



**KING COUNTY**

1200 King County Courthouse  
516 Third Avenue  
Seattle, WA 98104

**Signature Report**

**September 18, 2003**

**Motion 11792**

**Proposed No.** 2003-0253.2

**Sponsors** Constantine and Phillips

1           A MOTION approving information and  
2           telecommunications system printing and graphics arts  
3           equipment replacement plan and releasing \$150,000  
4           expenditure appropriation in the information and  
5           telecommunications system printing and graphics 2003  
6           budget.

7  
8  
9           WHEREAS, the council has issued a proviso prohibiting \$150,000 expenditure in  
10          information and telecommunications system ("ITS") printing and graphics arts ("PGA")  
11          2003 budget until the executive submits and the council approves by motion an  
12          equipment replacement plan, and

13          WHEREAS, the executive, with services provided by C&M Technology, Inc., a  
14          technology consulting firm, has submitted an equipment replacement plan as required by  
15          the proviso, and

**Motion 11792**

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16 WHEREAS, the equipment replacement plan attached to this motion has  
17 satisfactorily addressed issues stated in the 2003 budget proviso on ITS PGA equipment  
18 replacement;

19 NOW, THEREFORE, BE IT MOVED by the Council of King County:

20 The attached equipment replacement plan is hereby approved and the county  
21 executive is hereby authorized to expend \$150,000 as reflected in the 2003 budget  
22 appropriation.

23

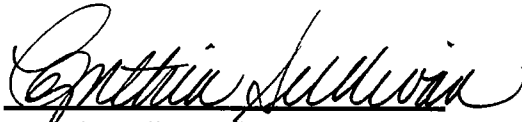
Motion 11792 was introduced on 6/2/2003 and passed by the Metropolitan King County Council on 9/18/2003, by the following vote:

Yes: 11 - Ms. Sullivan, Ms. Edmonds, Mr. von Reichbauer, Ms. Lambert, Mr. Phillips, Mr. Pelz, Mr. McKenna, Mr. Constantine, Mr. Hammond, Mr. Gossett and Mr. Irons

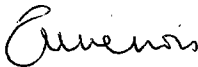
No: 0

Excused: 2 - Ms. Hague and Ms. Patterson

KING COUNTY COUNCIL  
KING COUNTY, WASHINGTON

  
Cynthia Sullivan, Chair

ATTEST:



Anne Noris, Clerk of the Council

**Attachments** A. Printing & Graphic Arts Equipment Replacement & Funding Plan revised 9-9-03

King County Department of  
Executive Services

# Printing & Graphic Arts Equipment Replacement & Funding Plan

Prepared by:  
C&M Technology, Inc.

**FINAL DRAFT**

**May 9, 2003**

Revised September 9, 2003

## Executive Summary

PGA operates under the authority of the King County Charter and provides customer agencies with photographic and graphic arts design and printing and copy services on a charge-back basis. In terms of equipment replacement, there is no approved plan to include equipment replacement funding as part of the rate structure. Equipment replacement resources are available when there is an unrestricted fund balance at the end of the fiscal year. The total value of the capital equipment is approximately ten percent of annual operating expenses.

Developing an equipment replacement and funding plan for the Printing and Graphic Arts (PGA) section is a test of the transferability of the enterprise-wide information technology infrastructure equipment replacement model developed for the King County Information Telecommunications Services Division, Department of Executive Services by C&M Technology, Inc.

The PGA business model was not analyzed as part of this engagement. However, three important aspects of the business model should be understood. The first is that the equipment inventory includes both owned and leased equipment; the second is that none of the County-owned equipment is currently served by a maintenance agreement; and, the third is that need for equipment standards are not applicable due to the size and scope of the inventory.

Equipment replacement in the printing environment is both similar and dissimilar to the replacement of enterprise-wide information technology infrastructure equipment. Many of the factors that influence replacement decisions in the printing world are identical to the factors that influence the replacement of infrastructure equipment. Equipment can be classified as supporting either core or non-core services, it has a definitive lifespan, its reliability can be quantified, and the service demands of PGA customers can be integrated into equipment replacement plans.

Unlike the high-tech world, however, printing equipment is much longer-lived and its technology evolution is significantly slower. Longer equipment life results in replacement costs uniformly higher than the original purchase costs. In addition, whereas ITS is the sole purveyor of email services and Internet connectivity to its customer agencies, it is not unheard of for PGA customer agencies to seek services from commercial vendors despite an executive order to the contrary.

The methodology utilized to develop the model for replacement of enterprise-wide infrastructure equipment was successfully applied to PGA equipment (excluding leased equipment) with only three, substantive modifications. The first modification was to exclude "agency projects" as a factor influencing replacement decisions. The second was construction of the "capacity planning" factor to include the differentiation of production requirements and demand for services. The third modification affected how beta weights are assigned to the various

factors. Due to the expected lifespan of printing equipment, the useful life factor only received a beta weight of 15%. A larger beta weight would have inappropriately resulted in that factor outweighing all other replacement factors.

In terms of equipment replacement funding, the original purchase price of the total PGA equipment inventory is \$385,000. Because most of the inventory was purchased prior to 1992, \$180,218 of its value was fully depreciated prior to 2003. The remaining \$204,782 will be depreciated through the year 2022. As of 2003, there is \$150,000 in an equipment reserve fund. It is further anticipated that an additional \$79,076 will become available at the end of 2003. C&M Technology, Inc. recommends that the reserve fund and the excess fund balance be utilized to capture the value of the accumulated depreciation.

The current PGA rate structure is adequate to fund equipment replacement if cost savings are accumulated as excess fund balance and PGA is granted authority to use some of those funds for equipment replacement purposes.

In terms of a spending plan, it must be understood that replacement will cost more than the original cost of legacy equipment. To address the added cost, C&M Technology, Inc. recommends that PGA re-engineer the printing operation to take advantage of equipment with greater capabilities and to incorporate new technology that can be both attractive to current and future customer agencies, increase revenues, and result in substantial production cost savings to the County.

C&M Technology, Inc. recommends that the inventory item to be replaced first is the Heidelberg KORD offset printing press. By expending \$175,000 in 2004, PGA can avoid sending printing projects requiring three and four colors to commercial vendors. It is estimated that the County could realize an estimated savings of \$153,000 per year by doing so.

In 2005, C&M Technology, Inc. recommends replacing the ITEK camera and the Nu Arc plate burner with a computer-to-press digital plate maker system at an estimated cost of \$95,000. The result is an estimated annual savings of \$52,000, which will accrue to the County, and result in the recovery of the purchase price in approximately twenty-one months. In 2006, C&M Technology, Inc. recommends replacing the Ryobi 2800 for \$40,000. Following the outlined recommendations will result in the replacement of all core PGA equipment in the next four years.

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## INTRODUCTION

In response to a 2003 Council Budget Proviso, C&M Technology, Inc. was selected to undertake a review of the County-wide IT infrastructure replacement plan. To leverage this work, C&M Technology, Inc. was also charged with using this plan as the framework for creating an equipment replacement plan for the Printing and Graphic Arts (PGA).

## PRINTING AND GRAPHIC ARTS

The Printing and Graphic Arts (PGA) section of ITS provides graphics services and print materials to King County agencies. Executive order ACO 8-16 (See Appendix A) directs County agencies to utilize PGA services when appropriate. PGA is organized as an internal service agency and it charges for services rendered to recover its costs. Printing and Graphic Arts provides services and products at rates designed to recover the cost of operating and maintaining the section that are cost- and quality-competitive with other service providers.

There are three defined levels of “charge-back” to PGA clients:

1. Photographic and graphic arts design services - The current rate for these services is \$72 per hour.
2. Print Services – The current rate for these services is \$66 per hour for standard print items, plus the cost of materials. Print Services also prints business cards for King County staff at a fixed rate, dependent upon quantity ordered. Copy Services are provided at 7 cents for single-sided and 9 cents for double-sided.
3. Management of outside printing and binding services - PGA charges a 15% surcharge to cover administrative cost, including billing services, cost estimate generation, and coordination of work distribution to outside vendors.

PGA rates are calculated by ITS Finance and Administrative Services based on a defined set of factors including, staff salaries, wages and benefits, facilities costs and facilities operations costs. In addition, it also includes department overhead, and central cost allocations, that amounted to \$310,264 in 2003 budget. The rates charged to customers do not include an allowance for accumulating resources for the replacement of capital equipment. However, PGA funded the equipment replacement reserve using savings that created excess fund balance.

All county departments are encouraged to avail themselves of the services provided by PGA. County customers submit a majority of work requests via the Internet or inter-office mail. Only 2% of work requests are received by telephone and walk-ins.



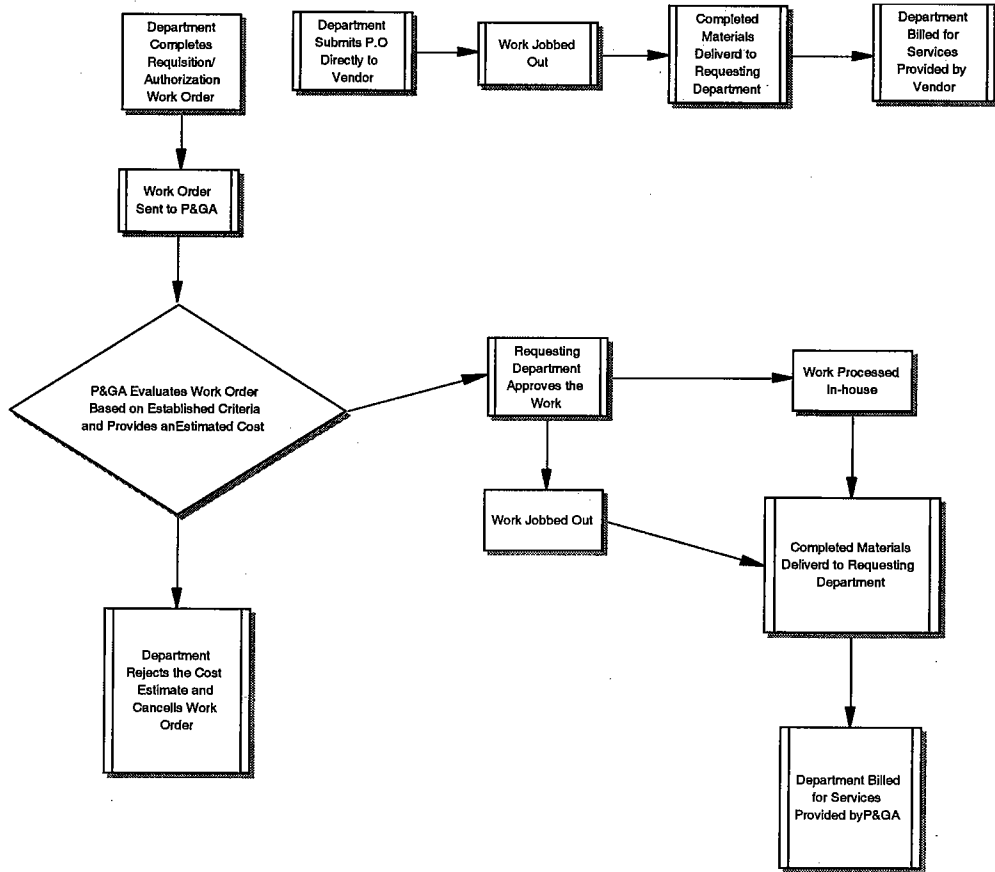
Once a request is received, PGA reviews the request to determine if the work can be completed in-house or should be sent to an outside vendor. Factors to be considered include:

- Due date,
- Print shop workload/staff availability,
- Adequacy of in-house equipment,
- Ink/paper stock requirements, and
- Confidentiality.

A cost estimate is provided to the customer and work is completed either in-house or by an outside vendor. As mentioned above, a 15% administrative fee is added to the work completed by outside vendors to cover administrative overhead. PGA is able to get trade rates from other vendors and they also know which ones produce the best quality for selected jobs. These factors help customers get the best products at costs lower than they would be able to achieve if they took the job directly to a vendor.

### PRINTING AND GRAPHIC ARTS WORKFLOW

The following workflow diagram depicts the PGA work order process:



PG/ Chart 1 – The workflow diagram above depicts PGA’s work order process.

## DESCRIPTION OF THE FUNCTION THE EQUIPMENT PERFORMS

The inventory of PGA equipment provides information about the year each piece of equipment was acquired, the cost of the equipment and the anticipated year of equipment replacement. There are eight classes of equipment in place each of which is self-defining in terms of type and function:

1. Paper cutters
2. Collators
3. Offset printers
4. Paper drills
5. Document cameras
6. Plate burners
7. Color copiers
8. Black and white copiers

C&M Technology, Inc. included in its report on network equipment replacement two key factors to be considered when determining the need to replace technology related infrastructure – equipment technology and the economic lifespan of the equipment. These factors are the same for PGA equipment, but must be applied on an expanded time scale.

The useful life of printing equipment is governed by its overall functionality and its ability to meet the business needs of PGA customers. Printing presses and associated production equipment such as cutters, collators, and folders are long-lived. Quality units can last twenty years or more. Decisions to replace equipment in a Printing and Graphic Arts business are generally made based upon increases in customer demand or emerging new technologies. New printing equipment can be computer-controlled and have the ability to accept direct digital information. The equipment is also faster and more efficient. New presses and peripheral production equipment generally provide a wider range of formatting opportunities, improve the quality of printed products, reduce processing time, lower operating costs, and increase productivity of PGA staff.

As with core data equipment and voice systems, the economic lifespan of PGA equipment includes downtime, repair costs and negative impact on staff productivity.

Unlike the economic and functional lifespan of computers and network electronics, the replacement of printing and graphic arts equipment is considerably less dynamic. The County must consider the economic lifespan of printing equipment by quantifying downtime per operating unit and documenting repair costs. Annual maintenance costs relative to the residual value of the equipment must also be factored into any replacement decision.

## INVENTORY OF PURCHASED EQUIPMENT

The PGA has a modest inventory of printing presses and related equipment. Only three major items have been purchased within the last two years: an AB Dick 9975 Offset Press, a Programmable Cutter (financed partially by trade-in of older equipment), and a 30-Bin Collator. The installation of this equipment dramatically increased the efficiency of print production and the potential output of PGA. For example the cutter has reduced the processing time for business cards by 66%. The new collator is capable of processing two projects simultaneously; this has reduced overall processing time by approximately 30%.

The following table depicts the PGA equipment inventory, the year and cost of initial acquisition, the estimated lifespan of that equipment and the estimated replacement costs.

Equipment	Year Purchased	Purchase Price	Estimated Lifespan	Estimated Replacement Year	Estimated Replacement Cost
<b>Programmable Cutter</b>	2001	\$40,000	20 Years	2021	\$65,000
<b>Horizon 30 Bin Collator</b>	2001	\$100,000	10 Years	2011	\$125,000
<b>Offset Presses</b>					
AB Dick 9975	2002	\$60,000	10 Years	2012	\$85,000
AB Dick 360	1974	\$10,000	25 Years	N/A <sup>1</sup>	N/A
AB Dick 367	1974	\$10,000	10 Years	N/A <sup>1</sup>	N/A
Ryobi 2800	1984	\$10,000	20 Years	2005	\$40,000
ITEK 3302	1987	\$30,000	20 Years	2007	\$70,000
Ryobi 3302	1991	\$35,000	20 Years	2011	\$75,000
Heidelberg KORD	1980	\$52,000	20 Years	2003	\$175,000
<b>Challenge Drill</b>	1976	\$3,500	25 Years	2003	\$8,000
<b>MBO Folder</b>	1991	\$17,500	20 Years	2011	\$35,000
<b>ITEK 430 Camera</b>	1991	\$12,500	15 Years	2006	\$35,000
<b>Nu Arc Plate Burner</b>	1994	\$4,500	10 Years	N/A <sup>1</sup>	N/A
<b>TOTAL</b>		<b>\$385,000</b>			<b>\$713,000</b>

Table 1 - The majority of PGA equipment was purchased prior to 1994. A number of items are scheduled for surplus. This includes the AB Dick 360 and AB Dick 367. PG&A expects to acquire replacements from King County Assessments and the Co-Op Extension. These departments are replacing their existing small presses with Xerox Copier/Printers

## INVENTORY OF LEASED EQUIPMENT

PGA has upgraded its printing and copying capabilities by installing a number of high-speed black and white Xerox copiers and full color copier printers. They have also included in the mix a Xerox wide-format color plotter.

<sup>1</sup> N/A identifies equipment that will be phased out of the inventory when higher function equipment is purchased.

Equipment	Annual Lease
Docu-Tech 6135 Networked High Speed BW Copier	\$112,120
Docu-Tech 6115 Networked High Speed BW Copier	\$112,120
Docu-Color 12 Networked High Speed Full Color Copier/Printer	\$29,715
Docu-Color 12 Networked High Speed Full Color Copier/Printer	\$29,715
Xerox Wide Format Color Plotter	\$11,400

Table 2 - The Duco-Tech Black and White copiers are networkable units that are capable of printing up to 135 pages per minute. They also have an optional roll feed system that can produce up to 50,000 cut sheets per 12 hours of continuous operation. The units provide binder, collator, stacker, stapler stitcher and edge-trimming features for full service reproduction. The Duco-Tech Color Copier/Printers are networkable units that are capable of printing up to 12 full color copies per minute.

## THE AGE AND USEFUL LIFE OF PGA EQUIPMENT

The replacement of printing and graphics arts related equipment is somewhat different than the Replacement Factors Model, which was developed specifically for network and/or telephone equipment.

Printing and graphics equipment can have an operational life of 20 or more years. That is not to say that the ongoing functions meet the production and product quality expectations of PGA customers, or that the investment in technologically advanced machinery would not increase the efficiency of the section, but it does have an impact on the development of an objective equipment replacement strategy. Equipment replacement decisions in this environment should consider the cost of purchasing new equipment compared with the impact on services provided, potential efficiencies, and cost savings over time.

## REPLACEMENT FACTORS

To develop an equipment replacement strategy, a number of factors should be considered. These factors include functional criticality, useful life, reliability, and production capacity.

### Functional Criticality

This replacement factor is based on the core function of PGA in relation to the services provided to customers. The core functions of PGA involve printing, collating and cutting. Auxiliary functions involve refinements to core activities, e.g., printing business cards, etc. The following table depicts the coding schema for the functional criticality replacement factor at PGA:

Functional Criticality	Code
Equipment supporting core functions	1
Equipment supporting auxiliary functions	2

Table 3 – This table depicts the coding schema for the replacement factor – Functional Criticality.

### Useful Life

This replacement factor is based upon the number of years the equipment has left of functional life. Functionality in this instance is the ability of the equipment to efficiently meet the output volumes required by PGA customers. The factors governing the calculation of useful life must be determined by PGA staff based on an intimate understanding of the capability of embedded equipment and recognition of the value to King County of emerging print technologies.

$$\text{Useful Life} = \text{Productive Life Expectancy} - \text{Years in Service}$$

### Equipment Reliability

This replacement factor is based upon the functional viability of PGA equipment as determined by the annual percentage of uptime; the availability of an annual maintenance agreement and access to repair support for legacy equipment. The cost of the maintenance agreement for each unit of equipment and any additional costs for repair must be calculated annually and factored against the cost of replacing the equipment. Although PGA does not currently have maintenance agreements for its equipment, staff is developing a new approach to equipment maintenance and support.

Equipment Reliability	Code
No Maintenance Agreement, extensive service history	1
No Maintenance Agreement, service history	2
No Maintenance Agreement, no service history	3

Table 4 – This table depicts the coding schema for the equipment replacement factor – Equipment Reliability.

### Capacity Planning

This replacement factor is based on the need for productivity enhancements, plus the level of demand experienced by PGA. Capacity planning in PGA acknowledges the changes in demand for services that occur over time.

Capacity Planning	Code
Equipment does not meet production requirements, increasing or constant demand	1
Equipment meets production requirements, constant demand	2
Equipment meets production requirements, decreasing demand	3

Table 5 – This table depicts the coding schema for the equipment replacement factor – Capacity Planning.

## PGA REPLACEMENT FACTOR MODEL

By way of comparison, “Agency Projects” is the only replacement factor in the ITS Replacement Factor model that the PGA Replacement Factors Model does not utilize. The reasoning is simple. PGA will rarely be affected by outside agency projects involving voice, video, and/or data systems.

The following table contains the PGA equipment inventory and the equipment replacement model:

Equipment	Year Obtained	Estimated Life	Estimated Replacement Cost	Functional Criticality 25%	Useful Life 15%	Equipment Reliability 30%	Capacity Planning 30%	Replacement Index
Heidelberg KORD	1980	20	\$175,000	1	-3	2	1	0.70
ITEK 430 Camera	1991	15	\$35,000	2	-2	1	1	0.80
Ryobi 2800	1984	15	\$40,000	2	-4	2	1	0.80
ITEK 3302	1987	15	\$70,000	2	-1	1	1	0.95
Challenge Drill	1976	25	\$8,000	2	-2	3	2	1.70
AB Dick 360	1974	25	N/A <sup>2</sup>	2	-4	3	3	1.70
AB Dick 367	1974	25	N/A <sup>1</sup>	2	-4	3	3	1.70
Ryobi 3302	1991	15	\$75,000	2	3	2	1	1.85
Nu Arc Plate Burner	1994	10	N/A <sup>1</sup>	2	1	3	1	1.85
Horizon Collator	2001	10	\$125,000	1	8	2	2	2.65
AB Dick 9975	2002	10	\$85,000	2	9	2	2	3.05
MBO Folder	1991	20	\$35,000	2	8	3	2	3.20
Programmable Cutter	2001	20	\$65,000	1	18	3	2	4.45

Table 6 – This table embodies the PGA Replacement Factor Model. The replacement index has been sorted in ascending order to reveal the order of equipment replacement.

The relationship between the replacement factors is largely determined through the art of equipment replacement. However, the beta weight (percentage) assigned to each factor is based upon a hierarchy of need. It should be noted that technological improvements in printing and graphics equipment do not occur with great frequency. As a result, nearly 70% of the PGA inventory has a useful life of 15 or more years. Thus, the useful life factor has the lowest beta weight

<sup>2</sup> N/A indicates that the equipment item will be phased out of the inventory when higher functioning equipment item is purchased.

(15%). The replacement factors of functional criticality and equipment reliability have beta weights of 25% and 30%, respectively. Combined, the first three factors (functional criticality, useful life and equipment reliability) total is 70%.

The final factor is capacity planning. Although printing technologies change relatively slowly, the needs and expectations of customer agencies do evolve. There are three important considerations in this regard. The first is whether or not PGA equipment is sophisticated enough to provide the services requested. The second is whether or not the cost point makes it advantageous to customer agencies to utilize PGA services. The third consideration is whether or not PGA has the staff and/or equipment capacity to provide marginal services. Capacity planning is therefore an important aspect of replacement decision-making. As such, a beta weight of 30% has been assigned to that factor.

In terms of the hierarchy of need, functional operations and maintenance considerations influence 70% of the replacement decisions, while management plans and initiatives to provide higher level of services to customer agencies influence 30% of replacement decisions.

## FUNDING GUIDELINES

### Recovery Period

The most rational and understandable method for developing an equipment replacement fund is to use depreciation as the cornerstone for assessing charges to PGA customers.

In reviewing the embedded equipment base as a whole, depreciation to date provides decision-makers a view of the remaining useful life of production equipment. However, PGA cannot reasonably use the accumulated depreciation dollar amount to project the cost of upgrading, or replacing equipment. This is due to the fact that in the print production environment increased functionality and efficiency generally comes at higher price.

Using a straight-line depreciation model will provide PGA the means for establishing an equipment replacement fund. However, if passing depreciation costs on to customers is the only method of accumulating resources, the section will find itself unable to fully cover the cost of replacing equipment in an entirely predictable manner due to cost escalation over the life of the equipment.

### Equipment Inventories and Depreciation

C&M Technology, Inc. proposes that PGA adopt the straight-line method of equipment depreciation to establish the basic mathematical framework for tracking the useful life of equipment and establishing its anticipated replacement date. The depreciation model can be used to establish a proprietary equipment replacement fund for future purchases. This approach would help to smooth out budget impact over time and allow for a more predictable impact on customer

rates. More importantly establishing a depreciation model creates an awareness in the County of the need for equipment replacement on a structured basis as items reach the end of their useful life.

The depreciation table developed by C&M Technology, Inc. lists the equipment utilized by PGA along with its recovery period. Recovery periods were determined through discussions with PGA staff regarding historical changes in the printing industry and the changing needs of the county. There are no published industry guidelines for the life expectancy of printing and graphic arts equipment.

## PGA DEPRECIATION SCHEDULE

In keeping with the funding model developed for the enterprise-wide information technology infrastructure equipment replacement model, a table depicting the PGA depreciation schedule for PGA equipment is located in Appendix B. The utility of the depreciation schedule varies dependent upon which alternative ITS chooses to fund PGA equipment replacement.

### PGA Equipment Replacement Funding Alternatives

Alternative A – Funding for PGA equipment replacement could be developed utilizing a straight-line depreciation model such as was recommended for enterprise-wide information technology infrastructure equipment. The fund would be supported by an increase in the rate structure for PGA services.

Alternative B – Funding for PGA equipment replacement could be developed through the budget process on an as-needed basis. Purchase decisions would utilize the Replacement Index in conjunction with a decision package supported by benefit/cost analyses. Adoption of this alternative would mean that funding would be in the form of direct appropriations.

Alternative C – Funding for PGA equipment replacement could be realized by utilizing the equipment replacement fund accumulated through 2002 combined with expected cost savings realized through the purchase of more advanced equipment.

Alternative D – PGA could consider leasing major items of production equipment thereby requiring a recurring line item in the County budget for equipment leasing. This method is currently in use; however implementation of this alternative would be on a more expanded basis.

Alternative E – This alternative would use the same methodology as suggested in Alternative D, but would seek authority for a temporary increase in the PGA rate structure to capture the necessary funding for approved equipment replacement.



C&M Technology, Inc. recommends that the County adopt Alternative C. Funding would be separated from replacement decisions; for at least the next three years, equipment replacement needs will not affect current customer rates, and the fund would be easily maintained and small enough so as not to be attractive during recessionary periods.

By way of comparison, the risk of adopting Alternative A for PGA equipment is that most of equipment in the PGA inventory should be replaced in excess of 15 years. The risk of adopting this alternative is that especially during recessionary periods, the fund may be used to balance the budget, leaving no fund balance when equipment replacement becomes necessary. This method also may not support purchase decisions based on increased customer demand or unanticipated changes in printing technologies.

Alternative B is essentially the situation that currently exists. Again, during recessionary periods, the likelihood of receiving funding for equipment replacement is not great when funding for more fundamental County services is being cut.

Alternative D could provide an efficient means of maintaining up-to-date equipment while minimizing changes to the rates charged to customers; however this alternative may result in equipment replacement occurring at a more accelerated rate than is necessary. Similarly, Alternative E could result in an inflated rate structure.

#### Fee-based Equipment Replacement Funding

C&M Technology, Inc. recommends that the PGA section use the current 2003 equipment reserve of \$150,000 and any excess fund balance to capture the current value (\$180,218) of accumulated depreciation. The depreciation table should be used as a guide as to the relative solvency of the fund, based on the equipment inventory.

The County must keep in mind that new equipment will cost more than the purchase price of legacy equipment. This will create a built-in deficit that should be handled by establishing a replacement fee factor based on an easily calculable rate, i.e., the annual rate of inflation, to accommodate anticipated future costs of a spending plan.

As equipment is removed from the PGA inventory, it is recommended that any residual trade-in or sales value be returned to the PGA equipment replacement fund, when appropriate.

#### PGA Capital Equipment Replacement Fund – Maintaining the Fund

New equipment should be added to the equipment inventory as soon as it is purchased. Additions to the inventory will be factor-coded as recommended to establish the initial equipment Replacement Index. Other items of equipment

may be removed from the inventory for any number of reasons. ITS Finance and Administration staff will calculate annual depreciation through December 31 of any given year.

A full year's depreciation will accrue to equipment added to the inventory on December 31 of the year following its acquisition. For example if PGA purchases a printing press in September 2003, the first years' depreciation will not accrue until December 31, 2004. This method of applying depreciation is consistent with the process recommended for other ITS equipment. The required reserve for equipment replacement after 2006 will be based on an estimate of depreciation and will be funded through a combination of savings and rates.

### COST OF EQUIPMENT FAILURE

The cost of PGA equipment failure can be significant in terms of the viability of the printing enterprise. In 2003, PGA expects to generate \$884,822 with 9 FTEs in the print shop. If core PGA equipment in the print shop were to fail, the cost to revenue is \$3,430 per day or \$17,150 per week. Equally important to the calculation is the effect production loss due to equipment failure would have on the enterprise. It can be expected that customer agency projects that are stopped due to production downtime at PGA will be diverted to commercial print shops. And, one could expect that fewer agencies would resume their former relationship with PGA following a significant equipment failure.

### SPENDING PLAN: 2003 – 2006

There are several efficiencies that can be realized as PGA equipment is replaced. The main printing press in the PGA print shop is a Heidelberg KORD offset press. The "KORD", purchased in 1980, is limited to print one color on two sides in a 12X18 inch format. Because of the color limitations, PGA often must send projects involving three, four and five colors to commercial vendors. If the "KORD" were to be replaced by a Heidelberg 14X20 GTO four-color perfecter press, PGA could extend its capacity for in-house printing and increase overall operational efficiency.

The GTO is an offset press that has the ability to run four-colors on one side of the sheet or two-colors on two sides, simultaneously. During the first quarter of 2003, PGA paid \$58,205 to vendors to produce work that could not be accommodated due to equipment capacity constraints. PGA estimates that a full two-thirds of printing projects currently produced by vendors could be kept in-house with the replacement of the KORD with the GTO. Annualized savings to PGA could equal \$153,000. In addition, the new capabilities in conjunction with attractiveness of PGA rates could result in additional savings accrued to the County.

PGA utilizes a process for image creation that requires a commercial vendor make negatives that are subsequently used by staff to make plates that are mounted onto the press for printing. It can take up to 24 hours for the commercial vendor to return the film to PGA.

Not only are there time considerations, but also in 2002, PGA expended \$41,000 for vendor-supplied negatives. Moreover, dependent upon the project, customer agencies, such as Natural Resources and Parks, Transit and Health also expended budget funds for negatives. PGA conservatively estimates that customer agencies expend \$13,000 per year for negatives. Thus, the County is expending over \$54,000 per year to support this process.

In terms of equipment that supports the process, PGA utilizes a Nu Arc plate burner purchased in 1994 to create plates. If PGA were to replace the plate burner and the outdated ITEK 430 camera, purchased in 1991, with a computer-to-plate system (CTP), for an estimated \$60,000 and \$35,000, respectively, the County would recover the investment in just over twenty-one (21) months.

There are other benefits beyond the cost efficiencies that could be realized. They include speed (20 minutes compared to 24 hours) and ease with which the integrated system operates, the durability (20,000 printing impressions per side) and scratch resistance of the polyester plates (they can be exposed on either or both sides), and the elimination of several chemicals from the printing process. In addition, special storage requirements for hazardous materials could be eliminated.

The following table illustrates the spending plan for 2003 – 2006 recommended by C&M Technology, Inc.

INVENTORY ITEM	REPLACEMENT INDEX	ESTIMATED COST	FUND BALANCE
<b>2003</b>			
Equipment Replacement Fund			\$150,000
<b>FUND TOTAL</b>			<b>\$150,000</b>
2003 Year-end Balance			\$150,000
<b>2004</b>			
Carry-over Balance			\$150,000
Excess Fund Balance			\$79,076
<b>FUND TOTAL</b>			<b>\$229,076</b>
Replace Heidelberg KORD	0.70	\$175,000	-\$175,000
2004 Year-end Balance			\$54,076
<b>2005</b>			
Carry-over Balance			\$54,076
33% Annual Cost Savings (Heidelberg GTO offset press)			\$50,949
<b>FUND TOTAL</b>			<b>\$105,025</b>
Replace ITEK 430 Camera	0.80	\$35,000	-\$35,000
Replace Nu Arc Plate Burner	1.85	\$60,000	-\$60,000
2005 Year-end Balance			\$10,025
<b>2006</b>			

INVENTORY ITEM	REPLACEMENT INDEX	ESTIMATED COST	FUND BALANCE
Carry-over Balance			\$10,025
100% Annual Cost Savings (Computer-to-plate system)			\$41,000
<b>FUND TOTAL</b>			<b>\$51,025</b>
Replace Ryobi 2800	0.80	\$40,000	- \$40,000
2006 Year-end Balance			\$11,025

Table 7 – This table depicts the proposed spending plan for PGA equipment replacement for 2003 through 2006.

## Appendix A – Executive Order

## King County

## Administrative Policies and Procedures

## Executive Orders, Policies and Procedures

**Title: Delegating Centralized Graphics/Printing Services Authority****Document Code No.:** ACO 8-16(AEO)**Department/Issuing Agency:** Office of the King County Executive**Effective Date:** December 22, 2001**Approved:** /s/ Ron Sims**Type of Action:** New

This order delegates to the County Administrative Officer of the Department of Executive Services the authority to coordinate and provide centralized graphics/printing services for all County agencies.

**WHEREAS**, the County endeavors to provide maximum services in the most economical manner possible, and

**WHEREAS**, previous County studies have indicated that a centralized graphics/printing operation should produce a significant cost reduction, and

**WHEREAS**, the Department of Executive Services (DES) has the capability, personnel and equipment to meet a majority of the printing needs of County agencies;

**NOW, THEREFORE**, I, Ron Sims, King County Executive do hereby delegate to the County Administrative Officer the authority to coordinate and provide centralized printing services through the Department of Executive Services as follows:

1. All departments, divisions, agencies, and programs within County government are hereby directed to submit print and graphic projects to and utilize DES' centralized graphics/printing services.
2. Information and procedures to facilitate centralized graphics/printing services will be made available through the following:
  - a. Graphics/Printing Procedures which will outline the guidelines, timelines and process to be followed to submit all graphics/printing requests to the Graphics/Printshop;
  - b. The Graphics/Printshop will estimate costs from the Printing Requisition/Authorization, submitted by the requestor, and, when within their capability, will complete the printing request;
  - c. The Graphics/Printshop will make appropriate determinations regarding specific projects and, if necessary, submit the project for processing through the regular competitive bid process and/or appropriate procurement process.

Dated this 12 day of December, 2001.

/s/ Ron Sims, King County Executive

ATTEST:

/s/ Bob Roegner, Manager

King County Records, Elections, and Licensing

Updated: January 2, 2002

## Appendix B – PGA Depreciation Schedule

## PGA Equipment Depreciation Schedule

Item	Price	Year	Useful Life (Years)	Depr Thru 2002	Depr 03-04	Depr 05-06	Depr 07-08	Depr 09-10	Depr 11-12	Depr 13-14	Depr 15-16	Depr 17-18	Depr 19-20	Depr 21-22	Total
Programmable Cutter	\$40,000	2001	20	\$2,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$2,000	\$40,000
Horizon Collator	\$100,000	2001	10	\$10,000	\$20,000	\$20,000	\$20,000	\$20,000	\$10,000						\$100,000
AB Dick 9975	\$60,000	2002	10	\$0	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000						\$60,000
AB Dick 360	\$10,000	1974	25	\$10,000											\$10,000
AB Dick 367	\$10,000	1974	25	\$10,000											\$10,000
Ryobi 2800	\$10,000	1984	15	\$10,000											\$10,000
ITEK 3302	\$30,000	1987	15	\$10,000											\$30,000
Ryobi 3302	\$35,000	1991	15	\$25,668	\$4,667	\$4,665									\$35,000
Heidelberg KORD	\$52,000	1980	20	\$52,000											\$52,000
Challenge Drill	\$3,500	1976	25	\$3,500											\$3,500
MBO Folder	\$17,500	1991	20	\$10,500	\$1,750	\$1,750	\$1,750	\$1,750							\$17,500
ITEK 430 Camera	\$12,500	1991	15	\$12,500											\$12,500
Nu Arc Plate Burner	\$4,500	1994	10	\$4,050	\$450										\$4,500
<b>TOTAL</b>	<b>\$385,000</b>			<b>\$180,218</b>	<b>\$42,867</b>	<b>\$42,415</b>	<b>\$37,750</b>	<b>\$37,750</b>	<b>\$26,000</b>	<b>\$4,000</b>	<b>\$4,000</b>	<b>\$4,000</b>	<b>\$4,000</b>	<b>\$2,000</b>	<b>\$385,000</b>

Table 8 – This table illustrates the depreciation schedule for each item in the PGA equipment inventory. Note that depreciation is in two-year increments. This was done to solely facilitate an abbreviated table.