## STAFF REPORT

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| **Agenda Item:** | 7 | **Name:** | Jenny Giambattista  Hiedi Popochock |
| **Proposed No**.: | 2016-0241 | **Date:** | July 26, 2016 |

**SUBJECT**

A Motion approving the annual report on the benefits achieved from technology projects.

**SUMMARY**

As required by King County Code,[[1]](#footnote-1) all technology projects seeking appropriation authority must complete a Benefit Achievement Plan (BAP) describing how the proposed project will produce an improvement in county services and/or address critical technology replacement needs.

Proposed Motion 2016-0241 would approve the IT Benefits Report for the year ending 2015. The transmitted Annual IT Benefits Report for 2015 is a compilation of BAPs for all technology projects countywide.

Overall, the quality of the BAPs continue to improve as departments shift their thinking about technology projects from measuring whether the technology works to measuring improvements in operations, benefits to the public, or cost savings. The staff report includes summary information on the benefits achieved from completed projects and identifies significant status changes for those projects underway.

Amendment 1 adds seven BAPs to the IT Benefits Report that were not transmitted originally and replaces 18 plans that were revised based on Council staff review.

**BACKGROUND**

In 2013, the Council adopted Ordinance 17654 that requires all technology projects seeking appropriation authority to include with the budget request a Benefit Achievement Plan (BAP) describing how the proposed project will improve operations, benefit the public, maintain critical operations, or generate cost savings. (There are other required budget documents that provide project details, including cost of the project.)

The BAP form (Attachment 4) was collaboratively developed by Council and the Office of Performance Strategy and Budget (PSB) staff to provide decision makers and key stakeholders with concise information on the improvements to operations, services to the public, and/or cost savings of a technology project and measures to assess whether such benefits have been achieved.

The intent of the BAP was to shift the focus of technology investments from measuring whether the technology functioned to measuring whether the department achieved the intended benefits by improving operations, improving services to the public, saving money, or preserving a program that would otherwise be at risk due to failing technology. This shift to a business-centric viewpoint requires significant involvement from the operations staff who will ultimately be using the technology and commitment by departments to achieve the operational improvements, not just implement new technology.

The 2014 budget was the first budget process in which BAPs were considered. In both the 2014 and 2015/2016 budget processes, Council staff worked closely with department staff in reviewing and improving the BAPs. Council analysts consistently reported that the BAP was a valuable tool for working with executive staff to understand the value of proposed projects.

**Annual IT Benefits Report Requirement**

Ordinance 17654 also requires PSB to produce an annual report about the benefits resulting from technology projects.[[2]](#footnote-2) All projects, whether completed or not, are required to update the Benefit Achievement Plan (BAP) with any changes to the expected benefits of the project. The report is required to be transmitted by April 30, annually. The required annual report was transmitted on time,compiles 65 BAPs, and is over 500 pages. Subsequent to the transmittal and upon request, Council staff received BAPs for another seven projects. In total, almost all active or recently closed projects have now transmitted a BAP as part of the annual report.

As shown in Table 1, at the time of the annual report, 61 percent of the technology projects were still underway and thus were not expected to report on completed benefits at this time. Twenty-five percent of projects were completed at the time of the report and were expected to report on benefits achieved.

**Table 1: Number of Projects by Project Status**

|  |  |  |
| --- | --- | --- |
| **Project Status** | **# of Projects** | **% of Total Projects** |
| Not started | 10 | 14% |
| Underway | 43 | 61% |
| Completed | 18 | 25% |
| **TOTAL** | **71** | **100%** |

Council Staff Analysis Process

As part of the Council review process, analysts were assigned to review the BAPs for the technology projects in their corresponding policy area. For example, a transportation analyst reviewed the Transit technology BAPs.

For the projects that were in progress or underway, staff reviewed the BAP to determine if there were any updates, and for completed projects, staff reviewed whether the anticipated benefits had been achieved. For almost all projects, Council staff contacted the department sponsoring the project to discuss progress in achieving the identified benefits. For some projects, Council staff suggested departments make revisions to their BAPs in order for the BAP to better serve the Council as a tool for measuring the success of the project.

All Council staff participating in the review concurred that the annual IT Benefits Report is a valuable opportunity for Council staff to review the status of the County’s technology projects.

**ANALYSIS**

**What types of benefits are achieved from technology projects?**

The BAP asks departments to identify the type of benefit(s) produced by the technology project and indicate which benefit is the primary benefit of the project. Some projects were expected to deliver more than one type of benefit, in which case they were asked to identify their primary benefit and report secondary benefits, such as cost savings, as well. The four types of benefits are:

* **External service benefits:** Improving the quality or quantity of services provided to the public
* **Internal service benefits:** Improving internal operations, including the quality or quantity of internal services
* **Maintaining service levels** by replacing or upgrading older technology
* **Reduced cost or cost avoidance** to produce services

Table 2 below illustrates the number of projects for each benefit category in 2014 and 2015.[[3]](#footnote-3) In 2014 and 2015, maintaining service and internal improvements were the top two primary benefit categories.

**Table 2: Number of Projects by Benefit Category for 2014 & 2015**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Primary Benefit Category** | **2014** | | **2015** | |
| **# of Projects** | **% of Total Projects** | **# of Projects** | **% of Total Projects** |
| Public Benefit | 16 | 18% | 12 | 17% |
| Internal Improvements | 32 | 35% | 27 | 38% |
| Maintaining Service | 39 | 43% | 30 | 42% |
| Cost Savings | 4 | 4% | 2 | 3% |
| **TOTAL** | **91** | **100%** | **71** | **100%** |

Maintaining Service/Upgrading older technology

As shown in the table above, the most common type of projects are those related to upgrading older technology in order to maintain various internal services and services to the public. The large number of projects related to replacing older equipment is to be expected, given the age of many of the county’s technology systems and the life-cycle of technology.

Funding these projects is often necessary in order to reliably maintain service levels, reduce the risk of a system failure, or to comply with regulations. Often these projects replace technology systems that are no longer supported by vendors and/or not compatible with current technology.

In order to achieve the most value from a technology investment, departments are also encouraged to leverage, when feasible, the investment in upgraded technology for operational improvements or public benefits as well. For example, the Business Intelligence Analytics project was necessary because the reporting product King County was using was no longer supported by the vendor. Additionally, the project identified specific measures for how the new system would also bring operational improvements such as improving the quality and accuracy of data for financial decision making and reducing the need for staff to manually extract and manipulate information for their routine reporting.

Improving internal operations

The second most common (38%) type of benefit from technology projects is improving internal operations. These projects typically replace paper or manual processes with electronic ones, integrate technology systems to streamline workflows, or provide mobile records access to field workers. These types of projects may reduce staff time spent on record management, data entry, and/or transport, freeing up time for other activities. They also can result in increased accuracy and improvements in worker and public safety. The following examples demonstrate how technology can improve internal operations.

* The Sheriff’s Office Regional Mobile Identification project has provided 215 law enforcement officers with mobile handheld fingerprint capture devices since project implementation in early 2015. The project enabled the officers to quickly validate a subject’s identity in order to determine the next appropriate action. In order to measure the benefit of the devices, the Sheriff’s Office surveyed 259 officers in 2015 that were trained in using the device and received 56 responses. Of the 56 responses, 79% reported that they received fingerprint responses within two minutes.
* In 2013, the Prosecuting Attorney’s Office (PAO) implemented a modern case management system, to replace their 35-year old system, multiple side systems and paper files. The new system was intended to integrate case tracking and management, workload management, victim and investigative services and case document generation and storage into one system. According to the project BAP, this system will allow the deputy prosecuting attorneys to better prioritize their cases resulting in better, more informed decisions in their work and management of cases. The metric used for this BAP is discussed below.

Measuring improvements can be a challenge for some of the projects when it involved qualitative measures. For example, if a technology project will allow the staff to improve the quality of their work in a specific way, such as to improve ability to manage, make better decisions, or prioritize their work, such qualitative improvements can be challenging to measure. To address this, some projects may benefit from taking a direct approach of surveying those staff as to whether the particular operations have improved.

PAO staff took a direct approach to measuring qualitative benefits briefly described above. In early 2015, the PAO surveyed deputy prosecuting attorneys after implementation of the case management system to determine if the new system had allowed them to better prioritize cases and if it assists them to make more informed decisions in their work and management of their cases. The PAO had a target satisfaction rate of 70 percent. Out of a 100 responses, the PAO achieved an overall satisfaction rate of 86 percent, which exceeded their initial target by 16 percent. The PAO intends to conduct another survey in the third quarter of 2016 to measure the District Court Division. In addition, the PAO will conduct a survey for the Juvenile Division when the system is deployed for this section.

Direct service improvements to the public

Of the 71 projects, 12 identified direct service improvements to the public as the primary benefit of the project. Departments are encouraged to seek public feedback as a way to assess whether the project is achieving its stated benefits to improve services to external customers. Two examples of projects which are intended to have direct service improvements to the public are provided below.

The Department of Executive Services’ Archives Collection Management System (ACMS) Project allowed the public to search current data in ACMS and increased the direct online access to individual ACMS records. Staff will measure the usage rates of the site and seek feedback in an online survey to rate user experience and inform how the system is being used.

The Health Information Technology Project, which is implementing an electronic health record in public health clinics, expects one benefit of the project to be that providers have more time to engage their patients and prioritize health care and whole patient care, thus increasing patient satisfaction. Public Health plans to measure this by surveying patients and providers post implementation. It expects that at least 50 percent of patients will report their satisfaction level with time spent with their providers as “satisfied” or higher.

Cost savings/cost avoidance projects

Two technology projects reported cost savings and/or cost avoidance as their primary benefit, and eight projects reported expected dollar savings as an additional benefit. In most cases, these savings represent either actual cost savings or avoidance of costs that, without the technology solution, departments would have otherwise incurred. The savings range from small to large. An example of a project that will have an additional benefit of cost savings/cost avoidance is District Court’s Unified Case Management System (UCMS) project.

* District Court’s UCMS project will reduce paper documents filed to and produced by, the Court. As a direct result of the project, the Court will realize a net savings of 16 FTE positions through attrition over a three-year period. District Court staff estimate that the total FTE savings for the County will be approximately $2.6 million.

**Analysis of Completed Projects**

Seventeen of the reporting technology projects were completed at the time the annual report was prepared. Of those completed projects, ten projects were ready to report on the benefits achieved and are shown in Table 4 along with a brief description of the benefits achieved. The page numbers in the table refer to the location of the project BAP in the revised annual report (Attachment 3).

**Table 4: Completed Projects Ready to Report Benefits**

|  |  |  |
| --- | --- | --- |
| **Department** | **Project** | **Benefit** |
| **Maintaining Service Levels** | | |
| **Council** | High Definition Upgrade for KCTV | Upgraded aging equipment and provided for high-definition broadcasting. (Page 31) |
| **Elections** | Overseas & Service Voter Ballot Delivery System Enhancement | Upgraded aging system to maintain electronic voting access for overseas voters. (Page 381) |
| **Executive Services** | PeopleSoft 9.2 Upgrade | Upgraded to ensure continued product support.  (Page 21) |
| **Information Technology** | Administration Building Re-Wire Project | Upgraded aging cable and improved connection speeds. (Page 397) |
| **Internal Service Benefits** | | |
| **Assessor** | Tablets for Appraisers | Appraisers were able to inspect more parcels per days, appraisal hours remained constant despite increase in parcel counts. Project allowed for more time for new construction appraisals. (Page 139) |
| **Information Technology** | Business Continuity | Improved systems and developed a plan to ensure continuity of IT services in emergencies. (Page 437) |
| **Information Technology** | Workstation Standardization Project | Reduced the time required to configure new desktop computers. Computers can be configured 50 or 60 at a time versus 1 or 2 at a time in the past. Project did not track the additional value added work that could be accomplished with freed up staff time. (Page 523) |
| **Sheriff's Office** | Regional Mobile Identification Project | Officers were able to easily and quickly (within 2 minutes) access data for identity checks in the field and avoid transporting subjects for identity checks. (Page 537) |
| **Transportation** | Roads Comprehensive Asset & Maintenance Management | Replaced paper system with searchable database and reduced hours required for completing work. Completed BAP provides significant details on hours saved, but the BAP did not track how that time was reinvested or customer service improved. (Page 163) |
| **External Service Improvements** | | |
| **Transportation** | ADA[[4]](#footnote-4) Broker Equipment | Added text and other features for phone system for Access Transportation Program. Project was subsequently replaced with different product. Much lower use of features than originally projected. (Page 173) |

As shown in Table 5, seven completed projects need more time to report on final benefit status and plan as part of the 2016 IT Benefit Report. The page numbers in the table refer to the location of the project BAP in the revised annual report.

**Table 5: Completed Projects that Need More Time to Achieve Full Benefits**

|  |  |  |  |
| --- | --- | --- | --- |
| **Department** | **Project** | | **Status** |
| **Maintaining Service Levels** | | | |
| **Information Technology** | | Business Empowerment & User Mobility | Network improvements to increase capacity. Bandwidth target was achieved and the capacity for the number of concurrent remote access users increased from 500 to 5,000. However, the number of access points which would improve wireless connections did not reach its target because the target is dependent on another project which is still active. (Page 451) |
| Mainframe Application Migration | Moved applications from obsolete technology. Cost savings delayed by at least a year due to project delays. Project expects to achieve $2.3 million in annual savings starting in 2016 and will report actual savings in 2016 annual BAP report. (Page 495) |
| **Internal Service Benefits** | | | |
| **Community & Health Services** | | Designated Mental Health Professionals Public Safety Project | Created mobile access for mental health field workers to clinical records. These clinical records include important safety related information about the client. The project benefit target was for field staff to always have access to this critical information before meeting with clients and reduce the return trips to the office. While the project made some progress in these areas, it was less than expected by the target dates. DCHS reports the project experienced challenges with the technology and from implementing the significant business process changes. Many issues have been resolved and DCHS expects to continue making progress on their metrics and will report on their progress next year. (Page 65) |
| **Information Technology** | | Systems Management | Implemented system management tools which should reduce major incidents, and time to restore major service after incident. More time is needed to measure benefits. (Page 513) |
| **External Service Improvements** | | | |
| **Executive Services** | | Archives Collection Management System | New system was implemented in February 2016 and the entire collection is now searchable on-line with increased direct availability of records online. Expected benefits are greater visits to website and positive customer response. More time is needed for the public to learn about the system and measure expected benefits. (Page 87) |
| **Reduce Cost or Cost Avoidance** | | | |
| **Information Technology** | | Phase III Cloud Implementation | Project transitioned servers to a cloud[[5]](#footnote-5) environment, which are less expensive to operate than standard servers. Additional savings are expected as more servers move to cloud and thus more time is needed to report on total savings. (Page 459) |

**Analysis of Ongoing Projects**

As part of the review of the BAPs, Council staff identified significant status changes in the projects listed in Table 6. In some cases, these changes will result in changes to the benefits and in others a delay in delivering the expected benefits. The page numbers in the table refer to the location of the project BAP in the revised annual report.

**Table 6: Ongoing Projects with Significant Status Changes**

|  |  |  |
| --- | --- | --- |
| **Department** | **Project Name** | **Change from prior BAP** |
| **Maintaining Service Levels** | | |
| **Information Technology** | Countywide Telephone System Replacement/Unified Communications | This project is replacing the legacy phone system with an internet phone system. Significant savings are expected once the legacy phone systems can be retired and the county no longer pays for those phone charges. Project schedule and expected savings have been delayed at least one year. KCIT is measuring customer satisfaction with deployment efforts and overall customer satisfaction with new communications system. (Page 421) |
| **Natural Resources & Parks** | Parks Scheduling Project | Project will allow for on-line reservations. Project has been delayed six months. (Page 117) |
| **Public Health** | Jail Health Digitizing X-Rays | This project is on hold pending implementation of electronic health records. (Page 345) |
| **Sheriff’s Office** | IRIS/TESS Replacement | Project is intended to replace and consolidate evidence management and the incident reporting systems. KCIT’s project tracking system reports there are continued challenges with implementation of the new system. The project has experienced significant delays. Project started in March 2008 and is now expected to be completed in March 2017. (Page 553) |
| **Transportation** | On-Board Systems/ Communication Center System (OBS/CCS) | The OBS/CCS Project provides the user interfaces and controls required to implement the new Transit Radio System. The project, which started in 2006, experienced significant delays and is expected to be completed in 2016. (Page 259) |
| Rider Information Systems (RIS) – TABS | Project will replace the outdated tool for creating bus schedules and timetables. Project is on hold and will be seeking additional funding in the 2017-18 budget. (Page 305) |
| **Internal Service Benefits** | | |
| **Adult & Juvenile Detention** | Distributed Antenna Network | Project did not complete installation of radio signals on all 12 floors of jail as stated in BAP. Department reports that the adopted BAP was based on a larger appropriation and the BAP was not updated subsequent to the reduction in the budget for the project. Project will be seeking remaining appropriation (to complete floors 8-12) in the 2017-18 budget. (Page 37) |
| **Executive Services** | NeoGov Replacement | Project will replace the county’s hiring system. Project will request additional appropriation in the 2017-18 budget as solution is more costly than anticipated. (Page 77) |
| **Information Technology** | Enhance Wireless Connectivity | Project was intended to improve wireless connectivity at 40 county sites. Project underestimated budget needs and will be limiting project to courthouse and some district court sites. (Page 479) |
| **Prosecuting Attorney** | Integrated Document Exchange Project (IDX) | The project is intended to allow police agencies to file documents electronically with the PAO rather than delivering them downtown where the data is manually entered. Project has been implemented, but has not achieved significant adoption yet. Work is continuing to improve adoption and thus project will report again next year. (Page 571) |
| **Public Health** | Electronic Medication Administration Project | Project is on hold pending implementation of EPIC electronic health records. (Page 621) |
| **Public Health** | Regional Emergency Medical Dispatch & Telecommunicator-CPR Quality Improvement Application | This project will offer a quality improvement and feedback module, including the ability to provide playback calls, annotate calls, generate interaction analytics, and perform quality assurance, coaching, and performance reporting functionality. Only one vendor submitted a proposal in response to the RFP. After thorough review, the project team determined this vendor was not qualified to provide the desired level of functionality and the cost of licensing for the software was too high and over budget. The RFP was withdrawn from procurement. The EMS Division is preparing a scope of work to meet the desired functionality using an internal product similar to the EMS Division Cardiac Case Review linked to the EMS Online platform. (Page 599) |
| **Sheriff’s Office** | Atlas Scheduling Project | This project implemented an electronic scheduling system. Most units are now using the system. Significant delays in project implementation. Project started in January 2011 and is now expected to be completed in March 2017. (Page 545) |
| **External Service Improvements** | | |
| **Permitting & Environmental Review** | Permit Integration | Project began in 2009 to create an integrated permitting system. Project experienced many delays. Next phase of project is to provide online permitting services. (Page 337) |
| **Public Health** | eCBD/CAD Interface at Valley Communications | This project will implement an application to improve access to data for improving services. Significant delay of project into 2017 due to dependencies with other equipment. (Page 641) |

**Average time to complete annual review**

The Benefit Achievement Plan (BAP) is intended to be a simple form for a project to report back on the status of the benefits of the project. For most projects, completing the annual review took less than one hour.

**Challenges in measuring and reporting benefits from technology investments**

As noted in the Executive’s report, some departments continue to struggle with how to describe a project’s anticipated benefits and measure the benefits achieved. The Executive’s report also noted it took a significant amount of time for projects to complete the initial BAP. (Council staff do not have data for this at this time, but will plan to collect that data for next year.)

The challenges with reporting are to be expected, as departments adjust to a significant shift in how technology projects are evaluated for funding and how their performance is measured. With the BAP process, the focus of the BAP report is on measuring the improvements to the business operations and customers, not assessing whether the technology is functioning. Thus, it will continue to take training for departments to orient to a new vision of measuring the results from technology projects.

**Best practices for developing a BAP**

To date, Council staff have reviewed over one hundred BAPs and identified the following best practices for developing a BAP.

1. The technology and business staff should collaborate closely by discussing intended benefits of the project early on so the project is structured around achieving the identified benefits. This collaboration is necessary because achieving benefits often requires significant changes to business processes.
2. The BAP should describe how the improved technology will improve operations or services to the public as appropriate and why that improvement is valuable. For example, doing something faster is not a benefit by itself without explaining, why the expediency offered by the technology would be beneficial or what could be accomplished with the freed-up staff time. Avoid general statements such as “project will result in efficiency” and instead describe the efficiency in specific terms.
3. If FTEs will not be reduced or budget reductions made, it is more informative to track additional work accomplished or the improvements to a service.
4. Use simple, non-technical language to describe improvements. The benefits should be understandable to readers without specific departmental or technical knowledge.
5. All stated benefits should have measurements which can be used to assess whether the investment achieved the described benefits. In most cases, it is not feasible or cost effective to measure precisely whether the project directly influenced a particular metric. However, the metric should provide a reasonable indication that the benefit has been achieved.

As more and more projects approach the BAP using these best practices, the time necessary to complete the BAP should decrease and the quality of the BAP should increase.

**Budget process critical for ensuring benefit focused projects**

The budget appropriation process for a particular project is the best opportunity for the Council to improve the quality of the BAP and help a department to focus on achieving the benefits the Council considers most important. During the 2014 and 2015/2016 budget processes, the Budget Committee did not approve technology projects for funding until the BAP for the project with internal or external benefits clearly described those benefits and identified measures for assessing whether those benefits have been achieved. If the Council continues this process in the future, in just a few years, it is expected that all of the technology projects within the County will have well-defined BAPs for measuring the benefits from technology projects.

Additionally, when evaluating funding requests from a department for new technology projects, the Council may wish to consider the department’s level of compliance with the BAP reporting requirement for its existing technology projects.

**BAP updates from over 57 projects in 2017**

Council staff reviewed all of the BAPs within the IT Benefits Report to determine which projects will require continued reporting in 2017 (ongoing projects and projects that have been completed but not yet reported on final benefits). Attachment 5 includes the list of those projects which should provide an updated BAP as part of the 2016 IT Benefits Report.

**AMENDMENT**

Council staff have prepared the attached amendment for consideration. It adds seven BAPs to the IT Benefits Report that were not transmitted originally and replaces 18 plans that were revised subsequent to the transmittal of the IT Benefits Report to the Council. Most revisions (12) were basic, such as providing clarifying information to the existing data. Three BAPs required a moderate level of revision, such as adding an additional metric to be used to measure whether a benefit is achieved. Three BAPS required significant revisions where additional benefit categories were added or changed.

**ATTACHMENTS**

1. Proposed Motion 2016-0241 (and its attachments)
2. Transmittal Letter
3. Amendment 1 and its attachment
4. Benefit Achievement Plan form
5. Projects Reporting in 2017

**INVITED**

1. Bill Kehoe, Chief Information Officer, Department of Information Technology
2. Gaukhar Serikbayeva, Executive Analyst II, Performance Strategy and Budget

1. K.C.C. 4A.100.030F.(2) [↑](#footnote-ref-1)
2. K.C.C. 2.16.025B.8.(i) [↑](#footnote-ref-2)
3. Table 2 includes only the primary benefits identified by projects. Projects may have secondary benefits as well. [↑](#footnote-ref-3)
4. Americans with Disability Act [↑](#footnote-ref-4)
5. Cloud refers to storing data and applications in a location accessed via the internet as compared to a server in the same physical location as the computer [↑](#footnote-ref-5)