GO COMMITTEE #1
November 10, 2016

Worksession

MEMORANDUM

November 10, 2016

TO: Government Operations and Fiscal Policy Committee

FROM: Dr. Costis Toregas, Council IT Adviser

SUBJECT: Semi-Annual Review and Update – Interagency Technology Policy and Coordination Committee (ITPCC)

Expected to attend:

ITPCC Members
ITPCC CIO Subcommittee Members:
- Henry Mobayeni, M-NCPPC (Chair)
- Sherwin Collette, MCPS
- Mujib Lodhi, WSSC
- Carl Whitman, Montgomery College, or Representative
- Sonny Segal, Montgomery County Government
- Ian Williams, HOC

Gary Thomas, ITPCC Staff
Scott Coble and Naeem Mia, Office of Management and Budget
Leslie Rubin, Office of Legislative Oversight

Background

The Interagency Technology Policy and Coordination Committee (ITPCC) is a unique institution; it brings together all six agencies of County government, both at the policy level through their Executives and at the technology level through their CIOs, to jointly consider strategies that optimize the deployment and use of information technology for all County residents, visitors, and businesses. Given the stovepipe nature of the budget development and implementation cycle within agencies, the utility of a single entity that can collaborate on solutions that cross administrative boundaries is essential, both today and for the future. The enabling legislation for ITPCC is on ©1-2.

There are four specific targets for Committee consideration:

1. To receive and discuss the bi-annual update of the ITPCC (on ©3-13)

Council Staff comment

The update is a good overview of the many issues now underway within the ITPCC work program. Three issues are worth underlining:

a. The Broadband Road map has now been formally adopted by the ITPCC and brought under its work plan. The importance of this is that it identifies all six ITPCC agencies as stakeholders when it comes to developing a broadband vision and a broadband implementation schedule, and ensures that the Committee-supported efforts to unify technology investments across the County enterprise are more directly responsive to all County residents, businesses, and visitors.
b. The discussion on FiberNet deployment opens a broad vista for new and more effective management and leadership platforms and alludes to the potential of an independent broadband authority, a topic of interest to the Committee for some time.
c. An important technology term, "DWDM", has come into the vocabulary – dense wave division multiplexing – as defining the new FiberNet III strategy. DWDM is a technique through which more information is transmitted through the same physical fiber infrastructure by using sharing techniques called multiplexing. Already a reality, the Committee will see the DWDM term more often.

2. To receive OMB's thoughts on creative ways to finance interagency projects and more generally to approach the long-term funding of ITPCC's Work Program

Council Staff comment

It has been a long standing strategy that current budget and funding mechanisms, both CIP and Operating Budget processes, including the "regular" budget process, and supplemental appropriation processes, are adequate for all interagency project funding needs. In 2008, prior to the onset of the "Great Recession", the Council resolved that a small part of the undesignated Current Revenue reserves ($2.1 million) be formally designed (i.e. reserved) to fund interagency technology projects. These reserved funds were unappropriated reserves, meaning that agency specific projects could be funded via direct appropriation from this source to the agency leading the project effort. This worked very well, but by early 2009, the recession necessitated removal of the designation for the technology fund reserves and redirection of the reserve for the fiscal emergency. Reestablishing a designated Current Revenue reserve (i.e. unappropriated funds) specifically for interagency technology projects could encourage interagency project development in the years ahead.

In order to begin the deliberative process that will establish such a new funding mechanism, Council staff communicated with the Office of Management and Budget and requested that options be developed for such an approach. ©14 displays the ideas generated so far on this matter.

3. To discuss the potential for improving the effectiveness and efficiency of enterprise-wide IT project development and deployment

Council Staff comment

The structure and operating strategies available to the ITPCC leadership were developed through Council legislation almost two decades ago. In a field as rapidly changing as technology, it is wise to reconsider that enabling legislation (on ©1-2), and think of changes which might continue to serve the excellent targets of interagency collaboration and sharing articulated so long ago, but do so in a way that moves decisions, funding and actual implementation along much faster that currently allowed. Looking at the excellent ITPCC work program, it is clear that developing the funding and implementation strategy is no closer now than when the committee reviewed the NDA for ITPCC 6 months ago. The Committee members may want to articulate what parts of the existing legislation could be improved, and then request that the IPCC reflect and suggest new models that would organize the ITPCC agency requirements in a more efficient manner.

4. To receive a new report from the Office of Legislative Oversight on IT procurement as the topic is of current interest (note that this OLO report is not currently on the ITPCC agenda)

Leslie Rubin, the author of the OLO Memorandum Report 2017-2 on "Emerging Models in Government Technology Procurement" (on ©15-24) will be present to address any specific questions Committee members may have regarding this report.

Resolution No.: 12-1758
Introduced: July 19, 1994
Adopted: July 26, 1994

COUNTY COUNCIL
FOR MONTGOMERY COUNTY, MARYLAND

By: Councilmember Praisner

Subject: Reconstitution of Interagency Technology Policy and Coordination Committee

Background

1. The County Council recognizes the importance of all forms of technical innovation, especially those rapidly changing electronic technologies such as computer mapping, telecommunications, and automated information services.
2. The County Council established the Interagency Technology Coordination Committee by resolution on July 27, 1984.
3. The efforts of the Interagency Technology Coordination Committee and its subcommittees since 1984 fostered the coordination of county computer systems, information processing and purchase of computer hardware and software, and the committee provided valuable budget recommendations to the County Council.
4. The Council desires that these activities continue to expand to keep pace with the need for planning and coordination, especially in the areas of computer mapping and telecommunications, with their emerging opportunities for interagency linkage and economies of scale.

Action

The County Council for Montgomery County, Maryland, approves the following resolution:

The Interagency Technology Coordination Committee is hereby reconstituted with broader responsibilities as the Interagency Technology Policy and Coordination Committee.

This Committee shall have the following general duties and responsibilities:

(a) to promote and enhance the coordination of technological innovation among and within the various agencies of government in Montgomery County, with particular emphasis on electronic technologies relating to telecommunications, computer mapping, and automated information systems.
(b) to create a communication vehicle by which the various agencies of government can assist the County Council and each other to develop sound and efficient public policies to evaluate alternative uses of these technologies as they proliferate and become more important to the cost and operations of government.
(c) to facilitate the coordinated implementation of such countywide policies through the mutual development of practical plans, proposals, and recommendations concerning individual agency expenditures for electronic hardware, software, equipment, and related issues.
(d) to provide a discussion forum for the sharing and evaluation of information pertaining to such new technologies, including their various economic, social, and operational costs and benefits.

This Committee shall begin fiscal year 1995 with the following specific duties and responsibilities:

- To recommend, by September 30, the appropriate relationship between the ITPCC and the Technology Innovation Fund Committee.
- To recommend a procedure for the selection of the ITPCC Chairperson and the Chairpersons of the subcommittees.
- To develop a proposed committee work program for fiscal year 1995, based on perceived needs and priorities.
- To review this work program with the Management and Fiscal Policy Committee within three months from the adoption of this resolution, and to maintain general liaison with the Council through its MFP Committee and thereafter.
- To request the commitment of resources from each member agency sufficient to show significant progress in implementing this work program, with an approximate schedule of meetings of the full committee, and such similar meetings of the subcommittees as are necessary to accomplish the objectives of the work program.
- To recommend joint ventures to research and implement automation solutions, such as document imaging.
- To recommend a standard data collection spreadsheet that can collect the costs of all computing, telecommunications, and GIS activities of all agencies into standard classifications.
- To recommend a mechanism for soliciting appropriate non-agency, private sector support and input it these efforts.

The Committee shall be composed of the following government officials:

- The Montgomery County Chief Administrative Officer
- The Superintendent of Montgomery County Public Schools
- The President of Montgomery College
- The Chairman of the Montgomery County Planning Board
- The General Manager of the Washington Suburban Sanitary Commission
- The Staff Director of the Montgomery County Council, who shall serve as an ex officio, non-voting member

Initially, there shall be established also three standing subcommittees, called respectively the GIS Subcommittee, the Telecommunications Subcommittee and the Computer Subcommittee, which shall take direction from the Interagency Technology Coordination Committee, and which shall be composed of one member from, and designated by, each of the voting agencies represented on the Interagency Coordination Committee.

The Chairman of the Montgomery County Planning Board shall be the Chairperson of the Committee for FY95 and shall be responsible for the normal duties of a committee chairman, including the appointment of chairs to subcommittees, and such other tasks as may be appropriate from time to time.

The funds placed in the Montgomery County Department of Information Systems and Technology (DIST) FY95 budget shall be used to provide appropriate support to the Committee and its subcommittees.

This is a correct copy of Council action.

Kathleen A. Freedman, CMC
Secretary of the Council

MONTGOMERY COUNTY PLANNING BOARD
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

OFFICE OF THE CHAIR

November 3, 2016

The Honorable Nancy Navarro, Chair
Government Operations and Fiscal Policy Committee [GO]
Montgomery County Council
Stella B. Werner Council Office Building
100 Maryland Avenue, 6th Floor
Rockville, Maryland 20850

RE: Interagency Technology Policy and Coordination Committee (ITPCC)

Dear Chair Navarro:

The Interagency Technology Policy and Coordination Committee (ITPCC) is pleased to update the GO Committee regarding the implementation status of the ITPCC work program (See Attachment A). This plan represents a radical change to previous work plans. It now integrates the ITPCC work plan presented to the GO Committee on April 19, 2016, with the joint Executive and Council Broadband Roadmap initiative (version 1.0, July 20, 2016). Under this new arrangement, ITPCC will provide oversight to the implementation efforts for the projects encompassed by the Broadband Roadmap as reflected in the ITPCC Work Plan. This multi-year work plan should be viewed as a 3 to 5 year effort. It coordinates and aligns interagency technology solutions to transform how the citizens of Montgomery County live, work, and learn. These efforts will contribute to expanded opportunities for our residents and improve the quality of life of our community.

The new ITPCC work plan contains four strategic areas, each with multiple action items/projects: (1) Access to Data, Information, and Tools will create public and private options that expand Montgomery County residents' access and skills to leverage technology to improve their lives and participate in the digital economy; (2) IT Infrastructure will strive to maintain a robust, reliable and cost effective county network which provides the capacity needed for any agency to support its mission; (3) Sustainable Investments will enable support for our collaborative efforts over time; (4) Continuity of Operations, Risk Management, and Security will focus on increasing resilience, minimizing service disruptions, and enabling recovery if bad things happen; ensuring confidentiality, integrity, and availability of data; and reducing risks for critical service delivery. A designated CIO Subcommittee workgroup is diligently engaged in implementation efforts for the new work plan.

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For this report, we will not replicate information provided at the September 15, 2016 GO Committee meeting where the CIOs provided detailed responses to Council questions regarding the Broadband Roadmap implementation approach, interagency Open Data implementation, plans for addressing the educational equity issue currently referred to as "the Homework Gap," potential interagency approaches for VoIP systems/PBX alternatives, and funding solutions for the ITPCC work program.[1]

Since the September 15, 2016 GO Committee meeting, the CIO Subcommittee has focused on finalizing the recommended work plan, seeking ITPCC approval, and has initiated detailed planning work required for project implementation over the next several years.

ITPCC Work Plan Development and Implementation--Overview

On February 2, 2016, the ITPCC approved the FYs17-18 FiberNet work plan by unanimous vote. The FiberNet work plan is a major component within the new ITPCC work plan and is being implemented on schedule and within budget.

Between March and April 15, 2016, the CIO Subcommittee participated in three work sessions led by MCG DTS intended to develop a Montgomery County Broadband Roadmap. On April 19, 2016, ITPCC presented its draft FYs17-18 work plan at the GO Committee. At this session, Council requested that the Broadband Roadmap be integrated with the ITPCC Work Plan with implementation oversight to be provided by the ITPCC. On May 10, 2016, the CIO Subcommittee met and designated a working subgroup tasked with integrating these two plans and producing a revised ITPCC Work Plan for ITPCC Principal approval. On July 22, 2016, the CIO Committee reviewed the recommended plan and voted unanimously to refer the integrated plan to the ITPCC. It contains the original ITPCC draft plan, the Broadband Roadmap (version 1.0 presented at Council Riemer's July 20, 2016 Broadband Roadmap Roundtable), plus several additional projects. ITPCC approved the work plan on November 1, 2016 by unanimous vote. This will be the largest, most aggressive work plan ever undertaken by the ITPCC agencies.

In a related effort, on June 15, 2016, the Executive's Chief Administrative Officer announced a Broadband Reorganization plan (see Attachment B) for consolidation and elevation of broadband responsibilities under the Department of Technology Services (DTS) effective July 1, 2016. Under this structure, countywide broadband governance and planning responsibilities will reside in the Office of the DTS Director in a newly created Office of Broadband Programs

[1] Please refer to Council packet for the GO Committee on September 15, 2016, http://www.montgomerycountymd.gov/council/Resources/Files/agenda/cm/2016/160915/20160915_GO2.pdf.

to be managed by a Broadband Program Executive. Creation of the Office of Broadband Programs establishes a single point of responsibility for the creation of a countywide Digital Infrastructure Strategic Plan to serve as an overarching blueprint, and the completion of the Broadband Roadmap developed by the CIO Subcommittee. It will position the County to consider bold options such as the future creation of an independent broadband organization.

In anticipation of ITPCC approval of the ITPCC work plan, discussions by the CIO designated Work Plan Implementation Subgroup on October 11, 2016 and October 24, 2016 focused on identifying specific projects for implementation, determining agency sponsorship of projects contained in the new work plan, resourcing and staffing issues, and organizational issues driven by the requirements of the new work plan. Additional work is still required from the work plan implementation subgroup before the final detailed work plan implementation is presented to the CIO Subcommittee and ITPCC. While not an exhaustive list, several essential projects have been identified for priority implementation.

A Broadband Access Strategic Plan will be essential for identification and elimination of economic and institutional barriers to broadband access in our communities. It will enable leveraging of available ITPCC agency infrastructure and contracting options to facilitate expansion of public broadband access. It will identify and support cost-effective interagency adoption of complementary broadband technologies and services, where appropriate.

An Educational Equity project, currently referenced as "the Homework Gap," will focus on achieving equitable participation and access to K-14 digital learning opportunities, offer training and retraining opportunities to meet changing workforce demands, and expand digital learning in a manner that supports broader participation and economic empowerment.

Sustainable Investments seeks to identify the needs for funding solutions to support interagency collaborative efforts and work plan implementation requirements envisioned for the next five years.

FiberNet will see completion of FiberNet II, and transitioning to FiberNet III technologies. The FiberNet project work plan was adopted by ITPCC on February 2, 2016 and is proceeding on schedule and on budget. FiberNet hub rewiring is ongoing with a hub site rewiring process completed approximately every 90 days. Three sites may be delayed pending decisions that may require hub site relocations for the existing hub sites. At a cost of $2-4 million to move a single hub, it is essential that funding for these moves be included in the FYs 16-22 CIP. The FiberNet NOC implementation is still underway, as noted in monthly status reports to the GO Committee Chair. A FiberNet Master Plan is under development and expected to be completed in July 2017 after all agency future requirements are compiled. The newly constituted FiberNet Configuration Change Control Board (CCB) is scheduled to review and

act on several Change Requests on November 7, 2016. Dense wave division multiplexing has been successfully introduced into FiberNet and will be a prominent component of FiberNet III, the evolution of FiberNet II.

Several projects will serve as proof of concept before potential wider interagency deployment. Unified Communications pilot project, the VoIP/telephony in the cloud pilot project, and Shared Data Center pilot project represent examples of this group.

The CIO Implementation Subgroup will continue to refine the details associated with implementation plans for the approved work plan projects as a top priority. This workgroup will also examine issues associated with revising management structures to include executive oversight in implementing and controlling this new program, recommend appropriate funding and priorities solutions to ensure program continuity and successful outcomes, and establish an agile and responsive framework that is supportive of interagency collaboration in the years ahead.

Summary

The ITPCC remains committed to the interagency approach for technology where feasible, and remains constantly aware that the "taxpayer sees only one government." We continue to focus on outcomes of our work that improve how County residents live, work, and learn in Montgomery County. This is accomplished by the dedicated efforts of many staff across our agencies. ITPCC intends to continue to pursue opportunities for interagency cooperation and efficient service delivery. The members of the ITPCC thank the County Council for its continued support and welcome its input.

Sincerely,

Casey Anderson, Chair
Chair, Montgomery County Planning Board

Chair, Interagency Technology Policy and Coordination Committee (ITPCC)

Attachments (2)
cc: The Honorable Hans Riemer
The Honorable Sidney Katz
ITPCC Principals
ITPCC CIO Subcommittee

Attachment A

ITPCC APPROVED - November 1, 2016

Interagency Technology Policy and Coordination Committee
FY 2017-2018 Work Plan

0.0 Vision

We coordinate and align technology solutions to transform how the citizens of Montgomery County live, work, and learn. We expect our efforts to expand opportunities for our residents and improve the quality of life of our community.

1.0 Strategy: Access to Data, Information, and Tools

Create public and private options that expand Montgomery County residents' access and skills to leverage technology to improve their lives and participate in the digital economy.

1.1 Identify and eliminate economic and institutional barriers to broadband access in all communities

- 1.1.1 Develop a joint Executive and County Council policy statement that articulates support for broadband access for all residents
- 1.1.2 Establish processes and practices to survey, identify, and map broadband availability, service gaps, and usage—including working with ITPCC member agencies and community groups
- 1.1.3 Explore and support use of alternate technology options to expand broadband access

1.2 Leverage available ITPCC member agency infrastructure and contracting options to expand public broadband access

- 1.2.1 Provide free high-speed Internet services in public areas and around appropriate ITPCC member agency facilities
- 1.2.2 Extend FiberNet to provide broadband to low income county residents
- 1.2.3 Review planned state, regional, and county broadband infrastructure projects and activities to identify partnership opportunities
- 1.2.4 Develop and implement provider and consumer incentives accordingly for last mile installation or service subscription to encourage adoption and facilitate affordable services
- 1.2.5 Evaluate Wi-Fi on public transportation options

1.3 Expand equitable participation and access to K-14 digital learning opportunities

- 1.3.1 Maximize participation in low cost broadband programs for low income residents
- 1.3.2 Expand equitable access to broadband-enabled devices
- 1.3.3 Develop programs to make residents' and students' devices more affordable
- 1.3.4 Identify need and options for creating sustainable sources to underwrite device and access costs

1.4 Support broader participation and economic empowerment

- 1.4.1 Expand Digital Literacy

  Identify digital literacy training offerings within Montgomery County and create options for a website or app to enable county residents to find these programs

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1.4.2 Develop and support programs and strategies to increase digital literacy among county residents
1.4.3 Expand program options that leverage the use of ITPCC member agency facilities to support digital literacy training programs
1.4.4 Leverage ITPCC member agency resources and infrastructure to create instruction hubs that will support and grow the number of people available to provide digital literacy training at ITPCC member agency facilities and other learning centers
1.4.5 Expand e-learning and digital education opportunities
1.4.6 Empower county residents to leverage technology
1.4.7 Expand use of technology to improve the delivery of constituent services
1.4.8 Develop programs and strategies to educate the public about the benefits of technology
1.4.9 Empower county residents to leverage technology to improve their daily living
1.4.10 Create training opportunities for county residents to become entrepreneurs in the digital marketplace
1.4.11 Support consumer Internet of Things (IoT) pilot projects
1.4.12 Examine options for expansion of interagency Open Data initiative, and review the MCG five-year Open Data implementation plan and methodology

1.5 Offer training and retraining opportunities to meet changing workforce demand

1.5.1 Identify in-demand skill sets and design and align supporting training and development programs
1.5.2 Expand funding to support enhanced technology training for ITPCC member agency staff
1.5.3 Secure support for joint K-14 enrollment and professional development opportunities to make it easier for students and county staff to take training offered by outside entities
1.5.4 Offer communications skills training for technology staff
1.5.5 Expand and enhance internship programs, utilization, and intern partnerships with local businesses

2.0 Strategy: IT Infrastructure

Maintain a robust, reliable and cost-effective county network which provides all the capacity needed for any agency to support its mission

2.1 Enhance the FiberNet Program

2.1.1 Implement approved FiberNet work plan and support FiberNet III development
2.1.2 Create ITPCC countywide FiberNet Operation Roadmap
2.1.3 Institutionalize FiberNet network support and procedures
2.1.4 Strengthen FiberNet operational organization
2.1.5 Remove single-threaded function limitations
2.1.6 Expand the FiberNet NOC, as needed
2.1.7 Strengthen review of inter-agency technology initiatives to facilitate FiberNet strategic planning

2.2 Complete FIBERNET II build out and begin transition to FIBERNET III

This will include agreement by ITPCC member agencies and identification of specific action steps and timelines for a five to seven-year planning cycle and roadmap

2.3 Expand strategic planning and sharing of information and technologies among ITPCC member Agencies

2.3.1 Ensure that all agencies' IT strategic plans are current by December 2016

2.3.2 Identify common technology uses and plans through review of IT strategic plans and discussion

- Build a baseline of what agencies are using FiberNet for today
- Build a baseline of what common technology solutions agencies are using today or planning to use

2.3.3 Anticipate and predict agencies business-driven future capacity and related technology needs

2.3.4 Develop an interagency Wi-Fi expansion project that assesses ITPCC member agency Wi-Fi service gaps, determines requirements and defines scope, preliminary cost estimates, agency resource requirements, FiberNet bandwidth impact and requirements, potential for public private partnerships, and recommended implementation options and timeline

2.4 Identify and support cost-effective interagency adoption of complementary broadband technologies and services, where appropriate

2.4.1 Identify and agree to leverage shared services, as appropriate

- Explore the feasibility of sharing a common unified communications platform for voice, video, and messaging that leverages existing FiberNet infrastructure and desktop software
- Explore the feasibility of improving in-building cellular, public safety, and Wi-Fi coverage for tenants and first responders by using distributed antenna systems and/or small-cell technology to provide building-wide solutions to enhance radio signals throughout the entire premise

2.5 Identify legal requirements to offer public and private fee for service

2.5.1 Determine legal authority for FiberNet, county, or other Agency as appropriate, to offer services for fee to other Agencies or non-government entities

- Determine legal authority for FiberNet, county, or HOC and other housing authorities to offer services for fee to their residents
- Determine requirements to make services offered by county or FiberNet eligible for E-Rate, Lifeline, and similar federal funded programs

2.5.2 Identify legal and financial requirements and governance issues to create a multi-agency fund that can accept funding from multiple sources

3.0 Strategy: Sustainable Investments

3.1 Identify the need for designated funding to support collaborative efforts.

4.0 Strategy: Continuity of Operations and Risk Management—Security

4.1 Assess opportunity, process, implications, and costs for leveraging the Montgomery College data center at the Takoma Park/Silver Spring campus for ITPCC agencies with interest in this facility as a primary or back-up data center

4.2 Explore options and practical business cases for disaster recovery collaboration among member agencies

4.3 Develop an interagency cybersecurity collaboration pilot that investigates options and practices for sharing cybersecurity resources and leverages the Montgomery College Cybersecurity Training Facility. An important focus of this pilot will explore addressing the how to meet the need for additional cyber security staff. This will include, but not be limited to exploring intern training path development; work-study placements, and building mentoring relationships. In addition, the pilot effort will examine the potential for individual agencies leading efforts for specific security domains where they have deep expertise

This is a correct copy of ITPCC action.

Gary L. Thomas
Manager, ITPCC

Attachment B

OFFICES OF THE COUNTY EXECUTIVE

Isiah Leggett
County Executive

Timothy L. Firestine
Chief Administrative Officer

MEMORANDUM

June 15, 2016

TO: Hans Riemer, Councilmember
Montgomery County Council

FROM: Timothy L. Firestine
Chief Administrative Officer

SUBJECT: Broadband Reorganization

Following our discussions, I am pleased to inform you about our plans to reorganize broadband responsibilities. The reorganization includes the consolidation and elevation of broadband responsibilities under the Department of Technology Services (DTS) while engaging an independent consultant to evaluate and propose the most appropriate long-term organizational structure to further advance countywide broadband efforts.

The independent broadband consulting services will be competitively procured and managed by Assistant CAO Lily Qi. Besides organizational structure, the consultant will propose alternative progressive broadband strategies to include public-private partnerships, inter-governmental relationships, and investments the County must make in the next six years to meet its objectives in priority areas such as economic and workforce development, resilience, digital equity, education, public safety and disaster response. In the meantime, we will consolidate and elevate broadband responsibilities in DTS effective July 1, 2016.

Under the new structure, countywide broadband governance and planning responsibilities will reside in the Office of the DTS Director in a newly created Office of Broadband Programs and will be managed by a Broadband Program Executive. A position of Broadband Architect will be added in addition to the existing ultraMontgomery Program Director. The Office of Broadband Programs will also include the Cable Office and the Network Services Team responsible for managing the County's FiberNet and the County Government's network. The attached chart illustrates the new organizational structure.

The co-location of network operations and FiberNet in the new Office will result in better alignment of FiberNet with its primary funding source, the Cable Fund, and will also allow us to better leverage our three cable franchisees' networks and other broadband networks in the region including Mid-Atlantic Crossroads (managed by the University of Maryland), the

Maryland Research and Education Network, the Inter-County Broadband Network, and the many public and private networks in the County and the region. Finally, the placement of the Network Operations Center in this Office will yield synergies in working with cable operations on a larger scale than the present.

The realignment creates a single point of responsibility for the creation of a countywide Digital Infrastructure Strategic Plan to serve as an overarching blueprint and the completion of the Broadband Roadmap started by the ITPCC CIOs. It will also better position the County to give prompt consideration to the Consultant's recommendations, including bold options such as the future creation of an independent broadband organization.

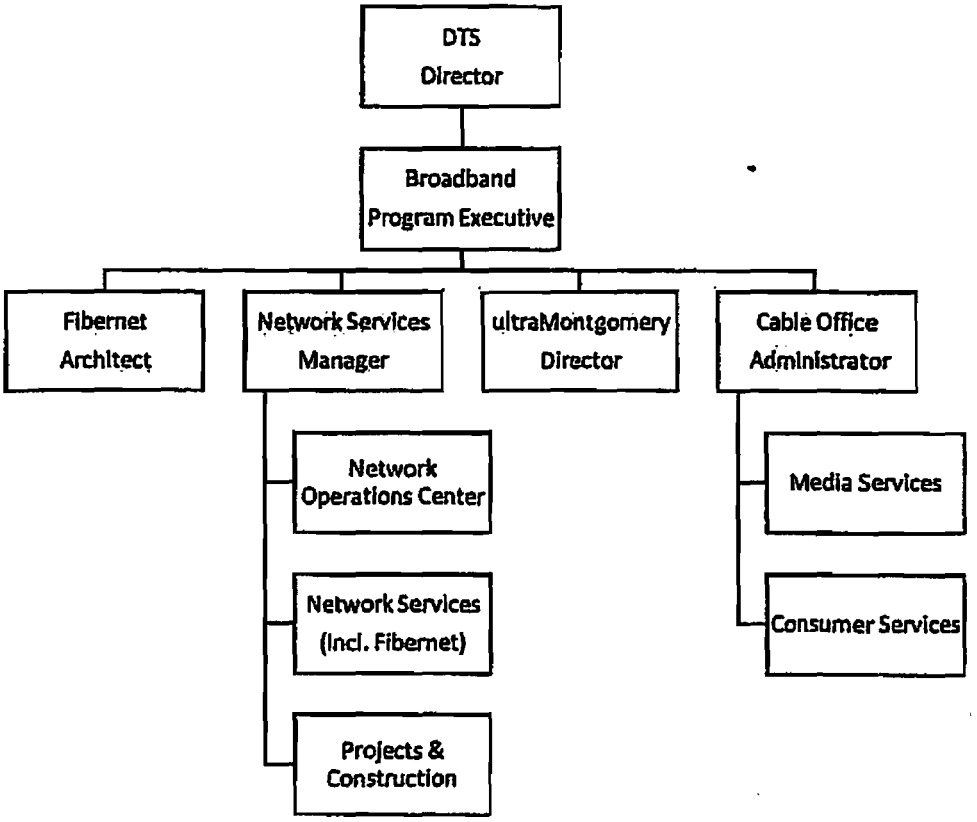
We believe this two-step process of restructuring will allow us to keep up our momentum in advancing digital connectivity while positioning the County for future opportunities. We look forward to working with you and the Council on this important strategy.

TLF:lq

Attachment

cc: Jennifer Hughes, Director, OMB
Fariba Kassiri, Assistant CAO
Lily Qi, Assistant CAO
H. N. Sonny Segal, Director, DTS

Office of Broadband Programs
(Effective July 1, 2016 -June 30, 2017)



10/21/2016 Council Staff question to OMB:

Suggest a new, improved process that would enable the funding and management of the excellent projects contained in the ITPCC work plan across agencies in an efficient manner; such a process would recognize the existing NDA for ITPCC, the ITF and other possible funding avenues. How to provide a collaborative organization such as the ITPCC with budget and managerial authority over projects, and balance that with the Executive's overall responsibility is the question the Committee is considering.

11/4/16 OMB response:

OMB believes that the funding of the ITPCC work plan and other projects may best be achieved by the following options:

1. Funding via the ITPCC NDA – ITPCC staff may request additional funding to be added to the ITPCC NDA through either the operating budget process (for funding starting in FY18) or through the supplemental/special appropriation process (for funding starting in FY17). The source of funds may be general fund or Cable fund, depending on available resources. Funding requested through this method will first undergo Executive branch review and recommendations.

   This method is similar to the approach Council undertook when setting the current Legislative Branch Communications Outreach NDA.

2. Alternatively, the Executive Branch may recommend a transfer of funds from either the General Fund or the Cable Fund (depending on resource availability) to the Inter-Technology Fund (ITF) to be used for ITPCC projects.

OMB staff will be available at the GO session on November 10 to discuss further.

OLO Memorandum Report 2017-2

November 1, 2016

To: County Council

From: Leslie Rubin, Senior Legislative Analyst
Office of Legislative Oversight

Subject: **Emerging Models in Government Technology Procurement**

> Just as it has become almost impossible to imagine our own lives without technology, it has also become impossible to conceive of a well-functioning, efficient state [or local government] that is not supported by effective technology. As citizens, we expect to file our tax returns, renew our driver's licenses, and compare our health insurance options — all online. Whether the service has a citizen-facing component or not, we expect well-designed software to help make the [jurisdiction] more efficient, effective, and accountable.[1]

This quote neatly sums up today's environment where residents expect reliable digital access to government services and information. Information Technology (IT) has become increasingly pivotal in Montgomery County Government (MCG) – providing online access to resident services, facilitating access to and analysis of County data, and aiding the daily work of County Government employees. Acquiring the technology that makes this all possible has evolved from the days of desktop computers and floppy disks.

This Office of Legislative Oversight memorandum report summarizes new and innovative practices for the purchase of technology by governments. Part I of this report describes new types of technology that local governments are relying on more and more and summarizes research on changes to procurement processes that can make buying new technology easier. Part II summarizes Montgomery County's current *Technology Strategic Plan 2016-2019* and the County Government's current approach to technology procurement.

I. Technology and Technology Procurement

Government procurement officials have been buying computing devices (e.g., laptops, desktops, smart phones, tablets) for decades with little or no trouble under existing procurement structures. The purchase of newer, cutting-edge technologies, however, raises new challenges for government buyers. The most prominent emerging IT model that does not fit neatly into a procurement box is internet-based or "cloud" computing and/or XaaS (meaning "Anything-as-a-Service").

The ideas that eventually led to cloud computing originated in the 1950s, but the concept did not begin to reach the mass market widely until the 1990s, when internet accessibility significantly expanded.[2] The National Institute of Standards and Technology (NIST) describes cloud computing as a model for convenient, on-demand network access (typically internet access) to shared computer resources (e.g., networks, servers, storage, applications, and services) that can be quickly and easily provided to a customer.[3]

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[1] *Recommendations to Improve Large Information Technology Procurements: A Road Map for Success in California*, Task Force on Reengineering IT Procurement for Success (Aug. 2013) [hereinafter "*Improving IT Procurements*"].

[2] See http://www.computerweekly.com/feature/A-history-of-cloud-computing.

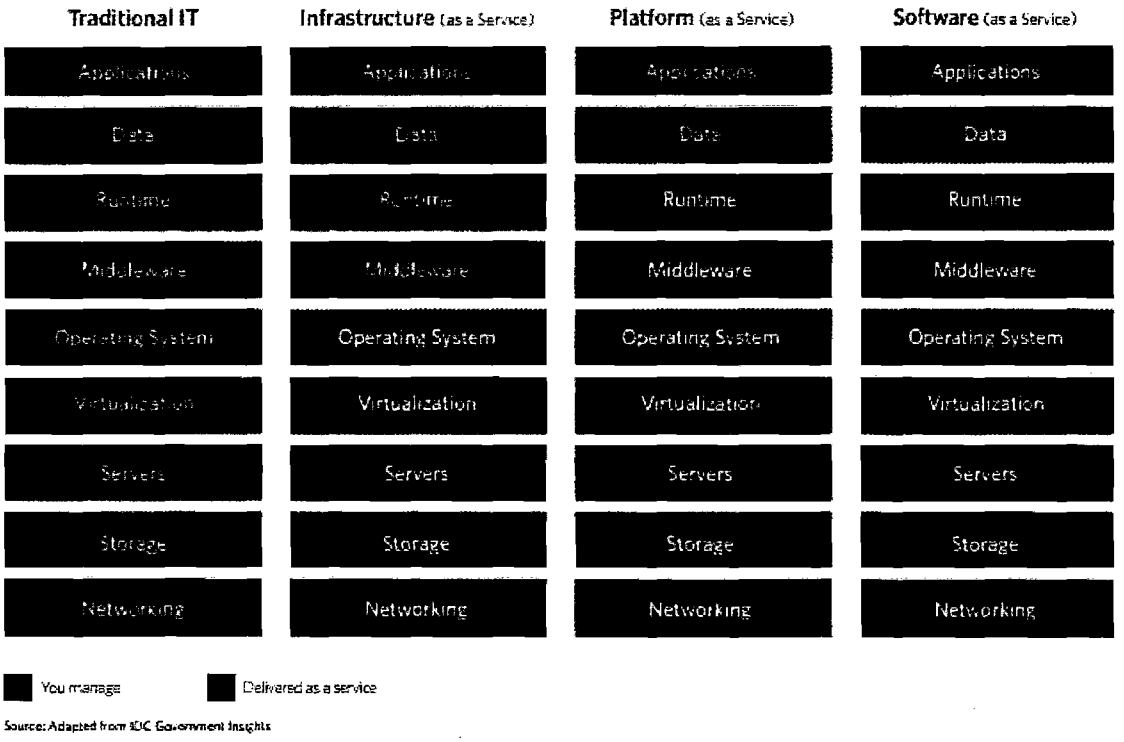
[3] "The NIST Definition of Cloud Computing," Special Publication 800-145, National Institute of Standards and Technology, at p. 2 (2011). http://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf

Cloud computing is the backbone for XaaS, which refers to cloud-based services provided to users over the internet. Common models include:

- Software-as-a-Service (SaaS) – providing software to users over the internet. Examples include Office 365, Socrata, Google, Facebook.
- Platform-as-a-Service (PaaS) – a computing platform for the creation of web applications and software, delivered over the web. Examples include Google App Engine, Microsoft Azure Services.
- Infrastructure-as-a-Service (IaaS) – a way of delivering cloud computing infrastructure such as servers, storage, and networks as an on-demand service. Examples include Amazon Web Services, Rackspace.

The graphic below shows how XaaS differs from traditional IT management. Where jurisdictions have typically owned and/or managed the components of their IT infrastructure, XaaS shifts some or all of the ownership and/or management to a vendor – shown with the differently-shaded boxes.

Public Sector Management of XaaS Platforms



Source: Adapted from IDC Government Insights

Technology Procurement. Federal, state, and local governments regulate government purchasing to "ensure that purchasing procedures are standard and consistent, and conducted in a fair and impartial manner,"[4] that products or solutions are effective, and that a jurisdiction receives the best value for its money.[5] Recent reporting on government technology procurement, however, observes that most existing procurement laws and

[4] https://www.sba.gov/contracting/contracting-officials/federal-acquisition-regulations-far

[5] *United National Procurement Practitioner's Handbook*, UN Interagency Procurement Working Group at §1.3.2 (2006). https://www.ungm.org/Areas/Public/pph/channels/PPH.pdf

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regulations were developed when jurisdictions were buying materials and goods, not enterprise systems[6] and cloud services.[7]

To buy products and/or services, jurisdictions typically publicly release detailed solicitation documents (e.g., invitations for bids (IFB) or requests for proposals (RFP)) that describe the specific characteristics of the product or type of service needed. Businesses (vendors) submit a formal written response to the solicitation describing how their product or service fulfills a jurisdiction's needs and offering proposed pricing.

Jurisdictions typically buy products using standards such as the lowest bid price or the "best value". Purchasing services typically involves evaluation of factors such as the experience of the vendor providing the same type of services to other jurisdictions or the expertise of the vendor's staff who will provide the services. A normal procurement can take months to complete, between writing a solicitation, releasing it publicly for a set amount of time, and reviewing bids from vendors.

Numerous reports and articles have examined how existing procurement practices can stifle innovation and implore government officials to explore alternative buying methods to keep up with changing technology.[8] Challenges include:

- The rapid evolution of technology often eclipses slow procurement processes.
- Traditional purchasing documents that require government staff to explicitly describe a needed commodity or service can stifle options when jurisdictions seek an end result, not the specific way to get there.
- Procurement rules or officials that prohibit discussion between government purchasing agents and potential vendors during the procurement process can reduce creative problem-solving.
- Traditional contract terms and conditions often can't adequately describe the relationship between jurisdictions and vendors when purchasing certain types of technology and services.

One source describes the limitations that come with traditional procurement in this way:

> Traditional RFP processes don't encourage early engagement with vendors, which can limit what companies or entrepreneurs create. Worse, the RFP often prescribes a solution, so there is no opportunity for an entrepreneur or innovator to ensure that the agency is defining the problem correctly.[9]

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[6] Enterprise systems are large-scale software systems that facilitate business processes, information flow, and data analytics in large organizations. Examples in MCG include Oracle eBusiness: financial and payroll processing, Enterprise Business Intelligence (BI) and Reporting: data modeling and analysis, and Hyperion: operating budget development.

[7] *Strategies for Procurement Innovation and Reform*, IJIS Institute at p. 9 (2013). http://c.ymcdn.com/sites/ijis.site-ym.com/resource/resmgr/Docs/procurement_report.pdf

[8] See, e.g., *Recommendations to Improve Large Information Technology Procurements: A Road Map for Success in California*, Task Force on Reengineering IT Procurement for Success (Aug. 2013); *Best Practices Guide for Cloud and as-a-Service Procurements*, at pp. 1-2; Brown, Justine, "Bringing Innovation to Procurement," GovTech.com (Mar. 4, 2014). http://www.govtech.com/budget-finance/Bringing-Innovation-to-Procurement.html; Brown, Justine, "5 Government Procurement Practices that Stifle Innovation," GovTech.com (Nov. 8, 2011). http://www.govtech.com/pcio/articles/5-Government-Procurement-Practices-That-Stifle-Innovation.html

[9] Brown, "Bringing Innovation to Procurement".

Improving Technology Procurement. This section summarizes ways to improve governments' purchase of technology, as described in recent articles and reports. Specifically, it describes five strategies:

- Understanding and evaluating business requirements and objectives before issuing solicitations,
- Meeting with vendors before issuing solicitations to gain industry insight,
- Utilizing alternative contracting methods,
- Using IT-specific terms and conditions in contracts, and
- Negotiating contract terms after choosing a vendor.

A. Understand and evaluate business requirements and objectives before solicitation

Ultimately, governments use technology to accomplish business goals – from calculating property tax bills to coordinating road construction with underground utility work to processing residents' requests for recycling bins. The series of steps needed to accomplish each goal is called a "business process." Several sources recommend that governments clearly understand their business goals and their business processes before issuing solicitations for technology related to a goal.[10]

Experts emphasize that identifying the ultimate business objectives of a project before developing a solicitation can help ensure that a solicitation does not simply reflect existing businesses processes, which may be inefficient or outdated. IT projects provide an opportunity to modernize and/or standardize business processes. Focusing on a project's goals, rather than focusing on acquiring a specific type of technology to accomplish a goal, can help identify the best technology for a job.

B. Convene pre-solicitation one-on-one meetings with multiple vendors to gain insight into IT options

With the rapid evolution of technology, government staff may not know enough about emerging technology options to find the best solution for a business need. Several experts recommend that government staff meet with multiple vendors before issuing a solicitation to learn about different technological solution to business requirements.[11] Seeking out this type of information before drafting a solicitation can help a government get the right solution for its needs. Jurisdictions can ask vendors "What is the State of the art?" or "How is this type of problem handled in the private sector?".[12]

Dugan Petty, the State of Oregon's former Chief Information Officer, asserts that engaging in these types of discussion can also help vendors understand a government's goals better than a written solicitation and can lead to the right solution for a project:

> If I'm going to put a new driveway in at my house, I might not know how to do it.... If I don't know how, why not have a conversation with driveway companies so I at least understand the basics of what I'm trying to procure? Sometimes we create processes that inhibit those conversations, and it gets harder in IT because we are ultimately trying to enable a business process, yet sometimes we don't understand that business ourselves.[13]

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[10] *Improving IT Procurements*, at p. 7; *Best Practices Guide for Cloud and as-a-Service Procurements*, at p. 55; Brown, "Bringing Innovation to Procurement".

[11] *Improving IT Procurements*, at pp. 8-9; Brown, "5 Government Procurement Practices that Stifle Innovation".

[12] Brown, "Bringing Innovation to Procurement".

[13] Brown, "5 Government Procurement Practices that Stifle Innovation".

Many jurisdictions' procurement laws prohibit this type of outreach to or communication with vendors before or during a solicitation process to avoid the appearance of a conflict of interest – necessitating a change to the law to implement. One report notes that if jurisdictions allow this type of outreach, they can take steps to avoid the perception of a conflict of interest by meeting with multiple vendors.

C. Examine alternative ways of contracting

Several sources recommend that jurisdictions examine alternative ways of contracting when making significant technology purchases.[14] Examples highlighted in the literature include (1) breaking up procurements into smaller pieces, (2) using Requests for Demonstration, and (3) developing short problem statements.

Breaking up procurements into smaller pieces. Many sources describe benefits associated with breaking up large technology procurements into smaller pieces – often referred to as "modular development."[15] Government acquisition of large technology systems, such as enterprise systems, often starts with a grand plan that outlines a project from start to finish, with projected costs of millions or tens of millions of dollars. The U.S. Office of Management and Budget (OMB) reports that "practical evidence and private sector experience" has highlighted drawbacks to this type of procurement, including:[16]

- Susceptibility to budget and schedule overruns,
- Difficulty for small vendors to compete for the work,
- Challenging for vendors to accurately assess all necessary requirements,
- Difficulty making potentially useful changes mid-project.

Instead, experts recommend developing projects (with separate contracts) that are divided into more manageable pieces:[17]

- Jurisdictions can choose to use multiple vendors with targeted expertise,
- Subsequent pieces of a project can be adjusted as necessary,
- Jurisdictions can implement newer technologies more quickly,
- Projects will carry less investment risk in smaller increments, and
- Jurisdictions can better assess vendor performance and can tie subsequent contracts for project components to successful implementation of earlier components.

The next graphic, from OMB's *Contracting Guidance to Support Modular Development*, illustrates dividing an IT project into smaller components.

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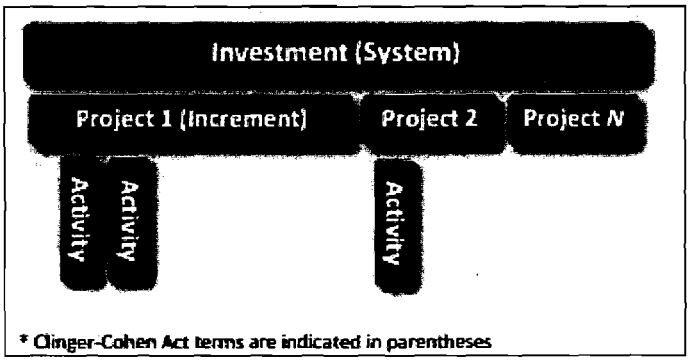
[14] *Improving IT Procurements*, at pp. 15-16.

[15] *Contracting Guidance to Support Modular Development*, U.S. Office of Management and Budget, at p.3 (2012). https://www.whitehouse.gov/sites/default/files/omb/procurement/guidance/modular-approaches-for-information-technology.pdf

[16] See *Contracting Guidance to Support Modular Development*, at pp. 2-3. See also *Improving IT Procurements*, at pp. 8-9; Brown, "5 Government Procurement Practices that Stifle Innovation", Yaraghi, N., "Doomed: Challenges and solutions to government IT projects," Brookings Institution (2015). https://www.brookings.edu/blog/techtank/2015/08/25/doomed-challenges-and-solutions-to-government-it-projects/

[17] See *Contracting Guidance to Support Modular Development*, at pp. 3-6. See also *Improving IT Procurements*, at pp. 15-16; "5 Government Procurement Practices that Stifle Innovation".



One example comes from the State of Texas, which recently moved 75% of the state's IT services to new consolidated data centers – away from individual agency data centers. To put together the data centers, Texas' Chief Technology Officer divided the project into five separate procurement components – servers, mainframe, print/email, data centers, and network – allowing companies with expertise in each area to compete for the work.

Using Requests for Demonstration. Some jurisdictions use Requests for Demonstration (RFD) where the jurisdiction requires vendors to develop and demonstrate during the procurement process a prototype of technology that will fulfill the jurisdiction's business needs. This allows government staff to see examples of proposed technological solutions before entering into a contract.

In 2013, the California Health and Human Services Agency (CHHS) developed an "interoperability" plan to design and build a coordinated information technology system that allows state health and human services agencies and partners to have common access to information and data on clients. A primary goal was to eliminate "information silos and redundant information retrieval."[18]

As a part of the project, CHHS issued a Request for Demonstration that invited firms to demonstrate how CHHS "data can be shared among multiple systems for the benefit of the user community."[19] Participating firms had to develop and demonstrate a system following state-mandated requirements in the Request for Demonstration and had to provide the demonstration at no cost to the state.

Short problem statements. Once source recommends that jurisdictions consider developing a short one-page "problem statement" rather than a traditional RFP. In 2014, the senior procurement executive for the federal Consumer Financial Protection Bureau observed that:

> [I]f agencies trust complex IT procurements to traditional procurement [methods], they will likely get poor results because the long-standing position is that the tighter the specification, the better the procurement. "Almost the opposite is true when you are asking people to invent a solution to a problem that's never been solved.... If we are asking experts to help us solve complex problems using technology, then why don't we let them use their imaginations?"[20]

[18] *Interoperability Plan*, California Health and Human Services Agency, Office of Systems Integration, at p. 1 (2013). https://www.acf.hhs.gov/sites/default/files/assets/california_interoperability_plan_final.pdf
[19] Ibid. at pp. 1, 151.
[20] Brown, "Bringing Innovation to Procurement".

The federal government's former Chief Technology Officer advocates this approach to encourage creativity and innovation from the private sector:

> We simply say, "Here is our problem, we want the most brilliant solutions out there, and then we are going to let you fly.... Clearly none of us are satisfied that procurement as it exists today delivers optimal results when it comes to technology. Why not let the public money fund entrepreneurial ideas that might prove to be the new way to govern?"[21]

D. Use IT-specific terms and conditions

In January 2014, the Center for Digital Government convened a group of public and private sector technology leaders to develop a statement of best practices for state and local government IT procurement.[22] One outcome of this group was a recommended set of contract terms and conditions for cloud service procurements. The group's final report includes recommended terms and conditions specific to software-as-a-service, platform-as-a-service, and infrastructure-as-a-service that address:

- Data,
- Breach notification,
- Contract personnel,
- Security,
- Audits, and
- Operations.

The recommended terms and conditions seek to clarify "the party's respective responsibilities for control and operation" of hardware and software related to the purchase of cloud-based services, which "is fundamentally different from traditional IT."[23] IT specific terms and conditions can help jurisdictions address contracting issues related to cloud-based services that don't typically arise with other types of purchases, such as cybersecurity, data confidentiality, and liability related to data breaches or system failures.

E. Engage in negotiations with a chosen vendor

Several sources recommend that procurement laws allow governments to engage in contract negotiations after choosing a vendor.[24] Some procurement systems require a jurisdiction to set out all necessary terms for a contract in an RFP, with no option for negotiating contract provisions after a vendor has been chosen. Other systems do allow jurisdictions to negotiate contract terms with a vendor before finalizing a contract. Experts recommend the latter approach, which gives jurisdictions more freedom to develop the best contract for a project.

Jurisdictions can give notice to vendors that it is willing to negotiate certain terms and conditions by (1) identifying those terms and conditions in an RFP, or (2) allowing bidders to identify in their proposals problematic terms and conditions from the RFP.[25]

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[21] Brown, "Bringing Innovation to Procurement".
[22] *Best Practices Guide for Cloud and as-a-Service Procurements*, at p. 1.
[23] Ibid. at pp. 6, 23.
[24] *Improving IT Procurements*, at p. 13; *Best Practices Guide for Cloud and as-a-Service Procurements*, at pp. 53-54; *Recommendations to Improve Large Information Technology Procurements*, at pp 13-14.
[25] *Best Practices Guide for Cloud and as-a-Service Procurements*, at pp. 53-54.

II. Technology Procurement in Montgomery County Government

Technology use in County Government departments is ongoing and expanding. At the policy level, the County Government has outlined its vision for County-related information technology in a *Technology Strategic Plan* that sets out broad goals for technology development and procurement. Together, the County's Department of Technology Services (DTS) and Office of Management and Budget (OMB) work with County departments to implement these goals.

DTS manages the procurement of most enterprise-wide technology systems (e.g., MCTime) and consults with OMB and County departments on department-specific technology procurement. To evaluate how department IT projects fit into the parameters of the *Strategic Plan*, OMB and DTS use standardized criteria that look at a project's:[26]

- Business priority,
- Urgency of need,
- Overlap with existing technology projects,
- Cost/benefit,
- Project success factors, and
- Security vulnerability compliance.

This section describes technology goals outlined in the County Government's recent *Technology Strategic Plan 2016-2019* and provides an overview of technology procurement in the County Government, including recent purchases of cloud services.

Technology Strategic Plan. DTS most recently outlined the County Government's long-term technology goals in in June 2016. The *Technology Strategic Plan 2016-2019* outlines the County Government's vision for technology initiatives in the coming years, outlines departmental responsibilities, and includes "tactical plans" for implementation.

The *Technology Strategic Plan's* seven goals all touch on acquiring and using technology to better deliver public services, to provide public access to County Government data, and to protect confidential data and information. Goal #6, "Improve Agility of Technology Delivery and Utilization," addresses the challenges associated with technology procurement:

> The County's goal is to improve the speed with which technology solutions can be implemented within the County by improving the process to plan, acquire, and integrate technology solutions and processes. Technology changes rapidly and with delays there is risk of lost opportunity, obsolescence, and stakeholder frustration and disengagement.[27]

The strategic priorities associated with this goal are to:

- Use agile solutions development and integration methodologies and practices,
- Support a streamlined and effective technology procurement process,

[26] See *Technology Strategic Plan 2016-2019*, Montgomery County Department of Technology Services, at p. I-3 (2016) [hereinafter "*Technology Strategic Plan*"].
[27] *Technology Strategic Plan*, at p. I-13.

- Maintain IT staffing resource contracts to rapidly procure and deploy people with skill sets not existing or not readily available in-house, and
- Be proactive in identifying the needs of functional departments, especially small departments that do not have dedicated IT staff.

The *Plan* advocates exploring new technologies for enterprise use, such as cloud-hosted systems, and adapting business processes to work with new technology solutions.

Some County Government technology procurement happens through agency and component unit collaborations such as the Interagency Technology Policy and Coordination Committee (ITPCC), established by the County Council in 1984. The ITPCC coordinates shared projects and services among County agencies and component units – its largest project being the development and operation of FiberNet, a broadband communication network connecting over 470 County locations.[28] The Technology Strategic Plan indicates that current and future projects of the ITPCC include cloud services, virtual networks, data centers, information security, and spatial systems.

MCG Technology Procurement. The County Government is not new to technology procurement – having implemented major enterprise systems in recent years (e.g., ERP, MCTime) and moving some resources to the cloud (e.g., Office 365). From an overarching perspective, DTS works to ensure that newly-purchased technologies are compatible with existing technology and, whenever possible, purchases off-the-shelf software, which is easier to implement, integrate, and maintain than software created uniquely for the County Government. To this end, DTS seeks out open platform systems, which allow users to access data directly and also allows access to the data by other information systems. DTS also has staffing contracts with IT vendors where DTS can issue task orders to hire contractors with IT skill sets that DTS cannot get in-house.

In recent years, DTS has helped several departments implement new technologies, working with the Department of Public Libraries, the Office of the County Attorney, and the County Council to migrate the library system to the cloud, purchase a new work management system, and purchase a communications management system, respectively. The departments and the Council each chose the technology and DTS helped implement the systems. DTS also advises departments about potential risks associated with certain systems or vendors and maintains a dialogue with various vendors to keep abreast of new innovations.

DTS has acquired several significant cloud-based enterprise systems in recent years. Two examples are Office 365 (Microsoft cloud-based productivity software including word processing software, spreadsheet software, a database, etc.) and Socrata (the County Government's open data platform). DTS purchased Office 365 by bridging a contract between Microsoft and the State of Maryland – where the County Government was able to purchase the software under the existing State contract for Office 365. The County Government purchased Socrata through a "sole source" contract – meaning that MCG did not solicit bids from multiple vendors because, at the time, Socrata was the only company that could provide the needed product.

DTS representatives' descriptions of technology purchases in recent years shows that DTS already uses some of the procurement techniques described in Section I, such as meeting with vendors to learn about new technologies, developing multi-phase projects, and negotiating contract terms. DTS also supports the idea of developing IT-specific terms and conditions for the County to address issues unique to IT cloud purchases.

[28] *Technology Strategic Plan*, at p. I-4.

Some contracting methods available to County departments can facilitate such IT purchases, such as Requests for Expressions of Interest (REOI). These solicitations ask vendors for information that can be used to prepare subsequent IFBs or RFPs and to develop a source of potential vendors for a subsequent solicitation. REOIs can provide a vehicle for the County to request demonstrations from potential vendors. Representatives from the Office of Procurement note that requiring demonstrations can potentially exclude small business with fewer resources from responding to a solicitation.

III. Conclusion

The Councilmembers may want to consider the following questions in future discussions about the purchase of new technology in the County Government:

- Would developing IT-specific terms and conditions for contracts save time and resources in future contract negotiations?
- In what ways do departments examine ways to adapt business processes to improve outcomes when purchasing new technology as opposed to layering new technology onto existing business processes?
- To what extent do County departments seek out industry expertise when determining how a technological solution can help a business process?

IV. Acknowledgements

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