



**A Report to the
City Commission**

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Lauren Poe

Mayor Pro-Tem
Helen K. Warren

Commission Members

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Craig E. Carter

Todd N. Chase

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City of
Gainesville Office
of the City
Auditor

Carlos L. Holt – City Auditor

**Audit of GRU SAP Upgrade
Interim Report II**

April 6, 2017

Audit of GRU SAP Upgrade

EXECUTIVE SUMMARY

April 6, 2017



Why We Did This Audit

The audit was included on the City Auditor's 2017 Fiscal Year Audit Plan due to a major upgrade of SAP systems for Gainesville Regional Utilities.

Risks Associated with Project

The following risks are generally associated with a large project of this type.

- Substantial cost overruns caused by poor planning, scope enlargement, poor communication, etc.
- Project completion delays caused by failure to work with contractors on processes, enlarging scope while underway, not providing promised support to contractor, not paying attention to the critical path, etc.
- Operational failures after go-live date caused by failure to understand new processes, failure to adequately train personnel, having unreasonable expectations, failing to modify processes to fit applications.

BACKGROUND

The City Commission authorized Gainesville Regional Utilities (GRU) to perform major changes to their financial and business processing systems. Currently GRU is six months into the transition of their SAP Financial Management Information System (FMIS) and has performed a Request for Information (RFI) for a Customer Care System (CCS). Future systems also include an Enterprise Asset Management implementation and an Advanced Metering Infrastructure platform, with smart meters, which will interface with the Customer Care System.

OBJECTIVES

The objectives of this segment of the audit were to determine the following:

- Were the project's previous areas of concern addressed?
- Were the project costs being compared to the planned baseline?
- Was the change process effective and based on a systematic approach?

WHAT WE FOUND

The project team was functioning with a high sense of urgency and was expertly achieving tasks. However, we found that there are four areas of general concern at this time.

- Time documentation of hours worked by SAP contractors were not being obtained by GRU.
- The change process did not utilize a change control log to ensure accuracy of changes and document changes for historical reference.
- Policy recognition and execution require more attention to detail.
- The perceived value of the SAP Premium Engagement Services could not be verified (repeat area of concern).

GOVERNANCE

The SAP Steering Committee is an advisory committee made up of the sponsors of the project and internal experts who provide guidance on key issues such as company policy and objectives, budgetary control, marketing strategy, resource allocation, and decisions involving large expenditures. The GRU project manager meets with the Steering Committee every Tuesday to provide them with updates and to receive directives. The Steering Committee includes the CIO, CFO, and the Controller. The General Manager has final authority and reports to the City Commission.

SCOPE AND METHODOLOGY

This engagement segment concentrated on the Financial Management Information System part of the project (currently underway) scheduled to *go-live* on April 3, 2017. During the engagement, we attended meetings, interviewed key personnel, attended Steering Committee meetings, examined documents, analyzed drawings and specifications, inspected documents on Project Cohesion SharePoint and shared drives, and contrasted the GRU efforts with other cities that have undertaken similar projects.

CRITERIA

- SAP contract (SOW) Order Form No. 1 ("Order Form") effective June 1, 2016, ("Effective Date")
- The Project Management Body of Knowledge (PMBOK) 5th edition
- City Commission approved legislation
- The Committee of Sponsoring Organizations of the Treadway Commission, Internal Control – Integrated Framework (2013 Framework)

RELATED FACTS AND FIGURES

The Gainesville City Commission authorized Gainesville Regional Utilities to proceed in executing procurement of a SAP Financial Management Information System and other modules as shown in Figure 1. The fiscal year 2016 items were approved on July 21, 2016. The City Commission meeting minutes indicated that GRU staff will provide a status report to the Utility Advisory Board (UAB) every three months and return with suggested funding mechanisms to both parties.

Figure 1: City Commission Authorizations

IT Module	FY Approved	Funding
Financial Management Information System	2015	\$ 6,000,000
Additional for Financial Management Information System	2016	4,800,000
Customer Care and Service	2016	10,000,000
Enterprise Asset Management	2016	10,000,000
Premium Engagement Year 1 - 2016-2017	2016	400,733
Premium Engagement Year 2 2017-2018	2016	578,213
Premium Engagement Year 3 2018-2019	2016	563,422
Advanced Metering Infrastructure (discussed only)	-	-
Total		\$ 32,342,368

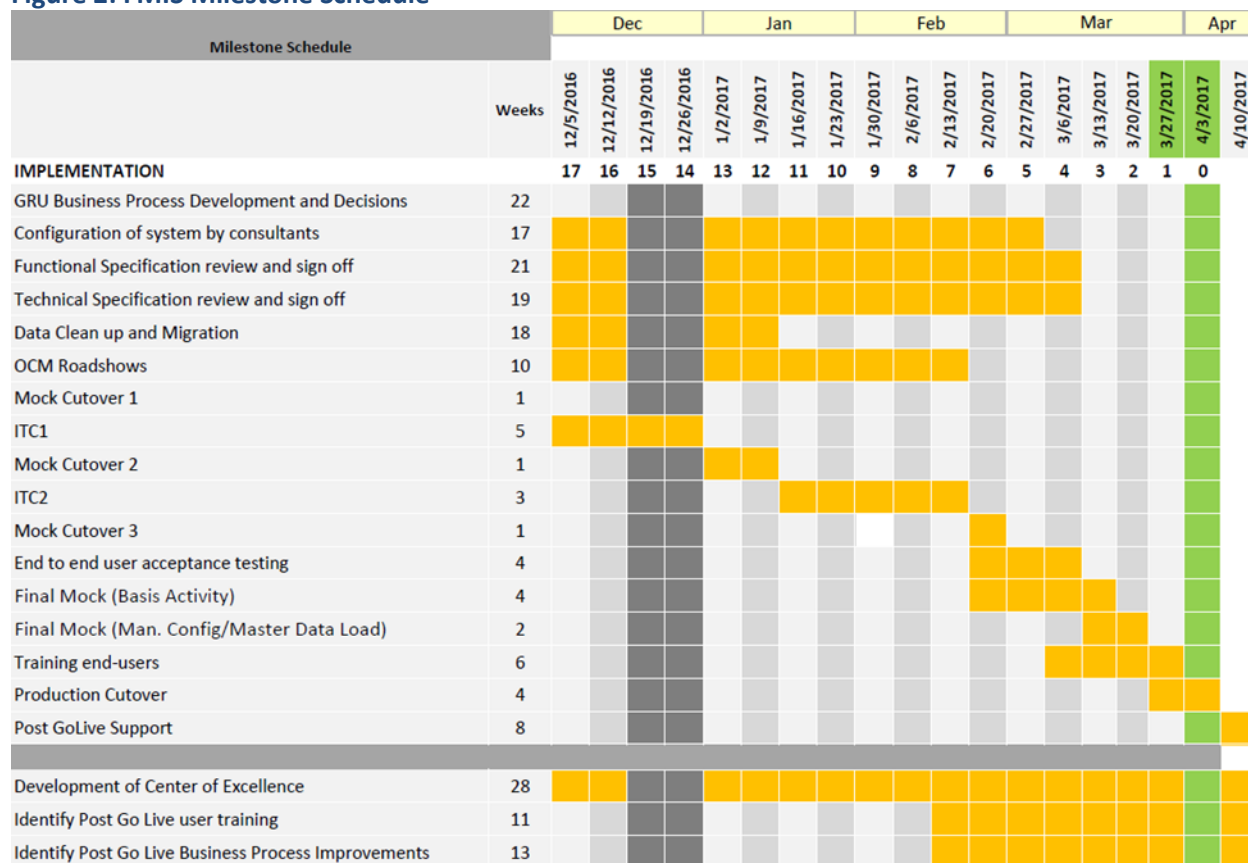
Source for 2016 data: Legistar Document 160181

PROJECT INFORMATION

Milestone Schedule

In a reference to project management, a milestone is an important date or event that requires special attention. The milestone is usually dependent on completion of a group of project tasks and can add significant value to project scheduling. Milestone schedules help stakeholders to more accurately determine whether or not the project is on schedule. The project management team has realized the importance of sharing milestone information and has distributed a poster of the milestone schedule in many strategic areas of the GRU administration building and on the Project Cohesion SharePoint site.

Figure 2: FMIS Milestone Schedule



Source: Project Cohesion SharePoint site February 7, 2017

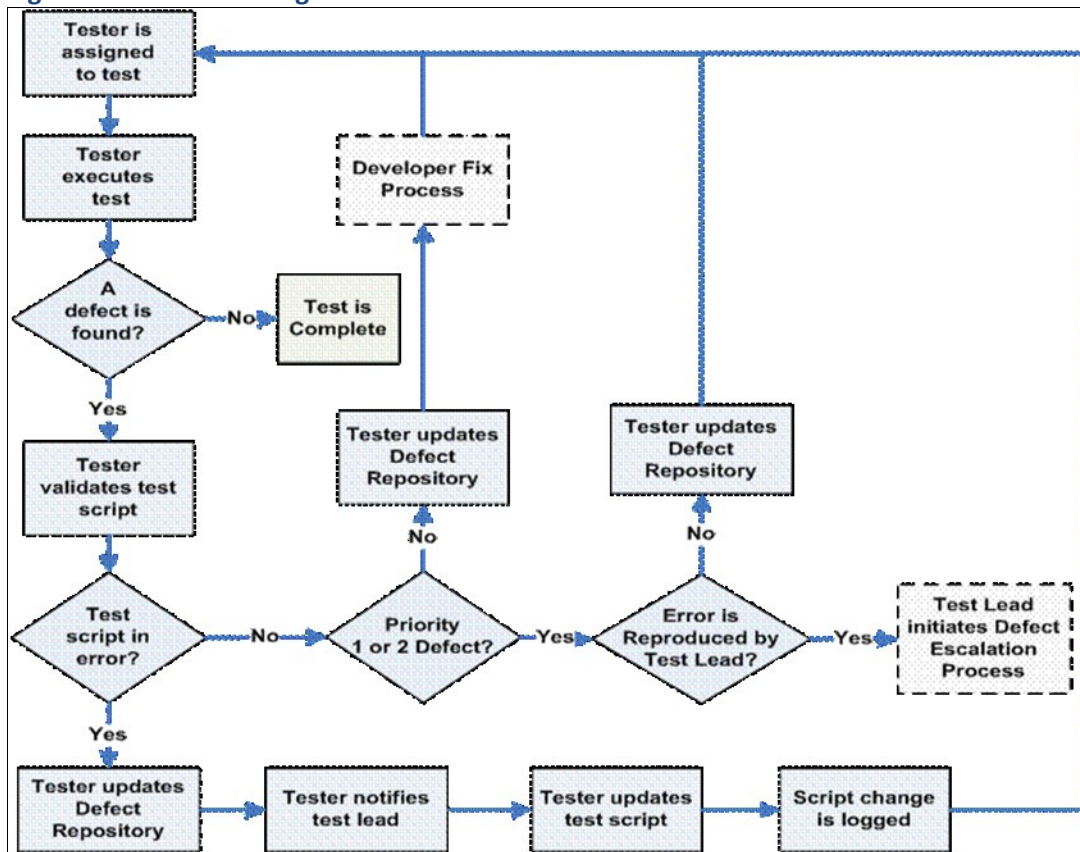
The milestone schedule uses colors to convey information. The background colors of light gray are used to separate the weeks. Yellow are the groups of tasks and the duration for completion. Dark gray was used to show a lower production time due to holidays. Green is used to identify the post go live week and create a sense of urgency. Below the horizontal gray line is a group of tasks that are being conducted to support the SAP initiative. This is a key area where the SAP Premium Engagement Service contract should be beneficial.

The schedule is clear for the stakeholders; and, the project team is well aware of what is required of them. It is important that if the schedule changes, the project team should update the schedule as soon as possible in order to mitigate the risk of project failure.

Testing

Project testing is a concentrated effort by the project team to ensure the integrity of the system. This includes hardware, software, and procedures. The testing plan for the FMIS project area relies on separate Integrated Testing Cycles (ITC) to identify defects. These are ITC1, ITC2, and ITC3. The figure 3 diagram was taken from the Master Test Execution plan and represents a general testing process during a testing cycle when a defect is found. Using test scripts compiled by the testing coordinator, the process is duplicated for testing scenarios.

Figure 3: General Testing Process



Source: Excerpt from GRU Master Test Execution plan

During ITC1 the project determined that the test plan was not working towards a successful implementation. Being the first of three testing cycles, many of the unknowns became known in a negative manner. The availability of consultants to promptly turnaround defects was determined to be poor. Coverage between GRU and SAP was not aligned positively and things did not follow the prescribed plan. The exit criteria for ITC1 was that 100% of testing scenarios were to be completed, all documentation provided as per entry criteria were to be updated to reflect changes, and severity 1 and severity 2 issues were to be resolved. None of the exit criteria for ITC1 were completed.

ITC2 implementation proved to be very successful. Some of the changes made to the testing procedures were requiring that the SAP developers remain with the testers during testing. This allowed the developer to visualize first-hand what the errors were and to be better prepared to fix the defect. Both

the GRU and SAP project team were extremely receptive to ensure that the testing was successful. As of February 7, 2017, the only items left to test are a second round of security roles and some parallel testing. ITC2 will complete its testing on February 17, 2017, and ITC3 will begin on February 20, 2017.

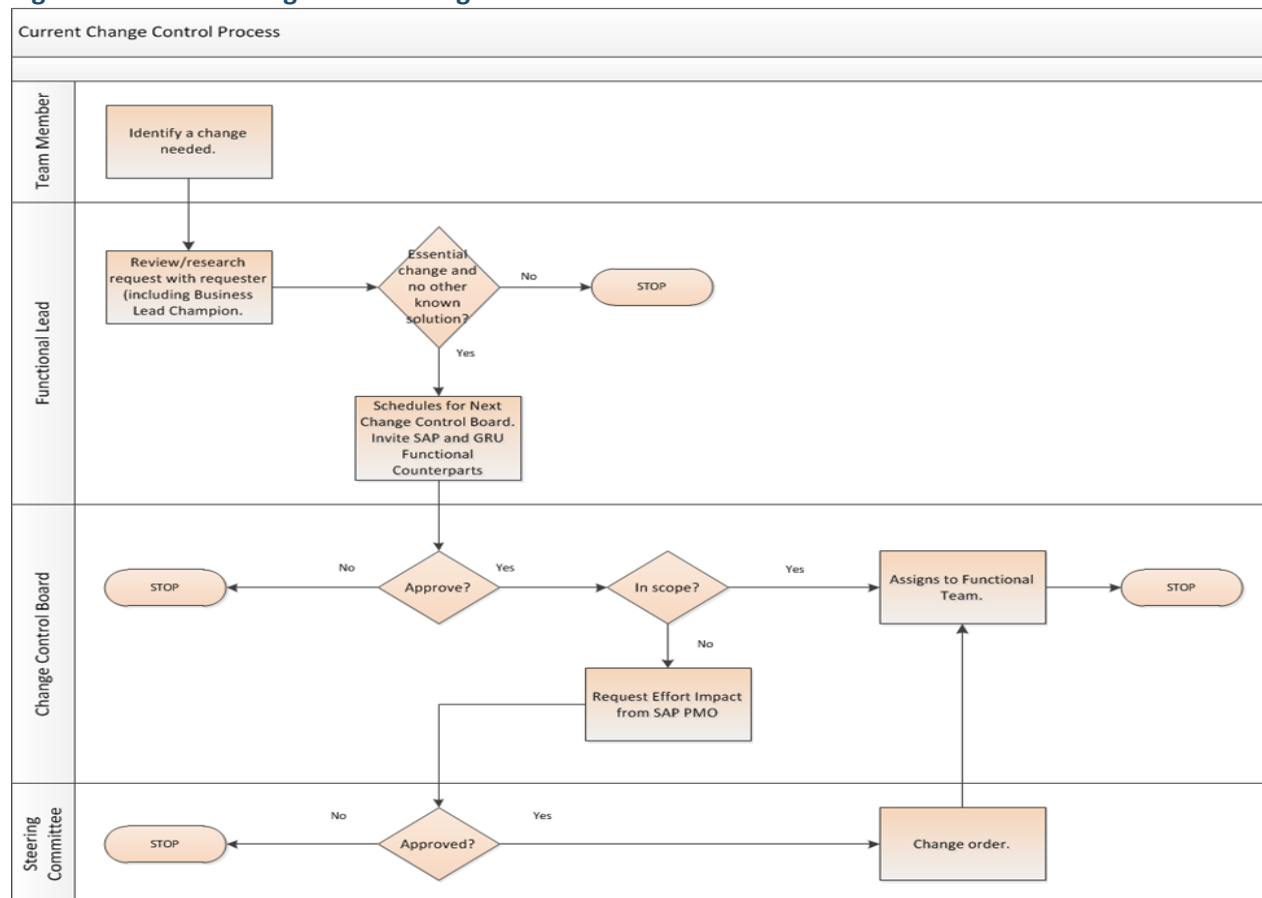
ITC3 testing will begin with a client copy of all the data and is expected to run three weeks. The copy of the data will allow testers to begin testing immediately. Somewhere around March 6, 2017, the testing will include a mock cutover. This is a procedure to create the configuration and data from scratch which will be the basis for the actual cutover for go-live.

Change Control Process

The change control process was developed using empirical processes and has been refined by past and current functional leads. It includes an informal Change Control Board that buffers scope changes. The responsible authority for the Change Control Board is the GRU project manager. The team readily makes decisions on in-scope changes and researches out-of-scope changes. The GRU project manager ultimately decides to bring out-of-scope changes to the Steering Committee.

There is a Project One SAP Change Management Plan, but it is not being used to conduct change management. This change control process has one entry point and multiple exit points (as shown in Figure 4 below). The process includes a team member, the functional lead, the change control board, and the steering committee.

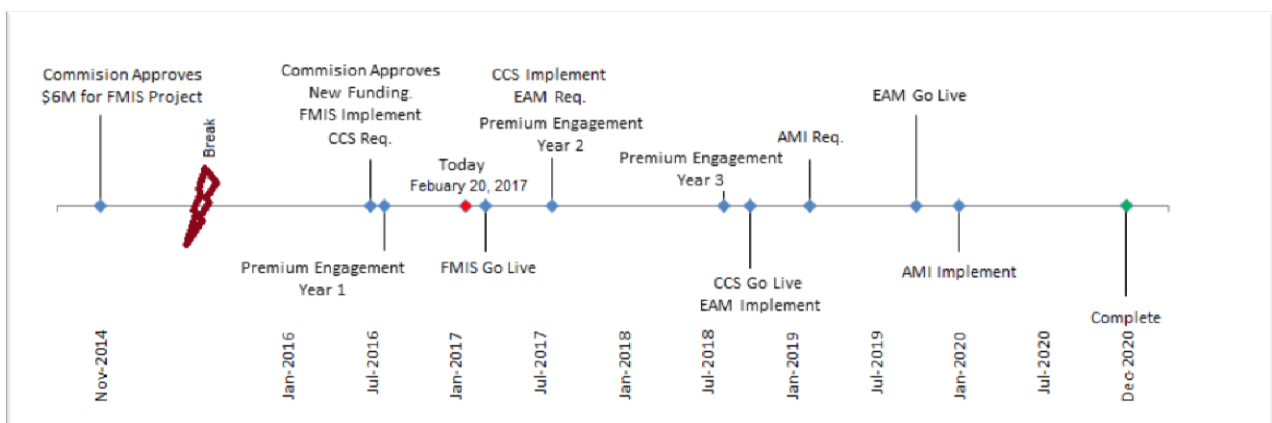
Figure 4: Current Change Control Diagram



Source: Interview with current Functional Lead and correspondence

The process begins with change identification and is funneled to the functional lead. The functional lead creates an e-mail paper form to document the change request and researches the change request. If the change is invalid, the change control process for that change will end. If the change is valid, the functional lead will coordinate with related experts and will schedule a review with the Change Control Board. The Change Control Board will discuss the validity of the change and approve or disprove the change. If the board disproves the change then the process for that change will end. If the change is approved, the determination of whether it is in-scope will be made. A change that is in-scope can be assigned to the functional team for completion and this will end the change control process for that change. If the change is not in-scope, the Steering Committee must approve the change for any further action. The Steering Committee relies on the impact/effort information from the SAP Project Management Office. If the change is approved by the Steering Committee then a change order is obtained and assigned to the Functional Team. At this point the change control process for that change ends.

Figure 5: Project Timeline



Source: OneSAP Project Utility Advisory Board July 6, 2016.

OBJECTIVES

1. Were the statuses of the project's previous areas of concern addressed?

Generally yes. The schedule was communicated and was being updated. The contractors have been providing more time on site as per the project team, but since contractor timesheets have not been collected the actual time could not be verified (see Area of Concern A and C). Additionally, any value of the project's SAP Premium Engagement Services contract was not apparent and there was not an additional signed agreement between the two parties as to precisely what specified services were to be received (see Area of Concern D – Repeat Finding).

2. Were project costs compared to the planned baseline?

Yes. Recall that funds for Financial Management Information System in FY 2015 were approved for \$6 million and later in FY2016 another \$4.8 million was approved for a combined total of \$10.8 million. The total actual costs were calculated by the GRU Controller. These costs summarize both Operations and Maintenance, and Capitalized costs. For operations and maintenance, actual interim

costs were \$3,247,949 as of December 2016. The capitalized cumulative cost amounted to \$5,036,176. This brought the total actual costs already delivered of FMIS to \$8,284,125.

3. *Was the change process effective and based on a systematic approach?*

Generally yes. The actual process of completing the change control process was working. However, the process did not include a change control log. The PMBOK describes a change log as an output to the Integrated Change Control process. The PMBOK is an internationally recognized best practice reference. This log can then be used to ensure the integrity of changes, verifying the execution of the change within the scope, and also contribute to the organizational process assets (see Area of Concern B).

AREAS OF CONCERN

Areas of concern are possible risks to the successful on time and on budget completion of the project. These risks could result in formidable problems later on if sufficient action is not undertaken. Proper attention and action will lessen the probability of long-term negative effects. Specific recommendations are not provided in this audit since the project is a collection of ongoing management actions with an infinite number of possible course changes and methods of objective accomplishment. The below areas of concern serve to highlight areas that we believe pose a risk without additional oversight.

A. Time sheets were not being collected from SAP contractors

Contractor time sheets were not being collected. The contract executed with SAP explicitly states that SAP will provide weekly timesheets with hours worked and tasks performed for all consultants, both onsite and offsite. Timesheets are an important document that can be used for a variety of reasons. Without the timesheet, invoices cannot be accurately verified so that invoices can be paid with a high degree of confidence. When contractors work in different locations or at differing times, there may be little documentation to support the negotiated contractor participation. Contract audits would also find deficiencies if timecards were missing. Unknowingly paying for services not rendered is a possibility since the contracted price is based on eight-hour work days. Another issue is the ability to validate completed work or uncompleted tasks. From a fiscal perspective, the computed average hourly rate for the SAP FMIS contract is \$170 per hour, while the average hourly rate for the SAP Premium Engagement Services¹ contract is \$346.76 per hour, a figure material enough to warrant substantiation of services rendered.

GRU Comments:

Since most of the consultants subcontract to SAP, each subcontractor submits a log of hours worked to SAP in order to bill the customer. GRU receives a compiled time log of all the subcontractor hours as well as the direct labor hours from SAP. Between the spreadsheet showing hours charged and the invoice breakdown showing what was worked on each day, GRU receives from SAP a comparable reference to document work hours and tasks performed. Although the time log is not directly signed off each week, the invoice is not paid until hours and charges are agreed to by both parties. Any discrepancies or issues determined after the fact are negotiated and credited on subsequent invoices. Completed work or uncompleted tasks are tracked through the project plan and weekly status meetings.

¹ The Premium Engagement Services Contract does not specify that timecards be turned in but services are based on "Schedule 1" days for specific periods.

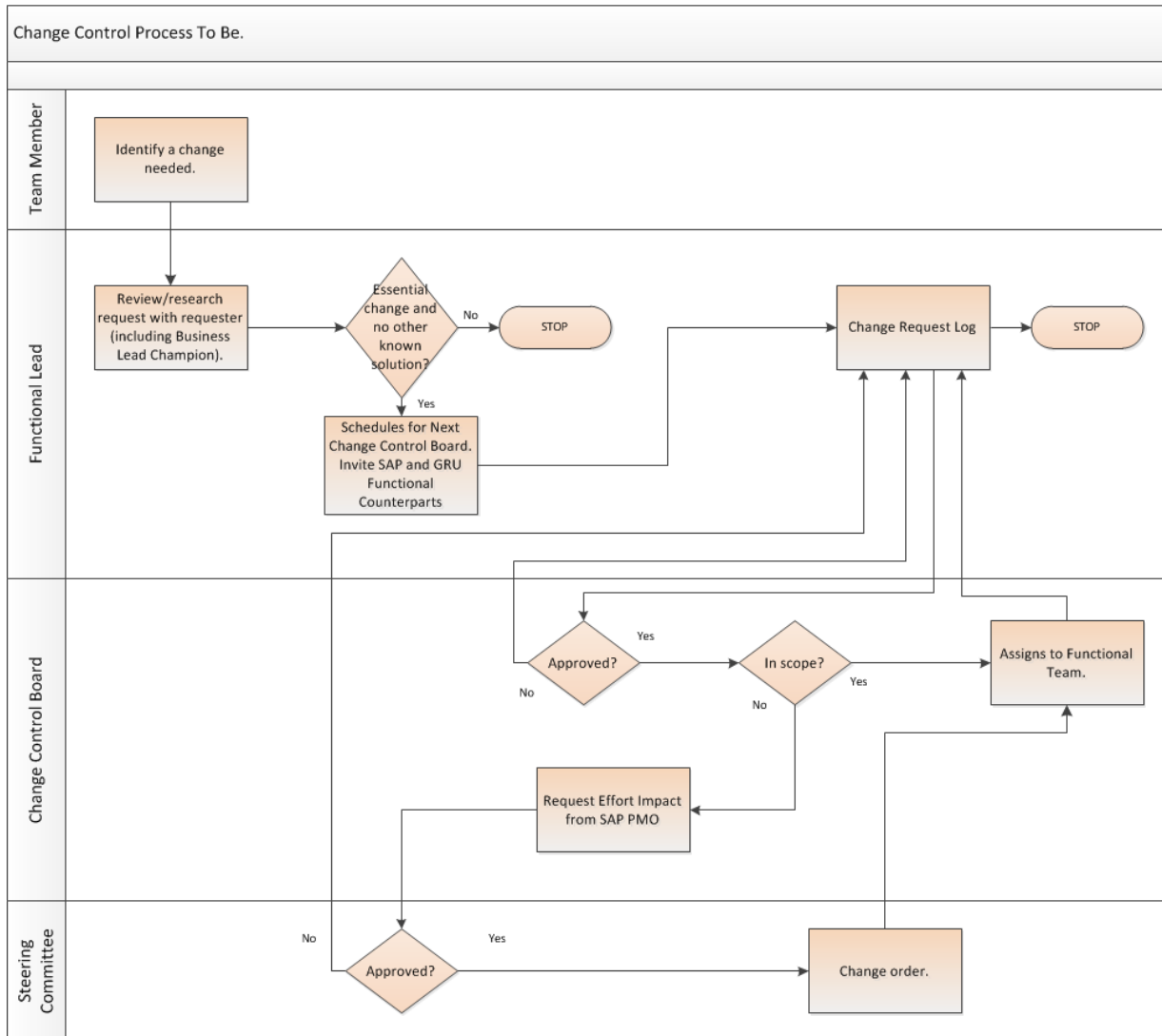
NOTE: Several discrepancies have been review and corrected both for hours worked and travel expenses through this format and process.

B. Change process does not include a change log

The change control process lacked inclusion of an essential element, a change control log. The change control process supported the project in a logical manner to meet requirements and contain risks (an area where projects often get off track with ill-advised changes). However, the process did not include a change control log. The log is an essential element for reviews, audits, and situations requiring a return to a prior state or point in time (possible when problems are initially undetected after changes). The change log has many important functions and is recommended by the PMBOK as an output to the Perform Integrated Change Control process. A change log is considered an asset to any project. It provides the Project Manager with a single source of information relating to all project changes. It increases chances of delivering a project on time and within budget. As shown in figure 6, having a change log directs the process to always begin with the functional lead and end with the functional lead. Having this definitive responsibility helps to ensure that the integrity of the change process remains constant. Also, having a change log removes excess exits to the process, making the process more secure. It should be noted that the previous older installation of SAP included ill-advised underway changes including custom code, which rendered the application unable to receive upgrades or patches from SAP and unable to interface accounting information in acceptable formats.

Not having a change log removes a single historical place to record changes for inclusion in the Organizational Process Assets. Other projects will benefit by having access to this historical data. Turnover of personnel creates a risk in regards to the change process because the changes documented may not be easily accessible. When the time comes for scope validation some of the changes are likely to be missed and not included in the final product.

Figure 6: Change Control Process To-Be Diagram



Source: IT Auditor creation

GRU Comments:

The Change control process does include a change control log. The change control log was not loaded on Sharepoint but was being maintained and updated after each change control meeting. The Change Control Log is now uploaded onto Sharepoint.

C. Policy recognition and execution requires more attention

Policy Environmental Factors refer to conditions, not under the control of the project team, that influence, constrain, or direct the project. Policy Environmental Factors can have positive or negative influence on the outcome of a project. In this case, GRU Administrative Guideline 6.2 procedure C, Contract Management, was not followed for the project (see Area of Concern A related to timesheets). No documentation of a policy audit was found on the Project Cohesion SharePoint site.

GRU Comments:

The SAP project and staff is following all GRU Administrative Guideline 6.2, Section C, and its guidance for contract management.

D. SAP Premium Engagement Services remains unclear and its value could not be readily ascertained (repeat area of concern)

Premium Engagement period one commenced on August 01, 2016. The GRU/SAP table of usage (Figure 7) differs from the "Period 1" table furnished in the contract (compare Figure 7 to Figure 8).

Figure 7: Premium Engagement Services usage

PE Contract Days	Total	Used to date	Remainder of days
Engineering Architect	13	6.0	7.0
Technical Quality Manager	60	24.5	35.5
Service Days	73	20.0	53.0
Expertise on Demand	10	1.0	9.0
Total of days	156	51.5	104.5

Source: Premium Engagement correspondence

Figure 8: Premium Engagement Services Agreement

	Period 1 (08/01/2016 – 07/31/2017)	Period 2 (08/01/2017 – 07/31/2018)	Period 3 (08/01/2018 – 07/31/2019)
Support Resources Quota – EA	13 days	15 days	15 days
Support Resources Quota – TQM	80 days	83 days	83 days
Support Services Quota	63 days	102 days	102 days

From "Schedule 1" SAP Premium Engagement Services Components

Engineering Architect days was stated to be used for service planning, engagement planning, onsite visits and SAP version 1610 discussions. Technical Quality Manager days are slated for service planning, service delivery, onsite visits, SAP message support, Solution Manager analysis/prep for starter pack. Service Days are reserved for technical integration checks. Expertise on Demand is used for Solution Manager Analysis and knowledge transfer. The use of Premium Engagement to ensure successful outcomes is beneficial if the deliverables provide added value. In project management, the only way to determine added value is by obtaining information thorough status reports or being able to refer to tangible outcomes. After the first iteration of this audit included concerns about the Premium Engagement, it was reported that a new agreement was reached with SAP. To date, the City Auditor's Office has received no evidence of an additional signed agreement, only verbal assurances of a new understanding with SAP (including development of a Center of Excellence and "expert judgement"), which presents risks of non-fulfillment and a lack of agreement at a later time as to what the agreement was. It has not been shown how the new agreement is valuable, since there is no signed contract amendment or change order.

Figure 9: SAP Premium Engagement Support Services

Period	Date	Actual Days	Price
1	08/01/2016-07/31/2017	156	\$ 400,733
2	08/01/2017-07/31/2018	200	578,213
3	08/01/2018-07/31/2019	200	563,422
Total:			\$ 1,542,368

Source: SAP Premium Engagement Services Components

Additionally, since the FMIS installation contract already provided for a successful installation in exchange for labor payments estimated at \$ 6,975,122; it is not apparent why an additional 556 man days for \$1,542,368 is needed. Additional concerns are the lack of documentation as to evidence of days/hours worked since no time cards are provided by the contractor.

It is further notable that the Premium Engagement Support contract states it may only be terminated with written notice "90 days prior to the end of a period" as shown in figure 10. Correspondingly, Figure 8 above from Schedule 1 of the same contract states that Period 1 ends July 31, 2017, which indicates that GRU would have only until May 3, 2017, to determine if they are interested in continuing the Premium Services. This differs from discussions with GRU management and the SAP Upgrade Project Manager.

Figure 10: Termination Clause

TERMINATION FOR CONVENIENCE. Either party may terminate this Order Form at any time, for any reason, upon ninety (90) days prior written notice to the other party prior to the end of a Period, but only after payment of all fees then due and owing.

Source: SAP Premium Engagement Support Services Agreement Item 7

GRU Comments:

The Premium Engagement contract merely stipulates the contracted days for Engineering Architect, TQM, Service Days and Expertise on Demand days. How we use those days is individualized for GRU and mutually agreed upon by SAP Premium Engagement and GRU. The usage of these days is mutually agreed to by Premium Engagement and GRU and is shown in the actual PE Service Plan and available on Sharepoint. Flexibility on services such as these is critically important to the successful completion of this kind of project as requirements tend to change.

NOTE: The executive sponsors of the SAP project would like to THANK the audit team for catching the change in language that included a table that had time limits. Subsequently, our team has had the SAP team rectify in writing to stipulate that 'Either party may terminate this Order Form at any time, for any reason, upon ninety (90) days prior written notice to the other party, but only after payment of all fees then due and owing.' This was what was originally agreed to and is now finalized in the documents.

GOVERNMENT AUDITING STANDARDS COMPLIANCE

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate

evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our observations and conclusions based on our audit objectives.

AUDIT TEAM

Carlos L. Holt, CPA, CFF, CIA, CGAP, CFE, City Auditor

Ronald Ison, IT Auditor

APPENDIX A – MANAGEMENT RESPONSE

TO: Carlos Holt, City Auditor

FROM: Justin M Locke, CFO GRU and Co-sponsor for the SAP Implementation

SUBJECT: SAP FMIS Implementation Audit

This is to acknowledge receipt of the Gainesville Regional Utilities audit of the SAP FMIS Implementation Project. GRU and its staff would like to thank the audit team for their interaction on the project as well as their time and effort toward the success of the project. Attached is some updated information since the last review with the audit team. Thanks again for your joint effort on the first steps to making GRU a 21st Century utility.

Justin M. Locke

APPENDIX B – CONTRACT MODIFICATION

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Amendment 2
effective March 20, 2017 ("Amendment")
to
SAP PREMIUM ENGAGEMENT SUPPORT SERVICES AGREEMENT Order Form No. 01 ("Order Form")
effective August 1, 2016 ("Effective Date")

between **SAP Public Services, Inc.**
3999 West Chester Pike
Newtown Square, PA 19073
(hereinafter "SAP")

and **The City of Gainesville d/b/a Gainesville Regional Utilities**
301 SE 4th Avenue
Gainesville, FL 32601
(hereinafter "Licensee")

This Amendment modifies the above referenced Order Form between the parties. In each instance in which the provisions of this Amendment contradict or are inconsistent with the provisions of the Order Form, the provisions of this Amendment shall prevail and govern and the contradicted or inconsistent provisions shall be deemed amended accordingly.

SAP and Licensee agree that the Order Form is modified as follows:

1. Delete Section 7, Termination for Convenience, of the Order Form in its entirety and insert the following in lieu thereof:
"7. TERMINATION FOR CONVENIENCE. Either party may terminate this Order Form at any time, for any reason, upon ninety (90) days prior written notice to the other party, but only after payment of all fees then due and owing."
2. The validity of SAP's offer as presented in this Amendment shall expire March 17, 2017, unless sooner executed by Licensee, or extended in writing by SAP.

EXCEPT AS HEREIN PROVIDED, NONE OF THE PROVISIONS OF THE ORDER FORM SHALL BE AFFECTED BY THIS AMENDMENT.

Accepted by:

SAP America, Inc.
(SAP)

DocuSigned by:
Jon Miller
07ACCEE310F9455...

By: _____
Print name: Jon Miller
Title: Corporate Counsel
Date: March 21, 2017

Accepted by:

The City of Gainesville d/b/a Gainesville Regional Utilities
(Licensee)

By: *[Signature]*
Print name: JUSTIN M. LOCKE
Title: CFO
Date: 3/3/17

Reviewed by Contracts:



Reviewed by Contracts
C. Coffey

Digitally signed by 1803259
DN: cn=1803259, c=DE, o=SAP-
AG,
email=christopher.coffey@sap.com
Date: 2017.03.21 15:28:51 -04'00'