1. CURRENT ENVIRONMENT: MODERNIZATION CHALLENGE

The USDA reorganization effort was contemplated to take five years and result in an estimated $4 billion in savings as well as improvements to customer service. In July 1998, the Deputy Secretary of Agriculture (DSA) testified before the Senate Committee on Agriculture, Nutrition, and Forestry on the status of USDA reorganization and streamlining efforts. The DSA reported that the savings had been accomplished as a result of reductions in budget and employment levels, which were ahead of schedule and larger than originally planned. However, he expressed his concern that USDA would not be able to meet its mission objective to provide quality customer service without the planned infrastructure investments required to preserve program integrity and delivery systems.

Reinvestment of savings for IT infrastructure has been hampered due to limited funding, limitations on Commodity Credit Corporation (CCC) expenditures for IT, and necessary funding for Y2K compliance. However, the DSA did point out that much has been accomplished to meet the mandates of the 1994 Reorganization Act, primarily more than 7,500 staff-year reductions, consolidations of USDA headquarters offices, and field office collocations.

Other business improvements highlighted by the DSA include reorganizations within the National Resource Conservation Service (NRCS) and the Forest Service (FS). In addition, a new financial system was piloted in the FS, which has the potential to evolve into an enterprise-wide financial system. The Civil Rights Action Team (CRAT) published a report containing 92 recommendations that were subsequently accepted and implemented. A new Civil Rights policy and organization was established. The Farm Service Agency (FSA) improved its debt collection and also began using a Geographical Information System (GIS) to better serve its customers.

Section 1 provides a context for change by:

- Describing the current environment in terms of studies, plans, and external stakeholder requirements.
- Describing the current business and technology environment.
- Identifying gaps between the vision described in the next chapter and today's reality.

This context provides a baseline that helps us:

- Understand what we are changing.
- Understand the impact on associated activities.
- Provide a performance benchmark documented in the 1997 Business Case used to measure the effect of the changes we make.

Section 1 is organized into the following subsections:

1.1 Department and Federal Studies and Regulations

1.1.1 Internal Departmental Studies

To better understand our current business environment, USDA performed an internal assessment of how we conduct business. As part of this assessment, several formal studies were examined. The following studies are most pertinent to the Service Center Initiative (SCI):

- The Interim Progress Report on the Civil Rights Action Team (CRAT) Implementation Report, SEP 1997.
- The National Commission on Small Farms (NCSF) Report, JAN 1998.
- The PricewaterhouseCoopers (PwC) County-Based Agency Study, OCT 1998.

Many of the report findings have either been addressed or are in the process of being addressed.

1.1.1.1 Civil Rights Action Team (CRAT)

USDA's goal is to have the best civil rights record in the Government. USDA values and promotes the tenets and ideals of fair treatment for their customers and program beneficiaries, and equal opportunity for their employees and applicants. A "fair" USDA means a discrimination-free agency—one that is impartial, adjudicates complaints in a timely manner, and embraces and advocates diversity. A USDA that practices the tenet of "equality" offers everyone a chance—reaching out to the under-served and under-represented customers such as small farmers, Native Americans, migrant workers, minorities, and the socially disadvantaged—reaching beyond relationship-based customers—in a word—"outreach."

The CRAT Report contained the following general categories of business recommendations applicable to the SCI:

- Measure program delivery to minority, women, and small and limited-resource farmers.
- Develop strategic outreach plans.
- Streamline program regulations and forms.
- Strengthen the training programs on civil rights issues and outreach responsibilities.
- Make all USDA communications to customers community-based.

From an organizational perspective, the CRAT Report recommended:

- Federalizing all personnel involved at the county level.
- Establishing an Outreach Council at national, state, and local levels to coordinate outreach efforts to address program and service delivery to the under-served.
- Establishing Service Centers/offices where necessary to reach under-served customers.

1.1.1.2 National Commission on Small Farms (NCSF) Report

The NCSF is an extension of the USDA outreach commitment to the under-served, specifically to small farmers and farm workers. Some of the NCSF recommendations mirror or complement the findings and recommendations of the CRAT Report.

Most NCSF recommendations, actions taken, and ongoing activities fall within USDA business areas. Twelve recommendations apply to the SCI and are summarized here:

- Seek input from small farmers, non-profit organizations that work with small farms, farm workers, land grant scientists, and community-based organizations that support small farms. Such input will help to focus small farm research and strategic planning.
- Improve lending procedures, simplify the application process, and substantially reduce the application time.
- Improve communications between USDA and small farmers by establishing special registries of small farms and ranches to enable outreach councils to specifically target them.
- Have Service Center agencies partner with community-based organizations to reengineer business practices for small farmers and ranchers.

Organizational recommendations include:

- Establish a local advisory board for small farmers, farm workers, and traditionally under-served USDA clients.
- Recognize Native American reservations—more than 100,000 acres—as service areas.
- To reach workers with limited transportation, establish satellite or mobile offices in communities where a large population of farm workers reside.

The current USDA business environment is extremely sensitive to its need to reach the under-served. National and State Outreach Councils have been established. The SCI Outreach Coordinator also is a member of the National Outreach Council. State Outreach Plans are submitted to SCI for review and comment annually to ensure the intent of the CRAT and NCSF reports is being implemented. USDA has created a separate functional area for Civil Rights in its Administrative Convergence.

Individual BPR projects are reviewed in light of the CRAT and NCSF reports. Reengineered processes are being designed to reduce customer burden, especially for the under-served and socially disadvantaged. Approximately, 70 Service Centers are located on Tribal Lands. The mobile office project is extremely important in light of the CRAT and NCSF reports and the USDA emphasis on outreach activities.

1.1.1.3 The PricewaterhouseCoopers (PwC) County-Based Agency Study

The PwC study recommended several dramatic changes to the way USDA conducts its business at the county-based Service Center. Summarized here are the PwC recommendations to:

- Shift to funds distribution based on targeted needs and priorities and not a universal-demand model.
- Consolidate and centralize loan servicing processes.
- Investigate outsourcing.
- Increase Service Center staff training.
- Develop common processing and programs.
- Present a business case for state staff distribution versus fair-share distributions.
- Establish "outreach" as a core process of the Service Center.
- Develop a work measurement system that will allow compliance with the Government Performance Results Act (GPRA) (applicable to 7 of 26 recommendations).
- Develop a bottom-up process in collaboration with USDA's local partners to identify customer needs and prioritize those needs in relation to available resources.
- Automate core processes, without automating existing structural and process problems.

PwC also made several organizational recommendations that would require major structural and cultural change in the way USDA is organized to deliver field-based programs. These recommended changes have the attention and support of OMB, GAO, and the Congress.

Most significantly, PwC recommended the assignment of single-point responsibility at the Service Center—a recommendation the USDA has neither embraced nor implemented. The USDA has taken a step toward that concept by assigning single point responsibility for administrative support at the National and State levels.

Additionally, PwC stated that a full merger of the county-based agencies was desirable, but would require too much time to implement as a first step. PwC recommended the following general organizational changes:

- Reorganize the county-based offices around two of the four main core business processes—"Provide Conservation Assistance" and "Provide Financial Support."
- Federalize all county office employees, convert the County Committee to an advisory body, and eliminate the local Committee election process.
- Reorganize office locations around business practices, not political jurisdictions.
- Separate the Operational Delivery Function from the Resource Management Function.
- Create a Chief of Service Center Operations at National and State levels, and a functional staff to support the Chief. Also, eliminate USDA State Director positions.
- Support the field operations and the core process concept by establishing one County Office Administrator and supervisors for the core processes.

1.1.1.4 Summary of Initiatives

Figure 1.1-1 specifies how these internal initiatives are linked to USDA modernization imperatives. These imperatives are the objectives and sub-objectives of the USDA Strategic Plan that directly affect the SCI. A more detailed matrix analysis was conducted to determine if SCI projects were supporting USDA goals and objectives and to identify any gaps. For more information, refer to the Modernization Imperatives Analysis (document location can be found in **Appendix L**).The SCI has structured its management approach with these guidelines in mind to ensure that the goals of this initiative are met.

Modernization Imperatives	SCIT	AC	CRAT	NCSF	PwC
Reduce Cost	✓	✓			✓
Improve Customer Service by Streamlining and Restructuring County Offices	✓		✓	✓	✓
Create a Unified System of Information Technology	✓	✓		✓	✓
Develop a Department-wide Information and Technical Infrastructure That will Improve Service Delivery Through Effective Information Systems and Data Management	✓	✓		✓	✓
Develop a Capital Investment Environment That Supports Clinger-Cohen	✓	✓			✓
Ensure That All Customers and Employees are Treated Fairly and Equitably with Respect and Dignity	✓	✓	✓	✓	✓
Improve Financial Management and Reporting by Improving the Processes for Payment and Collection of Debt	✓	✓	✓	✓	✓
Provide Access to Capital and Credit to Enhance the Ability of Rural Communities to Develop and Grow and Invest in Projects to Expand Economic Opportunities and Improve the Quality of Life for Farm and Rural Residents	✓		✓	✓	✓
Enhance the Safety Net for Farmers and Ranchers	✓		✓	✓	✓

SCIT = Service Center Implementation Team
AC = Administrative Convergence
CRAT = Civil Rights Action Team
NCSF = National Commission on Small Farms
PwC = PricewaterhouseCoopers

Figure 1.1-1. USDA Modernization Imperatives and Related Internal Activities

1.1.2 Overview of Applicable Federal Regulations

In recent years, due to budget constraints and the demand for greater Government accountability and improved stewardship, a number of authoritative guidance documents have been published requiring compliance by Federal Departments and agencies. USDA has adopted the tenets of performance-based capital planning and investment. The SCI is leveraging the following government guidance to ensure success.

One of the primary stakeholders in USDA Service Center operations is the U.S. Congress. In recent years, Congress has passed several acts to create Service Centers, change department organizational structure, and impact USDA operations with the objectives of improving services to the public and reducing delivery costs. USDA is fully committed to complying with all relevant Federal and departmental requirements regarding capital investments, capital budgeting, and information technology investment.

1.1.2.1 Clinger-Cohen (Information Technology Management Reform Act)

- Obtain timely information regarding the progress of an investment in an information system, including a system of milestones for measuring progress, on an independently verifiable basis, in terms of cost, capability of the system to meet specified requirements, timeliness, and quality.
- Assess and manage the risks of IT acquisitions.

- Estimate the projected net risk-adjusted Return on Investment (ROI).

1.1.2.2 OMB Circular A-11 Exhibit 300B, Capital Asset Plan and Justification and Supplemental Capital Programming Guide

- Implement a performance-based management system(s) that: (1) identifies the amount of planned work actually accomplished, (2) compares actual work accomplished and costs incurred against the plan, and (3) calculates the deviation percentage.
- With the budget submission include a Capital Asset Plan and Justification for Major Acquisitions. Update these documents annually. The Plan should include or address:
  - Summary of spending by project stage.
  - Justification for the project.
  - Program management.
  - Acquisition strategy.
  - Financial basis for selecting the project.
  - Adherence to architecture and infrastructure standards, cost, schedule, and performance goals.
  - Description of performance-based management system(s) used to monitor the achievement of, or deviation from, baseline goals during the acquisition lifecycle.
  - Original baseline cost, schedule, and performance goals.
  - Variances in schedule, cost, or performance greater than 10 percent of the baseline.
  - Revisions to cost, schedule, and performance goals.
  - Corrective actions.
  - Summary of risk management plan.

1.1.2.3 OMB Circular A-94, Conduct Benefit Cost Analysis (BCA)

Conduct a Benefit Cost Analysis for major proposed investments that includes or addresses:

- Net Present Value (NPV).
- ROI.
- Lifecycle cost.
- Evaluate alternatives (e.g., additional BPR projects).
- Disregard sunk costs from the decision to proceed beyond pilot testing.
- Apply either real or nominal discount rates.
- Conduct Sensitivity Analysis.

1.1.2.4 OMB Raines Memo, October 25, 1996, Funding Information Systems Investments

Investments in major information systems proposed for funding in the President's budget should:

- Support core/priority mission functions.
- Occur when no alternative private sector or governmental source can efficiently support the function.
- Improve or reengineer work processes.
- Demonstrate a projected ROI that is clearly equal to or better than alternative uses of available funding.
- Be consistent with relevant Federal, agency, and bureau information architectures.
- Reduce risk by:
  - Avoiding or isolating custom-designed components
  - Using fully tested pilots, simulations, or prototype implementations before going to production
  - Establishing clear measures and accountability for project progress

- Securing substantial involvement and buy-in throughout the project from the program officials who will use the system.

- Be implemented in successive phases.
- Employ an acquisition strategy that:
  - Appropriately allocates risk between the government and contractor
  - Effectively uses competition
  - Ties contract payments to accomplishments
  - Takes maximum advantage of commercial technology.

1.1.2.5 Applicable GAO Guidance

- Regularly validate cost, benefit, and risk data used to support IT investment decisions.
- All projects that are selected for funding should have project review schedules, risk management plans, and project-specific performance measures established.
- Each project should be reviewed at key milestones throughout its lifecycle.
- Projects that are preparing for limited field or full-scale implementation should be reviewed in-depth—including cost and performance to date—to ensure that the project delivers promised benefits within cost and risk limitations and to correct any problems before significant dollars are expended.

Project reviews should address:

- Deliverables.
- Methodology.
- Technical issues and problems.
- Schedule.
- Costs.
- Business/program alignment.
- Risks.
- Actual outcomes from modular testing, pilots, prototypes, etc.
- All the information in the Business Case should be updated to reflect the current state as project implementation continues.
- At each stage in the lifecycle, decide whether to continue the project as is, modify the project, accelerate the project development, or cancel the project.

1.1.2.6 Summary of Federal Regulations

Figure 1.1-2 outlines how major SCI components satisfy one or more of these Federal requirements for large-scale systems development efforts. These SCI components may be a separate written document, such as the Initial Business Case, or they may be a concept, such as the BPR approach, used initially to develop areas and specific projects for development. For example, the Initial Business Case produced a net risk-adjusted ROI that satisfied requirements in ITMRA, OMB Circular A-94, the Raines memo and GAO Guidance. It also provided justification for the projects and baseline costs that are required by OMB Circular A-11, Capital Planning. Each component has been custom designed to be a part of overall program success by meeting business requirements while fulfilling regulatory requirements. **Section 1.4** provides further discussion of the Business Case contribution to SCI.

SCI Component	ITMRA	OMB Circular A-11 Capital Plan	OMB Circular A-94 BCA	Raines Memo	GAO Guidance
1. BPR First Approach	✓			✓	
2. Initial (Economic Justification) Business Case	✓	✓	✓	✓	✓
3. Iterative or Phased Acquisition Strategy	✓	✓		✓	✓
4. Integration Center	✓			✓	✓
5. Management Involvement through Performance Management Reviews	✓	✓	✓	✓	✓
6. Project Plans	✓	✓		✓	✓
7. Pilot Testing Approach	✓	✓		✓	✓
8. Updated BCA by Project	✓	✓	✓	✓	✓
9. Performance-Oriented Management from Start to Finish	✓	✓	✓	✓	✓

Figure 1.1-2. How SCI Addresses Federal Regulations

USDA is committed to complying with applicable Federal guidance and good management practices to achieve incremental change, proven benefits, and minimal risk. Accordingly, for each project USDA intends to perform stringent testing and evaluate the test results in an objective manner using independent project reviews before proceeding with full or nationwide deployment.

The project reviews also will serve to evaluate actual versus planned work in terms of schedule, performance, and cost. The USDA will identify, account for, and take corrective action in response to substantial discrepancies (i.e., greater than 10 percent).

1.2 Current Business Environment

Up until the early 1990s, the USDA had independent modernization plans for each of its agencies (FSA, NRCS, and Rural Development). At that time, USDA began to study reorganization options, including the colloca-tion and blending of agency service delivery at the county level.

In 1995, after several failed attempts at modernization efforts, the USDA implemented the Service Center Initiative (SCI). The goals of this initiative include:

- Reduce the number of field office locations.
- Create a one-stop Service Center environment.
- Improve customer service.
- Reduce costs.

The description of the current business environment is presented from a customer perspective.

1.2.1 Customer Needs

USDA customer groups change rapidly, which creates a need for appropriate response. Today, small farms continue to be consolidated into larger ones as the economic basis for rural

American communities declines and rural towns are lost. However, the small farm customer segment continues to represent the majority of eligible applicants for many programs. In the not too recent past, some USDA programs had disproportionately benefited those farms that least needed government assistance. This section describes customer focus in the following areas:

- Small Farms.
- Socially Disadvantaged Farmers.
- Rural Populations.
- Conservation.
- Technology and the Customer.
- Customer's View.

1.2.1.1 Small Farms

Today's small farms are often a highly vulnerable segment. For 75 percent of the nation's farms, annual gross sales are less than $50,000 and thus do not generate sufficient income to be commercially self-sufficient. The USDA National Commission on Small Farms concluded that 86 percent of farmers in the next sales class—from $50,000 to $250,000 gross sales—count farming as their primary income, yet their average return on equity is negative. The financial condition of the small farm customer drives the USDA workload in terms of loans and other Service Center activity. Increases in services by the NRCS and FSA to the small farmer imply an increased workload.

1.2.1.2 Socially Disadvantaged Farmers

Socially disadvantaged farmers represent a diverse group with distinct characteristics and needs. In most cases, the farms operated by socially disadvantaged farmers have small acreage, low income, and limited access to credit. With the exception of emergency disaster assistance, the percentage of socially disadvantaged farmers participating in USDA programs has been considerably less than that of their traditional counterparts. USDA is committed to serve more socially disadvantaged farmers. As in the case of small farm owners, increasing services to this customer segment is expected to increase the workload and cost for the agencies involved.

In addition, under the new Farm Bill, farmers now have the freedom to grow a greater diversity of crops. Typically, socially disadvantaged farmers concentrate in specialty crops. As farmers shift to producing these new crops, they will require risk management support. Each new specialty crop raised for food or fiber is eligible for risk management support when planted. This increases the workload for FSA county staff in determining yields and prices. In addition, each new specialty crop requires the Risk Management Agency (RMA) to evaluate the need for new insurance programs. The trend toward specialty crops also increases the workload of the actuarial and underwriting staff in Kansas City and regional offices.

1.2.1.3 Rural Populations

Changes in rural population directly impact the need for rural housing, business and utility programs. In the 1990s, there has been an increase in rural population. The USDA County Based Study pointed out that there is strong evidence to support the prediction of an increase in overall rural population in the next decade, perhaps even greater than that of urban areas, and particularly in the West. This will translate into greater demand for rural housing and other development programs.

1.2.1.4 Focus on Conservation

Environmentally, there has been an increased awareness of water and pollution sources. During recent years, the general U.S. population has experienced significant natural disas-

ters, such as floods, hurricanes, and tornadoes. As a result, the general population has increased its interest in and familiarity with readily available climate and natural resource information. The increased interest in pollution of all kinds has heightened awareness and support for technical assistance. Overall, the increased demand for conservation services extends not only to standard FSA, NRCS, and Rural Development agency customers but also to other Federal agencies, state and local governments, and Conservation Districts.

1.2.1.5 Technology and the Customer

The USDA customer base is generally not demanding of information technology; however, things are changing. The County-Based Agency Study pointed out that 13 percent of U.S. producers have Internet access. Recent legislation has been introduced to provide all USDA customers with electronic access to programs. Because USDA employees do not always have access to information about new USDA programs while some customers have access to this information via the Internet, it is not unusual for customers to find out about new programs before USDA employees. Although customers value the face-to-face service currently provided at Service Centers, we expect that preference will gradually change as information technology becomes more available and customers discover that they can quickly, accurately, and securely conduct business electronically.

1.2.1.6 Customers' View

Service Center customers—producers, landowners, community representatives, local governments, partnering agencies, and others—are demanding new and improved services from USDA county-based agencies. Customers want faster, more accurate service that is efficient and not burdensome. Customer burden is usually defined in terms of the number of trips to the Service Center office and the time required to provide information (such as filling out forms). Some customers are highly computer literate and want new electronic means of interacting with the Service Center; at the same time, they do not want to lose the personalized service they receive from local Service Center staff. While customers understand and support collocation and consolidation of agency services, they also are concerned about their privacy and the security of their personal information.

Another dimension of customer need and challenge lies in the wide disparity of capability to utilize and interface with Service Centers using technology. A small percentage of current customers use technology to interface with USDA; however, this number is expected to increase over time as these services become available electronically. The Service Center technology infrastructure must provide responsive service to customers who want to conduct business face-to-face and those who want to conduct business electronically from remote locations. Independent of the customer's capability to use technology, the Service Center must have enabling technology to access program information and facilitate timely program delivery.

The USDA has made exceptional progress in determining how to improve customer service. Results of numerous surveys defined customer needs and expectations as:

- Personalized, face-to-face service.
- Simplified forms and regulations.
- Knowledgeable staff.
- Staff members with positive attitudes.
- Staff members that offer information freely.
- Flexibility in programs and local authority.
- Timely programs, information, and service.

- Faster benefits delivery.
- Accurate and timely status reports.
- Accessibility to local staff during convenient hours.
- Information regarding program status and compliance.
- Consistency.
- Follow-through.
- Privacy.
- Increased technical services and planning support.
- Less driving time to see county-based personnel.

It is clear that USDA customers:

- Want to have county offices.
- Want offices to be within reasonable driving distance.
- Want offices to be well staffed with knowledgeable people who will answer all of their questions and support their needs.

It is also clear that there are insufficient resources to provide this level of support given USDA's current business processes and information technology. However, there are alternative methods of satisfying USDA customers. Ten years ago, 90 percent of banking customers said they could not bank without face-to-face engagements. Today, most banking customers do not want, or need, frequent, face-to-face transactions. The USDA challenge is to satisfy customers' needs and help change their perception of how they receive the services they require.

In response to this challenge, the USDA has determined that a Service Center must deliver USDA programs to its customers in such a way that organizational boundaries are transparent. The Service Center must strive to deliver satisfaction to the customer as if it were a single agency delivering the service. The planning within a Service Center must be integrated and drive employee actions. The processes must be synergistic and implement performance-driven solutions that result in customer satisfaction and reduced delivery cost.

Environmental factors and new agricultural methods also have an impact on the design of the Service Center strategy. The globalization of agriculture has increased competition. In addition, the emergence of new techniques to increase efficiency, such as site-specific farming, has increased the demand for more complex technologies such as geographic information systems (GIS) and global positioning systems (GPS). However, as global pressures change the environment in which Service Centers operate, unique geographic requirements and constraints impact much of what the Service Center does. These logical geographic requirements and constraints lead to the need for local data collection, update, and analysis. As a result, the USDA must emphasize field work and the increased staff mobility required to assess and measure land, crops, properties, and program compliance.

The USDA partner agencies also have been developing many external information partnerships for the provision of USDA services. Relationships have been formed with state and local governmental bodies, conservation districts, lending institutions, and other public organizations. These organizations frequently require the ability to exchange information with the USDA Service Centers.

1.2.1.7 Summary

Numerous studies have validated the needs of USDA external customers. The results of these studies and those from the County-Based study have been presented here.

The USDA partner agencies are operating in multiple customer segments that are heterogeneous as to their needs and characteristics.

These agencies deliver multiple programs for each customer segment, which generally increases the cost of conducting business. It does not appear that this mode of operation will change in the near term. As long as the county-based structure is in place, USDA will have to cope with these multiple converging customer requirements and continue working with reduced funding and staffing levels and changing legislation.

1.2.2 Gap Analysis

As part of the review of various reports and initiatives, the SCI conducted a gap analysis to determine what needed to be done to provide better customer service.

Gaps in current operations, or desired attributes of a future environment, were identified in the initial USDA Service Center Concept of Operations and by employees at the national, state, and local levels. The attributes desired by county-level employees were identified during interviews conducted at 10 county offices in 8 states, and during a 3-day work session that involved 6 county-level employees. These attributes are identified in **Figure 1.2-1.**

USDA Service Center Desired Attributes
1. Shared database
2. Seamless customer service
3. Local FAC management
4. Paperless office
5. One-stop point of customer service
6. Local FAC common budget
7. Information available via central and distributed systems
8. Easy customer access to other USDA Service Center providers (central phone system)
9. Common computer system that includes GIS and GPS
10. Reduced manual field work and improved accuracy
11. Provide and receive information electronically
12. Generalist training of all employees on general program services
13. Empowerment of personnel (tools provided)
14. Mobile communications
15. Integration of program operations
16. Automatic access and retrieval of information from source
17. Maintain and develop local staff

Figure 1.2-1. USDA Service Center Desired Attributes

It is understood that no single Service Center can exhibit every identified attribute due to the specific and varying needs of each community. Furthermore, it will be possible to achieve some attributes only after study of and change to agency and department policy. Each Service Center should strive to achieve those attributes that will result in meeting service delivery goals and objectives. It is the responsibility of the SCI to identify and recommend to partner agencies those parts of the business that are best integrated and those that are best left to the discretion of other organizations.

The attributes identified as MOST desirable include:

- The USDA Service Center Team—focus on customer service.
- Employee training, functioning, accountability, recognition.
- Physical facilities and their management.
- Information systems/data sharing.

A more detailed description of these attributes follows.

The USDA Service Center Team—Focus on Customer Service

- Fundamental to the establishment and successful operation of Service Centers will be the employees who provide services to customers. Service Center staff will focus on providing quality customer service. Every attempt will be made to ensure that the moment a customer enters or contacts a Service Center, his or her needs are satisfied. Service Center employees will work together as a unified team to provide quality customer service.

- Service Center staff will have requisite knowledge of all services across agencies available within the Service Center and be capable of providing some services across mission areas. The first available staff member will deliver routine, non-complex, or non-technical services. Complex, technical services will be delivered by the appropriate technical specialist in the Service Center.

- Staff will share expertise and resources. The operation of the Service Center will be customer-driven, not governed by "top down" management. During peak work periods (e.g., program sign-up), personnel resources within the Service Center will be deployed to ensure that customer expectations are met and the job is accomplished. During such times, and for other site-specific reasons, Service Centers will be empowered to alter hours of operation to satisfy customer needs. Service Centers will be resilient to changing customer expectations and empowered to respond to them.

- Shared staff meetings, scheduling, and monthly planning will facilitate the delivery of services. Field activities that can be shared or performed by a single person will be so scheduled to enable the sharing of personnel resources. Government-owned vehicles will be shared and available to all Service Center staff.

- Customer services will be provided wherever and whenever required in a form that meets customer needs. Services may be provided in the office, at the customer's residence or place of business, or at other desirable locations. At locations where there is a large percentage of either part-time producers or non-producer landowners, Service Centers will be empowered to offer evening and weekend hours.

- Where two or more agency programs overlap (e.g., Federal and state cost sharing), Service Centers will coordinate these programs to ensure they complement one another.

- Service Center staff will be encouraged to be creative and innovative. Specific processes needed to accomplish a service will be identified and developed by local staff. Service Centers will be encouraged to use discretionary resources available to them and empowered to make things happen.

- The job of management at all levels (field, area, state, regional, and nation levels) will

be to remove, not create, barriers. The motto of management will be, "what can I do to make your job easier?" Area and state-level managers will no longer micro-manage Service Center employees or functions. National managers will no longer micro-manage state and regional employees or functions. Management sets policies, guidelines, conventions, and boundaries; field Service Centers determine how to implement them. Policies, guidelines, conventions, and boundaries will be developed with input from customers, stakeholders, partners, and Service Center employees. They will be field-tested with customers prior to universal implementation or adoption.

Employee Training, Functioning, Accountability, and Recognition

- The ability of individual employees to function effectively determines the success or failure of effective customer service and satisfaction. Recognizing that Service Center staff are composed of individuals with various personalities, all employees will be trained to understand their own personality, the personalities of others, team building, problem solving, conflict resolution, and adapting to change.

- Service Center staff will be trained to know more about the activities and functions that occur in the delivery of services to customers and given the resources (both personnel and equipment) to accomplish them. Eighty-five percent or more of all FTEs are located in Service Centers.

- General mission area training will be provided to educate Service Center staff regarding the functions that occur in the delivery of services. The training specifies the non-specialist functions that can be provided by anyone in the center. Additional training opportunities will be available to all Service Center staff to enable a better understanding of individual mission (agency) functions.

- To elevate morale, promote team spirit within the Service Center, and encourage efficient operations, management will address a number of critical personnel issues. Federal versus non-Federal employee status will be addressed and resolved to minimize its significance at the Service Center. The organizational structure within centers will be flattened to create an equal playing field. Pay banding, equality in grade structure, and flexibility in employee classification standards will be investigated. Finally, when such action contributes to improved performance, Service Centers will be empowered to deal with their own personnel issues. Such actions will include staff hiring, reassignment, and separation, if required.

- Routine, paper generating, nonproductive activities will be eliminated or minimized. The current time and attendance reporting process will be reengineered to document only exceptions to the normal work week. The current travel authorization and performance appraisal system has been reengineered. Authority to travel is determined at the Service Center level. Performance evaluations will become a function of individual performance, individual contribution to successful Service Center performance, and customer feedback and satisfaction.

- Service Center staff will be accountable for their individual actions and performance, as well as for the performance of the Service Center as an operating unit. Pivotal to this concept of accountability is

implementation of performance-based management.

- Performance-based management relies on customer feedback mechanisms that assess customer satisfaction. Service Centers will design and implement customer feedback mechanisms and other means to assess customer satisfaction and identify problems that negatively affect customer satisfaction. Problems identified through these means are addressed and resolved by Service Center staff.

- Employee recognition will occur at all levels. Service Center employees will be rewarded for their performance, innovation, creativity, and success. Acknowledgment will take the form of individual recognition and, more importantly, group recognition. Service Centers will be rewarded as a unit for their successes. Rewards will include opportunities to share their successes and other lessons learned with their peers.

Physical Facilities and Their Management

- USDA Service Centers function through collocation, working together as a team, and providing services viewed by the customer as seamless (i.e., no apparent disconnection in the functions associated with delivery). Common signage, a single point of entry, and a common reception area are all desirable attributes identified with Service Centers. From the exterior, Service Centers are viewed as USDA facilities, not as a collection of individual agencies.

- The interior appearance of Service Centers varies to meet local needs and the fact that not all centers operate in new buildings. Even in new buildings, interior appearances will vary. In both old and new buildings, customers will recognize individual agencies and their staff members. Established customers often know the person or agency with whom they wish to work. Agency identity facilitates their ability to locate the agency or person.

- Many of the services provided within the Service Center involve the exchange of personal, sometimes confidential, information. Facilities are responsive to the need for privacy to minimize distraction and ensure the security of personal information. Privacy does not necessarily mean separate offices with doors that close. The work environment is pleasant for both center staff and customers.

- Service Centers are sensitive to special customer needs. The parking areas of some centers may provide for large motorized vehicles (e.g., trucks and trailers) or horse-drawn vehicles, depending on customer needs. Other centers address the needs of children while their parents conduct business. Service Centers are easily accessible to all, including those with special needs. New buildings are located in the geographic and/or transportation center of the service area to equalize travel time for customers.

- Most of the decisions related to Service Center operation and management are delegated to the local level. The local Food and Agriculture Council (FAC), or other appropriate local entity, manages the Service Center.

- Individual centers are responsible for the operation and maintenance of their facility. Responsibilities include paying routine bills (e.g., rent, utilities, and postage); procurement, maintenance, and sharing of

equipment and supplies used throughout the Service Center; and fair and equitable use of physical assets (e.g., office space and equipment).

- The local FAC functions as a unit when making decisions about Service Center management. Membership on the FAC includes agency representatives and representatives of partners or stakeholders located at the Service Center (e.g., soil and water districts). Agency staff not physically located within a Service Center, but who provide service through the center, are consulted by the FAC on key decisions.

- The local FAC determines who chairs the council. Decisions made by the FAC are based on consensus. When consensus is not possible, the matter under consideration is elevated to the State FAC for mediation. The local FAC will not be responsible for decisions regarding internal agency activities. Such decisions remain the responsibility of the cognizant agency.

- To carry out its operational and management responsibilities, the Service Center receives an operating budget. This budget represents pooled money received from each agency or other entity operating in the Service Center. It is treated as a single budget and managed by the local FAC. The FAC is accountable for how the budget is spent.

Information Systems/Data Sharing

- The ease with which information flows through the Service Center is one of the most important factors influencing efficient operation and the degree to which increased cost efficiencies are achieved. A single, shared telephone system with intercom and rollover voice mail is provided to promote communication among staff and customers, and allow for the transfer of calls when appropriate. Other tools for communication include access to e-mail, Internet, and facsimile machine. When beneficial to customer service, a 1-800-number can be established so that customers do not incur long distance charges.

- Because of the degree to which data is shared within a Service Center and the fact that many individuals are frequently involved in the delivery of a service, compatibility of computers is essential. Databases supporting the delivery of services are built around common dictionaries and data elements. Databases are accessible to all Service Center staff, except when there is reason to secure confidential or sensitive data.

- All employees are provided computer equipment that is functionally compatible with other equipment used in the center. Information flow involved with providing and documenting customer service is electronic, eliminating paper forms and paper flow within the center. Online support and help is available for all information systems used in the Service Center to answer questions and solve problems.

- Recognizing that other partners and stakeholders (e.g., conservation districts, cooperative extension service) have an interest in and help deliver customer services, electronic access is provided for both telephone and computer systems.

- A list of attributes created by Service Center personnel in conjunction with the Concept of Operations Working Team is provided in **Appendix A.** The innovative implementation of these attributes is believed to be critical to the success of the

One-Stop Service and Quality Customer Service objectives.

The SCI BPR teams assessed the customer needs and desired attributes described here and translated them into activities that need to occur "to support the delivery of programs to County-Based Service Centers." These activities were then defined as business drivers and prioritized against the Service Center goals. The prioritized drivers were then rated to identify those with significant impact, which should be accomplished first. **Figure 1.2-2** depicts the results. Those drivers that were rated as having a significant impact are those being initially addressed.

	BUSINESS DRIVERS	SERVICE CENTER GOALS			
		Quality Customer Service	Cost Reduction	One-Stop Shopping	Partnership
Improve the Delivery of USDA Products and Services	Provide one-stop shopping	Moderate	Significant	Significant	Significant
	Coordinate overlapping programs across agencies	Significant	Significant	Significant	Significant
	Share field delivery and administrative activities across agencies	Moderate	Significant	Moderate	Significant
	Provide a range of services at each SC, with complex services at fewer locations	Moderate	Moderate	Significant	
	Create a seamless customer interface across programs, offices, and agencies	Significant		Significant	Significant
	Provide staff with skills, knowledge, and tools to provide services across all mission areas	Moderate	Moderate	Significant	Moderate
	Provide the full range of program information and services from any location, regardless of the responsible agency	Significant		Significant	Moderate
	Permit SC to interface with both USDA and external agencies to provide cross-agency products and services	Significant		Significant	Significant
	Reduce time and cost to deliver goods and services	Significant	Significant		
	Increase service delivery	Significant			
	Reduce personnel costs of administering programs in Service Centers		Significant		
	Simplify the policies, processes, regulations, and reporting procedures and make them customer-focused	Significant	Moderate		
	Respond to and implement program changes more quickly	Significant			
Improve Customer Satisfaction	Reduce customer burden levels (time, trips to office, procedures, etc.). Provide customers clear, reliable, and easy-to-understand information and forms.	Significant	Moderate		
	Systematically obtain feedback from customers	Significant			Moderate
	Record, respond, and resolve customer complaints at the front line of contact	Significant	Moderate	Moderate	
	Ensure privacy of customer information	Significant			
	Improve rate of customer-defined "satisfactorily resolved items"	Significant			

Figure 1.2-2. SCI Business Drivers and Their Impact on SC Goals (Page 1 of 2)

	BUSINESS DRIVERS	SERVICE CENTER GOALS			
		Quality Customer Service	Cost Reduction	One-Stop Shopping	Partnership
Improve Internal Operations and Management	Improve the management of the Loan Portfolio. Integrate finance and program management systems. Provide financial reports on demand.		Significant		
	Track and report relevant performance information with an automated decision support system		Moderate		
	Utilize a performance-based management approach to internal operations		Significant		
	Perform common planning and scheduling for program and employee activities		Significant		Significant
	Provide the ability to analyze raw data and process it into information products	Significant			
	Move toward common or integrated budgeting		Significant		Significant
	Reduce the approvals levels/bureaucracy	Moderate	Moderate		
	Improve/streamline internal operations: Accounting, Contracting, Travel, Procurement, Facilities, Management, HR Processes, Civil Rights Tracking, EEOC Tracking		Significant		
	Decrease paperwork in administrative management		Significant		

Figure 1.2-2. SCI Business Drivers and Their Impact on SC Goals (Page 2 of 2)

1.3 Current Technology Environment

The following subsections summarize the current technical environment at each of the agencies. Identified are the legacy applications and systems that need to be addressed as part of the Common Computing Environment. Some of the applications and systems will be migrated to more functional and efficient alternatives, while others will need to have appropriate connectivity to the deployed CCE. These are ongoing issues that are currently or will be addressed in various reengineering projects under this initiative. As deployment strategies are finalized and implemented, these applications, data, and systems issues will be resolved. A complete list of legacy hardware is provided in **Appendix B.** In addition, we have included an initial inventory of current data applications in **Appendix C.** This section is organized as follows:

- Legacy Environment: Section 1.3.1
- Legacy Connectivity: Section 1.3.2.

1.3.1 Legacy Environment

FSA, NRCS, and Rural Development each support the missions of their individual agencies using technologies that best suit their needs at the time of selection. Given their declining budgets, the agencies have not been able to deploy their ideal technical solutions.

USDA Service Centers have a wide range of computer equipment that is being used to ac-

complish their business in the current environment. A survey of field offices was completed in April 1997 and showed that 75 percent of the workstations in use were not capable of running modern operating systems or applications. These workstations were predominately dumb terminals (50 percent) and personal computers that were built with the Intel 80386 processor or older models. Many of these personal computers are not Year 2000 compliant; thus, they will not be useable after the change in century. The current configuration uses these workstations as terminals to access legacy applications systems; in this manner, they meet the daily needs in the current environment, but they will not support the move to a modern computing platform.

The results of this survey are still relatively accurate in terms of available systems that will support a modern computing environment.

Acquisition of new workstations has been restricted by the USDA IT Moratorium to only Y2K and emergency replacements, so few new systems have been acquired since the survey was completed. Also, at the time of the survey, Intel 80486 based systems were considered to be acceptable for running new applications. However, this is no longer the case—these systems are now three generations behind current technology. During this period, USDA has leveraged investments needed for Y2K and emergencies and has procured more than 29,000 fully interoperable and interchangeable workstations for the partner agencies, as well as more than 7,000 shareable printers.

The Business Process Reengineering (BPR) Business Case identified mobility as a key requirement for the Service Center Modernization. Only three percent of the current systems are portable computers that would support mobile computing. The predominant field office computer technology doesn't support mobility, and in fact requires employees to do their work twice when it involves gathering field data. They need to do the work by hand when they are in the field on a customer's land and then re-do the work when they return to the office to get the information into the electronic system.

As part of the Service Center IRM Working Group Plan, a set of emergency needs were identified by the partner agencies. These emergency needs had to be addressed to enable field offices to continue to deliver USDA programs before completion of the full USDA Service Center modernization effort. FSA needed to acquire an engineering upgrade to its System 36 computers to continue to maintain these systems. NRCS needed to replace its older AT&T 3B2 systems with current Intel-based field office servers to deploy the Field Office Computing System (FOCS) software applications. Rural Development needed to obtain computers to support its Dedicated Loan Origination and Servicing (DLOS) application, the IT component of a significant BPR effort that was part of the overall USDA reorganization. These emergency needs were met by the agencies through coordinated acquisitions occurring during Fiscal Years 1995 and 1996.

As a result of this acquisition, the current servers supporting the Service Center agencies are:

FSA	IBM Advanced System 36
Rural Development	Windows 3.11 (DLOS) AT&T 3B2 (Multi-Family Housing)
NRCS	AT&T Globalyst 630, NCR 3333

The majority of these systems are now 2 to 3 years old and will not readily support the reengineered business processes and applications. For example, the Rural Development

3B2 servers are more than 13 years old; replacement parts are not readily available, making these systems technically obsolete. This is particularly true for those reengineered applications that rely on geospatial processing capabilities to manage program and natural resource information.

Although the Service Centers for the county-based agencies are collocating their field offices, the sharing of information has still largely been manual or verbal, relying on hard copy maps to track changing boundaries and printouts of contracts to be reentered as customer needs cross agency programs. Applications for all three agencies have traditionally been built in house, either by agency Development Center staff or contractors. Commercial off-the-shelf (COTS) products, where utilized, have been significantly modified. Office automation software is standardized within each agency, but not across agencies, making file sharing difficult.

1.3.1.1 Rural Development

Hardware

Rural Development operates a mainframe model and uses Windows-based desktops and laptops. Information is gathered and processed in the field, then at different points in a program's lifecycle (e.g., after a loan has been approved), customer information is sent to the central mainframe in St. Louis, Missouri, for further processing and maintenance. Rural Development has updated field workstations consistently. Current desktops use Windows and Microsoft Office automation. Within the last 2 years, Rural Development has reengineered its single-family loan system, Dedicated Loan Origination System (DLOS), using a PC-based banking industry software application as its core. Rural Development also has legacy 3B2 systems (AT&T UNIX-based, non-Y2K compliant), which are undergoing business process reengineering. Rural Development has created a centralized custom model and is reengineering its applications to use this and other centralized common code.

Software

The 3B2s are currently being phased out. (FSA also has 3B2s remaining from the realignment of the old Farmer's Home Administration into the current FSA.) Applications running on Rural Development 3B2s include: Acquired Property Reporting, Acquired Property System, AFMS, Budget Tracking System, Building Cost Tracking System, Calculation Utilities, Cleanup, CAR-summary, CAR Scoring System, Guaranteed Rural Housing, Interest Credit Recapture, Multi-Family Housing Tenant System, and Multi-Family Integrated System. Miscellaneous PC-based applications include PC-TARE, PC-PRCH, PC-TVL, F-Prot, Pathways, PC-Interface, DLOS, and Xpert Communications Software. A summary of Rural Development hardware and software is shown in **Figure 1.3-1.**

Hardware	Software	Installed
Stand-alone Windows PC-based machines with file transfer to central (St. Louis) mainframe	Single-family housing (DLOS). Uses modified COTS banking industry software as its core.	Jan. 1997 - Jun. 1998
Networked Windows-based PCs in Service Center using network communication	Windows, Office Automation, Terminal Emulation to St. Louis mainframe for administrative function (travel)	Continuous
3B2 (Old AT&T Unix machine) with dumb or PC terminals. Not Y2K-compliant; applications being reengineered.	Multi-family housing and miscellaneous utilities	1985

Figure 1.3-1. Summary of Rural Development Hardware and Software

Data

Many of the software applications mentioned above access files stored in a database. The USDA Ad Hoc Reporting System, FOCUS, uses several databases (Oracle, Focus, and IDMS) to store data. AMAS, GLAS, PLAS, and RCFTS access an IDMS database. A VSAM database is used to store data for the DLOS system. Rural Development uses Oracle to support MFIS, OTIS, and MTFS. Prelude is used to store data on a UNIX network for such applications as Acquired Property Reporting, Building Cost Tracking, FmHA CP Bond repayment, FmHA Engineering Fee Analysis, and the MH Thermal Performance Evaluation. The Focus database also holds data for the Executive Information System (EIS) and the Request for Alteration Tracking Systems (RFATS). Progress is used to store data for UNIFI, while AS stores data for the Project Management Resource System (PMRS). DB2 holds data for the New Appropriation Accounting System (NAAS) and the Ordering, Tracking, and Inventory System (OTIS). **Figure 1.3-2** delineates the RD legacy applications and the databases they require, and also shows anticipated life expectancy and current database size for each application.

Data administration, database administration, and configuration management functions for mainframe-based applications are performed by the Data Service Branch (DSB), located at the St. Louis Development Center. DSB reports to the Director, Information Technology Division (Jim Campbell), who in turn reports to the CIO (Joe Perez).

Requests for modifications to existing systems and requests for new automated systems are submitted by the business community to the System Review Board (SRB) on a Request for Automation (RFA) form. The SRB is composed of IT and business personnel and is responsible for approving and prioritizing these requests. When requests are approved by the SRB, they are issued to the System Services Division, another division within the CIO organization located in St. Louis, for development. Depending on the scope of the request, when development activities commence requirement and planning sessions may be scheduled between business subject matter experts, developers, and database administration personnel. Additional follow-on design sessions may also be conducted, usually involving the same personnel. When projects require a significant increase in processing or data storage capacity, these requirements are identified early in the process and forwarded by the database administrator to the appropriate personnel, usually NITC Capacity Management. Our Training Branch performs user training when required.

Control numbers are assigned to each RFA request, and time expended, progress toward completion, and turnovers are tracked and scheduled using this number. All requested modifications to production systems must have an associated RFA control number, user sign-off, and required documentation (user and system) before the turnover will be processed.

Configuration management and database administration personnel are responsible for installing new or modified application software and databases in the production environment.

Application Name/Acronym	Remaining Life	Database	Access Control	Database Size
Ad Hoc Reporting System (FOCUS)	8	Oracle, Focus, IDMS	User ID	
Automated Field Management System (AFMS)	2	N/A	User ID	N/A
Automated Multi-Housing Accounting System (AMAS)	8	IDMS	User ID	6.55 GB
Dedicated Loan Origination and Servicing System (DLOS)	9	VSAM	User ID	18 GB
UNIFI	9	Progress	User ID	
Executive Information System (EIS)	3	Pilot, Focus		
Expert File Transfer (XFT)	2	N/A	User ID	
Guaranteed Loan Accounting System (GLAS)	5	IDMS	User ID	726.72 MB
Multi-Family Integrated System (MFIS)	5	Oracle	User ID	
New Appropriation Accounting System (NAAS)	13	DB2	User ID	
New Guaranteed Loan System (NGLS)	13	DB2	User ID and ACF-2	
Ordering, Tracking, and Inventory System (OTIS)	8	Oracle	User ID	
Program Loan Accounting System (PLAS)	8	IDMS	User ID	14.71 GB
Project Resource Management System (PRMS)	4	AS	User ID	
Request for Alteration Tracking System (RFATS)	4	Focus	User ID	
Resource Management System (RMS)				
Rural Community Facilities Tracking System (RCFTS)	11	IDMS	User ID	366 MB
Warehouse Inventory System (WIS)		N/A	User ID	
Business and Industry Loan Pack 96 Version 1.0	?		N/A	
Community & Business Programs Water & Waste Grant Determination 1.0	?		N/A	
Industry Interface 2.0	?		N/A	
Network Interface System 4.0	2		User ID	
FTM 1.2	3		User ID	
EIS/TCP 1.0	1		User ID	
Acquired Property Reporting, 2.0	*	Prelude	User ID	
Building Cost Tracking, 1.2	*	Prelude	User ID	
FmHA CP Bond Repayment	*	Prelude	User ID	
FmHA Eng Fee Analysis, 1.0	*	Prelude	User ID	
MH Thermal Performance Eval.	*	Prelude	User ID	
Multi-Family Tenant File Sys (MTFS)	*	Oracle	User ID	

Figure 1.3-2. Rural Development Database Application Inventory

Tools

For legacy systems, Rural Development relies primarily on Computer Associates' Integrated Database Management System (IDMS) and its associated suite of application development tools, which includes an Integrated Data Dictionary (IDD). New and reengineered systems are being targeted to DB2 and Oracle DBMS and are being developed using the COOL:Gen CASE tool. Access Control Facility (ACF2), OLTP system security features, and custom applications are employed to grant/restrict data access. FOCUS and Command Center Plus are currently used to deliver decision support systems. Endeavor, a change management control product, CA-Librarian, the IDMS Integrated Data Dictionary, and COOL:Gen Encyclopedia are used for source code management.

Data Administration for Legacy Systems

Data element control is maintained within the IDMS Integrated Data Dictionary. Data administration personnel approve requests for new data elements or alteration to existing elements. Information such as physical and business name, size, and description is captured and maintained in the data dictionary. As the various components of the application are developed (copybooks, records, maps, databases, etc.), additional information is automatically recorded in the dictionary. Queries can be performed against the dictionary for impact analysis or informational request. Naming standards exist for naming components (elements, records, files, JCL, programs, etc.) within an application system. Components are periodically checked for conformance to standards.

Database Administration

Database administrators are primarily concerned with the day-to-day, hands-on administration of the Database Management System and the data it contains. Physical data model design review, performance and space monitoring, backup and recovery procedures, DBMS software upgrade, and technical support to the application development community are examples of activities performed by the DBA staff.

Computer Assisted Software Engineering (CASE) Environment

Rural Development is using the COOL:Gen CASE tool to develop new and reengineer existing systems. COOL:Gen is a full lifecycle development tool containing many features, from requirements documentation and model management to code generation. The tool captures and maintains information and operates from its own repository (encyclopedia). A separate set of standards has been developed for systems created using this tool. Service Center standards have been or will be incorporated into these standards.

COTS Systems

The vendors maintain COTS systems. Rural Development does not gather metadata information on these systems but relies on vendor-supplied documentation. Vendors are not required to modify their systems to meet any of our established standards. Normal operational support will be provided for these systems, just as for systems developed by Rural Development personnel.

1.3.1.2 NRCS

Hardware

NRCS uses a distributed model. Work is performed by Service Center staff and state-based technical experts. DOS-based workstations are networked (via dumb terminals and direct connections) to a local UNIX server. (This server is being configured as the POP-3 Mail

Server for the common network at most Service Centers and provides CCE backup, DNS, and print server capability.) Some partner organizations with personnel located in the Service Center have contributed additional machines and equipment (such as a plotter).

Software

NRCS conducted a reengineering study, Future Directions, to strategically redefine how they achieve the agency mission. In line with this plan, NRCS is currently working with the SCI to rewrite pieces of their legacy application, the Field Office Conservation System (FOCS), and has a plan to transition away from their legacy systems. Applications running on NRCS hardware include: FOCS, Prelude, POP, Office Automation, state-by-state engineering programs (i.e., hydrology), and GIS. A summary of NRCS hardware and software is shown in **Figure 1.3-3.**

Hardware	Software	Installed
Networked UNIX Server	FOCS. Word processing. Process-oriented engineering and conservation planning software. Reengineering pieces the application in a "tool-based" manner.	
Networked Windows-based PCs in Service Center	Office Automation Miscellaneous engineering and geospatial.	Continuously
Standalone Windows-based PCs (provided by NRCS partners such as Soil Conservation District)	Geospatial applications and other engineering software.	Various

Figure 1.3-3. Summary of NRCS Hardware and Software

Data

NRCS uses SQL-Server in conjunction with Microsoft Access, Oracle, and Informix to access data for the Public Access Server, and once deployed, it will access data for the Customer Service Toolkit. PLANTS (Plant Information Database) is stored on a combination Oracle, Informix, Access, and RBase platform. Access is used to store data for Workforce Planning and Soils Explorer.

AMIS uses Oracle to house its data; Natural Resource Gateway uses Oracle and Informix. Various components of Informix (Informix On-Line, Informix 7.0 SE, and Informix SE) are used to store data for FOCS, NASIS, NRIIS, and HU/WQ. GRASS, custom db, and V-SAM files host data for GRASS, SWCH, and MIDAS respectively. **Figure 1.3-4** outlines the NRCS applications, data and estimated life span.

Application Name/Acronym	Remaining Life	Database	Access Control	Database Size
Customer Service Toolkit	10 yrs	SQL-Server, MS Access	User ID	1 GB per site @ 2500 sites
Public Access Server	15 yrs	Informix, Oracle, SQL-Server	User ID	5 GB
Natural Resource Gateway	15 yrs	Informix, Oracle	User ID	1+ Terabytes
Soils Explorer	10 yrs	MS Access	N/A	650 MB per CD
FOCS-Field Office Computing System	2 yrs	Informix 7.0 SE	User ID	300 MB per site @2700 sites
NASIS - National Soil Information System	10 yrs	Informix On-Line	Secure User ID table	5 GB
NRIIS-National Resources Inventory Information System	2 yrs	Informix On-Line	User ID	1.2 GB
HU/WQ-Hydrologic Unit/Water Quality System	2 yrs	Informix SE	User ID	50-100 MB per site @ 360 sites
GRASS-Geographic Resources Analysis Support System	2 yrs	GRASS	User ID	5 MB-30 GB
PLANTS-plant information database	2 yrs	Oracle, Informix, Access, RBase	various	10 GB
SWCH - Snow, Water, Climate, Hydrology	2 yrs	custom db	web-open, user login	10 GB
AMIS-Administrative Management Information System	2 yrs	Oracle	User ID	50 GB+
MIDAS-Financial Management Information System	2 yrs	V-SAM files	User ID	
Workforce Planning	2 yrs	MS Access	User ID	0.5 GB

Figure 1.3-4. NRCS Database Application Inventory

NRCS has data resources supporting both the agency organizational structure and the business discipline structure. Field offices, state offices, regional offices, national headquarters, and specialized offices such as Plant Material Centers and Soil Survey Offices all generate data to support their managerial and program-delivery activities. Each office provides equipment to support its data storage and processing needs using agency platform guidelines. In the 3,000 agency offices, there is wide variance in the extent of data management knowledge and general computer literacy. It can be assumed that most data resources are well maintained and protected and that most data is carefully collected and validated. Other data resources do not receive the same attention. With the lack of enough skilled information technology personnel, data management is not consistently applied to office-generated data.

Nationally, the various business disciplines generate data to support particular sciences, engineering practices, conservation practices, administrative functions, and special program areas that may be national in scope and cut across all, or a subset of, agency offices. These projects generally have more resources to devote to data management functions.

There is greater attention to data management in business-discipline related systems where resources are applied to a national database or a nationally deployed system. These large systems typically have part- to full-time data management support. Vital agency resources, such as the soils databases, have multiple people assigned to data and database management roles.

Data Management Tools

The Informix database management system is available in most offices through UNIX-based machines, although it is primarily used to support nationally distributed applications. With the increased availability of personal computers, other commercial database packages, including Access, are available to support other local data storage needs.

For larger application development projects, CASE tools, such as PowerDesigner DataArchitect, are used to support data modeling and the collection of metadata about files, database tables, and individual data elements. This metadata is also shared with other agencies through the central Rochade metadata repository.

Information Technology Roles

Field-level information technology personnel tend to be concentrated in state offices. These staff members typically handle the brunt of data management duties within the state. They ensure databases and systems are kept operational, data is backed up, and security is maintained. They are not responsible for the content of the data—that is a business-area function. This example highlights the business and information technology communities' different roles.

Nationally deployed software systems are developed through the agency Information Technology Center (ITC). This center provides high-level expertise in data management to support application developers at the center and provides guidelines and standards for data management functions throughout the agency. The ITC's Data Management Team has responsibility for ensuring that data is well-modeled across a diverse set of software development projects, that data conflicts among projects are resolved, and that metadata is collected. The Data Management Team also provides training to analysts, developers, project managers, and data stewards on data-related topics. The team is responsible for establishing the standards and procedures to implement a strong agency data management process. The team also advises business-area project sponsors on ongoing data management needs and processes.

For a number of years, NRCS has participated in cross-agency data management activities under the InfoShare initiative and the Service Center Implementation project. These activities have produced many data standards and cooperation across agency boundaries.

Data Distribution

The agency maintains a center in Fort Worth, Texas, for data distribution, particularly soils-related and geospatial data. These large data sets are cataloged and made available to both agency users and the general public through a variety of media.

Other data is distributed for internal use via telecommunication networks. This data can be extracted from national and regional servers by state and local offices. Data from the soils, plants, and climate databases are available in this manner.

1.3.1.3 FSA

Hardware

FSA uses a mainframe model. All FSA Service Centers have essentially the same environment—an Advanced System 36, which is

an IBM 236 processor machine modified to run IBM's System 36 operating system. Each Advanced 36 is linked to a series of dumb terminals to support FSA staff at the field office. Additionally, in offices where AgCredit is present, FSA has 3B2 legacy machines (similar in configuration to the Rural Development 3B2s, with different software).

Software

- **Advanced System 36 Software.** Custom COBOL code with "flat file" (non-relational) databases. Each Service Center contains essentially the same software code, activated on an office-by-office basis according to the programs administered at that site. The software is updated approximately every 2 weeks (distributed by mailing disks) or as required in times of modified program delivery. Applications include: A36 Advanced 36 County (a series of applications for commodity program delivery), A36 Base SSP FC432B, System Utilities, Query/36, DisplayWrite, Language, PC Support, X.25 Sync auto FC4001.
- **3B2 Software.** Many of the 3B2 applications use an Oracle database and SQL forms for data access. Current applications include: Debt and Loan Restructuring System (DALR$), Farm and Home Plan, FmHA AgCredit, FmHA CP Bond Repayment Schedule, FmHA Engineering Fee Analysis, FmHA National Locaid, FmHA National Workaid, FmHAPracheck, FP State Office Tracking System, Management Records System (MRS) Tracking System.
- Most Service Centers have a Windows-based PC for bulletin board and Internet access, and occasional word processing (WordPerfect).

A summary of FSA legacy hardware and software can be found in **Figure 1.3-5.**

Hardware	Software	Installed
Advanced System 36. (IBM 236 processor modified for FSA to run IBM's System 36 operating system. Connected to dumb terminals and the FSA mainframe (Kansas City) through a dedicated 9600-baud modem.	Custom applications (COBOL and flat databases). Update the central mainframe on a regular basis. Also includes DisplayWrite for word processing.	19??
3B2 (Old AT&T Unix machine) with dumb- or PC-terminals. Not Y2K-Compliant—applications being moved to the A36.	Originally Farmer's Home applications before the reorganization to FSA. Applications include Debt and Loan Restructuring System (DALR$), and Management Records System (MRS) Tracking System.	1985
Standalone PC, connected to the bulletin board and web through the L/W/V. Usually one PC per Service Center.	Bulletin board. Internet. Some Office Automation.	1996-1998

Figure 1.3-5. Summary of FSA Hardware and Software

Data

FSA legacy application inventory is depicted in **Figure 1.3-6** along with the type and size database required for each, and their estimated life expectancy.

Application Name/Acronym	Remaining Life	Database	Access Control	Database Size
Cotton Loan Management System (CLMS)	3 years	VSAM/KSDS	User ID/Password	1.027 GB
National Internal Review (NIR)	3 years	Prelude	User ID/Password	
CORE Accounting System	11 years	DB2/VSAM	User ID/Password	6.0 GB
Cybrarian	4 years	N/A	User ID/Password	N/A
Cash Collections	8 years	IDMS/Indexed	User ID/Password	IDMS 392 MB
Farm Credit Monthly Management Report (FCMMR)	1 year	ISAM/VSAM	User ID/Password (ACF2)	200 MB
Executive Information System (EIS)	RD owned system			
Environmental Quality Incentives Program (EQIP)	10+ years	Indexed/Tape	User ID/Password	
Financial Management System (FMS)	4 years	IDMS/VSAM/Tape/PC	User ID/Password	IDMS/13.491 GB
ASCS Budg & Appropriated Fund Accntg Sys(ABAFAS)	4 years	CICS/VSAM	User ID/Password	IDMS/4.391 GB
Check Accounting System (CAS)	4 years	IDMS/Tape/Disk	User ID/Password	
Check Writing System	8 years	Indexed	User ID/Password	
Cash Receipts System	8 years	IDMS/Indexed	User ID/Password	IDMS/392 MB
Automated Claims System (SCOAP) (ACS)	8 years	Indexed	User ID/Password	
Common Receivable System (SCOPPS) (CRS)	8 years	Indexed	User ID/Password	
Central Claims Data Base System	4 years	IDMS	User ID/Password	
Receivables Reporting System	2 years	IDMS	User ID/Password	
Concentration Banking System (CBS)	8 years	Tape/Disk/Indexed/ IDMS	User ID/Password	IDMS/219 MB
Office of Economic Opportunity System (OEO)	8 years	Tape/Disk	User ID/Password	
Federal Assistance Awards Data System (FAADS)	8 years	Tape/Disk	User ID/Password	
Data Control System (DCS)	8 years	Sequential/Disk	User ID/Password	
Credit Reform Accounting System (CRAS)	4 years	CICS/VSAM	User ID/Password	
Assignment/Joint Payment System	8 years	Indexed	User ID/Password	
Assessment/Promotion Fee System	8 years	Tape/Disk	User ID/Password	
County Office Administrative Expense System (COE)	8 years	Tape/VSAM/Indexed	User ID/Password	
County Office Work Measurement Program (COWMP)	8 years	Sequential/Tape/ Indexed	User ID/Password	

Figure 1.3-6 FSA Database Application Inventory (Page 1 of 4)

Application Name/Acronym	Remaining Life	Database	Access Control	Database Size
County Office Fund Allocation System (COFA)	8 years	Sequential/Tape/ Indexed	User ID/Password	
USDA/ASCS Food, Feed & Seed Facility System	8 years	Sequential/Tape/Disk	User ID/Password	
General Sales Manager (GSM) Credit Guarantee	8 years	GSM/CA/IDMS	User ID/Password	IDMS/2.585 GB
General Sales Manager (GSM) Credit Sales System	8 years	VSAM	User ID/Password	
General Sales Manager (GSM) Title I/Title III, PL-480	8 years	APLUS/CA/IDMS	User ID/Password	IDMS/1.508 GB
IRS Reporting System (CCC-1099-A)	8 years	Tape/Disk/Indexed	User ID/Password	
Direct Deposit System	8 years	Indexed	User ID/Password	
Payment Control System (PCS)	8 years	DB2/Sybase/Windows	User ID/Password	DB2/514 MB, Sybase/1.408 GB
Catastrophic Crop Insur. Reconciliation Sys (CAT MF)	2 years	IDMS	User ID/Password	IDMS/3.307 GB
Price Support Loans System	8 years	Indexed	User ID/Password	
Disaster Annual Program Reports	8 years	Indexed	User ID/Password	
Automated Cotton Reporting System (ACRS)	2 years	KSDS Files/VSAM	User ID/Password	5.536 GB
Flue-Cured Tobacco Quota & Allotment Systems	8 years	Tape/Indexed	User ID/Password	
Burley Tobacco Quota Systems	8 years	Tape/Indexed	User ID/Password	
Other Tobacco Allotment Systems	8 years	Tape/Indexed	User ID/Password	
Importer Tobacco System	8 years	Tape/DB2	User ID/Password	DB2/251 MB
Tobacco Loan Association Automation System (TLAAS)	8 years	Distributed/CS/DB2/ Sybase	User ID/Password	DB2/2.36 GB, Sybase/.22-1.2 GB
Producer Payment Reporting System (PPRS)	8 years	DB2	User ID/Password	DB2/12.78 GB
Peanuts—SCOAP	8 years	Tape/Indexed/ Sequential	User ID/Password	
Wool and Mohair System—SCOAP	1 year	Tape/VSAM/Indexed	User ID/Password	
Dairy Refund - Payment Program	8 years	Tape/Indexed	User ID/Password	
Former DAPA (now EPAS) Reports	8 years	Tape/VSAM/Indexed	User ID/Password	
Conservation Reserve Program (CRP)	8 years	Tape/Indexed	User ID/Password	
Conservation System (Statistical Report)	8 years	Tape	User ID/Password	
Conservation Reporting & Evaluating System (CRES)	8 years	Tape/Indexed	User ID/Password	
Production Adjustment Enrollment Systems	8 years	Tape/VSAM/Indexed	User ID/Password	

Figure 1.3-6 FSA Database Application Inventory (Page 2 of 4)

Application Name/Acronym	Remaining Life	Database	Access Control	Database Size
Production Adjustment Common Management Systems	8 years	Tape/VSAM/Indexed	User ID/Password	
Producer Name & Address System	8 years	DB2/Tape/Indexed	User ID/Password	DB2/10.29 GB
Producer Name & Address Subsidiary Files	8 years	Tape/VSAM/DB2/ Indexed	User ID/Password	DB2/4.35 GB
Production Adjustment Payments System	8 years	Tape/Index/Disk	User ID/Password	
Payment Limitation System	8 years	Tape	User ID/Password	
PA System Acreage Reporting & Compliance Systems	8 years	Tape/Indexed	User ID/Password	
Cooperative Marketing Association System	8 years	BBS/Tape/Disk/DB2/ Sequential/Indexed	User ID/Password	
1990-1995 Disaster Program Payment System	8 years	Tape/Indexed	User ID/Password	
1993 Disaster Program Payment System	1 year	Tape/Indexed	User ID/Password	
End-of-Year Process	8 years	Tape/VSAM/DB2	User ID/Password	
Production Adjustment Special Projects	8 years	Tape	User ID/Password	
LFP/Disaster Reconciliation	8 years	Disk	User ID/Password	
Risk Management-Noninsured Assistance Program (NAP)	8 years	Tape/VSAM/Indexed	User ID/Password	
Risk Management-Catastrophic Coverage Program (CAT)	8 years	Tape/VSAM/Indexed	User ID/Password	
Grain Inventory Management System (GIMS)	8 years	IDMS	User ID/Password	15.852 GB
Cotton Inventory Management System (CIMS)	1 year	IDMS	User ID/Password	750 MB
Upland Cotton Domestic User/Exporter Sys (CUMC)	8 years	IDMS	User ID/Password	1 GB
Miscellaneous Commodities Inventory Sys (MCIS)	8 years	IDMS	User ID/Password	1 GB
Centralized Disbursement System (CDS)	8 years	IDMS	User ID/Password	902 MB
Canceled Cotton Bale System (CCBS)	8 years	IDMS	User ID/Password	13.937 GB
Processed Commodities Inventory Mgmt. Sys (PCIMS)	8 years	IDMS	User ID/Password	39.652 GB
County Operations Reviewer Program (CORP)	8 years	Indexed/Direct	User ID/Password	
County Farmland Value Survey	8 years	Indexed	User ID/Password	
County Data File Upload	8 years	DB2/Indexed	User ID/Password	
Relocation Income Tax Allowance (RITA)	8 years	Indexed	User ID/Password	
Configuration Management System (CMS)	8 years	Indexed	User ID/Password	
County Combination/Decombination	8 years	Indexed	User ID/Password	

Figure 1.3-6 FSA Database Application Inventory (Page 3 of 4)

Application Name/Acronym	Remaining Life	Database	Access Control	Database Size
Amortization Schedule	8 years	Indexed	User ID/Password	
Special Support Applications	8 years	Sequential	User ID/Password	
Livestock Feed Program (LFP)	8 years	Indexed	User ID/Password	
Automated Information Management (AIM)	8 years	TSO/ISPF	User ID/Password	
Disk Space Management	8 years	Indexed	User ID/Password	
Common Routines	8 years	Sequential	User ID/Password	
Work Application Reporting System (WARS)	8 years	Sybase	User ID/Password	Sybase/158 MB
Transmission Control, CSF, Network Management System , BBS/FTS EMAIL, Bundle Control System	8 years	Sequential	User ID/Password	
System/36 Equip Purchase/Transfer Projection Model	8 years	MVS VS	User ID/Password	
Personnel Resource Projections System	8 years	AS	User ID/Password	
Program Loan Accounting System (PLAS)	3 years	IDMS	User ID	15 GB
Guaranteed Loan Accounting System (GLAS)	3 years	IDMS	User ID	727 MB
Resource Management System (RMS)	3 years		User ID	
Debt and Loan Restructuring System (DALR$)	3 years	Prelude/Oracle	User ID	
AgCredit	3 years	Prelude	User ID	
Management Records System (MRS)	3 years	Prelude	User ID	74,000 avgsite
Coordinated Assessment Review (CAR)	3 years	Prelude	User ID	
Farm Automated Record Management System (FARMS)	3 years	Access	User ID	50,000 bytes/site
Farm and Home Plan (FHP)	3 years	Oracle	User ID	581,000 avg-site
Loan Application Reporting System (LARS)	3 years		User ID	
State Office Loan Application Rptg System(SOLARS)	3 years		User ID	
Loan Resolution Task Force Systems (LRTF)	2 months	Paradox	User ID	
Appraisal Software	3 years	Excel	User ID	50,000 bytes/site
Emergency Jump Team Software	1 year	FoxPro	User ID	
Cotton Receipts Tracking (CRTS)	3 years	VSAM/KSDS	User ID/Password	3.071 GB
Duplicate Bale System (DBS)	3 years	VSAM/KSDS	User ID/Password	1.027 GB
Cotton Warehouse System (CWS)	5 years	DB2	User ID/Password	4.7 MB
First Handler System (FHS)	1 year	VSAM/KSDS	User ID/Password	
Electronic Bid Entry System (EBES)	8 years	Sybase/DB2/SQL Anywhere	User ID/Password	

Figure 1.3-6 FSA Database Application Inventory (Page 4 of 4)

1.3.2 Legacy Connectivity

Over the past 3 years, the LAN/WAN/Voice project has installed modernized telephone systems, data communications hardware and software, and office-wide cabling/wiring in more than 2,200 offices. However, due to existing computer hardware such as the IBM A/36 and AT&T 3B2 systems and low speed modems, not all offices can fully utilize the installed infrastructure. In addition, Y2K telecommunication issues dealing with X.25 data transmissions will not be supported for FSA A/36 and AT&T 3B2s and Rural Development AT&T 3B2s cannot be used with existing X.25 telecommunications. The LAN/WAN/Voice standard protocol (TCP/IP) is Y2K compliant.

Studies and testing were recently completed that reviewed several connectivity options for the FSA System 36 to the Common Computing Environment (CCE). The IV&V report was delivered in April and was inconclusive. The report stated concerns regarding the performance capabilities of the alternatives under consideration. Additional testing has been recommended, along with consideration of application rehosting. The OCIO is utilizing outside experts to conduct a technical evaluation of this issue leading to a solution decision in early CY 2000.

Limitations in the current environment also include a direct dial rotary (DDR) that has reached capacity. At today's costs it is more cost-effective to move to a frame relay data network. This work is progressing slowly given funding and vendor limitations. Furthermore, with the delay of the Support Services Bureau, all telecommunications funding for Service Center operational costs will become an increasingly significant problem because neither the agencies nor states budgeted for such support.

1.4 Economic Justification for Change—SCI Business Case

One of the primary means of attaining Service Center goals is through business reengineering. The primary recommendations of the SCI depend on enabling technology if the business objectives are to be achieved. Gartner Group studies indicate that the most common drivers/reasons for distributed computing are the significant impacts this technology can have on reengineering business processes, increasing productivity, reducing operating costs, integrating multiple processes, improving customer service and improving business decisions. The cost savings and benefits demonstrated in this reengineering initiative result from the increased use of automation.

The Gartner Group study points out that: Process savings of 5 to 10 percent are normal when reengineering manual processes. Process saving of 50 to 70 percent are achievable when introducing enabling technology to support the business objectives. This BPR demonstrates process savings well within the 50 to 70 percent range.

The design of the integrated Service Center and the BPR implementation projects needed to achieve this are technically feasible, support core mission functions, and make sense from a management standpoint, but the argument for moving forward with project implementation must also be made on economic grounds.

The SCI has made significant progress. Teams completed four initial BPR studies that reviewed in detail the current stovepipe architectures of each partner agency. Based on the BPR studies, the SCI was able to identify a course that would lead the partner agencies to a single, common enterprise architecture. Seventeen reengineering projects were identified as vital to achieving the Service Center

goals of increased customer service and decreased cost. In an effort to justify implementation of the reengineering projects, the SCI commissioned a baseline business case. This business case is an integral part of the SCI. It presents the proposed BPR implementation projects and a strategy for forward progress, and provides management and economic justification for implementing them. The business case explains how the proposed projects address the major existing business-process-related deficiencies (or gaps) in the USDA SCI.

This initiative represents a major capital investment in information technology; therefore the SCI chartered a major economic analysis that began the process of complying with the ITMRA and other applicable departmental and Federal guidance. The economic justification for the BPR implementation projects has been presented in a benefit-cost analysis (BCA)—a technique that assists managers in making decisions regarding allocation of scarce resources. The initial SCI BCA, completed in October 1997, justifies, on economic grounds, the USDA proposed investment in implementing BPR projects and enabling IT. The OCIO contracted for an Independent Verification and Validation (IV&V) on the business case that validated the work done at that time.

This section briefly addresses the following:

- ▲ Business case findings and conclusions.
- ▲ Business case validation activities.

1.4.1 Business Case Findings and Conclusions

Economic and Management Justification for the Proposed SCI

To justify the BPR integrated Service Center design and corresponding implementation projects on economic grounds, benefits and costs were estimated, with the summary results shown in **Figure 1.4-1.**

While the results of the cost benefit analysis were favorable for proceeding with the BPR implementation projects, USDA recognized that the cost and benefit figures must be validated in a live operational environment to mitigate the risk of cost overruns and to focus critical resources to provide immediate payback where possible. Because the integrated Service Center had not been proven in actual practice, the estimates are a combination of industry standards, market prices, and estimates derived from the testimony of specialists.

1.4.2 Business Case Validation Activities

In late 1998, the SCI evaluated pilot test results for four BPR projects at two pilot sites. The team found, among other benefits, that the value of increased process efficiencies amounted to an estimated $587,000 at one site and $646,000 at the other site, primarily in terms of personnel time saved. This represents a considerable magnitude, given that these projects represent only the forerunners among a larger body of projects currently under development.

In addition, the SCI conducted a preliminary cost benefit analysis in early 1999 for the Combined Administrative Management System (CAMS), version 1. The results, although preliminary since the software is not operating in a live environment at the pilot sites, are very positive, indicating a potential to save $53 million annually, primarily in terms of personnel time, with a 156 percent internal rate of return.

Each individual project must be justified before USDA commits the resources necessary

to complete full development and deploy nationwide. The project business case will be considered as one of the factors in project reviews that will be conducted by USDA management. These project reviews will be undertaken for each project following pilot testing, for the purpose of deciding whether the project should be continued into full development and national deployment, modified, or discontinued.

Category	Dollar Amount
Cost of Reengineering	
Cost to Implement BPR Projects—The estimated total cost of resources required to implement all 17 BPR projects, including personnel compensation, travel costs, contract support costs, IT costs, GIS base and data layers, and miscellaneous costs.	$408,139,317
Additional Operating Costs—The estimated operating and maintenance costs during the entire period of analysis, 1998 – 2011, for resources required to implement all 17 BPR projects. These costs are strictly for resources that are above and beyond existing Service Center resources. Major costs include maintenance and periodic replacement of computer hardware and software; replacement, maintenance and fuel for vehicles; and maintenance and update of GIS data.	$317,321,078
Cost of the Common Computing Environment (CCE)—The estimated cost for implementing, operating, and maintaining the CCE. CCE is required for successfully implementing the BPR projects. The source of these cost estimates is the draft FEDSIM report titled Solution Candidates Benefit/Cost Analysis, dated September 1997. Since 18 possible combinations exist (six for servers, three for infrastructure), three alternatives were defined for presentation of this study - a high price alternative, a medium price alternative, and a low price alternative. These numbers are initial, and are subject to change. The incremental cost of each alternative is computed by subtracting out the Status Quo costs beginning in 2002.	
High Price Alternative (Server Alt 3A and Infrastructure Alt 3)	$1,675,870,222*
Middle Price Alternative (Server Alt 4A and Infra Alt 2)	$1,168,202,322*
Low Price Alternative (Server Alt 5D and Infra Alt 1)	$842,128,062*
*Figures represent Total Cost of Operations, not just Capital Improvements	
Total Cost to Reengineer USDA Service Centers	
High Price CCE Alternative	$2,401,330,617
Middle Price CCE Alternative	$1,893,662,717
Low Price CCE Alternative	$1,567,588,457
Process Savings	
Program Process Savings—The value of the estimated savings in personnel time resulting in improvements in program processes expected to be realized by BPR. This represents productivity gains or opportunity cost savings and should not necessarily be interpreted as budget savings.	$4,416,933,279

Figure 1.4-1. BCA Results Summary (Page 1 of 2)

Category	Dollar Amount
Administrative Process Savings—The estimated value of savings resulting in improvement to administrative processes related to the management and administration of directives, vehicle fleets, hiring, and travel. The source of estimated savings is the report produced by Reengineering Team 4 entitled Blueprint for Change, Business Case and Implementation Plan, dated June 1997.	$975,083,333
Reduction in Phone Lines—The estimated savings for reducing the number of Service Center phone lines. This savings is made possible due to administrative convergence and LAN/WAN/Voice technology.	$67,835,820
Consolidation of Forms—The estimated savings in printing and postage resulting from the consolidation of forms as addressed by the Quick Hits BPR project.	$8,663,325
Total Process Savings	**$5,468,515,757**
Net Internal Savings—The amount of savings above and beyond total costs for.	
High Price CCE Alternative	$3,067,185,140
Middle Price CCE Alternative	$3,574,853,041
Low Price CCE Alternative	$3,900,927,301
Customer Benefits—The estimated monetary benefits that are expected to accrue to USDA customers, partners, and the public as a result of reengineering the USDA Service Centers.	$773,108,880
Net Benefit of BPR—The sum of net internal savings to USDA plus customer benefits.	
High Price CCE Alternative	$3,840,294,020
Middle Price CCE Alternative	$4,347,961,921
Low Price CCE Alternative	$4,674,036,181
Internal Return on Investment (ROI)—ROI without taking customer benefits into consideration. Return on investment, as measured here, is the internal rate of return, i.e., annualized measure of the net savings divided by investment, or cost to implement. ROI is an important factor when considering between investment alternative(s) and the status quo.	
High-end Alternative	28%
Middle Alternative	34%
Low-end Alternative	38%
Total Return on Investment (ROI)—ROI with customer benefits taken into consideration.	
High-end Alternative	34%
Middle Alternative	40%
Low-end Alternative	45%

Figure 1.4-1. BCA Results Summary (Page 2 of 2)

The objectives for the pilot evaluation include collecting, recording, analyzing, and reporting on:

- Savings or increases in process costs.
- Service delivery time reductions or increases.
- Improvements in service quality.
- Benefits to customers in terms of reduced time burden.
- Other benefits to customers such as greater access to information.

In addition, the SCI will work with the project teams to evaluate project risk and lifecycle costs.

- Project Risk—The major risks to be addressed involve the dependency of each project on funding, pilot site technology, data, and timely completion of other BPR projects. For example, the wetlands project depends on the software being developed under the Customer Service Toolkit project.
- Lifecycle Costs—Includes projected cost for personnel, equipment, software, travel, contract services, supplies, and other miscellaneous resources necessary for project development, deployment, operations, and maintenance.

The SCI is taking an incremental approach to validating the 1997 business case. The projected benefits and costs for each individual project that is pilot tested will be determined and the results traced back to the 1997 business case. Any significant discrepancies between the two will be identified and accounted for. The 1997 business case will be updated by the new information, so that an SCI enterprise-wide business case will evolve and continually be refined.

USDA will monitor the evolving SCI enterprise-wide business case. The SCI will be reconsidered if the net ROI falls substantially, or if the SCI vision appears unlikely to be achieved.

1.5 SCI Status—Beginning to Bridge the Gap

Pilot testing the reengineered business processes and improvements and the enabling CCE technology is an important validation phase of the project development lifecycle before nationwide deployment. Live testing of business scenarios in an operational environment is the only way to determine if solutions make practical and economic sense and represent the right technology for the job. With this in mind, the SCI team first created a pilot architecture (see **Appendix D**) and then set out to select several Service Centers to become pilot sites.

The criteria used to select pilot sites ensured diverse office sizes, geographic location, customer demographics, and agricultural products and services. In addition, pilot sites were selected if they exhibited positive attitudes and characteristics; flexibility and adaptability; and the ability to sustain concurrent projects while balancing daily workload. The nine chosen pilot sites represent an equitable distribution of field Service Centers nationwide, both operationally and functionally.

Initially, when the first pilot site was activated in February 1998, the projects focused on validating their portion of the business case. Teams of users, business experts and developers came together to envision how business could be conducted, and prototypes of reengineered processes were deployed, trained, and tested. As well as improving business processes and applications, this year has been an exercise in integrating and

reengineering the way three diverse entities can better do business together at all levels.

The three county-based agencies have common yet distinct missions and skill sets developed over years of supporting their customers to address conservation, commodity production, disaster, and community needs. All three strive to deliver quality customer service while faced with decreased staff and funding. Reengineering and developing business processes that support critical mission areas is hindered by the fact that current Service Center staff have a varied range of exposure to enabling technology. Core training was designed, delivered, and tested at pilot sites to address diverse office automation needs. However, initial results in the piloting arena strongly indicate that training requirements must be a key consideration of all reengineering efforts.

Each agency has a set of strengths that they bring to the reengineering effort, and if the end product combines these strengths, it will exceed the sum of the parts. FSA is a leader in providing assistance to production agriculture and excels at securing its data, updating a central repository, and responding to congressional requests. Rural Development distributes and tracks massive amounts of money through programs designed to make homeowners out of people that no other systems address, as well as providing an infrastructure for rural America. NRCS develops tools to engineer environmental protection while inspiring loyal customers and promoting successful partnerships. As we move to an environment where data and resources are to be shared there is a natural concern that data will lose its integrity and agencies will lose their identity.

The SCI decided not to dictate a specific lifecycle strategy for project development, leaving each team to develop a concept to reengineer, test, and deploy. Project coordinators have focused on their business areas in a variety of ways, from reengineering the entire spectrum methodically as one unit, to reengineering program niches as agencies proposed them. Some applications were adopted from ongoing projects and reengineered to include sister agencies. The SCI status will be summarized in the following three main sections:

- Interoperability Laboratory.
- Technology Advancements.
- Security Risks.

1.5.1 Interoperability Laboratory

The projects and project coordinators now have a better vision of how the future Service Center will work. The next phase of development has focused on integrating common infrastructure and standards across projects.

The Interoperability Lab provides a mechanism to integrate business activities across projects, effect business requirements through technical architectures, and minimize the impact of integration on the Service Center sites. The Interoperability Lab achieves these objectives through four major areas of activities:

- Interoperability testing of reengineered applications.
- Interoperability testing of legacy applications for use in the CCE environment.
- Configuration management and deployment.
- Security.

Initially housed in a supply closet in Riverdale, Maryland, the objective of the Interoperability Lab was to protect the field offices from the reengineering activities as much as possible by re-creating a pilot site environment and running the applications through stringent interoperability testing be-

fore allowing deployment to pilot sites. Legacy machines were gathered, including two FSA A36s and a 3B2, a Rural Development 3B2, and an NRCS Globalyst UNIX machine—even the LAN/WAN/Voice router and hub configuration was established. In addition to the legacy equipment, a copy of the new CCE pilot equipment was installed. This simulation of the Service Center environment achieves two main objectives:

- It allows application conflicts to be identified in the lab before they affect the field.
- It allows lab personnel to re-create problems the field encounters and to provide problem resolution and second-tier help-desk support.

In August 1998, the Interoperability Lab moved, along with the rest of the SCI Team, to the Beltsville, Maryland facility. Currently sharing a 4,000-square-foot lab with three other SCI projects, the lab hosts each of the reengineered applications before it deploys to the field. Projects are responsible for ensuring their applications meet user requirements and are error free—the lab's role is to prevent conflict between projects and establish cross-project interoperability standards.

The lab is responsible for activities as shown in **Figure 1.5-1.**

Responsibility	Definition
Testing	Conducting performance conflict and throughput analysis of the BPR project applications and associated COTS to ensure interoperability.
Configuration Management and Pilot Deployment	Defining and deploying a common disk structure for servers and desktops. Controlling and coordinating the evolving Service Center configuration. Developing and managing core configuration across all CCE platforms.
Security	Preventing unauthorized access, modification, and denial of service.

Figure 1.5-1. Interoperability Lab Activities

In addition to these main areas of responsibility, the lab also provides second-tier help-desk support, technical in-house support for users and systems, technical training for USDA headquarters and IRMs, and technical coordination across projects.

1.5.1.1.1 Testing BPR and New Agency Applications

An application can be error free and meet all the project objectives and still be a failure in the field if it does not operate well with other applications in the same environment. The lab takes an enterprise view of software architecture and testing—not only does an application have to function properly on its own, it must operate with legacy, developing, and future applications.

1.5.1.1.1 Objectives

The Interoperability Lab provides enterprise-oriented, cross-project analysis to prevent conflicts between applications and to provide an efficient, optimized operating environment.

1.5.1.1.2 Methodology

The testing conducted in the Interoperability Lab begins after the project certifies that the

application meets user requirements and known errors have been corrected. The lab uses certified guidelines as a basic checklist for interoperability and adds a few other tests, as shown in **Figure 1.5-2.**

The method used to conduct these tests is as follows:

- Establish a clean test environment.
- Take a system snapshot.
- Install the application using the project installation package.
- Take a system snapshot.
- Analyze the impact of the new application on the environment (using automated tools).
- Report findings to the project.

Test Focus	Example
Hardware Compliance	Does the application operate on the CCE equipment?
Enterprise Data Compliance	Does it use the enterprise data elements?
Software Compliance	Does it use the same versions of CCE or other software that other applications are using (operating systems, etc.)?
Conflict Analysis	Will it overwrite shared system configurations?
Performance Analysis	Will the response time be acceptable or should the system's environment be reviewed with the CCE team (or the project redesigned)?
Throughput Analysis	Does the application perform well in the environment as distributed? Should bandwidth or distribution issues be evaluated?

Figure 1.5-2. Interoperability Testing Guidelines

1.5.1.1.3 Progress

Standards have been established for projects, including types and format of interoperability tests to be conducted. Testing processes have been automated as much as possible. A clean environment can be re-created in 13 minutes. Automated tools are being used to effectively identify the impacts of the application across the environment and to help anticipate when the environment needs to be reviewed before the sites are impacted.

The lab has also taught training courses for help-desk and State IRM support staff on Windows NT and the pilot configuration. The lab provides NT second-tier support for agency help desks.

Interoperability testing provides some insurance against stovepipe applications by encouraging an enterprise approach, reusability, and sharing of systems and data. Testing of early applications has:

- Coordinated usage of a common customer database by the three deployed projects.
- Prevented overwriting of system *.dll* files.
- Forced a common disk and data structure.
- Increased security on project databases.
- Reduced piloting impact on ongoing Service Center activities.

Additional benefits have been realized by the sharing of tools and lessons learned across agency Development Centers. Also, the lab has shown Development Center staff how to build more robust installation packages for an NT environment. The lab has also shared and trained the state IRM staff on the workstation rebuild process to reduce the time required to support the field in maintaining and deploying NT workstations. The lab also coordinated a

standard configuration development testing certification of CCE, Y2K, workstations, and laptops.

1.5.1.2 Testing Legacy Applications

When the pilot sites were selected, they were informed there would be some duplication of work—entering data into the new system and maintaining the existing legacy systems. The lab was given the objective to have only one monitor or system per desk. To achieve this, legacy systems must be connected to the new CCE equipment, but legacy applications also must be tested to anticipate impact on the new environment.

1.5.1.2.1 Objectives

- Find a method to provide access to the legacy systems from the new environment.
- Test existing applications for their impact on the new applications in the CCE environment.

1.5.1.2.2 Methodology

Conducting these tests is similar to testing new applications. The main difference is that many of the existing or legacy applications were designed for a DOS or 16-bit environment instead of the 32-bit CCE environment. Also, many of the existing software programs do not operate as cleanly—use memory inefficiently, etc.—and should be run in an isolated environment on the new platform. The test methodology used includes:

- Establish a clean test environment.
- Take a system snapshot.
- Install the application.
- Take a system snapshot.
- Analyze impact of the new application on the environment (using automated tools).
- Report findings to the requesting party and update the status of approved software.

Sites were asked to identify all legacy applications that they would like to run in the new environment. Priorities were requested and a master prioritized list has been created at the lab. The site is responsible for providing a copy of the software to be tested.

1.5.1.2.3 Progress

Great progress was made in the early days of testing before the new applications began their testing phase. More than 20 applications have been approved for use in the new environment. Unfortunately, legacy testing generally has lowest priority compared to the critical nature of new applications, the requirement to maintain accurate configuration, and the need to provide ongoing NT support. Legacy testing is continuing as resource availability allows. At publication, 10 legacy applications have been approved and 10 are still pending approval.

1.5.1.2.4 Test Results

The lab supports and helps implement the common e-mail implementation at the pilot sites. It is also actively working with software vendors to create access to the legacy platforms to reduce duplication of effort at the pilot sites and assist the applications in sharing and reusing existing data.

An added benefit to legacy testing is the elimination of duplicate tools or programs across agencies (e.g., Onnet replacing Pathways for all agencies).

1.5.1.3 Configuration Management and Deployment

Maintaining version control over a widespread piloting effort is a challenge. Sites are evolving at different paces due to their deployment schedules and regional strengths. Coordination and control are critical to success.

1.5.1.3.1 Objectives

- ▲ Coordinate software versions across development teams.
- ▲ Track version impacts and dependencies.
- ▲ Deploy software to the field as efficiently as possible.

1.5.1.3.2 Methodology

Configuration Management

Various projects rely on a particular version of a COTS product. For instance, at least six projects plan to use the CCE-selected GIS application, ArcView. Updating the version of a COTS product could make some projects using that product non-functional. The interoperability staff has established a configuration management plan for pilot sites (see **Appendix E**), and is using an online tracking tool to record the current and historical versions of each pilot application at each site. There is also a database of new and legacy hardware and legacy software at each pilot site (see **Appendix B**).

Deployment

The lab is responsible for deploying all approved software and software versions to the pilot sites. Currently, the lab is testing and evaluating various deployment strategies to create efficiencies, respond rapidly to deployment needs, and reduce duplication of effort. Some automated tools under evaluation are limited in their effectiveness due to the current connectivity capacity. (Most Service Centers have 28.8 modems—the pilot sites are being upgraded to 56k frame relay capacity to increase the amount of data that can be exchanged and offer the potential to use more effective distribution methods.)

GIS data is also being deployed through the lab. As data is implemented in different phases at different sites, configuration of current status and disk structure is tracked.

1.5.1.3.3 Progress

Configuration tracking is up-to-date for the data and applications deployed. A common disk structure for GIS data was facilitated across the GIS projects.

A copy of a standard workstation build was stored on each server deployed to allow rapid rebuilds of new or replacement workstations out in the field. Disaster recovery strategies are supported by workstation rebuilds, as well as by the policy of storing all information on the common server.

All agencies were trained in maintenance of the common server. A common backup strategy was developed through agency discussions of best methods. An automated backup script was created to reduce dependency on human interaction with the server at the site.

Remote administration and remote user support is being piloted from the lab using the Microsoft System Management Software (SMS) tool.

State IRMs for each pilot site, as well as all members of the help-desk support staff, have received three days of training to help maintain, support, and diagnose NT issues.

1.5.1.3.4 Test Results

Automated deployment is impacted by the size of the application being deployed and the capacity limitation between the site and the origin of deployment. Ongoing analysis will determine the guidelines for how to most effectively deploy applications of differing sizes.

Remote administration is currently functioning. Lab support staff can review configuration of a site from the lab and help to resolve issues. Additional capabilities (such as taking control of a terminal from the lab to show the user how to use an application) are currently being studied.

1.5.2 Technology Advancements

The enabling information technology required for fully integrated Service Centers includes modern data and voice communications systems, a common computing environment, and an enterprise solution to Service Center data management. The acquisition process has begun for hardware and software required for the integrated business systems necessary to make one-stop service a reality and deploy reengineered business processes. All technology installed under the SCI is Y2K compliant and integrated use certified.

1.5.2.1 LAN/WAN/Voice

The LAN/WAN/Voice project involves the installation of modern data and voice communications systems in Service Centers and state offices. The infrastructure—shared telephone systems and local- and wide-area computer networks—provides the baseline connectivity required nationwide for leveraging reengineered business processes and automation upgrades. The technology also is essential for providing offices with Internet access, an integrated e-mail system, and satellite downlink capability to enhance communications and training. Two-thirds of the Service Centers now have this important technology, which will be fully deployed this fiscal year.

The project phase of LAN/WAN/Voice technology installation in Service Centers is nearing completion. As of October 25, 1999, the project had completed installation at approximately 90 percent of the Service Centers currently in compliance with the 1994 Restructuring Plan, RD Restructuring Plan, and subsequent decisions. Additionally, nearly half of the state offices have been completed and decisions on the technology needs of non-Service Center offices have been clarified.

As of October 25,1999, the following sites have been completed:

- 2,333 Service Centers (out of 2,600 offices)
- 32 State Offices (86)
- 37 Other Offices (433)

The project has begun transitioning to a lead agency/support service bureau. FSA operations in Kansas City, Missouri, took over the installation and maintenance of LAN/WAN/Voice technology on July 1, 1999. It is estimated that ongoing consolidation and normal leasing or moves will create a demand for 250 full or partial installations each year.

1.5.2.2 CCE

The overall objective of the CCE is to implement a Shared Information System that will provide Service Center staff access to customer, program, technical, and administrative information, regardless which agency they represent. The vision is of an open systems concept under a common technical architecture supporting both the program delivery and administrative support needs of the agencies. The project has been underway since March 1997 and has accomplished several milestones toward the realization of this objective. The activities of the project can be divided into two major efforts, establishment of the technical architecture and implementation of the components of that architecture.

The CCE preliminary pilot site technical architecture is complete and being tested in Service Center sites with BPR pilot projects.

Nearly 30,000 CCE workstations have been acquired to replace agency systems that do not comply with Y2K requirements, and provide critical business functionality required for current program delivery.

1.5.2.2.1 Establishment of the CCE Technical Architecture

Pre-acquisition studies and testing include testing and modeling the alternatives identified in the Business Needs and Technical Alternatives Evaluation Study. This will lead to selection of the environment to be established as the CCE Technical Architecture for implementation. BPR pilot implementation support is provided to ensure that required CCE technology is acquired and installed in pilot Service Centers.

As part of the pre-acquisition studies and testing phase, the following activities have been completed within the process of moving toward establishing the Information Systems Technical Architecture (ISTA) for the Service Center agencies.

- The development of an initial technical architecture for the Service Center agencies as part of the USDA Technical Architecture was completed in the second quarter of fiscal year 1997. USDA-level architecture was adopted and is guiding the information technology activities of the department. The CCE project is being examined as a model for the department and being coordinated with the OCIO.

- A Capital Planning and Investment Proposal based on the BPR business case and the CCE technical evaluation was adopted as part of the USDA Investment Portfolio in October 1997. The investment proposal outlined the full costs for implementation of the Shared Information System and the CCE technology components that are needed to implement the results of BPR projects.

- A Business Needs and Technical Alternatives Evaluation Study was completed in the first quarter of fiscal year 1998. This study established the basic components of the technical architecture that would be implemented to support the Shared Information System. The study refined requirements that were understood from the business case to evaluate candidate technical solutions. From an initial complement of 19 possible solutions for application services, a final six were selected for complete costing and further analysis. A benefit-cost analysis was completed in February 1998, which narrowed the options to three with the least total cost of ownership (Windows NT servers at the county level, UNIX servers at the state level, and AS/400 servers at the state level). Additional evaluation and testing of these options has been ongoing and will serve as the basis for defining the Service Center technical architecture.

- A CCE Implementation Strategy for Fiscal Years 1998 and 1999 was developed that defined an approach for establishing the CCE, based on the availability of partner agency funds. The expected funding for the project was not provided, resulting in strategy adjustments. Instead of the full complement of technology that was anticipated to be acquired, the focus of the fiscal year 1998 and 1999 investments was altered to only replace non-Y2K compliant systems within Service Center agencies.

- Live test demonstrations of the first components of CCE alternatives were completed in April 1998. These tests evaluated solutions for the Service Centers in the areas of application servers, network

operating systems, office automation suites, electronic mail, virus protection software, Personal Data Assistants (PDAs), GIS software, server-based Relational Database Management Systems (RDBMS), workstation database software, project scheduling software, software distribution and management utilities, conferencing management software, and Internet servers. Where there was a clear leading product or solution from the test results, that product was selected for implementation in the BPR pilot sites and for use in developing prototype BPR applications. When the distinction was less clear, those categories were scheduled for further evaluation and collecting of additional business requirements. These evaluations are ongoing and will lead to the definition of the technical architecture.

- Selection of pilot site hardware and basic office automation software was completed in February 1998. The pilot sites have been equipped with the selected CCE pilot hardware and software and were fully operational by February 1999. Ongoing monitoring of the pilot sites will provide specific information on the impacts and benefits of the use of the new technologies to refine original benefit estimates. The piloting will also provide evaluation and refinement of technical solutions under actual field operational conditions.

- Establishment of a CCE integration-testing laboratory as part of the Business Integration Center was completed in May 1998. This laboratory serves as the focal point for the testing of candidate technologies to establish the technical architecture.

- Selection of a desktop GIS solution for use in the pilot sites was completed in July 1998. This solution, ESRI ArcView, has been implemented in the BPR pilot sites for further evaluation as part of the piloting process.

- Requirements for the enterprise GIS solution were collected and used to establish evaluation criteria for selection of the best implementation solution. Candidate products were tested and a final selection is pending.

Connectivity of the Service Center legacy systems is a critical component of the CCE. In particular, the current FSA IBM Advanced System 36 servers cannot be connected to the LAN/WAN/Voice infrastructure in their current configuration. Multiple IBM Advanced System 36 connectivity solutions have been pilot tested. The results of these pilots are being evaluated and an independent verification and validation (IV&V) has been completed. The objective is to reach a decision on the best solution for meeting agency business needs while building toward establishing the target technical architecture. The results of the IV&V were inconclusive, and additional testing was recommended. The OCIO is using outside experts to perform a technical evaluation leading to a decision.

- Performance modeling is being conducted to analyze the overall interaction of the various technical architecture components on the capability to meet business requirements for BPR applications. The modeling will provide a basis for comparison of alternatives in a manner that will demonstrate the impacts of differing solutions without requiring the actual establishment and physical testing of the alternatives. The interaction of the local- and wide-area networks, the location of application and data servers, the configuration of individual workstations and servers, and the management and availability of data

all will be modeled. This will serve as a major decision point for determination of the technical architecture. The candidate solutions that compose the architecture will be further evaluated using piloting before final acquisition decisions are made.

1.5.2.2.2 CCE Implementation

Implementation of the CCE has been initiated through the deployment of common workstations within the Service Center agencies. The project acquired 15,188 desktop and 1,334 laptop workstations at the end of fiscal year 1998 to address Y2K deficiencies and provide an initial component of CCE systems to begin the implementation of reengineered business processes. An additional 7,045 desktops and 4,946 laptops were acquired in FY 1999, along with 6,996 shareable printers.

For FY 2000, after the technical architecture has been established, funding and acquisition vehicles can be identified in order to address established business priorities. These priorities include: connectivity of the legacy systems; network servers for Service Centers; initial application servers to support reengineered applications, such as Human Resources and Rural Development Multi-Family Housing, that are ready for deployment; and public access servers that can support improved customer access to information on USDA programs and services.

1.5.2.3 Data Status

During fiscal year 1999 the Data Management Team (DMT) began validating an inventory of applications conducted by CCE in November 1997. The inventory of approximately 125 applications indicates that the partner agencies store data in every major Relational Database Management System (RDBMS). Agencies also store a substantial amount of data in flat files. The inventory list can be found in **Appendix C.** The partner agencies plan to manage their physical data in RDBMS(s) in the future. The Service Center Data Management Team developed evaluation criteria for relational database management systems that would support the selection of data management tools necessary for the various types of applications. The team grouped the current and future applications into the following categories:

- Online transaction processing.
- Data warehousing.
- GIS.
- Complex data types.
- Locally run applications requiring a relational database engine.

The SCI DMT is working with CCE and the partner agencies to develop the metrics associated with the legacy applications to feed a simulation tool. The simulation tool will be used to baseline the current location of data and application servers as well as assist in forecasting optimum location of data servers in the future.

1.5.3 Security Risks

As agencies begin to share data and move data to a new environment, it is key that security issues be addressed to provide the desired level of protection to USDA and customer data. Technology implementation offers both benefits and risks as unauthorized user and/or hacker attacks increase.

1.5.3.1 Objectives

- Prevent unauthorized access to and modification of USDA data and systems.
- Prevent denial of service attacks.

1.5.3.2 Methodology

A security plan and infrastructure must be created (in accordance with NIST requirements)

to protect the CCE environment and reengineered projects. Interface with agency security officers will facilitate common security policies across all three agencies.

1.5.3.3 Progress

Security is being addressed in all four levels of the architecture. A Security Risk Assessment has been completed for the SCI Integration Center (see **Appendix F**). Progress is in line with the current evolution of each layer of the architecture. Security is addressed in depth—multiple layers—as recommended in most security guidelines. SCI does not have authority to implement security measures across the Service Centers, as agencies were uncomfortable modifying current agency security measures on production legacy applications. Instead SCI security looks at end-to-end security risks but addresses only those within the new CCE and BPR environments.

Figure 1.5-3 is a summation of ongoing security activity by architecture layer. The four architecture layers identified are described in detail in **Section 2.3—Modernization Architecture.**

Security awareness training has been conducted at each pilot site as the CCE equipment is installed. Minimum security requirements for server access at different levels, common across all three agencies, have been established and implemented at the pilot sites, and training has been provided.

LAN/WAN/Voice has developed guidance and policy, certified in compliance with the Computer Security Act, ensuring appropriate analysis and actions are taken to meet requirements. The documentation is used as a model for other activities within the partner agencies. Vulnerabilities have been assessed. The project is taking actions to mitigate those vulnerabilities.

Architecture Layer	Approach and Status
Business	Projects are addressing CRUD issues: who is allowed to Create, Read, Update and Delete data elements.
Applications	▲ A security plan, maintained by the Interoperability Lab Manager, addresses the application layer security issues. ▲ A risk assessment for a sample Service Center and the Interoperability Lab was conducted in March 1998. ▲ A Certification and Accreditation Plan (in accordance with NIST guidelines) will be released in April 1999. SCI is in Phase I. ▲ A Guideline for a sample cross-agency Disaster Recovery plan for Service Centers was completed in April 1999. ▲ Security standards are being established for all projects (e.g., if sensitive data is transmitted outside of the Service Center, data must be encrypted).

Figure 1.5-3. SCI Security Activity by Architecture Layer (Page 1 of 2)

Architecture Layer	Approach and Status
Data	A standard is currently being proposed wherein data would be accessed only through central "components" instead of allowing each new project to establish its own access. Users would be assigned security roles and privileges. This method would allow more control over who is allowed at sensitive data and would limit unauthorized data viewing and manipulation while still allowing flexibility for laptop and web usage.
Technology—CCE	Security representatives from each of the agencies met to determine recommendations for the workstation and communications server security settings. These settings were implemented in the pilots and in the Y2K workstation deployment across the three agencies.
Technology—L/W/V	▲ A security plan, maintained by the L/W/V program manager, addresses the L/W/V security issues. ▲ A risk assessment for a sample Service Center was conducted in December 1998. ▲ A Certification and Accreditation Plan (in accordance with NIST guidelines) was released in January 1999. SCI is in Phase I. ▲ A Guideline for a sample cross-agency Disaster Recovery plan for Service Centers was completed in January 1999.

Figure 1.5-3. SCI Security Activity by Architecture Layer (Page 2 of 2)