Critical Technology Projects Status Update

The District’s operations are supported by an array of information technology (I.T.) hardware, software and systems. Some are regularly updated or replaced while others can only be upgraded infrequently and at great expense.

Where aging, legacy systems were once focused on automating paper-based tasks, today’s technology looks to shape decision-making by providing accurate data, intuitive interfaces and better training.

This report summarizes the District’s I.T. vision and the status of some of the most critical capital projects now underway.

Vision

The demand for technology-integrated improvements is immense and exceeds the District’s current resources. An integral strategy to address this demand is to adopt a “cloud first” policy that reduces the need for large capital funded hardware and shifts the risk and responsibility for capital investments and uptime guarantees to a third party that specializes in providing servers and hosting services. The District also benefits because security enhancements and upgrades are built into the cloud model. Cloud solutions also provide disaster recovery in the event of a local catastrophic event. During emergencies, cloud technologies enable employees to access AC Transit I.T. systems from nearly any computer connected to the internet. Many cloud solutions offer redundant systems and networks to ensure business continuity.

The cloud approach offers significantly lower upfront capital costs and while operational costs are typically higher, their inclusion of highly skilled 24x7 remote support often tips the scale in their favor. By amortizing the cost of skilled staff and expensive infrastructure across multiple customers, cloud providers supply around the clock access to systems and expertise that most agencies cannot afford to replicate. But cloud solutions are not without risks. There are high switching costs in transitioning to a better vendor or returning to an on-premise solution.

While the cloud offers reduced costs, the District must always maintain a certain amount of on-premise infrastructure. Our core wired and wireless networks provide the data path for
everything from desktop computer applications opening shared files to wireless access for tablet computers and desktop telephones. Local servers provide file storage and a place to host and run those applications that must be implemented on the District’s network (e.g. GIRO’s HASTUS scheduling application.) Having locally hosted user data also provides fast data backup and recovery.

The District’s technology vision is for new and upgraded systems to be deployed in this order of preference:

1. Software as a Service (SaaS), Platform as a Service (PaaS), or Infrastructure as a Service (IaaS), or
2. Owned but hosted, or, if there’s no other choice,
3. Owned and on-premise.

In short, we’ve long had a “cloud-first” policy and prefer solutions that reduce up-front capital costs while providing better operational support. The second choice is to purchase or license solutions but install them offsite with a provider offering cost-effective shared expert resources for round-the-clock support. The last choice is the traditional approach, purchasing and installing solutions on site and supporting them ourselves.

The District’s desired future state reflects this industry shift:

1. A shift from fully owner-operated on premise infrastructure and applications toward contracted or subscription services on a minimum set of local infrastructure, and
2. Cloud-based applications available anywhere and on any device with proper authentication (e.g., our remotely-hosted PeopleSoft and Ellipse applications, District email, and SharePoint.)

Status of Critical Technology Projects

The Information Services department is continuously refreshing and upgrading the District’s infrastructure. Some of these are capital projects such as Capital Project 2154, Wireless Upgrade, which is just beginning to replace the aging wireless infrastructure in all facilities. The Bus Rapid Transit (BRT) project requires the implementation of 40 new switched networks with high-speed distributed fiber optic uplinks. The Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) Replacement project will implement a new hosted data center, new wide area networks, and new voice and data server technology.

The following capital projects are particularly visible and significant to staff:

1. Ellipse 8 Upgrade – Maintenance and Materials Management System

This project upgraded the circa-2005 Mincom Ellipse asset management system to the current 2017 version provided by the application’s new owner, ABB. Functions are primarily in the Maintenance and Materials/Inventory areas plus expanded interfaces to PeopleSoft in order to exchange Purchasing, Receiving, Accounts Payable and employee data.
Significant enhancements in the design of the user interface coupled with a robust training program have led to broad acceptance of Ellipse 8 by the staff that are using it. Completely re-engineered data interfaces use a more robust mechanism and are broader to share more data between systems.

A major shift in this version involved implementing a 'hosted' Ellipse offsite in Denver with a firm experienced in doing so for many other clients. This provides the resiliency and round-the-clock expertise that this critical application requires in order to properly support fleet maintenance operations 24 hours a day, seven days a week.

Ellipse version 8.7.6 went live on Monday, May 8th. Patricia Broadbent, Sr. Project Manager, led this project. Darrell Takara, Project Manager, will lead a subsequent phase which will implement ABB's Ellipse Mobility application to support mobile workers in the Maintenance and Materials Departments.

2. GIRO’s BidWeb, Daily Crew and Daily Vehicle

The District began using the Hastus software products in 2002 with the replacement of Trapeze FX with a suite of modules. GIRO’s HASTUS is the software used at the District to capture bus service information and determine the operator and vehicle requirements. Key functions of the software include optimizing transit schedules and determining the optimal use of the District's bus fleet. Hastus software contains all spatially referenced bus stop and bus route information and other data for export to both internal and external systems (e.g. Google and NextBus) as well as to the District’s enterprise database.

The Hastus BID module is another installed GIRO product. BID is used at each quarterly operator sign-up to record the run (work) selection of each bus operator. Simply, BID uses the work generated by the Scheduling Department to prepare information for bus operators so that the selected work can be correctly associated to the operator's badge number. Reports and data exchanges (interfaces) with other systems are also an important aspect of the use of this software.

GIRO’s BIDWeb is a browser-based application that allows operators to view, research and submit their preferences for work, without reporting to a bus division. BIDWeb works with BID to support the operator sign-up process, allowing operators to choose and enter their choices from any device and any location and at any time during the two weeks leading up to the sign-up. The first operational BIDWeb Pilot will be at Division 3 (D3) for the next month’s June bus operator sign-up. Other bus divisions will implement BIDWeb at divisional sign-ups following an evaluation of this D3 pilot program.

GIRO’s Daily Crew and Daily Vehicle modules add the functions of dispatching and timekeeping to the District's suite of Hastus modules. The Daily Crew and Daily Vehicle applications are scheduled to go-live on September 24, 2017, and will replace the 1980's-era Operator Timekeeping System (OTS) and Transportation Information System (TIS) used by the District.
The shift from using OTS-TIS to Hastus Daily Crew and Daily Vehicle will provide Transportation staff with a tool that has 1) improved visuals of operator information, 2) current vehicle availability, 3) graphical displays, and 4) drag and drop capability that supports the pairing of operators and coaches more efficiently. Since Daily will generate payroll data for PeopleSoft Financials each day (as OTS does now), use of Hastus Daily will require extensive testing and training.

Patricia Broadbent, Sr. Project Manager, is leading both the BIDWeb and Daily projects.

3. PeopleSoft 9.2 Upgrade

This project will upgrade the circa-2008 PeopleSoft 9.0 Financials and Human Capital Management systems to the latest release, version 9.2. This is the last major PeopleSoft upgrade the District should have to do as future releases will be published by Oracle Corp. as downloadable modules that are straightforward to apply and test.

This project is primarily a technical upgrade but enhancements are being developed in these areas and others:

- Enhancement to General Ledger – Enable drill-down to detail transactions (sub-system reconciliation),
- Improve Asset Management data management, depreciation, compliance reporting & asset grouping,
- Improve Procurement business processes (PO Change, Roll Over, PO Close & Short Close,)
- Implement Position Management, and
- Implement Work Centers.

A significant training program is being developed and will be carried out prior to go-live. (The District’s custom Training application is being used to schedule classes, to invite staff and to record attendance.)

The PeopleSoft User Productivity Kit (UPK) is being used to build extensive tutorials for many tasks and processes. This self-paced training provides on-demand instruction on how to use PeopleSoft to accomplish a range of task and processes.

A list of post go-live enhancements have been defined by staff, prioritized by key stakeholders, and will be implemented as project funds permit following go-live.

PeopleSoft 9.2 will go live on Monday, August 7th, 2017.

4. Risk Management Information System (RMIS) Replacement

The RMIS or Claims System is another 1980’s-era application running on the HP3000 minicomputer along with OTS and TIS. It’s used primarily by Risk Management staff in the Legal department to track potential and actual claims arising from accidents and incidents.
Following a competitive procurement, the Claims application is being replaced with a cloud solution called Origami Risk. This will also include a mobile tablet-based solution for electronically capturing accident-incident data in the field and transmitting it in near-real-time to the application.

Historical Claims data has been cleansed and imported into Origami Risk. Remaining steps include the design, development and testing of:

- Data integration with PeopleSoft Financials,
- Web forms for desktop and mobile devices,
- Workflows, and
- Reports.

Darrell Takara is the Project Manager. Go-live is scheduled for September 2017.

5. CAD/AVL System Replacement

The current Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) system went live in 2002. This OrbCAD system from Orbital Sciences Corp. (now a part of Xerox) is many years past the end of official vendor support. The servers run on a long-unsupported version of Microsoft Windows Server and the onboard hardware, while still repairable by Xerox staff, is failing at increasing rates and spares are in short supply.

In May 2015, the Board authorized a contract award to Clever Devices, Ltd. For their CleverCAD CAD/AVL system, BusTime stop arrival prediction system, and related products. The project to implement these is well underway and has nearly completed Factory Acceptance Testing (FAT). FAT Phase I occurred in November 2016 and was successful. FAT Phase II began in late April 2017; several deficiencies were noted, principally around the tablet computers that are for use by Road Supervisors. These are being addressed before proceeding to the next test phase.

The next milestone is the Onboard Systems Integration Test (OSIT) scheduled for late May. Following that, training for a few operators and Operational Control Center (OCC) staff will prepare the District for a mini-fleet test. Mini-fleet will commence in August 2017 and will consist of a maximum of 30 vehicles. Details of how vehicles will gradually become a part of that mini-fleet and tested are currently being worked out.

Dynamic Scheduling is a component that will allow OCC staff to reroute coaches as needed due to emergencies, demonstrations, or other unplanned events (detours); to perform bus bridging; in case of coach cancellations; and for advanced headway management. Testing for this module is scheduled in late September 2017.

The system go-live will be staggered due to the time required to install new onboard equipment. This will be done one Division at a time from November 2017 through February 2018. OCC staff will similarly move one at a time from their current location to the new OCC on the 8th floor of the General Office as batches of buses are completed. Full system acceptance is scheduled for the end of March 2018.

Sandra Lewis-Williams, Sr. Project Manager, is responsible for this project.
I.S. staff are in the midst of a couple of very busy years implementing these projects. Careful attention to schedules and firm contract and vendor management are required to ensure timely and successful completions.

**BUDGETARY/FISCAL IMPACT:**

There is no budgetary or fiscal impact associated with this report.

**ADVANTAGES/DISADVANTAGES:**

This report is being provided to inform the Board of Directors about the status of critical technology-related capital projects.

**ALTERNATIVES ANALYSIS:**

Not applicable to a status report on approved capital projects.

**PRIOR RELEVANT BOARD ACTION/POLICIES:**

March 30, 2016 -- Board Retreat Item 3, Major Information Technology Initiatives presentation

January 14, 2015 -- Staff Report 15-026, PeopleSoft Alternatives Analysis Report

April 30, 2014 -- Board Retreat Item 3b, Technology Infrastructure presentation

**ATTACHMENTS:**

None

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