

CIP White Paper

Department Name: Dept. of Information and Technology

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Section 1 – Overview

The Department of Information Technology (DoIT) builds, manages and maintains City government information technology infrastructure and systems used by City departments including data, telephone, and radio networks, website and Internet connections, television channel, data center facilities, servers, and storage. DoIT also manages/directs the development of designated projects on behalf of the City, other Departments, and other regional partners. DoIT's Capital Improvement Program (CIP) supports major maintenance, improvements, replacements and upgrades to the City's existing technology infrastructure and systems, as well as the development and implementation of new capacity and systems.

DoIT's total Proposed CIP budget for 2013-2018 is \$103.1 million. Funding comes from a number of sources including rates/allocations to City Departments and external partners, Cable Franchise Fees, collected reserve funds, bonds, and grants. In addition to the focus on routine equipment replacement and maintenance, DoIT's 2013 Proposed CIP includes two new projects:

- (1) The Electronic Records Management System is a multiyear initiative to acquire and implement a system to manage the retention of electronic records, beginning with the replacement of the City's current email archiving system; and
- (2) The Next Generation Data Center is a multi-year initiative to upgrade/replace the City's aging data center environments with more modern alternatives that provide more capacity, redundancy and resiliency.

Details are provided in the below table.

Program/Project Name	2013 Amount	Planned Spending
Electronic Records Management System	\$ 150,000	Detailed project planning
Next Generation Data Center	\$ 2,625,000	Detailed requirements collection; options development; high level & detail design
800 MHz Radio Network Program	\$ 534,560	Infrastructure upgrades
Alternative Data Center	\$ 588,771	Servers & storage equipment
Computing Services Architecture	\$ 2,536,090	Routine equipment (servers, storage & facility infrastructure) replacement/upgrades (\$1.456M) & maintenance (\$1.081M)
Telephone Infrastructure	\$ 1,102,480	Routine telephone replacement equipment (\$284K), Telephone system conversion Yr-3 of 8-Yr plan (\$635K), & maintenance (\$184K)
Data Infrastructure	\$ 1,351,146	Routine equipment replacement /Backbone upgrades/intrusion detection system/routers/servers (\$751K) and maintenance (\$600K)
Fiber-Optic Communication Installation & Maintenance	\$ 3,328,786	Fiber Installation (\$2.260M) & maintenance (\$1.069M)
Seattle Channel Maintenance & Upgrade	\$ 290,590	Equipment replacement; computer graphics system, replace data backup & maintenance
Department Total	\$ 12,507,424	

Section 2 - Summary of Upcoming Budget Issues and Challenges

DoIT's CIP has grown steadily over the past eleven years and projects have been completed successfully and within time and budget. Close fiscal stewardship by DoIT has allowed us to make the most of our CIP funds. Savings have been used to expand scope and/or complete additional efforts, and City funds have been used to leverage grant and external funding to maximum benefit.

DoIT's CIP has compiled a solid track record of successes. These include:

- Installation and implementation of the Puget Sound next generation voice/data switching system (PSIC) in the Puget Sound region for King, Pierce and Snohomish Counties (\$4.5M)
- Addition of a 4th 800 MHz site for regional radio system (\$1M)
- Replacement of the Interactive Voice Response (IVR) system (\$1.4M)
- Replaced the City's enterprise class servers and storage environment (\$2.9M)
- Installed Mobile Data Computers in police vehicles (\$6M)
- SPD/SFD CAD and RMS System Replacements (\$10+M)
- Installed 542 miles of fiber optic cabling.

While DoIT's CIP Program has been highly successful overall, the nature of technology ensures that there will be new investments and requirements as we move forward. These will create additional challenges, including:

- Growing maintenance needs. The City's growing investment in and dependency on IT requires an increasing commitment to fund the associated support and replacement costs, at the same time as funding has become scarcer. Increasingly our decision making is driven reactively (which equipment or system is most in danger of failing?) versus proactively (what can be done to best improve effectiveness or efficiency?).
- Rapid and major changes in technology. The continued rapid rate of change in technology presents a major challenge for the City. User demands (both internal staff and constituents) around technology continue to grow as available functionality expands exponentially. Capabilities which barely existed two years ago are now considered "must have" by both City staff and constituents (such as smart phone applications). Vendors regularly "de-certify" and stop supporting products the City relies upon, leaving us the choice of spending significant amounts of money to upgrade to supported products or risk running important/critical City functions on *unsupported* platforms. IT Staff need almost continual training to keep their skills current and relevant to the new systems in use by the City. As a City, we need to think creatively about how we can meet upcoming changes in technology and needs of departments in an environment of reduced resources. We must identify ways to get the most of the resources we have for technology.
- Duplication. Individual City departments continue to make technology decisions in the context of their own department without referencing or considering efficiency or the costs to the City government as a whole. Departments continue to independently procure software/systems which perform the same or similar functions, which results not only in

higher upfront costs but duplicative, more expensive ongoing maintenance and operations. If we are going to achieve more efficiency and reduce costs as a City, future decisions will need to take into consideration how best to combine projects, approaches and efficiencies across Departments.

- Disaster Recovery. The City lacks a coordinated comprehensive disaster recovery strategy for its IT systems. Individual Departments are supposed to have plans, but most do not. And nowhere is there a plan which establishes priorities/criticality from a citywide perspective. The increasing reliance of City staff on technology systems for getting their work done has created an increasing vulnerability in the event of a disaster. Critical City functions cannot be performed without access to technology systems and the data stored within them. Limited resources have resulted in little to no investment in redundant, recoverable systems; as noted in the first item, the City has trouble funding the basic installation of systems, let alone secondary or backup versions. We need to develop a citywide strategy for IT systems in the event of a disaster. Much of this work can and should be done in conjunction with the Next Generation Data Center initiative.

As a starting point to address these issues, we propose to “re-invigorate” the Chief Technology Role and refocus/reinstitute some of the duties originally designated by ordinance for that role, including the following:

- Develop, promulgate and implement City-wide policies and standards governing the acquisition, management, and disposition of information technology resources;
 - Develop policies and standards for the management, maintenance and operation of City information technology resources;
 - Review City department budget submittals to ensure that information technology budget priorities and guidelines are appropriately addressed in proposed budget allocations, and that all proposed uses of technology resources are consistent with the City's policies and standards;
 - Make recommendations to the Mayor and City Council on changes to department information technology budget submittals for consistency with the City's policies, standards, and technology agenda;
 - Determine the most effective ways of providing information technology services and resources to City departments;
1. Beginning with the 2013-14 Budget, the CTO is taking a much more active role in reviewing and providing feedback on technology funding citywide by reviewing all BIPS submitted by Departments and identifying:
 - ❖ Duplication; do any of the proposed BIP’s duplicate other efforts across the City?
 - ❖ Significant effects; do any of the proposed BIP’s cause significant effects on other systems (such as the backbone network)?
 - ❖ Rate impacts; would any of the proposed BIP’s cause impacts to rates charged to other departments? (Ex. If one city department proposes to pull out of a rate pool, what are the rate impacts to the other departments)?

2. We also propose to work with CBO to develop a means for the CTO to review and provide input on Departments full IT budgets vs. just on the BIP requests. This is in keeping with the CTO responsibility outlined in the 1999 ordinance to “ensure that information technology budget priorities and guidelines are appropriately addressed in proposed budget allocations, and that all proposed uses of technology resources are consistent with the City's policies and standards.”
3. We propose to work with FAS to implement a process requiring Chief Technology Officer approval/sign off on any major IT procurement BEFORE it begins. All of these first three items focus on the idea that in an era of limited resources, we need to make the most effective use possible of the funds available for IT. If we can spend less money on duplicative or inefficient systems, we will have more money to spend on critical business system improvements.
4. Take the results/findings from the IT Efficiency Study commissioned by the City Council and develop a plan to follow up on and implement key findings. The Study directed by the City Council comes at a timely point in the City's IT system investments. Many of our systems are aging (the main data center facility, the central City financial system, the utility billing system, the City's permitting system, etc.) and we are facing major investment decisions. At the same time, important developments are occurring in the broader IT world (the rise of cloud computing, the proliferation of smart phones/tablets/mobile devices, growing security threats, etc.) which are putting increasing pressure to change the City's systems. All of this makes the timing right to assess the current state of City IT and make key decisions which will help set the course for the next decade of technology use by the City.

Section 3 - Thematic Priorities

In addition to supporting Mayoral and Council goals for the City, DoIT has several thematic priorities which drive its work and consequently its operating and CIP budgets. These are:

- ***Ensure reliable maintenance and operation of the technology tools and systems supporting City Departments' staff, missions, and services.*** The reliable and continued operation of these systems is critical to the ability for City employees in all Departments to perform their work. As such, a majority of DoIT's CIP is expended on “Asset Preservation” and keeping these tools and systems up and operating.
- ***Keep City Technology and Data safe, secure and compliant.*** The increasing “computerization” of the City's information and operations has been paralleled by a similar growth in the threats and risks to those systems and by a growth in laws and regulations associated with electronic data and systems. As a result, we are seeing a steady increase in the need for investments related to security and/or compliance with state/federal

regulations/laws/requirements.

- ***Use Technology to make City government more accessible/accountable/transparent.*** With the rapid growth in the Internet and the associated tech-savvy nature of the population, there is an increasing expectation that the City's information and processes will be readily available via technology in near-to-real time.
- ***Improve Efficiency & Effectiveness.*** From its earliest stages, the City has invested in technology to improve the efficiency and effectiveness of its staff in doing their jobs, and this continues to be a key driver for our investments. In addition, some technology investments can result in monetary savings and/or the ability to stretch limited resources further (e.g., virtualization of servers).
- ***Investments/Foundations for the Future.*** A key part of DoIT's mission is to perform strategic planning for the City within the technology sector and to ensure that the City's technology investments move in sync with what is happening in the broader industry and world. This includes planning for and investing in key technology trends and emerging technologies as appropriate.

Section 4 - Project Selection Criteria

DoIT uses a multi-step process to identify and prioritize projects for inclusion in their CIP.

STEP 1: Identification of Technology Needs and Opportunities

In this step, needs and opportunities for technology investments are identified. Information is drawn from a number of sources, including:

- The Citywide Enterprise Technology Multi-Year Strategic Plan
- Citywide Technology Roadmaps (updated annually)
- Customer Requirements/Requests
- Asset Replacement Schedules
- Coordination with partners (regional efforts, vendor partners, etc.)

This step includes development of initial cost estimates & other resource requirements, potential timing, and dependencies.

STEP 2: Identification of CIP and Non-Discretionary Projects

In this step, items identified in Step 1 are filtered to determine if they are (1) CIP appropriate or not and (2) discretionary or not. Criteria for determining if they are CIP appropriate or not include:

- Overall dollar value
- Timeframe of implementation (e.g., multi-year project)
- Lifespan of investment
- Investment in/preservation of long-term infrastructure

Projects which are determined to be non-CIP in nature are moved over for consideration and ranking with other Department BIPS as part of the normal budget cycle.

Criteria for determining if they are Non-Discretionary include:

- Legally mandated (e.g., debt service, federal or state law/regulation changes, court orders, etc.)
- Urgent security or risk mitigation needs (e.g., major system failure, major security breach)
- Reimbursable services to others (e.g., DoIT manages a regional fiber consortium where the partners contract with/through us to get work done).

Projects which are determined to be Non-Discretionary are automatically included in our CIP and Budget Proposal. Discretionary Projects proceed to Step 3.

STEP 3: Prioritization of CIP Appropriate Discretionary Projects:

The projects remaining after Step 2 are then screened to determine if they are a match for DoIT's normal maintenance/upgrade/replacement programs within the CIP. Projects such as these tend to be smaller in scale (<\$250,000), "like for like" replacements (e.g., old equipment replaced by new equipment with little to no functionality change) etc. These projects are rated by program managers based on criteria tailored to each program and implemented as annual funding allows.

Larger capital projects which are best implemented on a stand-alone basis due to the size and complexity of the project are evaluated and ranked separately based on the following criteria:

- Asset Preservation/Replacement/Maintenance
- Product Lifecycles
- Legal Requirements/Mandates
- Security/Risk Mitigation
- Reimbursable from other sources (other depts. or outside entities, grants, reserves)
- Leveraging Opportunities
- Dependencies (on other Products, Equipment, etc.; also on staff/resource availability/long-term supportability)
- Internal Customer Demands (including capacity) – including Mayoral/Council Priority
- External Customer Demands – Citizens, businesses, etc.
- External Drivers (vendor changes, regional commitments, etc.)
- Efficiency/Effectiveness Improvements/Resource Savings/ROI
- Key Future Trend/Forward-Looking/Pro-active

The final result is a list of prioritized large capital projects which are included in DoIT's proposed budget for inclusion in our CIP.

Section 5 - Aligning Infrastructure with Planned Growth

At the present time, DoIT's CIP has no alignment with Urban Centers and Villages. As an internal service Department, the majority of DoIT's CIP funds the technology infrastructure which supports

City employees. Thus, geographically, most of our investment aligns with the location of City employees and City facilities and will continue to do so in the future.

Section 6 - Future Projects/What is on the Horizon

As of the time this document is written, DoIT has identified a number of initiatives/issues which are on the horizon and will need to be addressed at some future point, but for which we do not currently have funding. A detailed list has been provided in the matrix as part of Section 4 of this document, which includes:

- **Infrastructure which requires replacement/upgrades.** DoIT's CIP contains sufficient funding to cover routine replacement of lesser value items which occur every year (e.g., switches, mid-range servers, etc.). However, it is not funded sufficiently to cover some larger value, more intermittent, replacements necessary.
- **Long term Major Upgrades to Regional Radio System.** The City is part of a tri-county public safety radio system. The current technology platform is approaching phased obsolescence and will need to be replaced or upgraded. A three-county committee of elected and appointed officials is managing the work to explore options for this effort, including funding strategies. The current CIP does not assume outside funding to replace or upgrade the radio system. A related issue is that the current rate of funding of the Radio Handset Replacement Reserve for Police and Fire is not sufficient to cover the full project costs when replacement next comes due.
- **Software/systems which require replacement/upgrades.** DoIT's CIP has not historically included funding for replacements/upgrades of major software systems. (For example, Windows 7/Office and Email upgrades need to occur in 2013-14 but except for some hardware needed, much of the proposed funding for these efforts is outside of the CIP.) Looking forward, one major system due for replacement in 2014 is the City's Email Archiving System. In addition to replacing existing functionality (for which funding has been included), the business owner (Law/City Clerk) has identified significantly expanded functionality (for file and video archiving) that is required in the future. DoIT's CIP currently does not include funds for this effort.
- **Future growth in capacity due to customer demands/usage.** DoIT's CIP includes funding for replacement of existing capacity as described, but it does not include funds to cover the routine growth in capacity which the City experiences. Increased City usage of technology combined with external legal retention requirements effectively ensures a continued growth in certain areas (e.g., storage) of the IT infrastructure, which will need to be addressed in DoIT's CIP.

Section 7 - CIP Revenue Sources

DoIT's CIP has been funded through a variety of revenue sources, including:

- **Rates/Allocations:** There are multiple services within the department that are allocated based on a percentage of use for the service provided. In addition, services are billed using a basis for the service billed. For example, time and materials, # of dial tones/circuits, quantity of equipment and or actual costs. Costs for labor and materials in this category are also billed directly to projects supported by the department. In recent years, rates/allocations have accounted for an increasing percentage of DoIT's CIP funding.
- **State and Federal Grants:** Federal and state grants have been used to finance system replacements (CAD/RMS for SPD/SFD) and new capabilities. In some cases, DoIT has been the direct recipient of the funds; in others, we have managed grant-funded projects for customers. The use of grant funding for the DoIT CIP has been intermittent.
- **Cable Franchise Fees:** DoIT collects Cable Franchise Fees that are set in franchise agreements with the cable provider. Some of this revenue has been used to fund the O&M CIP Program which supports the Seattle Channel. Cable Fees have historically provided a minor (<1%) portion of DoIT's CIP program.
- **Reserves:** In some instances, DoIT's rates/allocations include the collection of funds which are accumulated and held in a reserve in DoIT's Operating Fund balance. Currently, this is only done for the 800MHz radio system, although it has been considered in other areas. Expenditures of these reserve funds appear in our CIP program. Historically, there is a low level of spending for ongoing O&M items, with intermittent large expenditures associated with major replacements/upgrades.
- **Private Dollars:** Private funding contributions to capital projects. In the past, DoIT projects have occasionally included funding from external non-public sources (e.g., the AMR funds received as part of the Fire/Police CAD/RMS projects). Such instances are highly intermittent, usually for relatively small dollar value, and not projected to continue at any appreciable level.
- **Levy:** In the past, DoIT received some CIP funding from a Levy for the development, acquisition and installation of the 800 MHz emergency radio communication system. The funds have all been assessed/collected, and mostly expended, with the remainder committed for this year. It is possible that the future replacement/upgrade of the county-wide radio system might involve a new Levy, but that will not be determined for some years to come. Outside of that possibility, no additional Levy funding is anticipated.
- **To Be Determined:** Occasionally, DoIT's adopted CIP includes future projects for which a specific funding source has yet to be specified. These projects will not go forward unless/until funding is secured.

Section 8 - CIP Spending by Major Category

The below table reflects DoIT’s Proposed CIP Budget for 2013-2018.

DoIT	2013	2014	2015	2016	2017	2018	Total
Major Maintenance	2,505,201	2,598,031	2,995,724	3,142,892	3,268,608	3,376,472	17,886,927
(Funded) Equipment Replacement	4,915,178	4,682,520	3,717,628	3,810,563	4,085,744	4,740,106	25,951,739
(Funded) New Capacity/Ability	52,000	2,217,754	104,600	76,472	73,086	75,497	2,599,409
Unfunded Needs	-		1,574,724	1,088,409	546,616	564,654	3,774,403
PM Services for Projects	2,260,046	2,327,848	2,434,929	2,554,241	2,656,410	2,744,072	14,977,545
Facilities	2,625,000	29,465,000	2,625,000				34,715,000
Software Upgrades	150,000	3,000,000					3,150,000
Totals	12,507,424	44,291,152	13,452,606	10,672,577	10,630,463	11,500,801	103,055,023

- **Major Maintenance:** Includes major maintenance costs for equipment, software and fiber networks.
- **Equipment Replacement (funded):** Includes ongoing acquisitions of capital equipment in CIP programs that are regularly due for replacement based on the fixed asset system with a 3-10 year life. This also covers upgrades where the technology is no longer going to be supported by a vendor.
- **New Capacity/Ability (funded):** Includes projects that provide new capacity or ability (vs. the maintenance or replacement of existing systems/capabilities). The Email hardware replacement and the Seattle Channel project to convert to High Definition are included here.
- **Unfunded Needs:** Includes initiatives that will be required at a future date (such as enterprise storage, and interactive voice response replacement) but for which a specific funding strategy has yet to be determined.
- **PM Services for Projects:** Includes projects/initiatives where DoIT is providing project management services to other Departments and regional coalitions/entities, but does not generally own the resulting system/equipment/application. This includes construction and maintenance of fiber installations by regional partners and projects managed for other City Departments.
- **Facilities:** Includes acquisition/upgrades/build outs for DOIT or IT related facilities, primarily City data centers.

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- Software Upgrades: Includes acquisition/upgrade/replacement of major software/applications. With the change in accounting rules under GAAP, DoIT will be capitalizing major software acquisitions and including them in our CIP going forward.