GOVERNMENT FINANCE OFFICERS ASSOCIATION
THE RESEARCH AND CONSULTING CENTER

Clarke County, Virginia

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Business Operations Analysis
Business Case Development

Financial, Human Resource, and Other Administrative Systems

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INTRODUCTION

In December, 2010, Clarke County ("County") asked the Government Finance Officer's Association ("GFOA") to conduct an assessment of its business processes and supporting technology. The intent of this assessment was to address operational issues tied to perceived deficiencies in applications that support those operations. Namely, that the lack of integration across multiple systems and desktop tools was the proximate cause of process inefficiency, data errors, excessive manual efforts to manage information, and ultimately the inability to provide desired service levels to employees, vendors, and citizens.

GFOA and the County established specific goals for the Business Operations Analysis, including:

- understand current business processes at a level of detail sufficient to understand alternatives
- understand the current alignment between business and technology
- identify potential areas for business process improvement
- identify potential gaps between the organization's goals and future enterprise solutions.

To add value to the assessment, GFOA was also asked to provide an analysis of alternatives and a business case for a recommended plan of action. The business case is intended to provide the rationale for pursuing the desired solution(s) in both financial and operational terms.

To meet these objectives, GFOA conducted an on-site assessment of the applications and business processes of the County with the intention of defining alternatives and recommending a course of action to resolve operational issues with its current processes and systems. The outcome of that assessment and subsequent analysis is this report, which will highlight:

- The County's vision and major business drivers
- Analysis of the current systems
- Alternatives for the County to consider
- A recommended alternative and supporting business case

It is important to note that there are really three entities acting as stakeholders in this assessment - the County itself, the Clarke County School District, and Joint Administrative Services. For the purposes of this report, "County" typically refers to all three groups collectively. Where needed, the report specifies the entities individually.

Methodology

To complete the analysis, GFOA modified its standard "Needs Assessment" process. To obtain necessary information from the County and from various representative firms in the ERP market, GFOA completed the following activities:

Executive Visioning Session:
As part of GFOA's on-site kick-off, GFOA facilitated a discussion to obtain feedback from managers on the County's key business drivers and vision for the County. GFOA uses this information to set the overall direction for our analysis and recommendations. Our goal is to ensure that recommendations are in alignment with overall County direction.

Focus Group Sessions with County Departments:
Interviews were conducted with County departments to gain a better understanding on the use of current systems and to understand current challenges. Departments also shared critical business process requirements.

Technology Interview
In addition to the interviews of business users, GFOA interviewed the County and Schools Information Technology staff to identify the technology standards, issues, opportunities and risks related to the overall technology environment.

Market Research
To provide a basis for recommendations contained in this report, GFOA contacted a number of ERP vendors to get specific information on product offerings, implementation requirements, and price, as it related to the County's current situation.

THE COUNTY'S VISION FOR THE FUTURE

To begin the process of articulating a County-wide vision, we first need to identify major business drivers that describe conditions that the organization must target to be successful. Stakeholders offered the following:

- Eliminate department and function-specific "shadow" systems such as spreadsheets, databases, or manual reports and forms that staff use because the enterprise systems do not meet their needs
- Reduce duplicate data entry
- Simplify and standardize processes
- Reduce manual processing steps
- Eliminate multiple sources of the same data and information
- Need to provide user-friendly reporting tools
- Integrate the assessment/rate to revenue to financial reporting process
- Are current platform choices (AS/400, Linux, Open source software) the right solutions for our needs and capabilities?

These business drivers were validated with the focus groups, who added additional detail and examples.

The next part of our discussion turned towards identifying goals and objectives, or a vision of what a future computing environment should look like. This is an important step in order to ensure that recommendations and improvements are in alignment with stakeholder needs and values. During conversation, GFOA noted the following prevailing themes:

- **Focus on Governance -** The County and Schools are aware of the potential benefits of shared services between the entities, and indeed the Joint Administrative Services functions as a shared services mechanism in providing management services for both entities. Now, there is a desire to analyze and determine optimal information technology governance structures in a similar fashion. Should IT be operated separately between the County and Schools, fully combined, or combined for some functions and not others? How will IT be governed in prioritized if some or all services are shared? These are

important questions given the critical role that IT plays in supporting both planning and operational activities.

- **Process Automation -** There are many examples where automation could save significant time and produce more accurate results. Employee records and leave management, for example, are almost entirely manual, as are many processes outside basic financial transactions. Both the County and Schools would like to see more automation as a way to save time and money.
- **Best Practices -** As processes are potentially automated, there is a strong desire to investigate best practices, and to move towards process-driven rather than technology-driven operations. It is important to note that County stakeholders agreed that best practices needed to push towards consistency and transparency as well as meeting functional and regulatory needs.
- **System Integration -** Again, several examples were cited where the inability to share information across functions created inefficiencies, hampered productivity, and created errors in processing. As an example, revenue data from the Bright system must be manually rekeyed into the RDA Xpert system – there is no real-time automated interface between the two systems. However, stakeholders were careful to point out that integration needed to be flexible, and to support the County and Schools business rules. Again, both the County and Schools envision a computing environment where data can be entered once and shared across functions, saving time by eliminating duplicate work, reducing errors, and increasing transparency and consistency
- **Access to Information -** In many cases, information is known to exist, but current systems configuration or poorly understood tools makes it difficult to access and analyze that information. In many cases, staff and stakeholders rely on other departments to provide information that they feel they should be able to obtain on their own. In some cases, security and internal controls are a significant constraint to increasing access and transparency in the current environment. As a result, there are significant delays in providing and accessing information, making it difficult to manage operations. Adding to that difficulty is a multitude of out of sync data sources, which creates questions about the validity of the information. The County's vision here is simple – staff and stakeholders should have easy-to-use tools that provide immediate and secure access to the information they need to perform their job functions.

Any alternative that the County explores to resolve these issues and take advantage of opportunities will require a significant and ongoing commitment from the executive level to transform the organization. That commitment must include allocation of staff time to development and implementation of process change, willingness to explore new tools and techniques for both transaction processing and decision making, and even a financial commitment to the software tools and training that County and School staff need to perform their work at a high level. Without such executive support, the issues described above cannot be resolved, and the County's vision cannot be achieved.

Such commitment is no easy task. As in any organization, there will be competing priorities, resource constraints, changes in leadership and personnel, and any number of factors that can and do present barriers to success. There will even be pressures to abandon efforts that have been started but not finished. **To overcome those barriers, organizational leaders must remain committed to a vision of transformation.** Again, that commitment is vital regardless of the eventual paths that the County takes in addressing its business process issues.

ANALYSIS OF CURRENT SYSTEMS

In a nutshell, the County's current information systems infrastructure does not adequately support planning, operations, or reporting. To cope with this, employees have developed "shadow" systems and created additional manual processes to meet their information needs. As a result, the organization has become proliferated with systems that have limited or no integration to each other. County staff spends considerable time on manual data entry and re-entry and data reconciliation. This causes staff to spend more time managing data and less time managing their work.

In preparation for GFOA coming on-site, the County prepared an inventory of the current systems used to perform their daily activities. Exhibit 1 is a summary of the enterprise applications from that inventory (applications that support multiple departments or multiple business functions).

Exhibit 1: Clarke County's Existing Enterprise Applications

Name of Application	Platform	Purpose
Bright (BAI)	IBM AS/400	Tax and license revenue, Treasurer A/R and G/L, tax billing and management, development rights database
ESRI ArcGIS	Windows	GIS, Land Use, mapping
CAMRA (Stonewall Technologies)	IBM AS/400	Real Estate Assessment
Windoware (Superbase)	Windows	Building Department inspections and permits
Zimbra	Linux Server	Email, calendaring
Southern Software	Windows	Sherriff case management and 911 dispatch
RecTrac (Vermont Systems)	Linux Server	Program and class registration and cashiering
Xpert (Open RDA)	Linux Server/AIX	Core financials, purchasing, budgeting, personnel, leave management, utility billing
Pearson PowerSchool		School District administrative functions

In addition to the enterprise systems listed above, the State of Virginia requires the use of some function-specific systems, primarily to support reporting requirements. These systems include Health, Social Services, Courts, Transportation, Law Enforcement, Compensation Board, State Taxation and Voter Registration. Also, the School District supports dozens of different of instructional software packages, which are not included here

Included in Exhibit 1 are major systems the County purchased and implemented from software vendors for that particular business function. This list does not include the many side systems that are used to complete business tasks. In observing current systems, GFOA noticed that many processes relied heavily on Microsoft Excel to combine, analyze, and report on information from the primary systems. In some cases, staff used Excel to conduct relatively sophisticated analysis tasks using pivot tables and advanced Excel functions. This functionality however, is only

available after considerable effort by County staff to pull all of the necessary information into Microsoft Excel or a similar program.

The following provides an overall system assessment that highlights the major findings from GFOA's on-site focus group meetings and system observations. Detailed findings for each functional area are presented later in the chapter.

Major System Issues

Lack of Integration:

County staff spends an excessive amount of manual effort combining data from multiple systems to produce reports, provide decision support, and complete business tasks. A consistent theme throughout departmental interviews was the amount of required duplication of effort due to a lack of system integration. GFOA confirmed this issue during system observations. In almost all cases, staff was re-entering and then re-formatting accounting data to meet their needs.

Lack of Real Time Access to Information

Primarily due to lack of integration (see above), real time access to key information is not available throughout the County. When information is needed, staff must take the time to pull information from a number of sources and prepare reports. Additionally not all staff have access to management information. A number of staff commented that information is only available by asking someone else to provide it. Purchasing functions are particularly affected, as it is difficult to obtain the status of a purchase order without tracking it outside the system. Human Resource information is also difficult to obtain, however this is more due to lack of automation than lack of access to real time data.

Lack of Robust Reporting Capabilities

The County lacks robust reporting capabilities within its systems. Almost all reporting is done through the use of side systems (Microsoft Excel) excepting the monthly Account Manager report produced around the 10th of each month, which comes from the Xpert system. Producing reports is a very labor intensive process that makes it difficult to get information out of the system. Carryovers was one of the most frequently cited examples. CAFR (produced by the County's auditor) and the annual school report (entered on a State Excel spreadsheet) are further examples, requiring up to two months of extensive work to gather the data needed. To be fair, year end accrual processing impacts that time frame as well, irrespective of the lack of real time data or reporting capabilities.

Lack of Appropriate Controls

Many participants expressed frustration that budgeted funds and individual transactions could essentially be coded to different accounts or departments at will by others, because financial systems do not possess adequate controls or audit functions. Whether real or perceived, there is a strong feeling that the system lacks controls and commitment reporting to allow managers to adequately manage their budgets. The result is that managers are not convinced that their monthly reports are accurate, and they have little idea where they are against budget. By the end of the fiscal year, managers are conserving funds to protect themselves against going over budget, resulting in a high level of carryover activity and missed opportunities.

No Workflow

Many processes rely on manual processes or side systems. There is little to no built in workflow to automate business processes. For example, Treasury uses the Bright system and assessment

data and tax rates to calculate revenue, which is then passed to accounting staff for manual entry into Xpert. In another example, applicant data is manually reentered to create an employee file, and employee certifications and training are tracked in another spreadsheet – there is no single workflow process to manage employee records.

Analysis by Functional Area

GFOA conducted functional interviews with County and School staff to gain an understanding of current system and process issues. The focus group sessions lasted about 90 minutes each, and focused on topics such as:

- What are the key business processes of the group, and which are high, medium and low priority
- What information is needed to accomplish the goals of those processes
- What tools/systems are used to provide that information
- How well do the tools/systems do that
- What issues and opportunities are present within the function
- To what degree do staffing and organizational issues impact the function

Key business processes and issues/opportunities with systems dominated most of the discussions, which were well attended with thoughtful commentary from a broad perspective. Below is a short analysis of each functional area that GFOA met with during on-site focus group meetings.

Finance and Administration

Summary

The primary accounting system is the Xpert system from Open RDA, although the Bright system for revenue was discussed in this group as well. As with most groups, Excel plays a prominent role in both transaction processing and information tracking, and is a primary source of data and reports.

This group highlighted several issues, including lack of user-friendliness, lack of real time data, excessive duplication of effort through re-keying of information, difficulty with reporting and budgeting, and too much paper.

The organizational impact here is large. GFOA asked focus groups members to estimate the time spent on various activities that are directly related to system capabilities. GFOA then combined those estimates with its own observations, and concluded that approximately 120 hours of non-value added activity occur in this group each month. Below are some examples:

- 10 hours on reconciliation and syncing of systems (this can actually go significantly higher during budget and annual reporting cycles)
- 40 hours on Excel spreadsheet functions that are required due to lack of system functionality, especially in personnel budgeting for the Schools
- 20 hours on follow up reporting needs from managers who are unable to access data or generate reports themselves
- 20 hours on management of paper processes for school billing
- 30 hours verifying data

Analysis and Recommendations
The issues discussed in this group are almost entirely related to the system, and much less so to poor processes or inadequate staffing. In fact, staff have created some very sophisticated tools to maneuver around system limitations.

Should the County move ahead in replacing these systems with an integrated solution, there would likely be nearly immediate gains in efficiency in this area through elimination of rekeying data and reconciliation activities. Deployment of reporting tools would follow a more traditional productivity curve, where there is a short term drop off in productivity followed by a long term gain in time savings.

GFOA's primary concern with new technology in this group is not the technology itself or modified processes, but change management. Users and staff will be hard-pressed to let go of spreadsheet-based tools and processes that have been developed and refined over time. A solid change management program will be critical to moving this group forward with any new software that the County may elect to pursue.

Purchasing, Accounts Payable, Fixed Assets, Vendor Maintenance

Summary
Xpert and Excel are the primary supporting technologies for this group. It is important to point out that JAS staff can use Xpert to process payables, but department staff and account managers have limited to no access to that system and information. Similarly, Purchasing staff are able to generate and manage PO's, petty cash, etc., but department staff and account managers again have limited or no access to these systems.

As a result, staff are forced to create numerous spreadsheets to track expenditures. Over time, these become out of sync with Xpert as account code changes and error corrections are made on individual transactions in Xpert. GFOA estimates that this issue alone accounts for 150 to 200 hours of non-value added reconciliation time across the County and Schools. Maintenance is required to track expenditures at the building level, which requires yet another set of spreadsheets, adding up to another 120 to 150 hours of non-value added activity.

While lack of access to the system of record is an issue, this group also mentioned that lack of real time integrated data was a problem as well. Purchasing and all departments are forced to keep spreadsheets to track purchase orders that are in process because the system cannot tell them up-to-the-minute status of purchasing and payable transactions. Related issues include:

- Cannot prepay for services or events, sometimes forcing the payment of fees for late payment or late registration
- Can only process payments twice per month
- Difficulty tracking vendor demographics
- Inability to quickly respond to vendor calls – there is no or limited access to order history
- Commitment tracking is entirely manual
- There is no interface between receipts in one system that are to be applied to expenditures in another. For example, if a percentage of School building use fees are supposed to be allocated to maintenance activities, then that is either not tracked at all or tracked entirely manually outside the system. The Sherriff's office reported similar issues.

There are also significant process-related issues in this area. Vouchers can take up to a week to process, and staff have been known to physically walk paperwork through the building to expedite signature approvals. Interoffice mail is used to move forms between process steps,

which is slow and not always reliable. There is a large amount of last-minute invoice processing immediately prior to check runs, which introduces the possibility of further errors. There is widespread confusion about what is required for small fixed asset purchases.

Analysis and Recommendations
While integrated technology would certainly help alleviate excessive manual effort in this area, it would benefit even more from process improvement and automated workflow. Simplifying business rules and processes, then deploying automated workflow tools would resolve the vast majority of issues that this group is dealing with. Once they have become acclimated to those tools, the County and Schools would likely see significant improvement in vendor relations, timeliness, and accurate reporting.

Assessments, Accounts Receivable, Cashiering, Banking, Utility Billing

Summary
Parks and Recreation uses a department-specific system called RecTrac (Vermont Systems) which is a popular package in local governments for Park and Rec program management. County staff using this system expressed a high degree of satisfaction with it. CAMRA is used for assessments, and there is an interface from it to the Bright system that appears to be working well. Bright is used for tax, fee, and license revenue tracking. Xpert is used for Utility Billing, and there are numerous spreadsheets for grant management, monthly reconciliations, and information tracking.

The largest issue in this group is simply lack of system functionality. Users cannot see each other's notes on a given parcel, transaction, or individual, and there is no planning function for out dates (activities that need to occur within a certain amount of time from a given transaction date). Staff reported that the "green screen" nature of the personal property part of the system was difficult to use, and it can sometimes be difficult to track more complicated transactions, such as applying grant funds to multiple areas. Similarly, the system reports provided by the Bright software are sometimes difficult to interpret and do not meet many user needs.

The Utility Billing module is a bit more problematic, as the system works on a modified accrual basis while Treasury is on a cash basis for accounting. This tends to add time to the reconciliation process. Users cannot see property owner information when they need it, which also adds time to processing bills and payments. Finally, the system is driven off a group of tasks that must occur in a certain order and timeframe at the first of each month. If any of those steps are missed or done improperly, this can create significant issues in reconciliation.

Schools have their own software for managing transactions at the building level, but there is no automated interface to Treasury. If staff need to generate a report or need other information (outside of School Activity Funds), they must contact Treasury to get it.

Analysis and Recommendations
The revenue modules and systems are generally more responsive and less problematic than on the disbursement side, but an upgrade in functionality would definitely benefit staff. Utility billing and reporting would see the most impact, but integrating the individual receipting processes with a central accounts receivable/general ledger module would be beneficial to all parties as well.

In terms of time and dollar savings, there is perhaps 20 to 40 hours of non-value added activity occurring in this area each month, largely from manual rekeying of data due to lack of integration, some additional reconciliation steps, and reporting.

Payroll, H/R, Applicant Tracking, Leave Mgmt, Benefits Admin, Retirement

Summary

Functions in this area are almost entirely manual or on spreadsheets with the exception of payroll processing, which is done in an Xpert module. In some cases, state processes or software is accessed (retirement, pension, state compensation board). One other exception of note is that the Schools use the AESOP system for leave management and substitute teacher functions.

The payroll process (time entry, validation and error correction, pay generation, and reporting) is cumbersome at best, requiring several days to gather paper, two days to key in data, time and other transactions, and three days to actually generate the payroll. Most of this is accomplished by a single individual.

Leave transactions are handled in Xpert as well, but do require some manual intervention. The Schools handle leave within AESOP, but then this is rekeyed in to Xpert. The County manages leave and leave liability on an Excel spreadsheet. It is suspected by staff that there are significant errors in leave liability calculations, although it is virtually impossible to prove without an automated system to provide such an analysis.

Although Xpert manages some position control and benefits data, applicant tracking, hiring, and employee records are all entirely manual and are not consistent across the County. Social services uses a state-provided program, schools have various programs to manage employee records, and the County does it on paper and spreadsheets. Although transaction volume is low in these areas, there are major concerns about the quality of the data and the amount of time spent creating and validating it. GFOA estimates that about 60 to 80 hours of time each month could be saved through increased automation of Human Resource functions.

Analysis and Recommendations

In GFOA's opinion, this area presents the greatest need and potential benefit for the County. In addition to savings from automating manual functions, the County is exposed to a high level of risk due to the lack of reliable employee data and automated personnel processes. Should the County face an employment related legal issue, there is significant risk that required data would either not be available, or would be found inaccurate. The inability to accurately calculate leave liability creates a clear financial risk, and it is likely that further investigation would find additional financial risks.

Payroll processing could likely be shortened by two to four days with more advanced software, and employee self-service functions could save an additional two to four days of time each month.

Finally, it should be noted that the County's use of older technology and reliance on manual processes and spreadsheets does have an impact on hiring and retention. It will become increasingly difficult for the County to attract and retain quality staff if systems and tools are not updated. This is not to say that the County should strive to always have the best available software at any price, but investment in tools and processes can have a positive impact on managing labor costs.

Fleet, Work Orders, and Inventory Control

Summary

School bus maintenance is scheduled and tracked manually, as are inventory and supplies. Route scheduling is automated through software from Trapeze, and work orders will be managed

through SchoolDude facility maintenance software. It is hoped that SchoolDude will be eventually be used for inventory tracking and energy management as well.

Non-warranty work on buses could be reduced if the County purchased diagnostic equipment that would eliminate the need to go to Highway Motors for such work. Costs for this are estimated at $3800, although there has not been an analysis of expected savings over time from such a purchase.

The route scheduling software is problematic, as there has been little training on it and the system itself is not user-friendly. Staff are considering investigating alternatives and determining costs to make a budget request.

SchoolDude replaces an entirely manual work order system, and should allow for better closeout procedures, improved communications, generation of preventative maintenance schedules, and support for a host of other maintenance functions. Although inventory tracking will also eventually move to SchoolDude, Maintenance staff keep as little inventory as possible because they can get materials and supplies fairly quickly.

Energy management systems are unique to each building, including the new high school. About one day per month could be saved on copying and faxing if the County were to pursue a unified energy management solution for all buildings.

Facility scheduling is a largely manual process. Once school or County approval is received, Maintenance ensures that light, heat and custodial services are arranged. Schools and County have their own requirements for employee staffing for such uses.

Security systems use camera and DVR technology with motion detection, all of which are working relatively well. There is a need for a regular maintenance schedule and a backup plan for this equipment, and there is some desire to increase camera coverage to buses and other facilities.

Analysis and Recommendations

The introduction of SchoolDude should hopefully resolve the largest operational issue here, which is simply automating a highly paper-intensive manual process for maintenance activities. Time savings here could be applied to increased planning and more effective scheduling of preventative maintenance work, which would benefit both the County and Schools in the long run.

Enterprise software such as an ERP system will also feature work order and inventory modules, but such modules will likely be more expensive and potentially less functional than what Maintenance has now. Unless integration of work orders with financial reporting becomes a larger issue, it may make sense for the County to leave this area out of scope for an initial deployment of any ERP system.

Information Technology - Infrastructure

Summary

For Information Technology (IT), GFOA focused more of the discussion on the infrastructure, organization, staffing and processes that support functional operations, and less on the operations themselves.

The County and Schools IT functions appear to have a good working relationship with some shared functions and infrastructure. The County manages about 80 desktops and laptops (including the Sheriff's department) and Schools have about 1200. The County's data center has seven servers not including the Sheriff's server. The Schools have about 25 virtual servers with a domain controller at the high school. A fiber optic backbone connects all the County and School facilities, with the exception of one elementary school served by a fractional T1 line. The County and Schools also share a storage area network (SAN).

Desktops and laptops in both the County and Schools are out of date, with the County striving for a four year replacement cycle with an actual replacement cycle of up to six years or more. The Schools do not have a formal replacement schedule, but the desktop/laptop environment is out of date there as well. The impact to the County is that while these machines are more or less still functional, they are slower, do not support all user needs, and take more time to maintain and service. Similarly, peripheral devices such as printers are older and require additional time for maintenance and service activities.

In terms of support, the County has a much smaller user base, and is able to provide desktop and user support on a fairly informal basis. The Schools use a program called TrackIT for help desk management. Because of the larger user base and heavier Internet usage, coupled with older machines, the Schools have more issues with viruses and other malware than the County. Also, the instructional environment is unique, and the Schools sometimes struggle to efficiently maintain both instructional and administrative environments without impacting operations.

Staffing of the IT function at both the County and Schools is largely focused on system administration tasks and desktop/user support. There is little planning, business analysis, or application development activity, with vendor support being used for at least some of those functions.

There is increasing demand on IT staff as individual departments and schools add technology to their operations. In these cases, purchase and installation of even small packages creates a support need within IT, and as the level of such activity increases, IT staff find that their role is largely focused on support. Schools have designated teacher positions to assist with technology support, but there is virtually no time allotted for those support activities. The result is increased demand on the central IT staff, as there is virtually no assistance available at the building level.

For enterprise applications, the Bright system is the most difficult to support because of the AS/400 platform. Printing interfaces are notably difficult to maintain. The Xpert system is Linux-based, but is poorly architected from an old DOS structure. The impact to the County is that the Xpert system cannot scale very well (i.e. add users or functions) and probably needs to be rewritten.

The Schools use AESOP for substitute tracking and leave management, and the biggest issue here is lack of integration with other systems. Zimbra supports email and calendaring, with archiving of emails being the biggest concern. Other enterprise applications include the County website, which is supported by IT for content as well as site maintenance. The Schools have their own web server and several websites, although they are trying to consolidate some of these. Again, IT provides most of the support for these websites, as users either do not have the administrative training required or have forgotten it.

Analysis and Recommendations

The IT function at the County and Schools is typical of local governments, in that there is a reasonably stable infrastructure with older technology at the desktop, supported by staff who are more focused on maintenance than planning or analysis. Growth in department-specific applications puts additional strain on IT resources for support and integration, and takes the IT function further away from playing a more strategic role in the organization.

Should the County and Schools pursue an ERP solution, the infrastructure (data centers, servers, network equipment, fiber connectivity) will likely be sufficient to support a new platform. However, there may be a need to take an inventory of desktops, laptops and printers to ensure that end users have sufficiently new machines to take advantage of new software.

From a staffing perspective, an ERP solution would likely be vendor supported unless the County and Schools are willing to add permanent full-time staff. In fact, the County and Schools may wish to investigate hosted solutions as a way to mitigate the impact of new software on IT staff. Regardless of ERP direction, the County and Schools should understand that current staffing levels are basically adequate for day to day support, but very little beyond that. As such, there is potential to significantly increase the value of IT to the entire County if additional positions can be approved in IT. This is discussed further in the next section.

Information Technology - Governance

Summary

As discussed in the executive summary to this report, there is keen interest in finding an optimal County-wide IT governance solution, given that the absence of such a governance structure is at least part of the reason for lack of systems usage in the departments and subsequent information silos and lack of data integration.

Organizationally, there is a Technology Services Collaboration Agreement between the County and Schools, dated December 15, 2008, that outlines the joint creation of an Information Technology Oversight Committee, and the role that such a committee should play. The agreement recognizes that there is efficiency and cost savings in collaboration, while also recognizing that there is a need to retain independent oversight for some applications. IT staff from both the County and Schools indicated that no such oversight committee was functioning at this point.

In terms of long range planning, the Schools have developed an IT Strategic Plan, while the County has not. The Schools plan focuses on how technology can help the School District meet its mission to maximize student learning opportunities, support teachers, and engage the community, among other items. The plan works well to outline issues, ideas for moving forward, and above all, alignment with the District's overall goals and objectives. Importantly, the plan goes into some detail regarding specific activities and projects to move the School District forward, and specific measures for evaluating progress. Overall, GFOA believes that this plan is an exemplary one, and hopes that the School District will continue to evaluate itself and update the plan on a regular basis.

In terms of systems and functions, GFOA observed that the County and Schools execute similar activities, but with slightly different measures, tools and focus. For example:

- Websites – the County and Schools each maintain their own websites, but the County tends to funnel content management through IT, while the School District tries to push content management out to the individual schools (not always successfully).
- Help Desk – the Schools use TrackIT to help manage help desk requests, while the County does not have a formal tool due to significantly lower volume of requests
- Desktop Replacements – The County has a four-year replacement cycle that is not always followed, while the Schools have no formal schedule per se. As a result, there are some desktop computers at the Schools that are as much as seven years old, and maintenance of those machines is cumbersome and time consuming.
- Computing Infrastructure – The County and Schools have worked together to jointly implement a storage area network (SAN) to support computing growth for both entities. However, the Schools have a much higher number of machines and significantly more Internet activity, and therefore are more exposed to malware than the County.

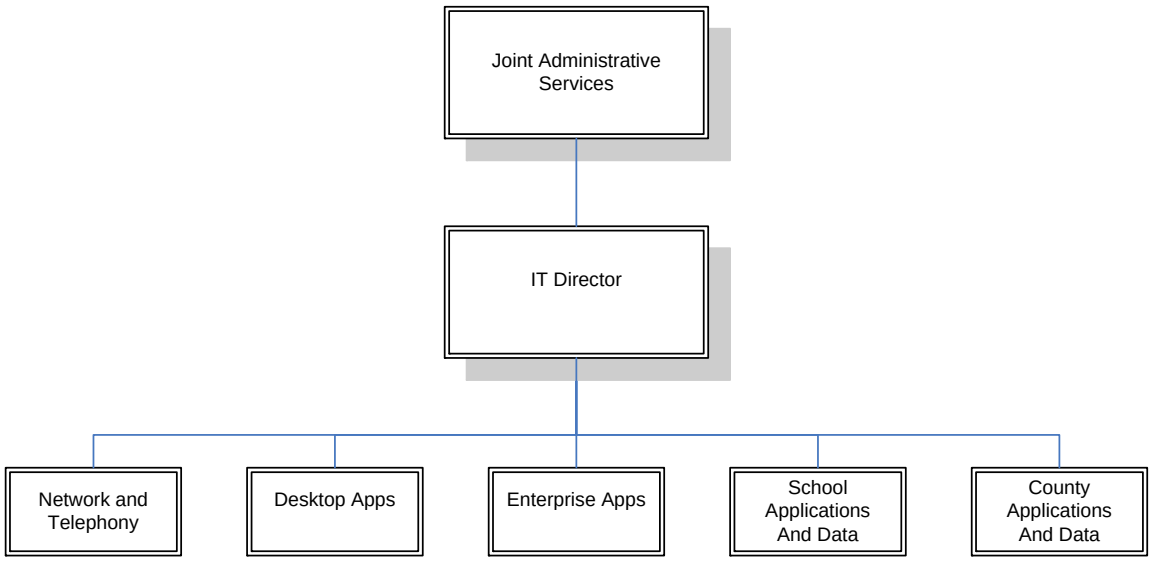
Analysis and Recommendations

In its work with schools and local governments around the country, GFOA has observed several different methods and structures for defining and implementing IT governance. Clearly, governance plans and potential structures must be reviewed and adapted for each government's unique situation, so our goal here is to define a governance structure that focuses on maximizing the efficiency of IT services in both the County and Schools, while retaining alignment with overall governmental objectives. The following considerations are crucial:

- Alignment – In a nutshell, schools and local governments have different missions. The County is a general purpose government, and the Schools, of course, are focused on their educational mission. Nonetheless, both organizations are familiar with the benefits of a shared services model for administrative functions.
- Size – The schools support a much larger employee and user base, and therefore a significantly larger number of devices, more software, and the connectivity and security concerns that come with a larger install base.
- Applications – Educational software for the classroom can be difficult to integrate into a larger, networked environment. At the same time, departmental applications at the local government level often are designed with such integration in mind.

To meet these considerations, GFOA recommends that common, non-mission critical functions such as desktop support, email, and telephony be supported jointly, and mission critical applications and data be supported by resources dedicated to either the County or Schools. All staff can report through the Joint Administrative Services to ensure equitable distribution of resources. Such a structure might look like this:

Example of a Potential IT Governance Structure



- Network and Telephony (1 FTE) **–** This role supports network connections for all County and School locations, including id/password and security support, fiber and connectivity service and support, and all telephone support (excluding emergency services and sheriff)
- Desktop Apps (1 FTE) – This role provides help desk support for all desktop applications such as email, Internet browsing, and MS Office.
- Enterprise Apps (1-2 FTE's) – This role is responsible for supporting all enterprise wide applications such as GIS, Email, any future document management applications, and an ERP system (currently Xpert and Bright). Assuming a high degree of vendor or third-party support, this role would likely involve testing patches and upgrades, coordinating vendor resources on fixes and development work, and providing input to any enterprise wide planning function.
- School Applications and Data (1-2 FTE's) – This is a systems analyst level resource dedicated to educational and other school-specific software, including PowerSchool (student information system). This role would be responsible for first level application support, and would manage vendor support as well. Additionally, this role would provide input to the overall IT planning process.
- County Applications and Data (1-2 FTE's) – Again, this is a systems analyst level resource dedicated to County specific applications, such as fleet management, law enforcement systems, work order and inventory control, etc. If the County and Schools purchase and implement an ERP system, this role would focus on those applications that interface or are integrated with that system.

GFOA recognizes that this structure is a major shift for the County, as it calls for the addition of two to four FTE's to the IT function, and that the IT function move to JAS. GFOA believes there are significant advantages to this structure:

- Current IT staffing is at a level that only allows for ongoing maintenance activity. There is insufficient staffing in IT for strategic or tactical planning, business analysis and development, or innovation in business intelligence and decision-making. Transformation of information technology into a shared services model that is aligned with overall strategies and goals will require additional staff, as indicated in the model above. In essence, the goal of this recommendation is to ensure that the IT function adds value to the organization beyond providing ongoing maintenance of hardware and software. To do that will require additional staff.
- Under JAS, the IT function will be aligned with a shared services group that already has an enterprise-wide focus. In other words, this structure leverages the work that the County and Schools have already done to establish shared services. This will prove to be effective in planning, ongoing operations, and support for the entire IT function.
- To accommodate special projects, JAS is in a unique position to shift resources between County and Schools as needed. This will maximize staff utilization and avoid over-utilization or "burnout".

Of course, there are political, cultural and organizational issues that need to be considered during any reorganization. GFOA strongly recommends that evaluation of the proposed IT governance structure allow for input from all affected parties, and that deployment of this (or an alternative) structure be conducted with great care.

GIS, Land Use, Deed Records, Inspections and Permitting

Summary

Like many local governments, the County uses ESRI's ArcGIS software for its geospatial computing and mapping needs. ArcGIS is a robust solution with a high degree of acceptance in the public sector, and generally meets the County's needs in this area.

Primary users of GIS data include the Commissioner of Revenue, Sherriff, County Clerk, Planning, and Inspections and Permitting. In general, data requests from these users are met by GIS analysts who provide requested data or maps.

Inspection and Permitting is supported by a program called Superbase, but again, lack of integration means that much of that data must be rekeyed – in some cases, multiple times.

The user experience has been generally good, and most of the issues raised concerned the need for more seamless integration of GIS-based data with assessment data, valuation and revenue data, appraisals, and other functions where GIS data is an input to calculations or transactions. Some batch and manual interfaces exist now, but do not generally meet user needs. As a result, some maps are produced several times, files sometimes cannot be found, history cannot be viewed, and there is no ability to generate an end-to-end view from all systems.

Analysis and Recommendations

Integration of GIS data with property assessments, tax bills and revenue is one of the County's documented objectives from any future automation project. Unfortunately, it is not at all clear that the marketplace has solutions within the County's budget and technical capabilities. While still worth investigating, GFOA believes that any such integration will need to be built by County staff or an outside firm to truly meet the requirements described here.

Document Management

Summary

Document Management is a broad area, as virtually all departments have some sort of system in place for management paper and forms, even if that system is simply a spreadsheet identifying locations. Although each department has needs in document management, there are unique aspects to those needs for some.

Special Education is entirely paper-based, with a spreadsheet to track rough location of certain types of documents. There is a moderate amount of frustration over the amount of paper generated, the amount of time it takes to locate certain documents or files (it can take as long as three to four days to locate a student file from several years ago, for example), and the number of lost documents that need to be recreated or searched for. Additionally, a significant amount of time is spent sending documents back and forth to the schools.

Although the schools have PowerSchool software for student records, staff records are kept manually. Staff records at the County and at the Sherriff's office are also entirely manual (see the section of this report on Payroll and HR for more information). Law Enforcement has a document tracking system for incident reports, and County Board staff use scanning and the website to reduce the amount and number of paper records.

An excellent example of needs in the document management area is in Social Services. The primary system for them is from the state, but they generate an extremely large amount of paper-based information, some of which must be kept for several years. Foster care records for example, are overwhelming the department not only due to their size, but also due to long retention requirements. At this point, the Social Services department is nearly out of storage space.

GFOA was able to view the School Board Annex where much of the paper for schools and other areas is stored. Documents and boxes of documents are inconsistently labeled, and some are not labeled at all. Retrieval is dependent on a few staff people who happen to remember where certain items were placed. Of additional concern is that some of the documents are stored next to a furnace, certainly not an ideal location for paper.

Analysis

It is difficult to measure the impact of paper on an organization, but clearly the County and Schools would benefit from increased usage of electronic document management. First, retrieval and delivery of documents could go from days to minutes with a robust system, saving perhaps hundreds of hours over the course of a year. Secondly, the County and Schools are exposed to significant risk with document management – staff reported that some Freedom of Information Act (FOIA) requests have gone unanswered because no one could locate the appropriate documents. While the County has not been adversely impacted yet, the risk remains unaddressed.

While introduction of document management software has clear and compelling benefits, the County and Schools must understand that implementation is a difficult undertaking with several complicating factors. First, realization of savings and reduced risk takes time, as it takes a great deal of time and labor to sort through documents, then scan, label and archive them according to appropriate business and state rules. Secondly, the County does not have a centralized function for records management, therefore it will be difficult to find appropriate staff to spearhead such an effort. Third, the County will need to standardize how documents are named, labeled and stored in order to truly take advantage of document management software, again requiring time and labor to organize and implement such standardization.

Finally, ERP systems have basic document management built into their workflow systems, but it is unclear how or when such a module might be implemented assuming the County proceeds with procurement of an ERP solution. In the meantime, the risks from the current records management environment continue to grow.

GFOA urges the County to consider investigating document management systems as a long-term solution to the issues raised here.

Schools

Summary

The primary student information system for the Schools is PowerSchool, which is a common system in K-12 school districts for student information, parent communications, staff management and other functions. Additionally, there are some state-supplied systems that the Schools must use. At this point, PowerSchool is used for nearly all student information needs, but users reported some issues with it:

- Reporting and query functions is not user-friendly and takes too much time to master
- Electronic scheduling from PowerSchool is modified manually, which takes a significant amount of staff time.
- Data entry for new students is onerous, and is not centralized.
- Progress towards graduation is monitored manually because the system does not track verified credits.

There is a student testing module available in PowerSchool, but staff have not had time to investigate it further or determine how to deploy it. The state provided software is apparently functional, but there are difficulties getting hardware to the right place at the right time. As a result, paper backups are sometimes needed.

For instructional software, there is a high degree of informality. It is not always clear whether new software funding should come from the IT or the instructional budget. Because of the lack of budget commitment reporting and lack of access to real-time data, school staff are not always clear as to where they stand against their budgets. As a result, they are sometimes forced to avoid purchasing instructional software for fear of budget overruns. This is highly frustrating for all the Schools. Exacerbating this issue is that there are no formal processes for investigating whether a given software package will run on the School's computing environment, what support is available or needed, what additional hardware needs might exist, etc.

Administratively, the Schools have ongoing issues with facility usage fees and processes. The process of renting a facility to a community group is managed in Excel, and a significant amount of time is spent on making sure staff are available for the event or function, and determining what services should be provided and at what cost. There is little confidence that fees charged are adequate, although there is insufficient data or analysis to determine that. It is also difficult to track what happens to those rental fees.

Student activity fees are managed through TRA SchoolFunds, which is a software package designed specifically for that purpose. Staff are generally pleased with the system, although there are some issues with security and remote access.

Excel and manual processes are used to track tuition, gate receipts at athletic events, and other single function processes. Consensus among the group was that these processes and tools generally work, but are somewhat time-consuming to manage.

The Athletic department uses Schedule Star for events, and overall is pleased with the computing tools that they use. There may be some opportunity for other departments to utilize that system.

Analysis
School computing needs are different from the County's in several respects, but two stand out. First, the unique needs of instructional computing place different demands on the information technology function, and secondly, there is a far larger user base. Nonetheless, on the administrative side, Schools experience similar operational difficulties as County departments. The lack of systems integration and lack of real-time data creates additional manual work, and creates uncertainty for decision-makers. This is seen primarily in processes that support facility usage and the purchase/installation of instructional software.

On the student information side, the Schools have a good set of tools and systems, but are hampered by the lack of time needed to expand and support their usage. Here, process improvement, especially in registration and document management, may help generate additional efficiencies.

Instructional computing needs are growing, but there is insufficient support to sustain that growth. The identification and deployment of technology in the schools has downstream effects on IT staff, other functions and processes, and creates integration needs with other systems. The Schools simply lack the staff to address those needs adequately.

Summary

Focus groups confirmed initial discussions that lack of automation, lack of systems integration, and lack of access to real time data are significant contributors to the County's lack of efficiency and productivity in business operations. Process improvement and lack of best practices in some areas also contribute to efficiency and productivity issues.

GFOA conservatively estimates that County staff expend between 350 to 400 hours per month on non-value added activities. The primary task behind this is the need to rekey data into various spreadsheets for reporting and management purposes. Other factors are time spent reconciling different spreadsheets and systems, time spent in processing manual forms and documents, and time spent working with other departments to obtain and analyze information.

The table below is intended to provide some perspective on the financial impact of non-value added time:

Exhibit 2: Impact of Non-Productive Activities

Non-Value Added Hours	Internal Hourly Labor Rate	Monthly Financial Impact	Annual Financial Impact
350	$35	$12,250	$147,000
	$45	$15,750	$189,000
	$55	$19,250	$231,000
	$65	$22,750	$273,000
	$75	$26,250	$315,000
375	$35	$13,125	$157,500
	$45	$16,875	$202,500
	$55	$20,625	$247,500
	$65	$24,375	$292,500
	$75	$28,125	$337,500
400	$35	$14,000	$168,000
	$45	$18,000	$216,000
	$55	$22,000	$264,000
	$65	$26,000	$312,000
	$75	$30,000	$360,000

GFOA believes that the financial impact of the issues discussed in this section is about $250,000 to $350,000 per year. Further, it is important to note that this is a conservative estimate. A more detailed investigation, such as time and motion studies, would perhaps find additional examples of non-value added time. It is entirely possible that the County is spending $500,000 per year in non-productive activities and tasks.

ANALYSIS OF ALTERNATIVES

The County has several options it can pursue to address the needs and issues described above. These are presented in order from least to most transformative:

1. **Status Quo:** The County could continue to utilize existing systems, with no significant additions or modifications.

2. **Optimize the Current Environment:** The County could consider combining process reengineering in combination with development of system interfaces and increased access to its current systems. This entails a significant amount of business analysis to redesign processes, design and development of custom interfaces between major systems, and resolving security issues to increase deployment of existing systems to County staff.

3. **Best of Breed Software Strategy:** The County could develop a multi-year plan to purchase and implement software packages for each functional area (e.g. financials, HR/Payroll, Work Orders, etc.) independently.

4. **Enterprise Resource Planning (ERP) Strategy:** The County could purchase and implement a fully-integrated ERP system.

This section presents an analysis of each alternative, as well as the key organizational implications associated with each. **GFOA identifies Option 4 – ERP, as the recommended solution for the County**. A detailed analysis of that option is provided later in this report.

Criteria for Analyzing Each Alternative

Prior to the discussion of the various alternatives, it is important to develop a framework by which to evaluate each of the alternatives. In order to compare, and make decisions among various alternatives, evaluation criteria must be established. GFOA recognizes that other variables and fiscal considerations can influence the evaluation process for this project. However, the following criteria are suggested as a framework for evaluating the four alternatives identified.

Ability to Address Issues and Opportunities

Previously in this report GFOA identified areas where current systems and processes presented operational issues or opportunities for improvement. It should be noted here that the management information issues and opportunities identified by GFOA are not "ideal" or "nice to have" points, but rather represent basic information that managers within the organization need to effectively deliver services and provide information required by citizens and external stakeholders. As a result this factor should be considered of critical importance in the decision making process.

Level of Risk and Potential Implications

Each of the alternatives identified involves some level of risk and potential long-term implications for Clarke County. As part of the analysis of each alternative, GFOA will discuss these risks and related potential implications. The risks identified may include risks related to the change associated with the implementation of new systems as well as the risks, or the potential implications of continuing to rely on existing systems for the completion of key business processes.

Cost

The short-term and long-term cost of each alternative is an important consideration that should be included in an analysis of each alternative. While a detailed cost analysis of all of the possible alternatives is outside the scope of this engagement, GFOA will present a discussion of the relative costs of each alternative that may be used by the County to compare the various options. This information should help County decision makers develop a ball park understanding of the financial implications related to each alternative.

Analysis of Alternatives

Option 1 - Status Quo

The County could continue to rely on the current versions of existing systems, most notably Xpert and Bright, as currently utilized for the management of key business processes. In addition, the County would continue to rely on the various shadow systems that have been developed primarily using Excel spreadsheets as well as paper records and informal undocumented processes.

Ability to Address Issues and Opportunities

As described earlier in this report, current systems and related processes result in significant operational issues and risks. County staff are able to maneuver around some of those issues to meet basic business needs through a patchwork of non-integrated software, spreadsheets, databases, manual processes, and in many cases undocumented personal knowledge and expertise.

There is no evidence that issues related to lack of integration, access to data, automated processes or best practices will resolve themselves inside the current framework. In fact, it is likely that the impact of these issues on staff and the County as a whole will likely increase. For example, paper based data will become increasingly difficult to retrieve, spreadsheets and databases will become increasingly cumbersome to use with time, and opportunities for faster and better decision making will be missed.

Further, current systems do not allow for the systematic aggregation and analysis of financial and operational data that is becoming increasingly important to the effective management of any organization. As an example, continuing to rely on existing systems will hamper efforts to institutionalize and transfer knowledge to new employees that may be hired to replace expected retirees. Dependence on shadow systems and manual processes with limited documentation for critical business processes also increases risk to the County in the case of extended absences or separation from employment of key employees or the unlikely event of employee malfeasance.

Level of Risk and Potential Implications

At a County-wide level, remaining with the status quo does not allow the County to effectively deal with risks in the inability to supply information (even if required by law), increased inability to attract and retain qualified staff, and operational decision making based on incomplete and untimely data. As processing errors and inefficiencies continue, the County will eventually face additional risks in payment errors, duplicative work, missed deadlines, and other ongoing administrative issues.

Another way to examine risks in the status quo option is to consider the lack of adequate management information and reliance on shadow systems and manual processes that are not completely documented. The County currently relies heavily on individual employees to ensure that critical business processes such as payroll, purchasing, accounts payable and budget development and control are efficiently completed within organizational policies. Much of this work is undocumented, and the County faces the risk that these business processes could be interrupted if one or two key employees were out for an extended absence or unexpectedly resigned or retired. Fragmented systems and manual processes also tend to be more susceptible to fraud.

The County also faces risks in technology obsolescence. The Xpert system is open source software, which means that code development is haphazard, is not standardized, rarely follows or implements best practices, and is difficult to integrate. While it appears that Xpert will be supported for the foreseeable future, it is not at all clear that the product will be technically enhanced to increase its value to the County. The Bright software runs on an aging AS/400 platform, support for which will eventually disappear as IBM moves customers towards its iSeries line of servers.

Cost

The immediate direct cost to the County of maintaining the status quo is minimal. The most reasonable justification for the County to maintain the status quo would be a lack of available funding to pursue other options. Even then, a plan will need to be adopted to migrate the Xpert and Bright systems to another platform within the next few years.

It should be noted that maintaining the status quo implies the continuation of $250,000 to $350,000 in non-productive time each year.

Conclusion

Maintaining the status quo does not appear to be a viable option for the County. The problems and potential problems related to the lack of integration and data access, and the continued reliance on shadow systems and manual processes are too great for the status quo to be a viable course of action.

Option 2 – Optimize the Current Environment

The County could seek to optimize the Xpert and Bright-based environment through a functional process reengineering effort that seeks to make better and more pervasive use of existing technology. This option could buy the County some time by delaying the need for new platforms for a period of time.

Ability to Address Issues and Opportunities

There are a few improvements possible within current systems and processes:

- Resolve security issues and grant access to relevant portions of the Xpert and Bright systems to users outside of JAS.
- Investigate document management systems to help relieve issues related to paper production, copying and filing. Include in this an upgrade of printing and scanning technology to assist with paper reduction.
- Investigate third-party query and report generation software that could be made widely available to users. This could eliminate some of the rekeying of data into Excel or Word for reporting purposes.
- It is possible that both Xpert and Bright have additional modules unused by the County. Consult with the vendors to see if additional automation is available to help reduce the manual effort involved in administrative processes.

Technology alone will not address the major concerns of the County. Many of the weaknesses observed during our site visit and as reported by users highlighted the need for policy and process review. Payroll processing is limited by a one-person data gathering, data validation, and data entry effort. Fixed asset tracking is poorly understood by most managers. Human Resource functions are not standardized. In these cases and many others, the County can make significant operational improvements by reviewing and modifying policies and procedures:

- Begin by collecting any existing policy and procedure documents from across the County
- Review the policy or procedure to understand its initial purpose and operational implications
- Prioritize those processes with the most opportunity for increased effectiveness and efficiency, reduced costs, or better citizen or employee service
- Use a cross-functional team to develop recommended process improvements, and obtain the required approvals for implementation

- Implement the new processes in a controlled fashion that maximizes the chance for success.

Level of Risk and Potential Implications

There is little risk in performing the steps of an optimization project, however, there are some items to keep in mind:

- This option represents a renewed commitment to the existing software platforms. As discussed earlier, there is risk of obsolescence with these systems, and it may not be in the County's best interest to make a long-term commitment to these technologies.
- The amount of staff time required to perform the steps highlighted above can be significant. As a result, operational improvements often occur more slowly and with less impact during an optimization project, delaying the realization of benefits.
- Leadership of a process redesign effort requires specialized business analysis skills that the County may not possess in-house.
- Process improvements will be limited by the capabilities of the existing systems.
- Developing custom interfaces (or contracting consultants to do so) is technically complicated and expensive, and may cause vendors to stop providing support.

GFOA believes that overcoming these challenges entails a high degree of risk and would ultimately cause the County to miss its goals and objectives. In particular, GFOA believes that committing County resources to the current software platforms carries more risk than is warranted by any possible efficiencies or productivity gains.

Cost

The cost for an optimization project is largely internal staff time, although there will be external costs if consulting assistance is required to lead or participate in the effort. Additional costs may be incurred if vendor assistance or additional modules need to be purchased.

GFOA estimates the range for these external consulting costs to be between $100,000 and $200,000, depending on the extent of approved policy and process changes, the amount of work that can be performed by County staff versus outside consultants, and the extent of retraining the user community. If external assistance is required to develop interfaces, this could add an additional $100,000 to $200,000 to the overall cost (as an example, RDA proposed $80,000 to almost $100,000 to build just two interfaces and conduct training). In total, GFOA believes that the County would need to allocate a minimum of $300,000 in order to see some benefits from this approach.

These estimates are for external costs only, and do not include costs for internal labor.

Conclusion

Given that many of the weaknesses and needs identified by GFOA are related to both business process and technology, an optimization project that seeks to revise existing processes and standardize software usage would appear to carry relatively low risk with a reasonable rate of return. However, GFOA has several concerns about this solution:

- It is likely temporary, as the technology risks will remain
- There is a lack of cross-functional business and systems analysis skills to conduct such a project

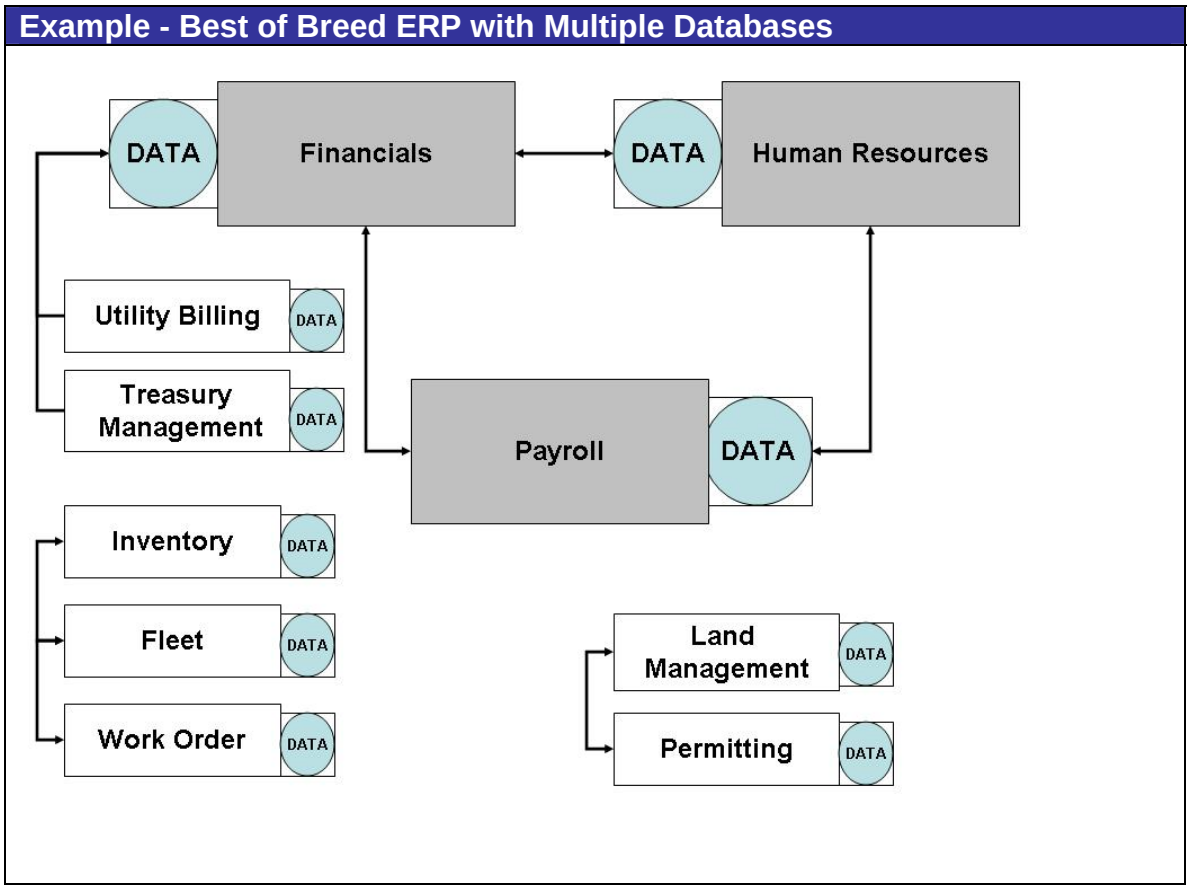
- The breadth and depth of process improvement work is large, and it will likely take years to work through the most pressing issues
- Staff availability will be an issue
- Vendor and platform experiences have not always been positive. As an example, the County had several issues with a report prepared by RDA, as their analysis was viewed as flawed in a number of areas.
- At least some of the needs for automation will not be met, especially in human resources and leave management.

Given these concerns, cost for outside resources, and the risk for missing goals and objectives, GFOA cannot recommend this alternative to the County.

Option 3 - Best of Breed Software Strategy

A third strategy that the County could pursue would be the systematic replacement of existing systems such as core financials and HR/Payroll in a sequential manner over a period of time. This approach is often referred to as the "best of breed" strategy.

Using a "best of breed" approach, administrative systems are pieced together and interfaced or integrated where necessary to approximate the organizational wide benefits of an ERP system. With a "best of breed" approach, each system stores its own data in separate databases, but each is interfaced so that information is shared throughout the entire system. A "best of breed" approach allows organizations to choose the best system for each functional area, which allows each department or functional area choose a system that best provides advanced functionality to meet its business needs. Organizationally, however, reporting still may be difficult. Because information is stored within each individual system, capabilities for querying information and reporting will not be as robust out of the multiple systems as it is with an integrated ERP system (the diagram below shows a best of breed approach). The system is also more difficult to maintain since each system is on its own patch and upgrade schedule. It also places a burden on the support organization since their knowledge needs to cover a wider array of products.



Ability to Address the County's Issues and Opportunities

If the County were able to successfully procure, implement and integrate key systems, it is likely that critical management information needs could be met. Improvements in package architectures software make it possible to integrate data from independent software packages operating on a single database platform in a relatively seamless manner. A significant number of municipal governments have successfully pursued this strategy.

Again, new software by itself will not resolve issues related to policy and process. As noted earlier, policy and process issues are as large of a contributing factor to noted weaknesses as the technology itself. In essence, replacing the technology only addresses half the problem. The County will need to adapt its processes to the new software in order to avoid expensive and high-risk software modifications. If the County is unwilling to do this, it risks memorializing ineffective procedures in the new software, missing opportunities for improvements, and failing to achieve its goals and desired outcomes.

Of particular concern with this strategy is that best of breed solutions require that IT or outside consultants build the interfaces and integration paths for the different packages. Given that one of the driving concerns of County staff is the lack of integration between current systems, this alternative has the potential to miss a major target.

Level of Risk and Potential Implications

Organizations that pursue a best of breed strategy take on the responsibility for integrating the multiple systems that result. Therefore the organization takes on the risk for completing what can be a complex and difficult task. With state-supported systems involved in many County functions, integration becomes that much more difficult.

If the IT staff at both the County and the Schools is expected to continue to perform at its current level while pursuing a best of breed approach, then the County will almost certainly require the addition of permanent IT staff. Systems analysis skills will be needed during procurement and implementation, and also for the extensive and ongoing integration work that comes with such a strategy. Programming skills may be needed as well, or a significant investment in consulting assistance if the County chooses to outsource this effort.

Cost

Initial costs for the best of breed strategy are typically in the same range as an ERP implementation, but are spread over a longer period of time. Long-term support costs may be higher for a best of breed approach as the County would be responsible for maintaining interfaces and integration points. This will likely entail recruiting and retaining additional IT staff.

Conclusion

Organizations that pursue the best of breed strategy often do so because they have unusual requirements in certain functional areas that are difficult for ERP systems to meet or when they have large and highly skilled information technology departments that are prepared to develop and maintain a best of breed system. Based upon GFOA's functional assessment, the County does not appear to have any particularly unusual or unique requirements that could not be met through an ERP system, assuming that GIS and student information systems would remain intact. Furthermore, a best of breed approach may place be excessively burdensome for a relatively small IT department. As a result, GFOA does not recommend a best of breed approach for the County.

Option 4 - Enterprise Resource Planning (ERP) Strategy

The County could choose to acquire and ERP software package that includes fully integrated functional modules in the areas of importance to the County.

ERP systems encompass the software applications that provide the ability to manage information and resources more effectively. General Ledger, Accounts Receivable, Accounts Payable, Payroll, Human Resources, and Purchasing are all supported by a single system. To accomplish this, an ERP solution utilizes an integrated business model, enabled by technology that improves operational efficiency and organization-wide decision support through information integration and process improvement. With a successful implementation, each functional area of the organization will utilize the system in day-to-day activities to access, analyze, modify, and report information. At a minimum, ERP systems provide a common relational database to store information throughout the enterprise and eliminate many of the shadow systems that drag down efficiency in government. Below are some of the distinguishing characteristics of modern ERP systems:

Common Relational Database - A common database system using relational database technology manages all the data within the system and facilitates access to it. Data is shared

among applications within the ERP. Data is only stored once and the same data accessed by users throughout the organization.

Use of Modern Technology Standards - The system is built using modern programming languages, standards, and technical architectures. This technology includes administrative and programming toolsets that enable developers to configure, modify, and customize the systems and also aid in the design of interfaces and security. In addition, many systems are now utilizing service oriented architecture which allows systems to more easily exchange data and thus allow other administrative systems to integrate with the ERP system.

Deep and Wide Functionality - Applications can meet a wide variety of business requirements. ERP systems have developed overtime and now major ERP vendors include functionality for almost all business requirements for public sector organizations. For example, the chart of accounts supports financial reporting and budgetary requirements. A flexible chart structure based on relational database concepts is one element of ERP that can improve reporting and eliminate many "shadow" systems from proliferating in an organization.

Government Specific Functionality – As ERP systems evolve, most vendors continue to add government specific functionality such as advanced budgeting, permitting, land management, and performance management capabilities.

Best Business Practices and Process Reengineering – The system is modeled on processes that reflect "best practices" across organizations, but, depending on the system, also provides the flexibility for organizations to configure the system to their own processes, thus supporting ongoing process reengineering.

Workflow Capabilities - Workflow capabilities permit users to define event-driven routings, create automated in-boxes and prioritized queues, and automate background queries. Workflow is the automation of business processes within the enterprise system. Workflow helps automate many paper intensive processes in many legacy applications such as the approval process for a purchase order, approval process for a personnel action form, or budget control activities.

Drill-Down and Audit Trails - Underlying data can be accessed directly from the current screen. For example, drill down capabilities permit end users to reach the source document that supports a journal entry. Audit trails provide the ability to review all of the history of changes to a record in the database.

Security – Security capabilities, such as single sign-on, roll based security, data inscription, and field level security provides protection for sensitive data by allowing users access to necessary information and restricting access to other data.

Advanced Reporting and Analysis - The system provides end-users with the ability to access system data using modern reporting tools, including both standard reports and also "ad hoc" reporting ability.

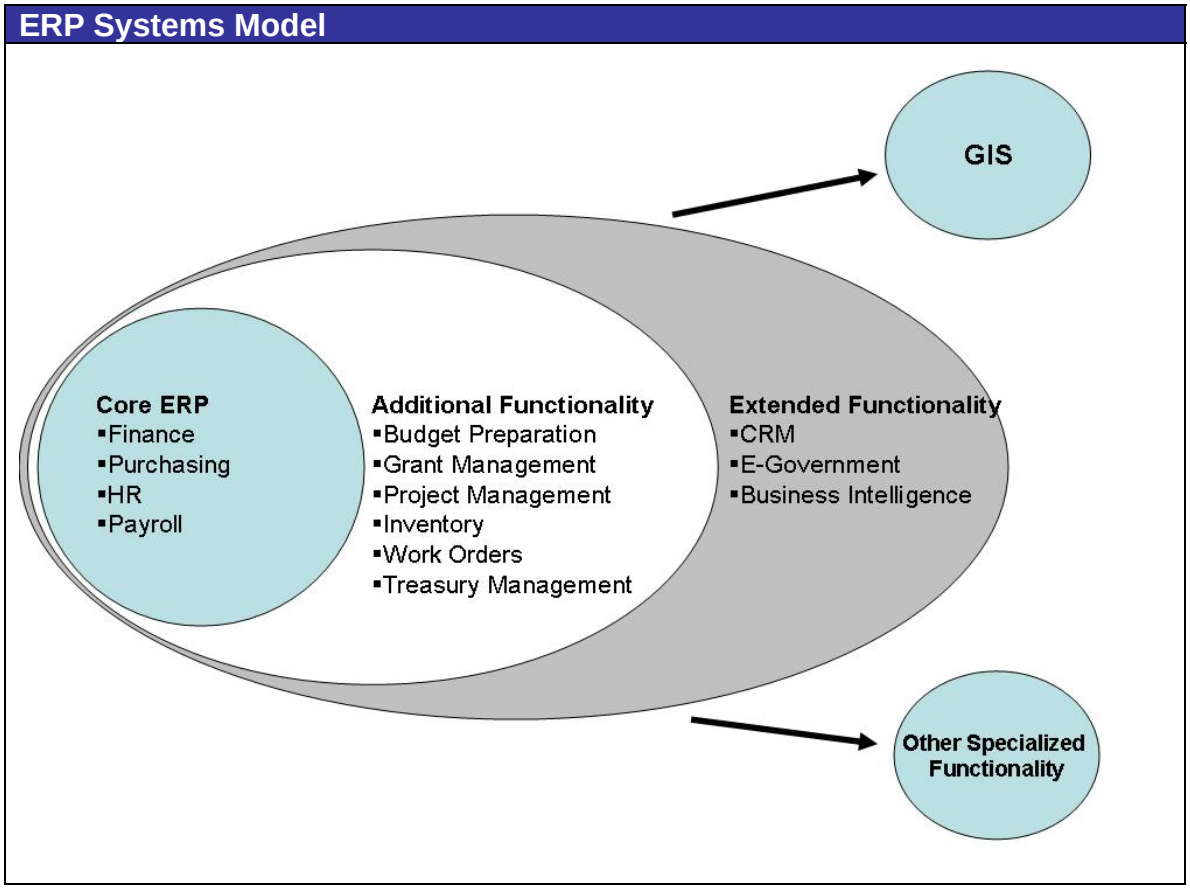
Use of Dashboards – ERP systems now provide executive dashboards or scorecards that "push" key information out to users. Key data is displayed graphically on the user's portal to provide a quick update on vital indicators. Problem areas can then be examined in detail using drill down, drill around, or other analytic features.

Web Enabling & Internet Capabilities – The system supports the ability to make functions available to the public through the government's Web site and also to employees through web portals that reduce data entry tasks by government staff. Examples of pushing this responsibility out include both employee self service and vendor self service. Additionally, many systems are "web-based," which allows users to access the system and perform work in the system using only a web browser. Using a web-based system does not require installation of any software on the user's workstation and allows users to sign in and work from different computers (for example, sign in from home).

As ERP solutions have evolved, additional functionality continues to be incorporated into the various systems available. If a vendor does not offer specific functionality to meet the organization's needs, it can partner with a third party vendor that offers specific functionality. For example, functionality for land management, treasury management, and cashiering systems are sometimes provided by separate third party products.

Recently, ERP vendors have also incorporated additional extended functions such as CRM, business intelligence, performance management, strategic management, analytic capabilities, and e-government functionality. Further, the ERP system now commonly interfaces with other technology applications for even greater integration of the organization's enterprise information technology. For example, ERP systems can now be interfaced with geographic information systems (GIS) to provide greater functionality to work order systems, fixed assets, and permitting capabilities within the ERP system.

In the visioning exercise for this project, stakeholders discussed an ideal environment where all applications, including GIS, are fully integrated so that map and parcel data can be used in assessments, then revenue calculations, and ultimately the financial system. While it is unlikely that the Tier I solutions for such a vision are within the County's budget, Tier II vendors such as SunGard and Tyler have begun to make inroads in that area. It may not be feasible either tech will be able to accomplish that immediately, the County could strive to identify a vendor with a similar vision. Should that level of integration then become a reality, the County would then be in a good position to take advantage of it.



Ability to Address Issues and Opportunities

When fully implemented, an ERP system could meet the vast majority of the County's unmet management information needs. ERP systems typically have extensive reporting and analytical capabilities that would provide necessary management information. In addition automation of transaction processing in some areas along with the development of work flows would aid in the institutionalization of key business processes and knowledge transfer to new employees as well as enhancing internal controls.

As discussed in previous options, new software will not resolve issues related to policy and process, which are large contributing factors to noted issues. The County will need to adapt its processes to the new software in order to avoid expensive and high-risk software modifications. If the County is unwilling to do this, it risks memorializing ineffective procedures in the new software, missing opportunities for improvements, and failing to achieve its goals and desired outcomes.

Level of Risk and Potential Implications

The most important risk associated with the ERP strategy is related to successfully completing the implementation. ERP implementations are large and complex projects that impact almost every part of the organization in some way. Organizations proceeding with an ERP implementation should be aware of the risk that these projects are not always completed on time an on budget and not all organizations are able to successfully implement all of the functional requirements they

desire. Procurement risks can be significantly reduced by following a rigorous RFP process that results in a well written contract with adequate incentives, penalties and warrantees. Implementation risk is more difficult to mitigate, but board-level support, willingness to modify process workflow, an innovative change management program and investment in long-term support can all help improve the chance for success.

If the IT department is expected to continue to perform at its current level, and pursue an ERP project, then the County will almost certainly require the addition of permanent IT staff. Systems analysis skills will be needed during procurement and implementation, and also for post-implementation support. Programming skills may be needed as well, or a significant investment in consulting assistance if the County chooses to outsource this effort.

Costs

The estimated costs of an ERP project were analyzed extensively by GFOA and are presented in the next section of this report.

Conclusion

The acquisition and implementation of an ERP system would represent a significant financial commitment on the part of the County and would entail risk to the organization. Nonetheless, the opportunities for productivity gains are large enough that GFOA believes such a project is warranted. The impact to the County of this recommendation, along with more detailed rationale, is discussed in the next section.

Recommendation

Based upon the preceding analysis of the various alternatives available to the County, it is the recommendation of the GFOA that the County move forward with an ERP project that seeks to minimize cost and risk while achieving significant operational improvements.

BUSINESS CASE FOR RECOMMENDED ALTERNATIVE

ERP implementations represent a large undertaking for any organization and require proper planning. For smaller organizations like the County, planning is that much more important. Due to the significant price of these systems and the resources needed for implementation, it is important that the County is prepared for the project should it choose to move forward with this recommendation. The following provides an estimate of what the County can expect from an ERP implementation.

Price

To put it simply, ERP projects are expensive. A better understanding of price, however, will be necessary should the County move through a procurement process. ERP projects are comprised of a few main price categories.

- **Software license:** Software licenses grant the County access to use the software. Software licenses are generally paid upfront just after the contract with the vendor is signed.
- **Professional Services:** Professional services include all the effort from the vendor to install, configure, develop, test, and support the ERP system for the County. This also includes any work to convert existing data or interface to other systems. In addition, professional services include the work the vendor does to train the project team, create system documentation, or train end users. These expenses are paid on a milestone basis throughout implementation.
- **Travel and Other:** Consultants will be working with the County on-site and most likely coming from out of town to do so. Expenses are either billed at actual costs or estimated.
- **Maintenance and Support:** Software vendors generally charge between 18-22% of the original software license fees for ongoing support and maintenance of the software. Being "current" on support generally allows the County to access product upgrades, patches, and phone support.
- **Internal Costs:** Not all the costs for the project will be paid to consultants. County staff will incur costs throughout the project. When County staff is spending time on the project, they are not working on their "real job" and thus costing the County. In addition, the County may hire additional workers to replace those dedicated to the project. All of these costs would not occur if not for the ERP project and should be planned for.

GFOA estimated prices of an ERP system for the County based on past client experience and contact with software vendors. The following chart presents three sample options for the County. The software market has many possible vendors who would all be able to meet the County's needs, but do so in different ways with different levels of complexity in their software. Therefore, the following three options should not be treated as a low, mid, and high quality system, but rather a system with differing levels of software complexity and configurability. Additionally, the three prices below are not intended to be three prices on a continuum. Rather, each represents a sample solution available in the market.

Estimated prices listed below represent all modules listed in the recommended scope from earlier in this report. If the County were to decide to exclude certain modules from the scope, prices estimates would decrease. ***Additionally costs of implementation are paid on a milestone bases throughout the life of the project. Most likely, it will take the County more than one year to***

implement all modules included in the project scope allowing the County to spread costs of the project over multiple fiscal years.

Exhibit 3: Estimated Project Costs

Category	#1 (Low)	#2 (Mid)	#3 (High)
Project Costs			
Total Project Costs	$ 263,000	$ 488,500	$ 880,000
Software License	120,000	140,000	200,000
Professional Services[1]	84,000	225,000	450,000
Project Contingency	29,500	53,500	100,000
Travel and Other[2]	29,500	70,000	130,000
Maintenance and Support (5 years)[3]	119,354	139,246	198,923
Total 5- Year Project Costs	$ 382,354	$ 619,996	$ 1,078,923
Internal Costs			
Total Internal Project Costs[4,5]	$ 135,000	$ 202,500	$ 360,000
Total Costs			
Total 5-Year Cost of Ownership[6]	$ 517,354	$ 822,496	$ 1,438,923

1 Assumes a "normal" implementation schedule.
2 Other costs do not include costs for any necessary hardware.
3 Maintenance and support costs are generally calculated as a percentage of the license fee. 5-year maintenance and support costs were calculated as 18% of license fees with an annual 5% increase.
4 The County's level of effort was estimated at 2,000 hours for the low, 3,000 for the mid estimate and 5,000 hours for the high estimate. Internal costs were calculated using $45 per hour. These hours will be supplied by the project team, who may need other (replacement) employees to perform normal job responsibilities.
5 Similar to implementation effort, County staff will need to spend time being trained on the new system. Training hours are estimated at 1,000, 1,500, and 3,000 hours.
6 Internal technical support estimates were not included in this estimate. One could assume that the low and mid would require approximately .5 FTE of technical support and the high about .75 FTE of support.

Return on Investment (ROI)

The County's anticipated return on investment for an ERP system is predicated on its ability to eliminate non-productive time with both process improvement and new technology. This can be measured as a percentage, and yields ROI results as follows (calculations assume an internal labor rate of $40 per hour. ROI assumes the mid-point of costs as described in the table above):

Exhibit 4: Estimated ROI from an ERP Investment

Non-Value Added Hours	Percent Saved	Monthly Financial Savings	Annual Financial Savings	ROI (in years)
350	60	$10,400	$124,800	6.59
	70	$11,800	$141,600	5.81
	80	$13,200	$158,400	5.19
	90	$14,600	$175,200	4.69
	100	$16,000	$192,000	4.28
375	60	$11,000	$132,000	6.23
	70	$12,500	$150,000	5.48
	80	$14,000	$168,000	4.90
	90	$15,500	$186,000	4.42
	100	$17,000	$204,000	4.03
400	60	$11,600	$139,200	5.91
	70	$13,200	$158,400	5.19
	80	$14,800	$177,600	4.63
	90	$16,400	$196,800	4.18
	100	$18,000	$216,000	3.81

Where Do the Savings Come From?
As the table indicates, the ROI for an ERP investment, based on the estimates described above, is about 4-5 years. GFOA does not project that the County would accrue direct savings with this recommendation from elimination of positions. Rather, savings here represent the recapturing of non-productive time and reallocating it to value-added activities. As an example, time that department managers spend searching for data or reconciling disparate information sources could be spent on better cost projections and budget management, more informed management of personnel, faster resolution of operational issues, or other activities.

Direct savings from elimination of existing software maintenance contracts is difficult to analyze. Current maintenance costs for Bright, Xpert and related hardware and software is about $36,500, and the County should expect that such costs will be eliminated. However, those costs will not fully disappear until the County and Schools are migrated to the new ERP platform, which could be anywhere from one to three years from the beginning of implementation. This uncertainty is due to the many options the County will have for implementation phasing, scope, staffing, and even funding. As a result, GFOA takes a conservative approach to the elimination of maintenance costs, which are factored into the analysis above at 2/3 the current cost (about $2,000 per month or $24,000 per year).

Non-Financial Factors

As discussed throughout this report, GFOA believes that an ERP solution represents the best long-term opportunity for the County to resolve the operational issues that it faces today:

- **Process Automation** – As detailed earlier, some areas could see nearly immediate benefits through automation of manual tasks. ERP solutions present that automation, but

also allow for configurable solutions that can be tailored to meet the County's operational needs.

- **Best Practices** – ERP solutions are developed and enhanced continually, based in large part on the acquisition and systemization of best practices. ERP software often forces organizations to adopt best practices, encouraging and supporting process improvement throughout the implementation and beyond.
- **System Integration** – Perhaps the most critical benefit of ERP systems is the one that addresses the most critical need of the County, and that is the integration of systems and processes. In an ERP environment, data and information flow seamlessly across the organization, ensuring that all staff are examining the same data in real time. The benefit of this is better and more timely decision making, increased productivity and efficiency through the elimination of shadow systems, and ultimately better service to employees and citizens.
- **Access to Information** – ERP systems include configurable security modules that not only allow managers access to the information they need, while protecting the organization from unauthorized access to critical data.

IMPLEMENTATION APPROACH FOR RECOMMENDED ALTERNATIVE

Below is GFOA's recommended scope and approach for an ERP project. The phased approach is intended to mitigate the risks and costs of a "big bang" or all-at-once implementation, which is often involves more resources and change than an organization can absorb. A phased approach reduces implementation risks, spreads out costs, and enables the County to prioritize its resources for the greatest impact.

Functional areas are split into three phases to illustrate one option of implementing the software. Different vendors may have different preferred strategies for implementation and the County should be open to adapt a proven implementation methodology for the eventual chosen software.

For most ERP systems, at least some portion of core financials are required to support other modules. For example, even if the County were to choose to move ahead with HR/Payroll first, the chart of accounts and General Ledger would need to be implemented first so that payroll transactions can be recorded appropriately. Given that purchasing and process workflow are also high priority needs, GFOA suggests that the County proceed with core financials first, and then add HR/Payroll functionality.

Exhibit 5: Scope and Phasing for an ERP Implementation

Phase I
Core Financials • General Ledger • Accounts Payable • Accounts Receivable (incl. assessments and tax, cashiering, etc.) **Purchasing** **Process Workflow and Document Management**

Phase II
Human Resources • Applicant Tracking/Employee Records • Benefits Administration • Time and Attendance/Leave Management **Payroll**
Phase III
Extended Financials • Budget • CAFR and Annual School Report
Phase IV
• GIS Integration

The County currently uses additional systems that are not listed in the above scope. GFOA recommends that the County continue with SchoolDude, RecTrac, PowerSchool, and Zimbra:

- SchoolDude and RecTrac are widely recognized industry leaders for work order and inventory management and program management. It is highly unlikely that the County would be able to find other solutions with similar functionality at less cost.
- PowerSchool is also a widely adopted student information system, and is a relatively recent investment with significant potential for additional functionality (e.g. teacher certification tracking, additional reporting and analysis capabilities).
- Zimbra is a stable and low-cost solution to any smaller organization's needs for email and calendaring. At some point, the County may wish to investigate Google Apps or other cloud computing based platforms, but GFOA sees no compelling reason to take on a project to change email at this time.

Alternative Delivery Models to Consider

Hosted Solutions: ASP/SaaS Alternatives

There is an increasing trend in the public sector for organizations to work with software providers and third party firms that maintain and host enterprise software. Hosted enterprise solutions follow two general models; purchase the software license (perpetual license) and have an application service provider host the software (ASP), or license the software using a software as a Service (SaaS) model, allowing the organization to essentially "rent" the desired functionality from an outsourcing vendor. Customers usually access the enterprise software through the Internet or a virtual private network (VPN) and the application is housed on servers that are operated by the vendor.

Why Pursue a Hosted Solution?

ERP procurement and implementation require a sophisticated technical infrastructure as well as the necessary technical staffing levels to maintain the system and database. A new system is costly (initial software purchase, implementation staffing, and upgrades) and governments have

difficulty in retaining the highly skilled technology staff necessary to properly support modern systems. These situations routinely drive governments to pursue the outsourcing of enterprise applications, the most popular of which is hosting an enterprise solution via an application service provider (ASP). The application service provider model is beneficial for governments that are looking to utilize the robust features and integrated best business practices that a modern tier I or tier II enterprise system has to offer, but might not have the necessary technical resources to maintain the system in-house.

Shared Services

Many governments are excited to begin the process of selecting software, but find that resource constraints are problematic in obtaining the best solution. These resource constraints are often funding based, but could also include technical infrastructure, staff capacity, or technology skill sets.

To address this, some governments are now exploring the potential to work with another local government to share costs and risks while still receiving the benefits of new technology. There are two ways to accomplish this. The first is to essentially become a customer of another government's ERP solution. In this delivery model, the government identifies another entity that has an ERP solution in place or is implementing one, and then negotiates a fee to gain access to that system and set up its own "instance" of the ERP system. This model is typically successful with governmental units that are fairly tightly linked. For example, a water/wastewater utility may share an ERP solution with the county in which it is located.

The second form of shared services is to work with another entity from the very beginning, going into the procurement process together. This is typically a city and county that try to work together (City of Tampa, FL and Hillsborough County is one example), or a county and a local school district (Fairfax County, VA and Fairfax Public Schools).

A shared services model can be very appealing, but competing interests, inability to identify ownership and management roles, difficulty in negotiating service fees, security concerns, and other barriers can be difficult to overcome. Often, the resulting solution is really two solutions that only share a small portion of the hardware cost. Nonetheless, Clarke County may wish to explore its options with other governments in the area.

Identification of ERP Implementation Risks

ERP implementations are not easy. Throughout the entire process of project planning and implementation, the County must pay close attention to potential project risk areas. Listed below are a number of potential risk areas that should be addressed.

Implementation Strategy

The biggest risk to GFOA's recommendation is that implementation could stall and the organization could end up where it started again. To avoid this dilemma, GFOA recommends development of a governance structure and long-range plan that will keep the overall target visible, even if the end date for implementation is two or more years away. Continued visibility and accountability for overall program success is vital to mitigating this risk. Also, business requirements that are considered "nice-to-haves" should be placed on lower priority; however,

they should remain on a schedule to be implemented at some time in the future. This should be reflected in the long-range implementation schedule as well.

Project Management

An effective project management structure is essential to all successful implementations. To ensure the project stays on the implementation schedule, a Steering Committee should be established as soon as possible. The Steering Committee's responsibilities would be to identify funding for the continued implementation; ensure that the appropriate support infrastructure remains intact; and solve problems that threaten the project. System implementation projects inevitably raise many issues that must be resolved if implementation is to proceed. Hundreds of questions concerning process changes, security, procedural changes, and the like arise during implementation. Failure to resolve issues in a timely manner increases the overall cost of the project because members of the project team cannot complete their work. It is important to have a clearly defined approach for tracking and resolving issues to keep a project on track

The project manager is also a vital piece of implementation. Developing realistic timetables and project plans, and fully managing all team members and individual plans, is critical to success. The project manager also advises management on project progress with respect to implementation milestones. It is important that the project manager has a broad and deep knowledge of the County's business practices, can balance the needs of competing County priorities, and be able to motivate a diverse group of team members toward project success.

Availability of County Resources

The risk associated with availability of resources is critical. Securing the quantity of resources required, with the appropriate skills, is a potential issue for County, as it is with most organizations considering financial system replacement. In addition, a major risk facing the County is to begin an implementation project and then "shirk" on its staffing commitment. Frequently, resources are assigned to the project, but their priorities slowly shift away from project responsibilities as they slip back into their pre-project roles. Factors such as burnout and employee turnover can also have a detrimental effect on the long-term commitment, and quite possibly the success of the project. While the inability to meet staffing requirements is common, it is also the primary reason for project failures and cost/time overruns.

Technology Resources

Just as functional staff resources with knowledge of the County's business process are vital to the success of implementation, technical resources with knowledge of existing systems and the technical infrastructure are also extremely important. Implementations require resources, and if the County is unable to provide those resources, risk for project delay or failure increases substantially. To avoid this, it is strongly recommended that for implementation, the County dedicate specific resources at specific times to the project. During these periods, IT resources would have NO other functions within the County that could pose a distraction. For example, when the implementation plan calls for database or server configuration, a dedicated IT resource should address that task and only that task. Of course, consistent and pervasive communication is critical, as any number of issues could cause schedule changes.

One alternative if the County does not feel it could dedicate technical resources to the project is a hosted approach where, in effect, the County would outsource its IT services to the vendor and allow the vendor to host the system off-site. This removes some of the risk from have inadequate IT staffing. A hosted solution would still require IT staff for the project, but they would not need to be entirely dedicated to this task.

Acceptance of Change

Although most individuals in the County appear to welcome the changes and enhancements a new ERP system will bring, how these individuals adapt during implementation is unknown. With any large change, there will be resistance. That is a given. It is important however to work to manage the change and maintain communication channels throughout the organization. To fully reap the benefits of a system, an organization must 1) be willing to change and 2) put in the required effort necessary to change and 3) learn new ways of doing things.

Executive Level Buy-in and Ongoing Support

Many governments like Clarke County have suffered setbacks in their projects due to lack of sufficient, visible executive leadership. With any ERP project, this is a significant risk that must be avoided. As discussed in the Vision section of this report, a clear directive and communication from top management is imperative from the beginning and throughout implementation. Without visible champions for the initiative, the project may be in peril from the start.

Sustainability

After project go-live, the County must be able to sustain the system without the help of outside consultants. This requires that adequate training and knowledge transfer has taken place during the project itself. The County must pay special attention to ensure that the correct people have received training for both technical and functional issues. In the end, a system will only be as effective as those using it.

To facilitate knowledge transfer and allow the County to maintain the system post go-live, GFOA recommends that the County share in at least 50% of the implementation effort. This requires County staff and vendor consultants to work together so that when the vendor consultants leave, necessary skills do not leave the project.

Staffing Requirements

For knowledge transfer purposes, GFOA recommends that the County provide a minimum of 50% of the total work effort. Keep in mind that implementation mix will depend on the size and complexity of the software.

County staff assigned to the project should include the staff that is the most experienced and knowledgeable with the County's business processes and requirements for a new system. For those staff assigned to the implementation on a full-time (or majority) basis, The County should seriously consider backfilling their positions and/or make alternative arrangements to ensure that other County programs and services are not adversely impacted. It may be possible to hire one backfill position to help with multiple project team members.

GFOA research indicates that with most systems, a full-time (or close to full time) project manager (or 1 FTE equivalent) is required from County's staff, although some vendors propose solutions that would only take half of a project manager's time. Additionally, functional experts would be used as needed. Effort would be different at different stages of the project. One of the "lessons learned" from other public sector organizations that have implemented new systems is that they underestimated the amount of work effort required to adequately staff the project during and after implementation.

Implementation Readiness

What are the resources required to implement an ERP system? Vendors that serve the small and medium-sized markets have a tendency to use implementation strategies where the client is responsible for most of the work. Vendor consultants are responsible for project management and overall configuration of the system; however, in addition to working with the implementation consultant on the design of the system, the client is primarily responsible for loading the data into the system. For example, the software consultants may be on-site for one week to show the client how the system works and to ask basic design questions. The consultants will then distribute homework assignments to the client and not return for two weeks. During the consultants' absence, the client may need to scrub data or prepare electronic spreadsheets to be loaded when the consultants return. This type of consulting relationship is designed to reduce costs. It is most effective when used with specialized software (i.e., software that is designed for specific vertical industries). It is less effective when used to implement more complex software (i.e., software that is designed to serve many vertical industries).

To implement the system effectively, the County will need to build its internal implementation team and may need to backfill tasks for personnel temporarily assigned to the ERP project. Minimum personnel for the successful implementation will require a project manager, a financial lead, an HR/payroll lead, and a technical lead (if necessary – See section on alternative delivery models earlier in the report). Ideally a change management lead, to oversee business process changes and training, and purchasing lead should be added. If the County cannot identify these resources separately then the project manager or financials lead should cover them.

The project manager's function is to oversee the implementation of the project and to make sure that the project remains on schedule, within budget and within scope. A "Lead" is responsible for overseeing the design for their particular function, managing all assistance assigned to them; and providing post-implementation support. Sample roles and responsibilities are included in the appendix to this report.

PROJECT SCHEDULE

The schedule below (which should be discussed with County staff) is somewhat aggressive, but should give County stakeholders an idea of the overall timeframe and where certain activities take place.

Exhibit 6: Potential Project Schedule

Month	Task
1	❑ Project Kickoff ❑ Executive Visioning ❑ Project Planning
2-4	❑ Functional Requirements ❑ Technical Requirements ❑ Legal, Procurement, and Administrative Requirements
5-6	❑ RFP Assembled ❑ Release of RFP ❑ Evaluation Plan Developed ❑ County Team identified for implementation
7-9	❑ Proposals Received and Analyzed ❑ Software Demonstrations (Two Vendors) ❑ Team facilities identified for implementation
10	❑ Requests For Clarifications ❑ Discovery with Two Vendors (Cost Estimates Provided) ❑ Contract Negotiations Begin with One Vendor
11	❑ Negotiations Completed ❑ Implementation Begins
12-36	❑ Implementation Activities – This includes multiple go-live phases. It is estimated that go-live for core modules would occur 8-10 months after implementation begins. Additional functionality would then be added subsequently. Specific implementation schedules depend on software chosen and implementation methodology.

APPENDIX A: MARKET RESEARCH RESULTS

GFOA occasionally conducts market research on various aspects of local government. This appendix presents the results of our most recent research (2009) into small government IT and Finance functions. In this study, six small counties were interviewed about their IT and Finance departments as well as their supporting systems.

Results

Question	County 1	County 2	County 3
Financial System	Tyler MUNIS	JD Edwards World	JD Edwards World (Not using HR module)
First Implemented	2002	1997	1994
Satisfaction	Satisfied Works very well with Crystal for reporting	Satisfied	Very satisfied Robust functionality and very flexible
Main reasons for moving to new system	Moved off an AS400 system from which it was difficult to extract info	Custom system built in-house was no longer meeting needs	Custom system built in-house that no longer met needs
Single Chart of Accounts?	Human Services has own. Target group info tracked in medical billing system	Human services uses medical billing system where more detailed client information contained. Uploaded into JDE	Yes. Utilizes JD Edwards subledgers for community programs (e.g. client info), project and grant accounting.
Days to process payroll	• ½ - ¾ day from point that timesheets are entered. • Pay that Friday. • System splits pay period at year end.	• 2 days from point that timesheets are entered. • Pay that Friday. • System splits pay period at year-end • In process of implementing Kronos for auto time entry	• 3-4 days to process payroll • Employees submit 2 timesheets for split end-of-year pay period • Purchased Kronos for auto time entry
Org. of Finance	• Centralized with dept staff • 3 employees (.45 per 100 employees) • Business Mgrs in 3 largest depts • Departments can enter JE's into the system but Finance posts	• Centralized with dept staff • 5 employees (1.0 per 100 employees) • Large depts. have own staff • Depts enter own JE's	• Centralized with dept staff • 5 employees (1.0 per 100 employees) • Large depts. have own staff
IT FTE's	9 FTE's (1.4 per 100 employees)	7 FTE's (1.4 per 100 employees) 4 of 7 dedicated to larger depts.	6 FTE's (1.2 per 100 employees) 2 part-time interns

Question	County 1	County 2	County 3
Lessons learned	• Some standardization prior to system but much because of the system. Easier to implement changes when you can blame the system. Otherwise it is hard fought. • Some aversion to new system lingers but it is especially appreciated by Finance given increasing audit standards • Make sure you have a good Project Manager who can spend a majority of their time on the implementation • Have County Board pass a resolution supporting the project and standardization • Was able to eliminate many but not all spreadsheets	• Standardization is on-going • Document all decisions related to process changes (i.e. why it was done)	• If you implement, backfill positions • Involve depts. in decision-making process to standardize • Develop policies in partnership • Get everyone on 1 system

Question	County 4	County 5	County 6
Financial System	JD Edwards Enterprise One – Financials HR/Payroll – windows-based but home-grown (looking to replace)	Financials – dev'ed in 1985 by another County ACS – Payroll and Fixed Assets Esser - Highways	HTE SunGard (Financials, Payroll, Fleet, Land Records)
First Implemented	2000	1985 (ACS)	1999
Satisfaction	Moderately satisfied • Not designed for government so no native governmental reporting	• Financials needs to be replaced • Satisfied with ACS (considering full package) and with Esser	Very satisfied • Excellent support from vendor • Good training opportunities • Vendor takes enhancement suggestions from users • Good integration
Main reasons for moving to new system			Y2K compatibility Need for integrated enterprise system
Single CoA?	1 generic CoA that everyone can use and Depts use a subset	Human Services has a separate GL	22 character CoA which captures all data except target group information which is in medical billing system
Days to process payroll	• Hold back 2 weeks so it takes about a week. Would probably take 3-4 days if had to do it • Use payroll accrual – don't run financials until accrual is posted	• 2 days to process. Timesheets in on Friday, pay the following Friday • Split payroll at year-end	• 2-3 days • Time cards due Monday and direct deposit ready on Wed. • Remote self-service time entry for HWY department • Payroll accrual doesn't work real well so use a edit report through 12/31 and a spreadsheet to calculate proper distribution
Org. of Finance	• Centralized with dept staff • 11 FTE's (1.1 per 100 employees) • Depts can enter JE's into system	• Centralized with dept staff • 3 FTE's (.75 per 100 employees) • Human Services and Hwys can create own JE's which are centrally edited and posted • Central office does JE's for the rest of the	• Centralized with dept staff • 4 FTE's (1.1 per 100 employees) • Each Dept has a clerk (AP mostly) • Large depts. create and submit JE's in excel

Question	County 4	County 5	County 6
		County	
IT FTE's	14 (1.4 per 100 employees)	5 and 1 contractor (1.5 per 100 employees)	7 (2.3 per 100 employees) Does not include GIS
Lessons learned	• Standardized by implementing a new system • Requires lots of training • Look for a govt-focused package • More modules = more staff required, more maintenance • Complete integration has a cost – complexity • 1.5 FTE's dedicated to supporting the system	• Concentrated efforts required to standardize. Pick your battles. For example, Finance Director set out to eliminate dept. checking accounts and standardize vouchers • Need one CoA • Ability to develop custom reports is critical • Look to what other Counties are doing: o Neighboring county went to JDE o Two similar counties in the same state use Sage o Considering ACS	• New system is the best hammer for getting people on board with standardized processes • Also requires a strong administrator • Fully integrated system does not mean you can reduce staff. It may require more people because you are collecting and using more data. Example is the what-if analysis you can do but that requires time and expertise

APPENDIX B: ROLES AND RESPONSIBILITIES

Project Team Role Descriptions

The following roles are typically used on ERP projects. For larger projects, each role is filled by a different person. For smaller projects (utilizing less complex software), roles and responsibilities are combined into the "Lead" functions. The descriptions of the roles are provided for informational purposes only. It is likely that the County will combine most roles and responsibilities under the "Leads", therefore, it should not be assumed that each role described below corresponds directly to an FTE.

Project Manager

Description: In conjunction with the Vendor's project manager, oversees the design, configuration, and post implementation support of the new accounting system.

Responsibilities:

Administration

- Works in conjunction with Vendor's Project Manager.
- Manages the County's resources to ensure project is on schedule, on budget and that quality expectations are met.
- Manages project level issues to resolution.
- Manages and filters issues to be elevated to the steering committee for resolution.
- Reports and communicates project status to steering committee

Design/Implementation

- Manages and coordinates County resources during system design.
- Assists Vendor Project Manager with managing project documents.
- Tracks and manages resolution of functional issues.
- Oversees the development of training materials.
- Oversees change management process.
- Verifies and approves acceptance testing.

Team Leads

Financials Team Lead

Description:

Responsible for managing the Financials team; overseeing the design process for the financials application; and managing post implementation support for the financials application.

Responsibilities:

- Coordinates work effort, through Project Managers, with HR/Payroll Team Lead, Change Management Lead and the Technical Team Lead
- Manages design of new business processes within the financials application.
- Manages resolution of functional issues related to the financials application.
- Configures software to meet the County's financial requirements.
- Manages and assists with development of training materials
- Manages and assists with software testing.
- Manages and assists with data conversion.
- Provide post implementation support

Design Management:

Will oversee the following design elements:

- Compliance with GAAP/GASB Reporting
- Organizational Design (e.g., Hierarchies)
- Budget Control/Budget Preparation Process
- Chart of Account Design
- Management Financial Reports
- Accounting Processes, including Purchasing and Budgeting

HR/Payroll Functional Lead

Description:

Responsible for Managing the HR/Payroll team; overseeing the design process for the HR/Payroll application; and managing post implementation support for the HR/Payroll application.

Responsibilities:

- Coordinates work effort, through Project Manager, with Financials Team Lead, Change Management Lead and the Technical Team Lead
- Manages team level issues to resolution
- Reports and communicates team status to Project Managers
- Manages design of new business processes within the HR/Payroll application.
- Manages resolution of functional issues related to the HR/Payroll application.
- Configures software to meet the County's HR/Payroll requirements.
- Manages and assists with development of training materials
- Manages and assists with software testing.
- Manages and assists with data conversion.
- Provide post implementation support

Design Management:

Will oversee the following design elements:

- Organizational Design (e.g., Employee Hierarchies within Proposed Organizational Design)
- HR Forms designs
- Management Reports
- HR Processes

Change Management Team Lead (Optional)

Description:

Responsible for managing new business processes that come about as a result of the implementation of the new system. Manages the development of the training program. Assists the Financials Team Lead and the HR/Payroll Lead in post implementation planning.

Responsibilities:

- Lead change management portion of process and organizational design.
- Assists Financials Team and HR/Payroll Team with issue resolution.
- Coordinate communication with all County stakeholders.
- Coordinate department readiness for new system.
- Manage development & conduct of training.
- Resolve change management issues.
- Assists with development of on-line and off-line forms.
- Assists with development of training materials.
- Assists with post implementation support planning.

Technical Team Lead(s)*

Description:

Responsible for managing the County's technical team resources; overseeing the design process for system environment; and managing post implementation technical support for the entire application including software, hardware, and network.

Responsibilities:

- Oversee creation and support of the development environment, including the Conference Room Pilot, the testing environment, the production environment, and the "live" environment.
- Manages development of technical architecture/production environment including:
- Database
- Network
- Servers
- Workstations
- Manages resolution of technical issues.
- Oversee technical configuration of software.

Ideal Government Candidate

- Assistant Director within the Information Systems department.
- Understanding of Client/Server technologies.
- Some understanding of Fourth Generation programming.
- Ability to prioritize issues to be elevated to the Project Managers

Subject Matter Experts (SME)

Description:

A team member for the General Ledger Team, the HR/Payroll Team, the Change Management Team, or the Technical Team. Team members are responsible for making functional and/or department decisions during the design and implementation of the new system. Team members are also active participants in the business process design, configuration of the software, and support of the software. The following is a list of responsibilities by function:

Responsibilities:

General Ledger

- Responsible for developing chart of accounts within new system.
- Assists Budget Department with determining levels of budget control within system.
- Develops crosswalk between old chart of accounts and new chart of accounts.
- Develops procedures for rollovers, carry forwards, period closings and year-end closings.
- Identifies standard reports for new system.
- Develops training materials for general ledger.
- Provides post implementation support.

Budget

- Responsible for developing budget control and budget preparation module.
- Works with GL Team to determine best chart of account design for budget control.
- Develops policies, in conjunction with GL Team, for pre-encumbrance and encumbrance control.
- Identifies standard budget reports for new system.
- Develops training materials for budget control and budget preparation.
- Provides post implementation support.

Accounts Payable

- Responsible for developing vendor records and check processing procedures for new system.
- Develops coding scheme for vendor identification.
- Works with GL Team to develop AP detailed accounts.
- Oversees migration of vendor records into new AP system.
- Develops payment procedures.
- Identifies standard reports for new system.
- Develops training materials for budget accounts payable.
- Provides post implementation support.

Accounts Receivable/Billing

- Responsible for developing customer records and billing procedures for new system.
- Develops coding scheme for customer identification.
- Works with GL Team to develop AR detailed accounts.
- Oversees migration of customer records into new AR system.
- Develops billing procedures.
- Identifies standard reports for new system.
- Develops training materials for accounts receivable and billing.
- Provides post implementation support.

Purchasing

- Responsible for developing bidding procedures, contract procedures, and purchasing procedures in new system.
- Works with GL Team and Budget SME to imbed pre-encumbrance and encumbrance procedures in purchasing process.
- Develops coding scheme for contract numbers and purchase order numbers.
- Develops process for bidding and contract awards in new system.
- Develops process for inspection and payment procedures.
- Oversees migration of contract, vendor, and purchase item data into new system.
- Identifies standard reports for new system.
- Develops training materials for purchasing.
- Provides post implementation support.

Grants/Projects

- Responsible for developing process for recording grant and project activity in new system.
- Works with GL Team to develop coding scheme for funding sources, grant related projects, fee-based projects, and other projects.
- Works with GL Team to develop project and grant account codes.
- Oversees migration of data into system.
- Identifies standard reports for new system.
- Develops training materials for grants/projects.
- Provides post implementation support.

Human Resources

- Responsible for developing human resource management capabilities in system.
- Develops process for tracking job applicants, employee data, and retirement data.
- Develops process for developing benefits administration capabilities.
- Works with Payroll Team to integrate human resources and payroll capabilities.
- Oversees migration of data into system.
- Identifies standard reports for new system.
- Develops training materials for human resources.
- Provides post implementation support.

Payroll

- Responsible for developing payroll procedures within system.
- Works with GL Team to develop accounting procedures for deductions and payment of payroll-related vendors.
- Works with Human Resources Team to integrate human resources and payroll capabilities.
- Oversees migration of data into system.
- Identifies standard reports for new system.
- Develops training materials for payroll.
- Provides post implementation support.

Fixed Assets/Financial

- Responsible for developing procedures for tracking and maintaining fixed asset information in new system.
- Works with GL team to develop bank account set-up within system
- Works with GL team to develop cash accounting processes and reports
- Oversees migration of data into system.
- Identifies standard reports for new system.
- Provides post implementation support.

Programmer/analysts

- Designs, develops, and tests changes to design environment, test environment, production environment, and "live" environment.
- Assists functional users with software modifications
- Assists functional users with interface development and develops interface programming.
- Assists functional users with report development, ad-hoc query development, and job scheduling.
- Provides technical support to functional users during conversion process.
- Performs automated conversion

DBA(s)*

- Maintains, develops, tests, and refreshes the design database, the test database, the production database and the "live" database.
- Perform system backup/restore
- Monitor and tune database performance
- Develops disaster recovery procedures
- Performs sizing requirements.

Network Specialist(s)*

- Develops and supports wide area network and local area network

- Network performance testing
- Configure workstations
- Coordinate rollout of software updates
- Provide general network support
- Develop disaster recovery procedures
- Capacity planning

General Technical Support Team Members*

- Build and support the technical environment
- System troubleshooting
- Develop and support job scheduling
- Develop and maintain operational documentation
- Provide technical support to designers/developers
- Implement software fixes and custom modifications
- Migration/source control

* Roles could change significantly if a hosting solution was selected.