



**A Report to the  
City Commission**

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City of  
Gainesville Office  
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Carlos L. Holt – City Auditor

**Audit of GRU SAP Upgrade  
Interim Report 1**

November 3, 2016

# Audit of GRU SAP Upgrade

## EXECUTIVE SUMMARY

November 3, 2016



### Why We Did This Audit

The audit was included on the City Auditor's 2016 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 transition their SAP Financial Management Information System (FMIS) and Customer Care System to an updated SAP product version. After the Customer Care System is in place, an Enterprise Asset Management system will be added. SAP will provide services for the Financial Management System implementation and execute a Premium Engagement Support Services Agreement, including on-site personnel, for three years that began August 1, 2016. Gainesville Regional Utilities will issue a Request for Proposal/Request for Information for the Customer Care System and one for the Enterprise Asset Management implementation. An Advanced Metering Infrastructure platform, with smart meters, is also planned and will interface with the Customer Care System.

## OBJECTIVES

The objectives of the audit were to determine the following:

- Is the schedule being compared to the planned baseline?
- Are the project costs being compared to the planned baseline?
- Is the project management/team capable?

## WHAT WE FOUND

The project team is functioning within the standards of project performance. However, we found that there are four areas of general concern at this time which can be adequately address by GRU without long-term negative impacts.

- The SAP Premium Engagement Services presents a lack of clarity of services to be provided and value to be received
- There is a lack of visibility of the project schedule due to it not being updated in a timely manner
- The contractor is not filling some key roles when scheduled
- Data migration staffing presents risks to the critical path and completion timeline

## 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 in SharePoint and shared drives, and contrasted the GRU efforts with other cities that have undertaken similar projects.

## CRITERIA

- The Project Management Body of Knowledge (PMBOK) 5th edition
- The City of Gainesville's Purchasing Policy - Resolution #150616
- 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)	-	-
<b>Total</b>		<b>\$ 32,342,368</b>

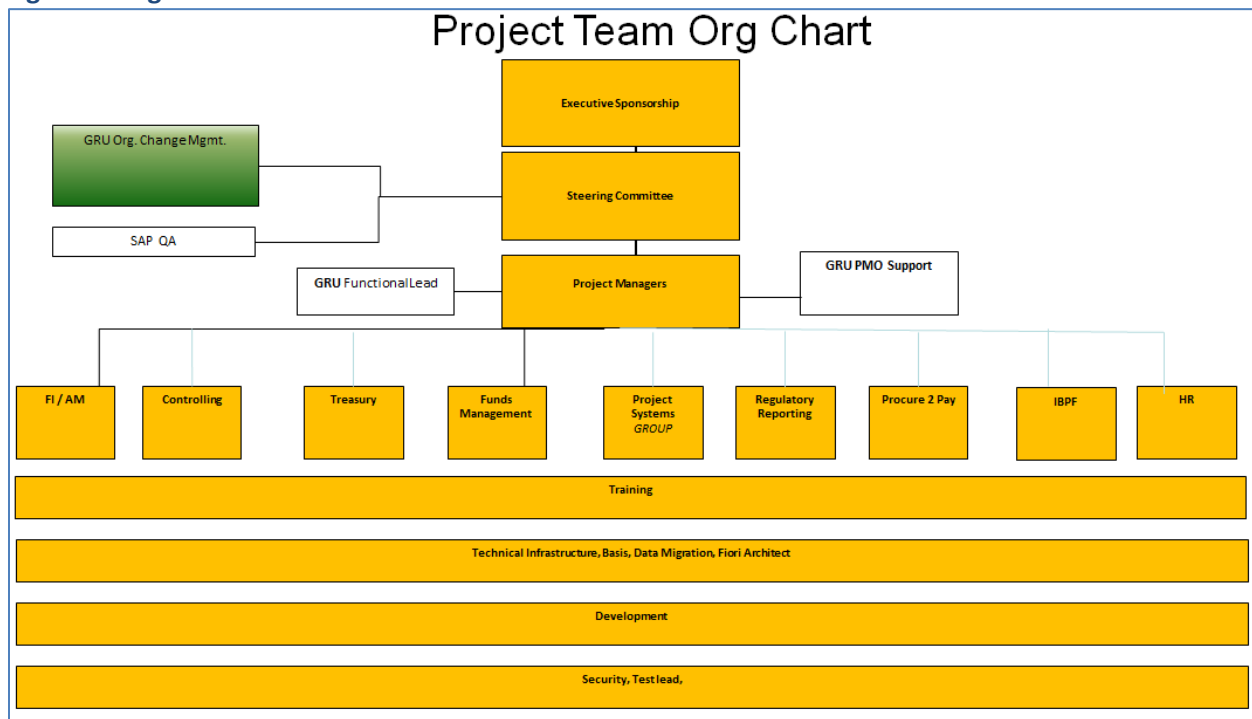
Source for 2016 data: Legistar Document 160181

## PROJECT INFORMATION

### Description

The currently installed version of the SAP FMIS system (ECC6) was implemented with custom code in some areas. Custom code does not allow for standard updating since update versions are written for standard commercial off-the-shelf (COTS) installations. No service packs have been applied to the FMIS since 2007. On November 6, 2014, the City Commission approved \$6 million for the FMIS upgrade. In order to easily update to a current version, the custom code was designated for removal. Only approved SAP processes and SAP compliant applications were to be approved going forward. On July 7, 2016 the City Commission approved another \$4.8 million for the SAP FMIS S-4 HANA 1503 and \$20 million for a Customer Care System and an Enterprise Asset Management System. Contractor *Konnect Prime* was retained by GRU to provide additional assistance preparing for the SAP upgrade primarily in the training and testing area. According to contractor Velocity Inc., a large technology firm from New York City, SAP S/4 HANA is the company's most important release in 20 years. The "S" stands for simple, and the "4" stands for fourth generation of SAP software. They state the new SAP software and platform dramatically reduce the amount of required transactions, have a vastly better user interface, and provide 50 times the throughput of the previous version. A 2015 consulting report found that 39% of organizations choosing a vendor for an enterprise resource planning (ERP) systems chose SAP. Oracle and Microsoft are the next two largest ERP vendors.

Figure 2: Organization Chart



Source: Implementation Kick-Off Meeting July 28, 2016

### Contracts

A contract for FMIS installation between GRU and SAP Public Services was approved for form and legality by the City Attorney's Office and signed by the GRU CFO and SAP representative on June 29,

2016<sup>1</sup>. The estimated services fee, as per the contract, is \$6,975,122 based on 5,069 man days. Any overtime or night and weekend work is not included. Staff members from SAP work onsite Monday thru Thursday and are to work at their home bases on Fridays (paid for eight hours). Overtime would be at the rate of regular 1.5 times the regular pay rate (below). Travel expenses of \$803,683 are predetermined and are being billed in equal installments. Daily rates for eight hours are shown in Figure 3. The hourly average for services to be supplied is \$170.00.

**Figure 3: GRU and SAP Contract for FMIS S4 HANA<sup>2 3</sup>**

Service Element	Service Delivery Location (Country)	Rate (Daily)	Estimated # of Days
Program Management	USA	\$2,877.00	130
Project Management	USA	\$2,383.80	256
Project Management Support	USA	\$1,808.40	13
Functional and Technical Lead Services	USA	\$2,383.80	111
Quality Assurance Consulting and Management	USA	\$2,877.00	20
Execution Services	USA	\$1,808.40	2508
SDC Execution Support Services	USA	\$493.20	2031
SDC Execution Services	USA	\$1,808.40	60

Source: Excerpt from the GRU and SAP Contract of June 29, 2016

A separate contract for three-year SAP Premium Engagement Support Services was signed by the GRU CFO and SAP on June 30, 2016 as an enhancement to the FMIS implementation project. The total value of the 556 man days was \$1,542,368. Figure 4 details the annual prices for eight hour man days to be provided. The total value of the 556 man days was \$1,542,368. The average hourly rate for the Premium and the Engagement Support Services is \$321.10 for year one and \$346.76 overall. Annual period 1 represents actual rates while periods 2 and 3 are estimates since rates may be adjusted by SAP, taking into account a change in the Consumer Price Index.

**Figure 4: 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 Support Services Descriptions v3-2016

<sup>1</sup> The contract was signed 22 days prior to the City Commission approval but contained wording stating that if GRU did not receive additional funding, the contract would end when the remaining \$3 million previously approved had been expended.

<sup>2</sup> The numbers totals to \$6,975,574.20 (\$452.20 over stated contract estimate) and 5,129 man days (vice stated 5,069 man day estimate).

<sup>3</sup> GRU: We agree and acknowledgment the monetary discrepancy between the man-days rate and the overall contract rate - \$452.20 as identified in note 2 on page 4. We received an order form discrepancy from SAP denoting the rounding error between the man-days and estimated service fees.

## ***Risks Associated with the Project***

There are a number of risks associated with a project of this type and there are a number of instances from other municipalities that highlight what can happen without proper project management and oversight. A 2015 report by Panorama Consulting Solutions found that 21 percent of installations were considered failures and another 21 percent were neutral about the benefits of the installation. Cost overruns were a consistent problem with the chief reasons being a lack of adequate planning up front then expanding the scope once the implementation is underway. Projects can also run overschedule for extended periods of time. A worst case scenario can be seen by looking at the SAP implementation in Anchorage, Alaska where \$34 million has already been spent, ongoing costs are \$250,000 a week, and another \$20 to \$50 million in funds is forecast to be needed. Nation's Grid, a New York gas utility, went live with SAP in 2012 and was "wracked with issues" and now faces a \$1 billion total cost, up from the \$383.8 million original estimate. Problems have been identified as using contractors without proven track records, having only conducted limited research and planning, and "over-eagerness" which led to recklessness.

By contrast, other companies have achieved success with a SAP installation. Airgas, a medical and industrial gas firm, attributes SAP with helping it achieve additional operating income between \$75 million and \$125 million per year thanks to leaner operating costs, better price management resulting in better sales. Airgas personnel were highly involved with the installation working alongside contractor Deloitte Consulting to determine specifically the exact functionality required and managing the project from the front end.

## ***Project Schedule/Plan***

The purpose of a project schedule is to represent the plan to deliver the project scope over time. Effective project scheduling is important for project success. Since scheduling is an iterative process, it should have realistic time frames, appropriately assigned resources, and be continuously monitored and updated. Without a planned progression there can be a tendency to lose focus of the specific milestones to be achieved.

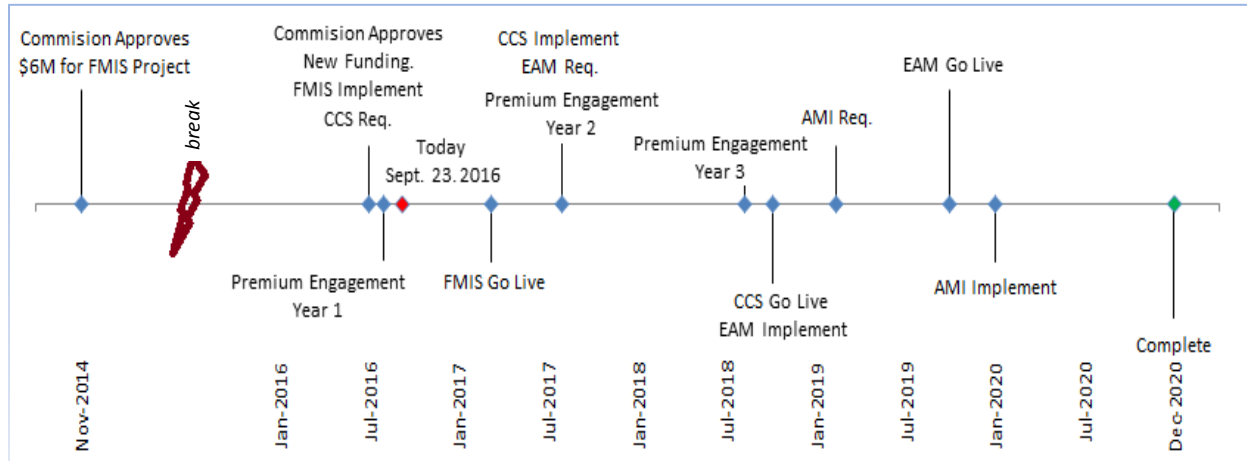
There are several techniques that can be used to compress the project schedule, or catch-up when falling behind. One is *fast tracking*, which is taking activities that were scheduled sequentially but instead working them in parallel. Although this approach adds risk and may result in rework, fast tracking is often used to compress the project schedule. Another technique is *crashing*, which adds resources in one or more areas/activities to complete them ahead of schedule. This is sometimes characterized as throwing more resources at the task or project. Both techniques should be used with careful consideration only. However, without regular schedule monitoring and reporting, these techniques cannot be effectively employed.

Throughout any project of significant size, an open communication process within the project team should be a priority. An effective reporting system can help top management stay informed and aid in decision making. Updates at a general level also help keep team morale high as members understand where their efforts fit and that they were a part of the achievement of project milestones.

## ***Critical Path***

The project manager is responsible for the critical path. The critical path is the sequence of project activities which add up to the longest overall duration. Any delays in the critical path cause overall project completion delays.

**Figure 5: Project Timeline**



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

## OBJECTIVES

1. *Is the schedule being compared to the project baseline?*

**Generally yes.** Frequent meetings indicate the schedule and completion dates are frequent topics and get significant discussion. However, the project’s shared schedule has not been kept current and is not viewable by all stakeholders (see Area of Concern B) and changing timelines from the contractor in the data migration area pose risks (see Area of Concern D).

2. *Are the project costs being compared to the planned baseline?*

**Yes.** The total actual costs for fiscal years 2015 and 2016 as of September 7, 2016 were calculated by the GRU Controller. These costs summarize both Operations and Maintenance, and Capitalized costs. For operations and maintenance, fiscal year 2015 had only \$337 for operational costs and for fiscal year 2016 the actual interim costs were \$2,517,102. The capitalized cost for both fiscal years amounted to \$835,488. Total actual costs as of September 7, 2016 were \$3,352,929.

3. *Is the project management team capable?*

**Yes.** The project team is functioning within the standards of project performance. The project manager is performing team update meetings and receives adequate feedback from the staff. The entire team meets for a project planning meeting once a week and has three standup meetings during the week. On the SAP side, contracted staff begin work on Monday and work onsite through Thursday. The SAP staff then work Friday from their home stations. There were concerns with a lack of clarity of services provided by the Premium Engagement Services Contract (see Area of Concern A) and the filling of roles and availability of the contractors (see Area of Concern C).

## AREAS OF CONCERN

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Areas of concern are possible risks to the successful on time and on budget successful completion of the project. These risks could result in formidable problems later on if no action is undertaken. Proper attention and action will lessen the probability of long-term negative effects since the project is still relatively fresh. 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. SAP Premium Engagement Services Unclear**

The SAP Premium Engagement Service was signed by GRU and SAP on June 30, 2016. The services commenced on August 1, 2016. However, the contract had not yet been afforded a legal review by the City Attorney’s Office as to form and legality. As of September 20, 2016, the agreement had not yet been seen by the GRU assigned attorney, the specified services of the agreement were in dispute, and payment for the first invoice was being withheld by the project manager while the specifics of precisely what services were to be received were being negotiated.

The agreement itself refers to Premium Engagement Support Services terms and conditions current at the time of the agreement “which are found at [www.sap.com/company/legal/index.epx](http://www.sap.com/company/legal/index.epx)”. Clicking on the link or pasting it into a web browser does not result in landing at a particular listing of terms and conditions. Rather, the link connects to a “Welcome to SAP Agreements” site. After using live chat, the auditor was pointed at “SAP Premium Engagement Support Services General Terms and Conditions (PEGTC) portable document format.”<sup>4</sup> After the definitions, there is a listing of general terms and conditions with 10 items (see Figure 6) but the document specifies that “SAP delivers only the PE Services specified in order forms referencing this PEGTC”. Another document titled “SAP Support Services” (see Figure 7) lists eight services that are an “overview of services what *are available* as a component part of a Premium Engagement.” Discussions with GRU personnel indicated their understanding that GRU was receiving the first four levels of services on the SAP Support Services document. However, when the auditor inquired with SAP directly, SAP indicated that GRU had only purchased level one, the Planning and Safeguarding section of the SAP Support Services. As of September 20, 2016, the issue was still unresolved and payment for the first invoice was being withheld and was over 30 days late and may be accruing penalty interest at the rate of one percent per month. A *Termination for Convenience* clause is contained in the agreement but states that it requires 90 days prior written notice, prior to the end of a period, “but only after payment of all fees then due and owing.” Under Schedule 1 of the agreement, fees shall be paid annually in advance.

**Figure 6: SAP Premium Engagement Support Services General Terms and Conditions**

Item #	Description
2.1	SAP Embedded Support Services
2.2	SAP Support Services
2.3	SAP Expertise on Demand
2.4	SAP On-Call Duty Services
2.5	SAP Service Level Agreement

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<sup>4</sup> [http://www.sap.com/bin/sapcom/en\\_us/downloadasset.2014-02-feb-12-13.sap-premium-engagement-support-services-general-terms-and-conditions-turkey-english-v-2-2014-pdf.html](http://www.sap.com/bin/sapcom/en_us/downloadasset.2014-02-feb-12-13.sap-premium-engagement-support-services-general-terms-and-conditions-turkey-english-v-2-2014-pdf.html)



2.6	SAP Root Cause Analysis for Custom Code
2.7	SAP Premium Mission Critical Support
2.8	SAP Baseline Support for Custom Solutions
2.9	SAP Individual Maintenance
2.10	SAP Secure Support Services

Source: SAP Premium Engagement Support Services General Terms and Conditions Document

**Figure 7: SAP Support Services**

Item #	Description
1.	Planning and Safeguarding
2.	Solution Management Optimization
3.	Empowering
4.	Solution Architect
5.	Landscape Transformation Management
6.	Technical Implementation Support
7.	Functional Implementation Support
8.	Custom Solutions

Source: SAP Support Services Document

The signing of this contract did not follow Purchasing Policy Resolution #150616, which states that, “Approval of the City Attorney shall be obtained on all written contracts, except where standardized documents approved by the Attorney’s office are used” (not used on this contract).

The price per hour of the SAP Premium Engagement professional is high. At current rates GRU is paying an average of \$321 per hour for the first period. By comparison *Connect2Client* is a SAP business consulting company that publishes its contractor rates<sup>5</sup>. Connect2Clients highest rate is \$170. Glassdoor advertises a mean salary for a senior consultant at \$115,508<sup>6</sup>. Broken down, the mean hourly pay for a SAP senior consultant is \$56. Calculating the hourly pay by multiplying by 3.5 for salary and overhead (a commonly used industry ratio) would equal a rate of \$196 per hour.

On the project plan cost estimates there is a section at the end stated to be “Hyper Care” for an amount of \$9,596.40. This is after the go-live date for the Financial Management Information System Implementation Project. Section 7 of the SAP Premium Engagement Service has a subsection called SAP Hyper Care. This indicates a potential overlap for some SAP services.

**GRU Comments:**

Since the preparation of this document, GRU has re-negotiated the Premium Engagement contract to include the addition of 10 “on demand” days of services, 10 additional service days, and the reduction of 20 Quality manager days. This provides more flexibility in the services that GRU needs to safeguard the project. With regard to the service days, GRU has renegotiated the service days to include technical integration checks, business process technical validation, security optimization, and go-live support.

<sup>5</sup> (<http://www.connect2client.com/index.php/services/bill-rates>)

<sup>6</sup> (<https://www.glassdoor.com/Salary/SAP-Salaries-E10471.htm>)

GRU has also paid SAP Premium engagement services for CY16 services.

The signing of the Premium Engagement Contract did follow purchasing policy resolution 150616. On June 28<sup>th</sup>, I received an email from purchasing dept. denoting their changes to the PE contract and SOW, so they did review it. Our policy has been to submit to purchasing, let them review it, and purchasing makes contact with the Attorney's office to review as to form and legality.

The GRU project manager and steering committee will be monitoring the effectiveness of this contract because if it does not meet our requirements, we will simply cancel this contract with a 90 day notice.

### ***B. Lack of Visibility of Project Schedule/Plan.***

Many of the key milestone finish dates have passed with zero percent completed marked on the schedule for those items. Other items on the project plan were not showing any production values. It is important to regularly update the schedule in order to compare the actual progress with the baseline. As of September 13, 2016, this was still the case.

The share-point project schedule's version is Microsoft Project 2013. The current approved version for Microsoft Project city wide is version 2010. As a result, not all stakeholders are able to view the document. A reader for Microsoft Project 2013 called MOOS Project was used to read the project schedule for this report. The project schedule should be available to all stakeholders in order to decrease confusion on due dates, which may decrease risk to the overall project.

### ***GRU Comments:***

This area of concern has been recognized by both the GRU and SAP project team and other avenues of project schedule/plan presentation are being reviewed. We expect the outcome of this review to result in a more frequent update to the schedule as plans are modified to adjust to this very complex project. The steering committee recognizes the key to success on this project is the best communication possible including when timing changes and how it affects other key drivers on the project.

### ***C. Contractor Positions/Roles.***

Of the many roles provided by SAP, most important are key personnel for data migration. Data migration is an important link that can cause a project to fail or become unreliable. SAP reported that they were having difficulty filling a key person for data migration. SAP reported that they could not fill the data migration position until two weeks past the required start date. Noncompliance of due dates can cause the project to slip and have a negative effect on the go live date. Other discussions indicate that SAP has other personnel that it wishes to replace or change participation dates and schedules, such as the Solution Architect who wanted to be on the project only one week a month and work remotely one additional week per month.

Not all furnished personnel are SAP employees; rather, several third party contractors were hired by SAP for the project. Genuine company personnel are generally perceived to be more knowledgeable and experienced than contractors. This is usually a key element of the decision to use SAP instead of purchasing SAP with a third-party contractor installation such as Deloitte Consulting or others. GRU could have had a third party do the installations if it desired to do it that way.

Additionally, the contract states that SAP personnel will be onsite Monday through Thursday and work from their homes on Friday, eight hours each day. Participation in meetings on Mondays indicates that

SAP personnel are traveling to Gainesville on Mondays and are sometimes not present until later in the day, rather than traveling on Sunday in order to be present on Monday morning. Some personnel are again traveling home on Thursdays.

***GRU Comments:***

This area of concern will remain a concern for GRU for the remainder of the project. The reality is that Gainesville is a difficult airport to access and GRU will continue to hold SAP accountable to deadlines. The two positions that were vacant are the Solution Architect and Data Migration contractor positions and they have now been refilled.

***D. Data Migration.***

The data migration part is on the critical path. At this time a great deal of attention is being given to data migration; however, deviation from the path will cause the project to be late. Some generic reasons for not completing this on time can be caused by not having experienced and competent personnel to perform data migration, difficult mapping of data, and putting data migration as a low priority. Accurate data is of the utmost importance in order for a system to be reliable. SAP's changing timelines and planned personnel participation in this area presents a risk that this important area will not be completed on time or that it will be migrated with errors such as duplicates.

***GRU Comments:***

GRU understands the critical importance of Data Migration for the success of this project and has hired an additional consultant, outside of SAP, to validate the existing data migration strategy, review our data to be migrated, and produce a data execution plan.

**GOVERNMENT AUDITING STANDARDS COMPLIANCE**

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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**

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

Ronald Ison, IT Auditor

### INTER-OFFICE COMMUNICATION

DATE: October 21, 2016  
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 21<sup>st</sup> Century utility.

Justin M. Locke