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Statement of Work

PROJECT PROFILE

Title: Sales Application Suite 2017 – Development, Maintenance & Support
Sponsor: Office of the City Clerk
Stakeholders: Office of the City Clerk
Urgency:
Up-Time Rqmts: 24 hours a day, 7 days a week, 365 days a year
Desired Launch Date: January 1, 2017

PURPOSE / CASE FOR ACTION

The Office of the City Clerk (OCC), in partnership with the Department of Finance, aldermanic offices and contracted third party sellers, administers the sales of Chicago Vehicle Stickers, Daily Parking Permits, Dog Emblem/Registration and similar City licenses/products. All of these products (Stickers/Permits/Dog Registration/etc.) are entirely dependent upon the collection of applications referred to as the Sales Application Suite (SAS). These products cannot be sold outside of SAS.

The purpose of this Task Order is to ensure:

- Uninterrupted support of the Sales Application Suite, supplemental technologies and the dependent business processes
- Perpetually enhance and perfect the supporting technological infrastructure and functionality
- Resolve new and existing issues
- Meet new system and business requirements
- Build new technologies to support new “near horizon” business programs and achieve new operational efficiencies.

The vendor will continue to comply with the general business environment and business rules outlined in Appendix A.

DETAILED SCOPE

Maintenance

Corrective and Emergency Maintenance

Defined as any website or application maintenance activity that is required to correct a past, present, or potential failure. A system failure in this sense is defined as any repeatable instance where the system in deployment does not mirror to the system as designed. Also known as "bug fixing," this activity may consist of repair, restoration, or replacement of any application component. It includes the diagnosis, analysis, troubleshooting and remediation tasks associated with finding and fixing problems, and restoring service when it is degraded or disrupted. A critical aspect of the analysis includes assessing the severity and criticality of a bug as it relates to the overall system functionality as well as the overall business operations.

Preventative Maintenance

Defined as any website or application maintenance activity that selectively replaces or overhauls website or application components in order to mitigate or reduce the risk of a future system failure, and to improve the maintainability of a system over time. This may include, but is not limited to:

- Restructuring code to improve maintainability
- Applying security patches to infrastructure and third-party products
- Proactively monitoring and tuning system performance
- Replacing embedded code with configurable parameters
- Creating administrative tools to simplify and externalize system controls
- Conducting or responding to vulnerability scans with remediation changes

Adaptive Maintenance

Defined as any website or application maintenance activity required to modify the system to cope with changes in the website or application environment, operational conditions or changing business volumes. It may include but is not limited to:

- Responding to Ordinance or other Regulatory changes
- Responding to changes in business rules, policies or procedures
- Maintaining current releases of third party software
- Adding or modifying interfaces to third party systems

Perfective Maintenance

Defined as any website or application maintenance activity that implements new or changed user requirements which result in functional enhancements to the website or application. This may include but is not limited to:

- Functional improvements to improve business processes
 - User Experience and Usability changes to improve customer interactions
 - Identifying potential issues or trends, and then defining, recommending and implementing actions to address them
 - Reporting changes to improve business planning and decision making
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Support

End User Support (EUS)

Support for end users will include, but is not limited to: accepting communication of an issue from a system user, analyzing the symptoms, determining possible or definitive underlying problems, determining which actions might result in the resolution of the issue, and working with the end users (or their representatives) to implement the proposed solution until the issue has been resolved. EUS may also include the determination that fundamental changes (see Maintenance section above) must occur to bring the application into compliance with client user expectations and requirements. This work can include various resolution methods such as analyzing physical deployment issues, resolving username and password problems, uninstalling/reinstalling applications, verification of proper hardware and software set up, and providing clarification on how to correctly use the application to meet the user's goals (i.e. ad hoc training & tips). EUS must include documenting all identified issues and actions taken, as well as proactively communicating known issues to users. As part of EUS, the vendor will be required to use a ticketing system to manage all aspects of End User Support, including receiving tickets, documenting the work history, internally assigning tickets within the vendor's ranks or where appropriate assigning tickets to other departments/resolvers, and upon resolution close the ticket out.

Additionally, the Office of the City Clerk maintains and staffs a SAS-specific help desk, which constitutes a dedicated multi-line phone number, a dedicated email address, and dedicated office space. When OCC staff are either insufficient or unavailable to handle this duty alone, or in those situations where additional support is required (e.g., the day or two after a major software release), a dedicated SAS Team member will be on site and serve as a supplemental SAS Help Desk staffer.

System Training

This incorporates all training required for client-side users to effectively use the City Clerk website for defined business purposes. As circumstances require and at the direction of the OCC, system training includes but is not limited to:

- Developing user manuals
- Developing recorded video tutorials, using screen capture technologies
- Analyzing current user skills/knowledge creating a user training program
- Maintaining materials related to aforementioned items so that the materials remain updated for all updates/enhancements made to the website
- Providing ad hoc tutorials on website functionality to lead OCC technical staff, so that OCC technical staffers have a continuous and robust understanding of how the website works.

System Documentation

This work could include documenting the system according to modeling and documentation standards such as UML and BPMN, or validating documentation created by OCC technology / analyst staff, such as the Chief Innovation Officer (CIO), or some combination thereof.

Data Analysis

Work with client to enable data analytics and improvement of business intelligence through Sales Application Suite 2017, development of reporting/dashboards, visualization, basic association rule learning, and forecasting. The vendor will assess available or potential SAS capability and additional software to propose a business solution that meets OCC requirements.

Specialized Technical Services

At various times during the application / business lifecycle, specialized functions will be performed which OCC business users cannot execute. These reasons can include, but are not limited to the following:

- Application suite does not provide user interface to perform function
- Users do not have requisite permissions to perform function
- Users do not have expertise to perform the task
- Users do not have time to perform the task due to operational/resource constraints.

The following are known sub-projects/tasks that must be completed in the realm of specialized technology services:

Routine Data Procedures

The Year Round Sales program that is the epicenter of the entire vehicle stickers sales business program requires several data procedures to be run every month. In addition to actually initiating and executing these data procedures, the SAS Team must perform extensive QA review and take as-needed actions to resolve any errors that occur. These procedures include (per month):

- Regeneration of records nearing sticker expiration
- Create renewal communication records
- Export data to third party print/mail vendor
- Deactivate records which have reached end-of-life and can no longer be used to facilitate sales
- Localize Secretary of State Vehicle Registration records and validate the records' wheel tax liability and vehicle typology
- Localize Secretary of State Driver's Licenses / State IDs and validates purchase eligibility accordingly.

Ad hoc reporting

Reports from the SAS database are required, including but not limited to: FOIAs, investigations/auditing, quality assurance programs, general inquiry and operational management/oversight needs. In the future, a reporting database / business intelligence tool will be developed which will support much of these needs. Until such time, virtually all reports must be manually configured and executed in SQL. A joint team of OCC technical staff and SAS Team performs this duty; the SAS Team resources are vital for designing more complex queries, validating queries, and – at times – full-service reporting duties.

Data clean-up

Data errors are prone to occur time and again for a variety of reasons, including but not limited to: gross user error, data procedure errors and application performance errors. When these data errors are detected, the SAS Team must design procedures that will resolve the data errors and work in close collaboration with DoIT/DBA resources to get the fixes implemented and catalogued.

Ward Sale Support

Every May and June, the Office of the City Clerk hosts remote sales events, at which staff use SAS and the CoC's payment applications to facilitate sales of daily permits, vehicle stickers and dog emblems.

Ensuring that the mobile sales stations are fully secure and operational is a complex endeavor that involves hands-on set-up and troubleshooting of equipment and coordinating CoC hardware/infrastructure/security teams, CoC-DoF financial system owners and consultants, OCC operational staff and SAS Team members. This project management / configuration work must be fulfilled by the SAS Team.

Supporting Tools and Software

The SAS requires various tools and additional software to maintain, update and enhance functionality. These tools may be owned, licensed or managed by the vendor and access granted to OCC staff and other designees as needed. Examples include: Postman, SQL, JIRA, etc.

Application Development

The OCC is committed to the following application development projects in 2017 to be completed via this Task Order. Please note that the following list represents a good-faith effort by OCC to provide a comprehensive list of those development activities required as part of this engagement. However, the OCC reserves the right to amend this list as time, resources, and circumstances change. Additionally, detailed specifications and requirements for the to-be-redeveloped applications are presently not available, but will be provided to the vendor prior to initiation of work on the application development scope. OCC business/technologists will work collaboratively to create iterative documentation capturing the business needs of the agency; initial plans may in the format of: written requirements catalogues, screen flow diagrams, prototypes and wireframes, business rules, catalogues, data models (UML), business process / user activity models (BPMN), etc.

- *Expansion of Sales Model.* In CY2016, Joint OCC+SAS Vendor have completed an analysis of various options for the expansion of the sales model (i.e., expanding sales of OCC products to various offices/contractors where such sales presently do not occur) and successfully launched a pilot program. Based on this analysis and pilot, the OCC is now prepared to move forward with the full sales model expansion program, which will include expanding various services to Currency Exchanges / Third Party Sellers.
 - *Technological overhaul, system documentation and sustainability.* Beginning in 2013 and continuing through present day (2016), the Sales Application Suite has been developed in an iterative fashion to continually evolve and expand to support newly-realized business complexities. While the overall design of the application suite has allowed this to evolution to occur successfully from a business perspective, there are current inefficiencies and unnecessary complexities in the "back-end" technological design. These imperfections need to be rectified; the documentation related to the built system and the activities that sustain the system need to be enhanced; and plans for any potential transformation of the system to different environments need to be completed. Cumulatively, the aforementioned deliverables will ensure reliable and dependable service continuity for the long-term, thereby ensuring the sustained service/revenue gains of the last three years for the foreseeable future.
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- *Business Objects, Reporting and Business Intelligence program.* Presently, the Sales Application production database is not replicated in a reporting database, and no integration with the CoC standard Business Objects solution has been configured. This means that various stakeholders perform management analysis on production data, which poses numerous operational risks. It also largely precludes the establishment of a reporting solution that would enable highly competent business users to create/run/export key reports, rather than expensively relying on SAS team to provide reports via specialized technological services. Notably, addressing this issue was originally targeted as an ""adaptive maintenance"" activity in the 2016 budget/Task Order, but was not pursued once it was determined that this endeavor is a much larger project; hence, the slating of this project for the 2017 development budget.
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Appendix A

The Office of the City Clerk's corporate agency website (<http://chicityclerk.com/>) provides a comprehensive outline of the Vehicle Stickers program / Daily Permit program / Dog Emblem program. Administrative guidance for these programs is available online.

- Vehicle Stickers & Daily Permits: <http://chicityclerk.com/sites/default/files/Admin%20Rules%206.15.16.pdf>
- Dog Emblems: <http://chicityclerk.com/community-affairs/dog-registration>

Administrative rules that further define the vehicle sticker / daily permit program are available on the OCC website as well: http://chicityclerk.com/sites/default/files/admin-rules-final_001.pdf

Platform/Hosting

SAS is entirely hosted within the CoC/DoIT environment and deployment is hosted in the City's Data Center and supported by the CoC/DoIT Web Apps Team, who works in close collaboration with DoIT Technical Operations. No third party hosting / infrastructure is involved.

All web applications are built using Java 1.7 and run on JBOSS EAP 6.1/6.4. The main frameworks used within the applications are Spring and Hibernate. The applications manage information held in an Oracle 10G database, which is routinely synchronized with outside data sources through a series of database jobs.

Applications / Business Function

The portfolio of applications which comprise the Sales Application Suite include:

- OTC (aka "Over the Counter"): Facilitates Vehicle Sticker, Daily Permit and Dog Emblem Sales by CoC users, as well as record management and post-sale activities related to each of those business activities (e.g., reissue, transfer, void, etc.). This app does not manage financial/payment information; at point of sale, licensee data is automatically exported from OTC to the CoC standard Payment Manager application. This is a one-way integration: from OTC to Payment Manager. CoC users include: OCC staff; Department of Finance staff; Aldermanic ward staff (ward offices that are authorized to sell daily permits).
- EZ>Buy: <https://webapps1.cityofchicago.org/ezbuy/> This online application facilitates Vehicle Sticker, Daily Permit and Dog Emblem sales in the same way as OTC, albeit online via customer self-service. This app does not manage financial/payment information: at point of sale, licensee data is exported from SAS and payments processed through the City's set of online payment processing services (eCheckout3). Upon determining that payment was successful, eCheckOut provides a data confirmation to EZB, those closing the online sale.

3PS-API: This application provides both SOAP and RESTful web services that licensed Third Party Sellers (which include currency exchanges, check cashiers, financial institutions and some grocery/convenience stores) can access via secure credentials and thereby facilitate product sales at remote locations. The services provided give the Third Party Sellers the ability to search, modify, and create the necessary data to complete most sales and provides the client with all data required to fulfill the customer purchase. This app presently only supports the direct sale of vehicle stickers, as opposed to reissue, transfer, etc.

- Mailbox This is a backend automated procedure collection which receives raw data files from the mail processing solution, validates the files, and uses the data to update/create records, so that downstream printing/assembling/mailing of stickers can occur.
- Deliverability/Order Fulfillment App: This is a collection of apps which (1) receives raw data files from the renewal/receipt print vendor, validates the files, and uses the data to update/create records, thus localizing the deliverability data created by the print house and (2) which exports records from SAS that need to be printed/mailed (i.e. orders placed online and orders managed by the AMS solution).
- Vehicle Ninja: This is a code library that manages all business rules related to new record creation and vehicle typology. This library is integrated into OTC, EZB, and 3PS-API. This ensures that vehicle-related business rules are uniformly and reliably applied across all "live" sales venues.
- Address Validator: This is a code library that manages all business rules related to address validation. OTC/EZB/3PS-API are all integrated to this library. This ensures that address-related business rules are uniformly and reliably applied across all "live" sales venues, and is dependent on both USPS validation as well as City Of Chicago GIS validation.
- Payment Manager Initiator: This javascript "applet" transfers data from the OTC session in the browser to the desktop client Payment Manager. This applet is dependent upon various configurations (implemented in conjunction with DoIT's cashiering application support team) in Internet Explorer.

External Live Integrations

SAS cannot operate if any of the following external services are offline / inoperable:

- USPS API: validates user-input addresses (address, city, state). Address is a component of every record. A record cannot be saved if the address cannot be validated by this API.
- GIS-ELS: similar to USPS API, this app (owned/maintained by CoC-DoIT-GIS) further validates each address validated by the USPS API, thereby returning address components (house number, street direction, street name, street type, secondary street direction, and various GIS fields such as Ward, stadium parking status, lat/long, etc.)
- VIN API: provided by Data One software services, this web service returns make / model / weight / vehicle type and other vehicle attributes with a given VIN as input.
- eCheckOut3: these web services are used to process online payments for products purchased on EZB. This integration only affects EZB.

Database Tables

Roughly 59 tables are utilized by SAS in the administration of the vehicle sticker / daily permit / dog emblem sales programs. It is expected that the vendor will maintain the data integrity of these tables and their use within the SAS. Any changes to these tables will interrupt SAS functionality and OCC business.
