

Fairfax County

e-Waste Optimization

1 Background

Fairfax County spends \$600 million annually on goods and services in support of one million residents. The delivery of these services is becoming highly technological and Fairfax County is at the forefront of the innovation. With projects like the upgrade of our 911 communications system and the perpetual updates of IT equipment across all departments – Fairfax County generates increasing quantities *and* varieties of obsolete electronics. It's no surprise to us that the EPA has identified electronics as the fastest growing segment of solid waste.

End-of-life management of electronics has become a concern for all municipalities and large corporations. It involves data security, environmental risk and compliance with disposal law; it presents an ethical dilemma (should we care if our electronics are shipped to developing countries for low-tech dismantling?) and it requires careful financial analysis as some equipment has a disposal cost while other equipment has significant value. An optimal solution must account for all these elements.

2 The challenge

In FY 2010, Fairfax County disposal procedures were far from optimized. Fairfax County disposed of 115,000 lbs of e-waste which included 3,100 computers and monitors. This quantity of e-waste contained roughly 5,000 lbs of lead and a significant quantity of other hazardous substances.

The primary mechanism used to dispose of e-waste was a recycling program initiated as part of a computer contract with Dell. The Asset Recovery Program began in 2004 and was an innovative solution at the time. It was designed to handle the collection, data cleansing and recycling of computers. The economics of the program were advantageous – we paid an upfront fee of \$23 per computer to participate in end-of-life collection and recycling services. When computers were collected, functionality and quality was assessed by Dell and Fairfax County was reimbursed for the high quality units on a sliding scale. Any 'valueless' items

incurred recycling fees. The net result had historically been revenue returning to the County. The key to the program's success was carefully controlling the retirement age of our computers to ensure they retained value.

However, in 2010 the program experienced significant losses. Budget cuts forced the County to retain computers longer, leading to declining values and increased recycling fees. Other varieties of e-waste containing sensitive data (primarily copy machines) were sent and incurred both per unit charges and per lb charges. At \$0.70 lb, the valueless computers and large copy machines incurred a \$90,000 recycling charge. Revenue totaled only \$72,000 – leading to an overall loss. **In FY10, the program lost \$17,000.**

The significant financial losses halted the handling of other varieties of e-waste: non-computer items that need data cleansing and the valueless items containing the most hazardous substances. Fairfax County's closets remained full with no viable disposal options. Although the program posted a \$17,000 loss, the valueless e-waste stored in our closets represented thousand dollars in additional disposal fees.

Fairfax County's Environmental Purchasing Program confronted this challenge and set out to optimize not only the financial aspects but to expand the program and ensure environmental and social responsibility.

3 The commonly accepted alternative

Research into peer operations found that many sell their e-waste (both functional and broken/obsolete) at public auctions. While auction revenue may look attractive, research uncovered hidden costs, risks and ethical dilemmas.

- **Costs:** Electronics sold at public auction require in-house data cleansing before the equipment can be sold. An analysis into the Fairfax County Public Schools in-house data cleansing operation shows just how costly this can be: If staff spent 10 minutes to remove the hard drive on each of the 4,000 computers they disposed in 2010, it equates to 710 hours of work – or **\$17,750** at \$25/hr. In addition, the cost of the machinery needed to erase hard drives is expensive - FCPS purchased three degaussing machines for \$6,315/ea to accomplish the task. That's another **\$18,000** in hidden costs.

- **Ethical Dilemma:** While some e-waste retains value, much is obsolete and valueless. Obsolete TVs and CRT monitors are examples of products with no markets. Public sales tend to pass the cost and burden of disposal to the winning bidders or auctioneer. You might think that if there was no market, why would anyone buy it? Research into public auctions found it common to palletize the “unsellable” items (specifically CRT monitors) with high-value electronics as a disposal mechanism. And when this doesn’t occur, the auctioneer is often left responsible. The auction contractor selling FCPS electronics reported that 30% of the equipment sent was not sold (and disposed by their company).
- **Risk:** The most startling aspect to our research was that under the Federal CERCLA (Superfund) Act, improper disposal anywhere in the chain of custody may open the municipality to litigation. The public auction methods noted above make this a very real risk for some municipalities.

While public auctions may appear to reduce disposal costs – they increase risk and ethical concerns over disposal responsibility. Exclusive use of this option was not an acceptable alternative for Fairfax County.

4 Fairfax County’s Solution

In November of 2010, Fairfax County terminated the Asset Recovery Program and implemented a superior recycling program with the State’s contractor, Creative Recycling Solutions (CRS). It optimized finances by eliminating recycling fees on most items, reducing fees from \$0.70/lb to \$0.15/lb on the most costly units to dispose, eliminating the per unit fee (“pay to play” fee), and generating revenue over a wider list of equipment and independent of product functionality. **Most importantly, the program expands recycling to anything with a circuit board.**

Implementation was made easy due to the established contract between CRS and the Commonwealth of Virginia. After a series of meetings with the contractor, Fairfax County was set up administratively to begin pickups. Educational material was produced and sent to

relevant staff outlining the new procedures. Off we went with our first pickup in December 2010.

5 Results

The new program made an immediate impact.

- Fairfax County sent 42,924 lbs of e-waste for recycling since implementation. All devices with data (including flash drives, copiers, blackberries, scanners, etc) were wiped according to Virginia standards.
- Costs eliminated: \$17,000.
- Revenue generated: \$5,000. Projected annual revenue under the new program is \$30,000.
- Program expansion to anything with a circuit board enabled recycling of 18,316 lbs of e-waste (43% of everything sent) that was either not accepted through our Asset Recovery Program or too expensive to recycle. Our closets were cleaned responsibly and a \$22,000 cost was averted.
- **Overall Results: \$44,000 improvement while recycling opportunities *increased*.**

This is truly a sustainable program. By expanding recycling and data cleansing to everything with a circuit board, Fairfax County is well positioned to handle the ever expanding variety of e-waste. Data security is enhanced, environmental and social responsibility is preserved, and risk is mitigated – **all while generating revenue**. We hope Fairfax County's e-waste recycling program serves as a model to others struggling with this challenging issue. Our program shows that municipalities can be green while making some gr\$\$n.

Overview

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