

## MULTNOMAH COUNTY LIBRARY COLLECTION SHRINKAGE—A BASELINE REPORT (#009-06A)

The Multnomah County Budget Office Evaluation unit analyzed various cumulative catalog and inventory data to provide a snapshot of shrinkage of the Library's collection. *Unreturned items*, *missing status*, and *missing in inventory* items accounted for most shrinkage. Patron's unreturned materials represent the single greatest source of shrinkage at 5.6% of the collection. Missing status items account for approximately 2.9% of the collection, and missing in inventory was 3.1% (+/- 0.2%) of the collection. Because of the different methodologies used to assess these factors, it is inappropriate to add them together as an annualized shrinkage rate.

Multi-media items were much more likely to be impacted by shrinkage than print materials. Branch sampling found Rockwood, North Portland, and Holgate with larger than average collection shrinkage at 9.4%, 5.3%, and 4.9%, respectively.

Little practical research was identified making comparisons to other jurisdictions difficult. However, results should assist the Library in determining the cost-effectiveness of various shrinkage strategies. The full methodology, common library shrinkage strategies, and research limitations are discussed in the full 32-page report.

**Background.** The Library initiated this project after several stories related to theft of materials were published in June, 2005. The County's library system is comprised of 16 branches, a central location, and community outreach services that manage a more than two million item collection. The Multnomah County library system has the highest circulation of any library system in the United States, with approximately 18.8 million items circulated in 2005.

The Library had several objectives for this research:

1. Estimate shrinkage by material type (fiction, non-fiction, DVDs, CDs, etc.),
  - a. Examine attributes in multi-media shrinkage in greater detail,
2. Estimate the overall County library system shrinkage,
3. Estimate shrinkage by branch location, and
4. Obtain data necessary for cost-benefit analyses.

This reports encompasses all branches and 87% of the entire collection (excludes non-circulating reference materials, paperbacks, CD-ROMS, maps, and the special collections) or approximately 1.67 million items.

**Shrinkage.** Inventory shrinkage is a private sector term defined as the loss attributable to a combination of shoplifting, employee theft, administrative errors, and vendor fraud. There are generally three categories that

account for collections shrinkage: *unreturned*, *missing status*, and *missing in inventory*. Items that are "unreturned" were lost in circulation by patrons checking them out and failing to return them. "Missing status" are items which cannot be located by staff, typically upon patron request. "Missing in inventory" are items that according to the catalog should be on the shelf, but which cannot be found in the inventory after 2-3 searches.

**Unreturned material.** Patrons that fail to return borrowed materials incur overdue fines and lost charges. If they grow too large, their account is turned over to a collections agency. According to the administration, an average of 65% of unreturned materials turned over to a collections agency are paid for or successfully recovered.

A catalog snapshot showed a total of 99,213 unreturned items that were checked-out and then lost in circulation by patrons over a four year period. Some may have been through the collections process while other may have been just reported. The unreturned item snapshot cumulatively accounted for approximately 5.6% of the collection. Non-fiction accounted for nearly a third of all unreturned items.

Material Type	Total Library Collection (FY05-06)**	Unreturned by Patrons (FY05-06)	Library Collection (FY05-06) Plus	
			Unreturned	Percent of Collection Unreturned
Audiotape	37,195	1,480	38,675	3.8%
CD (music+ book)	131,765	14,028	145,793	9.6%
DVD	69,208	8,614	77,822	11.1%
Fiction	218,907	11,758	230,665	5.1%
Foreign	46,475	1,570	48,045	3.3%
Juvenile Non-Fiction	140,849	5,167	146,016	3.5%
Juvenile Easy	147,872	7,506	155,378	4.8%
Juvenile Fiction	64,686	3,432	68,118	5.0%
Large Print	26,294	433	26,727	1.6%
Music Scores	39,929	593	40,522	1.5%
Non-fiction	648,182	31,525	679,707	4.6%
Videotape	47,001	8,289	55,290	15.0%
Young Adult	50,540	4,818	55,358	8.7%
<b>Total*</b>	<b>1,668,903</b>	<b>99,213</b>	<b>1,768,116</b>	<b>5.6%</b>

**Missing status.** A catalog snapshot identified 48,422 items in missing status at the close of FY05-06. Missing status items accounted for approximately 2.9% of the collection over a 14-month period. Non-fiction and CDs each accounted for 25% of missing status items.

Material Type	Total Library Collection (FY05-06)	Missing Status (FY05-06)	Percent of Collection on Missing Status
Audiotape	37,195	849	2.3%
CD (music+ book)	131,765	12,346	9.4%
DVD	69,208	3,260	4.7%
Fiction	218,907	6,278	2.9%
Foreign	46,475	587	1.3%
Juvenile Non-Fiction	140,849	1,948	1.4%
Juvenile Easy	147,872	1,589	1.1%
Juvenile Fiction	64,686	966	1.5%
Large Print	26,294	274	1.0%
Music Scores	39,929	370	0.9%
Non-fiction	648,182	12,455	1.9%
Videotape	47,001	4,851	10.3%
Young Adult	50,540	2,649	5.2%
<b>Total*</b>	<b>1,668,903</b>	<b>48,422</b>	<b>2.9%</b>

**Missing in inventory sample.** A 13,164-item stratified random sample of available materials from the 16 branches, the central location, and community outreach services was conducted in February, 2006. Overall, 44% of the collection was checked-out at the time of the inventory. Each item was searched on the shelf and in the catalog 2-3 times over several weeks to determine if it could be located. Based upon the collection counts that occurred at the end of FY05-06 an estimated 51,950 items were missing in inventory or 3.1% (+/- 0.2%) of the 1.67 million item collection.

Material Type	Total Library Collection (FY05-06)	Missing Available Material Point Estimate	Collection Missing in Inventory	Collection Missing in Inventory Lower Bound	Collection Missing in Inventory Upper Bound
Audiotape	37,195	1,074	2.9%	2.2%	3.7%
CD (music+books)	131,765	6,702	5.1%	4.4%	5.8%
DVD	69,208	249	0.4%	0.3%	0.4%
Fiction	218,907	6,878	3.1%	2.4%	4.1%
Foreign	46,475	2,418	5.2%	4.2%	6.5%
Juvenile Easy	147,872	3,044	2.1%	1.5%	2.7%
Juvenile Fiction	64,686	1,534	2.4%	1.8%	3.2%
Juvenile Non-fiction	140,849	3,307	2.3%	1.7%	3.2%
Large Print	26,294	395	1.5%	1.0%	2.3%
Music scores	39,929	1,278	3.2%	2.4%	4.3%
Non-fiction*	648,182	21,372	3.3%	2.5%	4.3%
Videotape	47,001	1,862	4.0%	3.4%	4.6%
Young Adult	50,540	1,942	3.8%	3.1%	4.8%
<b>Weighted Total**</b>	<b>1,668,903</b>	<b>51,950</b>	<b>3.1%</b>	<b>2.9%</b>	<b>3.3%</b>

\*The Holgate branch non-fiction collection was inadvertently excluded (9,325 items).  
\*\*Shaded values denote weighted system total.

**Shrinkage patterns—material types and branches.** System wide shrinkage calculations mask the variation shrinkage by specific material types and branch location.

Multi-media consistently had the greatest proportion of shrinkage, specifically CDs, DVDs, and videotapes. Fifteen percent of the videotape collections was unreturned by patrons, with higher than average levels also noted in DVDs (11%) and CDs (10%). About 10% of the videotape collections was on missing status with higher levels also in CDs (9%).

Young adult books had the highest unreturned amounts for printed materials (9%), and had the highest missing status amounts for printed materials (5%).

Material Type	Total Library Collection (FY05-06)	Percent of Collection Unreturned	Percent of Collection on Missing Status	Collection Missing in Inventory*
Audiotape	37,195	3.8%	2.3%	2.9%
CD (music+books)	131,765	9.6%	9.4%	5.1%
DVD	69,208	11.1%	4.7%	0.4%
Fiction	218,907	5.1%	2.9%	3.1%
Foreign	46,475	3.3%	1.3%	5.2%
Juvenile Easy	147,872	3.5%	1.4%	2.1%
Juvenile Fiction	64,686	4.8%	1.1%	2.4%
Juvenile Non-fiction	140,849	5.0%	1.5%	2.3%
Large Print	26,294	1.6%	1.0%	1.5%
Music scores	39,929	1.5%	0.9%	3.2%
Non-fiction*	648,182	4.6%	1.9%	3.3%
Videotape	47,001	15.0%	10.3%	4.0%
Young Adult	50,540	8.7%	5.2%	3.8%
<b>Total</b>	<b>1,668,903</b>	<b>5.6%</b>	<b>2.9%</b>	<b>3.1%</b>

\*Shaded cell denotes weighted total (+/-0.2%)

Variations missing in inventory by branch collection ranged from 1.0% at Albina to 9.4% at Rockwood. North Portland also showed a above average shrinkage at 5.3%, as did Holgate at 4.9% of the collection.

Branch Location	Total Library Collection (FY05-06)	Missing Available Material Point Estimate	Collection Missing in Inventory	Collection Missing in Inventory Lower Bound	Collection Missing in Inventory Upper Bound
Albina	43,108	431	1.0%	0.5%	2.1%
Belmont	65,274	1,426	2.2%	1.4%	3.3%
Capitol Hill	46,225	641	1.4%	0.7%	2.6%
Central	592,305	21,190	3.6%	3.2%	4.0%
Fairview-Columbia	31,495		Sample size too small to accurately calculate estimates.		
Gregory Heights	48,664	997	2.0%	1.2%	3.4%
Gresham	127,769	4,140	3.2%	2.5%	4.1%
Hillsdale	90,217	2,071	2.3%	1.6%	3.3%
Holgate*	37,836	1,853	4.9%	3.4%	7.0%
Hollywood	117,403	3,644	3.1%	2.4%	4.0%
Library Outreach Services	20,206	356	1.8%	0.8%	4.0%
Midland	160,853	3,567	2.2%	1.7%	2.9%
North Portland	57,016	2,995	5.3%	3.9%	6.9%
Northwest	35,820	1,001	2.8%	1.7%	4.6%
Rockwood	41,818	3,921	9.4%	7.3%	11.9%
Sellwood	45,537	787	1.7%	1.0%	3.0%
St. Johns	38,950	855	2.2%	1.3%	3.8%
Woodstock	68,407	2,142	3.1%	2.2%	4.4%
<b>Weighted Total**</b>	<b>1,668,903</b>	<b>51,950</b>	<b>3.1%</b>	<b>2.9%</b>	<b>3.3%</b>

\*The Holgate branch non-fiction collection was inadvertently excluded (9,325 items).

\*\*Shading denotes weighted system totals.

**Recommendations.** Little practical research on shrinkage and loss prevention in library collections was identified. Therefore, shrinkage estimates from other jurisdictions and proven shrinkage prevention strategies were difficult to obtain. Based on the results from the work reported here, there are several areas that should be prioritized to reduce future shrinkage:

1. The majority of the shrinkage was due to patrons checking-out materials but never returning them. A review of the library's lending policies should be combined with further analysis of the unreturned items.
2. CDs, DVDs, and videotapes should be reviewed for enhanced security measures. Some promising security changes were already implemented with DVDs and CDs; these might also be effective with videotapes. Due to the volume young adult and non-fiction printed materials should also be reviewed for enhanced security.
3. An assessment of the Rockwood, North Portland, and Holgate branches' physical layout should be performed to determine if changes in the physical environment can reduce the likelihood of loss.

Full methodology, common library shrinkage strategies, and research limitations are discussed in the full 32-page report available online at: [www.co.multnomah.or.us/budgeteval/](http://www.co.multnomah.or.us/budgeteval/)