prepare 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, compare the actual results to the expected results, and identify and resolve 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 testing 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 one's 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 testing ensures data are passed correctly between screens in a conversation or batch process and that messages are passed correctly between client and 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, and 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.
- Ensure accurate documentation of test results.

8.5 Reviews, Walk-throughs, and Audits

The goal of the Quality Assurance 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 walk-throughs. Both processes and technical solutions will be reviewed for quality assurance. Within the Quality Assurance Strategy, objective measures of quality will be used to:
- Monitor compliance.
- Identify deficiencies.
- Correct problems.
- Avoid repetition of errors by identifying and eliminating their causes.

All reviews, walk-throughs, 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 Walk-throughs

The One Solution Technical Implementation team will be responsible for conducting walk-throughs to support the development and change process. Walk-throughs consist of a structured series of peer reviews to enforce standards, detect errors, and improve system quality. The final responsibility of the walk-throughs lies with One Solution 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.
- 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, 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 leverages 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 one 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 more than 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 this remains similar to the initial system released 35 plus years ago. CRIS data are used for many purposes across all research programs. It is used by NPLs to review and assess project / program performance and progress; used by OEP to ensure performance / compliance; and 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 which allows identification of trends and other composite data. CRIS data are used to create reports for OMB, USDA, and the public.

Future CRIS Role in CIS: CRIS will serve as the initial base CIS system. As part of the 'Leverage OSTP RBM Prototype as the Framework for the CIS Standard Reports' milestone in Phase 1, the system currently named CRIS will be re-named the CSREES Information System (CIS). Its functionality will initially be the same, except that data elements will be mapped to those reporting elements in the Standard Reports. The data will be collected, warehoused, and matched with other program and financial data in the CIS data repository. Eventually, the CRIS system will be replaced by the new CIS.

Gap Analysis: CRIS is a legacy system developed more than 35 years ago using mainframe technology. The current CRIS system does not tie program data elements to financial reporting elements. Additionally, the data does not match with elements in the Standard Report prototype. Finally, CRIS does not provide the querying flexibility and functionality that is desired in the eventual CIS reporting tool. The future CIS system will need to accommodate these needs.

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 it 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 tracking 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. Because the system provides much of CSREES' official financial data, financial information stored in C-REEMS is used in creating reports for the budget process.

Future C-REEMS Role in CIS: Since it is an internal system and used only by CSREES staff, data will continue to be entered through the current C-REEMS interface. CIS will integrate with C-REEMS award data and eGrants to provide staff with more user-friendly access to the system's data and the additional functionality in querying the system for the data. The C-REEMS data will be incorporated into the new CIS data repository where this data will be integrated with data from other systems, reports, and forms.

Gap Analysis: Current C-REEMS data need to mapped and integrated into the CIS data repository to be accessed via the CIS system. C-REEMS currently uses Oracle Portal technology, Java, and Oracle Forms (as the interface). The desire is to move away from Oracle Forms. C-REEMS currently does not have a reporting tool. It leverages REEIS and its Discoverer reporting solution.

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 extracted from a number of existing source systems. REEIS is not used to collect 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 4-H data and CRIS data. Similar to C-REEMS, REEIS uses Oracle Portal technology. The additional technology used to power REEIS includes JBoss, Java, Linux, MySQL, and Apache. One benefit that REEIS possesses over C-REEMS is that it uses Discoverer as its reporting solution.

Future REEIS Role in CIS: REEIS will be leveraged as the foundation for the data repository and will become the Agency's main system for data reporting and analysis as part of CIS. This will make data from a number of sources available to the public, allowing them to run individual queries and reports. The One Solution initiative should augment existing capabilities and functionality provided as part of REEIS. This will increase the amount of data available to CSREES staff, its partners, and the public, while leveraging existing data for reporting and workflow capabilities.   The REEIS system is an important component. It is the reporting front-

end available to external users who use it to pull CSREES reports. An adapted REEIS system will continue to serve in this capacity as part of CIS.

Gap Analysis: The usefulness of the REEIS system is limited by the lack of data collected by the Agency for extension programs, the unavailability of outcome data for many programs, and the separate storage of data across programs. The gaps between the current REEIS and the future CIS front-end also include a need to add an internal, secure section that can only be used internally (for those reports that are awaiting sign-off). Also, expanded querying abilities will need to be developed to account for the new reporting capabilities that will be enabled by tying together more data on the back-end.

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 the PoW plan and the annual report. The current online Plan of Work is a basic web-page which allows a user to submit program reporting information to CSREES. It also uses Crystal Reports. Among other benefits, this system reduces the reporting 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 PoW plan and the annual report will also require funding recipients to provide more specific data for extension activities, enabling improved budget and activity reporting for the agency.

Future Role of PoW to CIS: The Plan of Work system has a very important role in CIS. It will serve as a Proof of Concept for the CIS as a whole. This currently active web-based application allows for easier access for Plan of Work users to complete data entry. Additionally, it serves as a model for the future deployment of additional data entry capabilities. Via the Plan of Work system, the Agency should test how to track reporting based on issues. This will serve as a model for tying grant data back to the Plan of Work, Annual Report of Accomplishments, and Hatch project data in a linked database. Finally, it will serve as the pilot for an ad hoc query tool for accessing and pulling data from the consolidated repository. In this instance, the data will come from the Plan of Work database.

Gap Analysis: While it currently serves as a pilot for online data collection and reporting, in the future, the Plan of Work will become a page within the robust CIS system. As mentioned earlier, there are several enhancements that can provide more value to the Plan of Work users:

- Post the Five-year Plan of Work data from 2000 onto REISS' content manager (ConceptSearching) to attempt to map KAs and outcomes to goals.
- Devise a better way to meaningfully relate Plan of Work information to other Agency-collected data.

- Set up a methodology to track reporting based on issues, so accurate grant results can be recorded and determined how the Plan of Work, Annual Report of Accomplishments, and Hatch project data can be linked back to a database.
- Build a database to house historical Plan of Work data. This will serve as a pilot for demonstrating the data and reporting benefits as a part of what One Solution will provide. Develop an ad hoc query tool for accessing and pulling Plan of Work data.

APPENDIX I: 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 locations 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 diagram is an illustrative view of CIS' technical architecture.
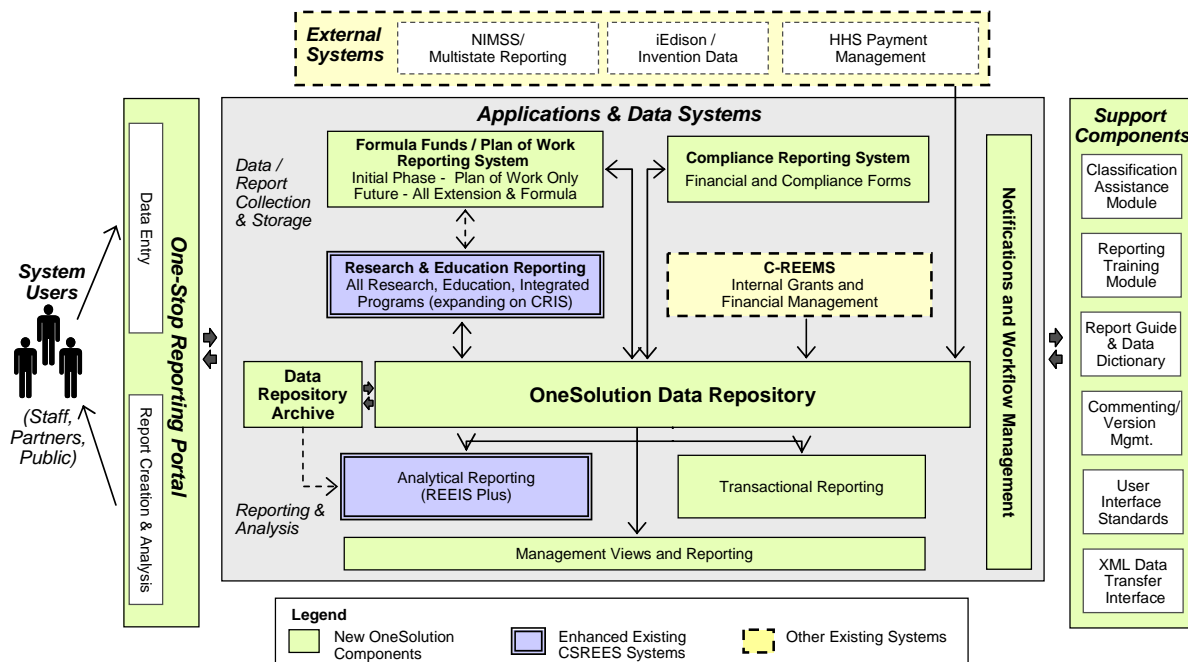
APPENDIX II: Glossary

Annual Report of Accomplishments
(*http://www.csrees.usda.gov/business/reporting/planrept/pdf/AnnualReportGuidance2000.pdf*)
: CSREES will use the Annual Reports of Accomplishments and Results to evaluate the success of multi-state, multi-institutional, and multi-disciplinary activities and joint research and extension activities, in addressing critical agricultural issues identified in the 5-Year Plan of Work.

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

CIS (CSREES Information System): The CSREES Information System (CIS) will serve as the reporting and information system for CSREES and its partners, tying together reporting systems and processes across all CSREES programs.

CRIS (Current Research Information System): CRIS is the U.S. Department of Agriculture's documentation and reporting system for ongoing agricultural, food and nutrition, and forestry research.

CSREES (*http://csrees.usda.gov*): The 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, land grant universities and colleges and other institutions of higher education, nonprofit organizations, and private sector entities.

Data Dictionary (*http://en.wikipedia.org/wiki/Data_dictionary*): A data dictionary is a set of metadata that contains definitions and representations of data elements. A data dictionary is a read-only set of tables and views. The data dictionary is a database in its own right. Amongst other things, a data dictionary holds the following information: precise definition of data elements, usernames, roles, and privileges.

Data Repository: A database acting as an information storage facility. Although often used synonymously with data warehouse, a repository does not have the analysis or querying functionality of a warehouse.

eGrants (*https://egrants.osophs.dhhs.gov/egrants/home_frame.htm*): eGrants is a comprehensive grants management automation system. It is an e-Gov business solution. As the pioneer grants automation system for the Federal Government, eGrants automates the full grants business-cycle, including electronic submission of Grant Applications.

ETL (Extract-Transform-Load) (*http://en.wikipedia.org/wiki/ETL*): Extract, transform, and load (ETL) is a process in data warehousing that involves extracting data from outside sources, transforming it to fit business needs, and ultimately loading it into the data warehouse. ETL is important, as it is the way data actually get loaded into the warehouse.

eXtension (*http://www.csrees.usda.gov/funding/rfas/pdfs/06_new_technologies.doc*): A national web-based information and education delivery system. Land-grant institutions and CSREES both work to provide objective, scientific information to the public to answer questions and guide decisions. By creating web-based access to high-quality, non-duplicative, research-based information, eXtension can help them better serve the needs of their anywhere-anytime generation of users.

FFIS (Foundation Financial Information System) (*http://www.afm.ars.usda.gov/ppweb/01-309.htm*): The Foundation Financial Information System is the United States Department of Agriculture's accounting system.

Gap Analysis (*http://en.wikipedia.org/wiki/Gap_analysis*): Gap analysis is a business assessment tool enabling a company to compare its actual performance with its potential performance. This provides the company with insight to areas which have room for improvement. The process involves determining, documenting, and approving the variance between business requirements and current capabilities. Gap analysis naturally flows from benchmarking or other assessments. Once the general expectation of performance in the industry is understood, then it is possible to compare that expectation with the level of performance at which the company currently functions. This comparison becomes the gap analysis. Such analysis can be performed at the strategic or operational level of an organization.

iEdison (Interagency Edison): iEdison is a government-wide system (operated by the National Institutes of Health) used by CSREES partners to notify the agency of new inventions developed as a result of agency funding. These data are provided both to support accountability and impact reporting and to assist in ensuring the proper assignment of intellectual property rights.

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

Knowledge Areas (*http://www.csrees.usda.gov/business/reporting/planrept/pdf/knowledge_area_class_05.pdf*): Between 2003 and 2004, the 24-member CSREES Program Classification Steering Committee identified Problem Areas that reflect the broadened scope of Agency classification to include education and extension activities. The term, Problem Areas, was changed to Knowledge Areas, consistent with the CSREES mission to advance knowledge for agriculture, the environment, human health and well-being, and communities. Knowledge Areas describe the broad focus of research, higher education, and extension work sponsored by the Cooperative State Research, Education, and Extension Service.

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

NIMSS (National Information Management Support System) (*http://www.escop.msstate.edu/archive/orientation/NIMSS.pdf*): NIMSS is a web-based application that allows participants of Multi-State Research Activities to submit, review, and search information online.

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 and quality of reporting data. The One Solution vision will be delivered through the CSREES Information System (CIS).

OSTP RBM (*http://whitehouse.fed.us/omb/fedreg/2005/012805_grantterms.pdf*): A recently issued Federal Register notice by the Office of Science and Technology Policy (OSTP) proposed a Research Business Model (RBM). The RBM aims to promote greater consistency in the format and content of Federal agencies' research grant and cooperative agreement award reporting.

Performance Metrics (*http://en.wikipedia.org/wiki/Performance_metric*): A Performance Metric is used by businesses or individuals to measure their performance against peers.

Plan of Work (PoW): 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.

Portal (*http://en.wikipedia.org/wiki/Web_portal*): Web portals are sites on the World Wide Web that typically provide personalized capabilities to their visitors. They are designed to use distributed applications, different numbers and types of middleware and hardware to provide services from a number of different sources. In addition, business portals are designed to share collaboration in workplaces.

Project Plan (*http://en.wikipedia.org/wiki/Project_plan*): A project plan is "A formal, approved document used to guide both project execution and project control. The primary uses of the project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. A project plan may be summary or detailed."

Quality Assurance: A planned and systematic pattern of all actions necessary to provide adequate confidence that the item or product conforms to established technical requirements.

REEIS (Research, Education, and Economics Information System): REEIS is a Congressionally-mandated system designed to serve the U.S. Department of Agriculture

(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.

Risk Management (*http://en.wikipedia.org/wiki/Risk_management*): Generally, Risk Management is the process of measuringor assessing risk and then developing strategies to manage the risk. In general, the strategies employed include transferring the risk to another party, avoiding the risk, reducing the negative effect of the risk, and accepting some or all of the consequences of a particular risk.

Taxonomy (*http://en.wikipedia.org/wiki/Taxonomy*): Taxonomy (from Greek verb tassein = "to classify" and nomos = law, science, cf "economy") was once only the science of classifying living organisms (alpha taxonomy), but later the word was applied in a wider sense, and may also refer to either a classification of things, or the principles underlying the classification.

Web Service (*http://en.wikipedia.org/wiki/Web_services*): A Web Service is 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.

XML (*http://en.wikipedia.org/wiki/Xml*): The Extensible Markup Language (XML) is a W3C-recommended general-purpose markup language for creating special-purpose markup languages, capable of describing many different kinds of data. In other words, XML is a way of describing data and an XML file can contain the data too, as in a database. It is a simplified subset of Standard Generalized Markup Language (SGML). Its primary purpose is to facilitate the sharing of data across different systems, particularly systems connected via the Internet.

APPENDIX III: CIS Enhanced User Functions

The One Solution initiative and the CIS implementation provide CSREES the opportunity to design, develop, and deploy many online tools. Through the development of CIS and these tools, CSREES aims to reduce reporting burdens for both the Agency and its partners and improve the quality of accountability data.

Throughout the course of the One Solution effort, many enhancements to the current reporting system have been suggested and several new functionalities have been requested of the proposed reporting and information solution. These key suggestions are documented in the table below.

Tool	Description	User Benefit
CIS Dashboard	The 'Dashboard' will be a CIS user's access page to the CIS system. It will display relevant user-specific information in an easily digestible format. For example, the 'Dashboard' will provide CSREES staff with a view of all available reports and their respective status. This view can show a user if there are activities pending for his/her review, as well provide alerts and notifications	Regular reporting alerts provided in a single place - the 'Dashboard' serves as a daily workload report that helps to manage a user's activities and responsibilities. This tool is designed to make CIS user-friendly and convenient.
Automated Notifications	Notifications for reports submitted, received, reviewed, upcoming / due, notices issued, etc. These can be provided via the 'Dashboard' or internet email.	Provides convenient status updates to system users and reduces "follow-up" and administrative burden around key document review milestones.
Automatic Calculations for Entered Data	An enhanced analytic reporting capability allowing users to perform calculation of data entered into the CIS system. For example, a user can now determine the percentage of award dollars dedicated to research, education, or extension for a particular program or project.	Value added via increased functionality and saved time.
Reporting 'Toolbox'	Querying tool allows users to dynamically build reports based on user-provided criteria. Provides the ability to edit reports to include different data elements, time periods, etc.	Users with different needs and levels of computer skills can take advantage of this tool to reduce their time spent completing new reports.
XML Web Service	XML standardized data transfer	Allows for integration of CIS and

Tool	Description	User Benefit
	process that allows for receipt or delivery of data regardless of the system platform used.	CSREES reporting environments without as much concern for the platforms used by outside parties. Saves data entry and manipulation time for external users and reduces further technology investment.
Enhanced Workflow and Notification System	As well as additional reports and views, more complex review and approval processes will be available for incoming reports.	Increased flexibility and increased controls over both data entry and report publishing, which assists both internal CSREES staff and external partner staff. Views applicable for management review will allow for greater accountability and oversight.
One Solution Classification Wizard	Classification Wizard provides the classification codes via a Wizard. The Wizard assists grantees with the selection of the most appropriate code.	Easier to use and time-saving, providing more time to focus on other tasks.