

**Information Technology Supporting Documentation  
Commonwealth of Pennsylvania  
Governor's Office of Administration/Office for Information Technology**

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**Introduction/Executive Summary:**

This supporting document serves as a guide to help make the most efficient and least costly choices for the acquisition and deployment of office class printers for an agency. By employing the basics of printer selection, assessment, and design, the Commonwealth will be able to take advantage of the benefits provided by implementing industry best-standard practices.

The underlying strategy behind the Commonwealth's office printer initiative is right sizing the current fleet of printers to meet the needs of the users and better fleet management across the Commonwealth. With the structure of the current printer contract, proactive fleet management and adherence to the printer selection guidelines, agencies can maximize their investment on devices across the Commonwealth.

This initiative is expected to benefit the enterprise by way of productivity gains and cost savings in the following areas:

- Reduced overall cost per page and enhanced performance by replacement of inkjet and other legacy printers with current high-speed and high-volume offerings.
- Increased end-user productivity through implementation of an effective layout and printer coverage that appropriately addresses user needs in terms of utilization and volume statistics.
- Reduced printer-per-person ratios which will contribute to savings in areas of purchase, maintenance, and support.
- Improved ability to manage and monitor current print environment through standardization, which also reduces complexity and simplifies future processes of assessing, analyzing and rightsizing print infrastructure as needs change.

This document guides managers through a process to determine if organizations need to acquire new printers and/or need to redistribute current devices. It also provides a methodology on how to appropriately analyze and distribute devices based on logistics surrounding current usage requirements and current print environment.

**Main Document Content:**

**Guidelines for Assessment and Rightsizing**

• **Gather Assessment Data**

This includes developing detailed floor plans, inventorying hardware, and capturing volume statistics for print devices.

\* Predefined supplemental document type codes are listed below:

**APP** = Appendix **BPD** = Best Practice Document **GEN** = General Information Document  
**OPD** = Operations Document **RFD** = Existing Supporting Document Referenced by this ITP **WHP** = White Paper

- Develop floor plans- diagrams need to identify locations of power supplies, network drops, walls, offices, cubes, employees, and print devices. Individual print devices are to be grouped into similar categories and depicted accordingly with symbols and legend (e.g., inkjet, low-end black/white laser, high-end black/white laser, color laser, desktop multi-functional device (MFD), high-volume MFD).
- Create a separate document listing print device attribute information for each different printer category. Printer attribute information to be captured includes:
  - Printer make, model and type;
  - Print speed in pages per minute (PPM);
  - Duty cycle (total monthly output capacity);
  - Approximate age of device;
  - Auto-duplex capable (yes or no); and
  - Network capable (i.e., has its own network interface card and Internet protocol address (yes or no)).

- Employ software utilities to capture monthly volume statistics for disparate print devices.
- Identify users who have unusually high/low print volume (e.g. clerical staff who handle printing for groups of users, employees who use applications that have high print output, user/groups who have limited needs for printing).

**Note:** Floor plan may have to be weighted accordingly to account for users and/or groups identified as having unusually high or low print volume. For example, if a user has twice the volume of a typical user, then that user is to be considered as two users.

- Interview/survey end-users to identify inefficiencies and to determine current end-user satisfaction levels.
  - Identify practices that affect printer availability rates (e.g., workflow that requires many users to print at regularly scheduled times creating high peak volume and rendering print devices unavailable for extended periods of time); and
  - Identify obstacles such as users having to go to a different floor or having to interrupt other employees to get access to the print area.
- Communicate with end-users concerning the goals of this initiative, including improved efficiency and increased end-user productivity. Overall costs will go down, but user satisfaction will go up.

- **Analyze Current Print Environment**

This includes identifying over and underutilized printers as well as devices that don't meet current policy requirements and need to be retired and/or replaced.

- **Underutilized Printers-** printers that need to be relocated or downgraded:
  - Single use and locally shared printers (personal print devices located and dedicated to single individuals as well as to locally attached printers that are shared over the network).

**Note:** Personal printers justified based on "confidential" printing requirements do not provide a valid business case as all current offerings have secure print features.

- Laser printers with low monthly volumes for their respective class. Cutoff volumes will vary based on a percentage of the printer's duty cycle (printer utilization rate), but generally is five thousand (5,000) pages printed per month or less for high-end Laser printers that have a duty cycle of fifty thousand (50,000) or more and a print speed of twenty-five (25)+PPM.

- High speed/volume MFDs, non-desktop, with monthly volume less than fifteen thousand (15,000) pages.
- **Over utilized Printers-** printers that need to be replaced, upgraded or supplemented:
  - Laser printers with high monthly volumes for their respective class- generally more than five thousand (5,000) pages printed per month for low-end (20 PPM or less with a duty cycle of fifteen thousand (15,000) pages or less) and fifteen thousand (15,000) pages printed per month or more for high speed Laser printers (twenty-five (25)+PPM with a duty cycle of fifty thousand (50,000) or more).
  - Multi-functional devices with high monthly volumes for their respective band (refer to current MFD/Copier contract for volume guidelines).
- **Devices That Need to be Retired/Replaced:**
  - Stand alone copiers and fax machines.
  - High cost per page devices- inkjet devices used with lack of business case, low-end Laser printers with high toner costs compared to current offerings.
  - Legacy devices (six-or-more years old).
  - Non-network devices (non-Ethernet- cannot be configured with an IP address).
  - Laser printers that do not have auto-duplex capabilities.
- **Deploy/Redistribute Print Devices**

This includes recommendations and considerations for deployment and/or replacing and redistributing of print devices based on analysis of the assessment data.

  - Ensure that all devices are network attached, facilitating remote management, support, and asset utilization tracking.
  - Replace or develop plan for replacing legacy devices (six or more years old) and devices that do not meet current policy requirements: non-laser based printers, stand alone copiers and fax machines, non-network and non-auto-duplex capable printers, and low-end Laser printers identified as having high cost per page with respect to current offerings listed on the printer contract.
  - Distribute shared print devices according to proximity and print volume. The general rule of thumb for proximity is 45 radial feet with a maximum two-door threshold. Consider moving people not printers- static print infrastructure.
  - Consider using small office-class device offerings to support a radius where approximately one to five average users (where a typical employee prints 1,100 pages per month) are addressed or for any number of users where the total print volume is five thousand (5,000) pages per month or less.
  - Consider deploying medium office-class devices to address a radius including five to fifteen users or any number of users where total volumes are between five thousand (5,000) and fifteen thousand (15,000) pages printed per month.

**Note:** Most environments use a mixture of these devices with their placement depending on logistics such as physical layout, volume, and other variables such as workflow, which results in unusually high peak output during certain times of the day.

- Consider utilizing large copier-class MFD for areas with a radius that covers more than fifteen users or where total output is greater than fifteen thousand (15,000) pages per month.
- For copier replacement, or when copy/scan functionality is needed in addition to an arrangement of Laser devices, consider placing the large high-volume MFDs in the outer perimeter and replacing smaller Laser printers with office class laser-based MFDs where possible.
- Integrate network MFD fax capabilities with a fax server where technically feasible. This configuration will save on expenses by reducing the need for analog telephone line costs.
- Provide sufficient network color laser devices to minimize asset creep back to personal ink-based devices. Network color laser devices with appropriate management and comparable costs per

page, provide affordability to place color output services within easy reach of the user population. End-user satisfaction and productivity will increase while overall costs decrease.

- Target utilization rates to yield lowest Total Cost of Ownership (TCO) while providing optimal end-user satisfaction and productivity. Typical device types and approximate utilization target examples:

- Twenty (20) PPM network printers- three percent utilization- five thousand (5,000) pages/month.
- Thirty (30) PPM network printers- three percent utilization- nine thousand (9,000) pages/month.
- Thirty (30) PPM network MFD- five percent utilization- fifteen thousand pages (15,000)/month.
- Forty-five (45) PPM network printers- three percent utilization- fifteen thousand (15,000) pages/month.
- Forty-five (45) PPM network MFD- five percent utilization- thirty thousand (30,000) pages/month.

- General employee-to-device target ratios (will vary based on size and location (i.e., large offices will have better ratios than small office branch locations):

- Twenty (20) PPM network printers- 6:1
- Thirty (30) PPM network printers- 8:1
- Thirty (30) PPM network MFD- 20:1
- Forty-five (45) PPM network printers- 15:1
- Forty-five (45) PPM network MFD- 30:1

- Device count example for a three-hundred-person floor:

- Thirty (30) network printers.
- Ten (10) of these thirty (30) printers enabled with copy/scan/fax.
- Two (2) forty-five (45) PPM MFD (central copy area on the floor).