Public Schools of North Carolina
State Board of Education
Department of Public Instruction

Report to the Joint Legislative Education Oversight Committee

Textbook Warehouse Study
SL 2002-126, sec. 7.17(c)

Senate Bill 1115

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DPI Chronological Schedule

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Revised July 1, 2003

Supplemental Funding (Compliance with the Nonsupplant Requirement). - Section 28.7(e) of S.L. 2001-424 reads as rewritten:

"**SECTION 28.7.(e)** Reports. - The State Board of Education shall report to the Joint Legislative Education Oversight Committee prior to ~~May 1, 2002,~~ May 1, 2002 and May 1, 2003, if it determines that counties have supplanted funds."

SECTION 7.17.(c) Study of the Textbook Distribution System. - Section 28.24 of S.L. 2001-424 reads as rewritten:

"**SECTION 28.24.** The State Board of Education shall contract for an analysis of the best and most efficient method to manage textbook distribution to the local schools. The Board shall prepare a Request for Proposals (RFP) outlining the scope of the analysis required and select a private consultant to perform the analysis. The analysis shall include such issues as timely delivery, total costs to the local school systems in providing textbooks to school buildings, use of currently available technology in the process, pricing practices among the textbook publishing industry, and other issues the Board considers relevant to a comprehensive review of the system.

Prior to award of a contract, the State Board shall present the Request for Proposals to the Joint Legislative Education Oversight Committee for comment. The State Board shall report to the Joint Legislative Education Oversight Committee on the results of the consultant's analysis, including the Board's recommendations for changes in the current system. The Board shall make its final report to the Committee by ~~April 1, 2002.~~February 1, 2003."

SECTION 7.17.(d) Study of the Salaries of School Food Service Workers and Custodians. - Section 28.34 of S.L. 2001-424 reads as rewritten:

"**SECTION 28.34.** The Joint Legislative Education Oversight Committee shall study the salaries of food service workers and custodians employed by the public schools. The Committee shall report its findings to the ~~2002 Regular Session of the 2001 General Assembly.~~2003 General Assembly."

SECTION 7.17.(e) Study of Salary Differentials for Instructional Support Personnel. - Section 28.37(b) of S.L. 2001-424 reads as rewritten:

"**SECTION 28.37.(b)** The Joint Legislative Education Oversight Committee shall study salary differentials for instructional support personnel. In the course of the study, the Committee shall consider salary differentials based on degrees and other educational credentials, licensure or certification by State agencies, licensure or certification by private entities, and other factors. The Committee shall report its findings and recommendations to the ~~2002 Regular Session of the 2001 General Assembly.~~2003 General Assembly."

SECTION 7.17.(f) Fairness in Testing (Study of the State's Testing Program). - Section 28.17(i) of S.L. 2001-424 reads as rewritten:

"**SECTION 28.17.(i)** The Joint Legislative Education Oversight Committee shall study the State's testing program. As part of this study, the Committee shall consider:

(1) The number of tests currently mandated at the State level and the process and cost of developing, validating, and scoring them.

Final Report
Department of Public Instruction
Textbook Warehouse Study

June 16, 2003

Prepared by:

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Table of Contents

1. Executive Summary

This study was conducted in response to a request made by the North Carolina General Assembly to review the operational efficiency of the Textbook Warehouse with the following four objectives.

1) Review and analyze NC's existing practices for textbook distribution
2) Review and analyze NC's existing practices for modified textbook distribution
3) Benchmark efficiency of operations among other state distribution centers
4) Provide a cost comparison of textbook titles

The team conducted on-site reviews of warehouse operations, interviewed textbook services personnel and state staff in other states, exceptional children programs and coordinators and spoke with publishers, reviewed past findings, and benchmarked operations against other states.

The project has determined that North Carolina's textbook warehouse operations successfully manage the distribution of standard texts at a lower cost than distribution solutions found in the states surveyed. The warehouse operates with less staff, meets delivery deadlines and within the 1.75% operational budget.

On a normalized basis, adopting either a 3rd party depository or Direct Ordering as found in other states, the state would incur the following estimated additional costs:

Distribution Channel	Cost per Book	Annual Cost
NC Textbook Warehouse	----	----
3rd Party Depository (Out-Sourced)	+ $2.50	+ $3.9M
Direct Ordering	+ $5.94	+ $9M

All depositories, public or private, receive an 8% discount. For states with private 3rd party depositories, the depositories bill individual LEAs (or schools) 1%-2% for shipping. North Carolina's depository manages shipping at an average cost of 0.4%. For those states with Direct On-line ordering, shipping can add 8-10% to the contract cost. *If shipping costs were rolled into the up charge, the savings between North Carolina and the other channels would increase by an additional $250,000 a year.*

North Carolina achieves these efficiencies by operating by having moved from a 'pull' model, which inventories all shipments received; to a 'push' model which cross-docks and ships material shortly after receipt. This change and the reorganization of staff and warehouse operations has resulted in on-time arrival of books, reduced staff requirements, and an efficient operation run at a reasonable cost to the state and taxpayers.

The team found the warehouse lacking in:

- Documented formalized procedures necessary to ensure continuity of acceptable operations

- Metrics for both measuring performance and as a basis for continuous improvement. The lack of metrics also affects the warehouse's efforts to respond to external queries.

There is further room for improvement and the project team made additional recommendations which could reduce the ordering to shipping cycle, reduce errors in the order process, improve responsiveness to the warehouse by publishers and provide better notification to LEAs of shipping times.

More detailed findings and recommendations are included in the appropriate sections.

Modified textbooks are managed differently than standard textbooks. The warehouse operates as a 'Lending Library'. Compared to other states that operate instructional resource centers for the blind and visually impaired, North Carolina's textbook warehouse is a less efficient process but one where major improvements are outside of the warehouse direct control and are predicated on improved identification, ordering and creation of modified textbooks. These improvements depend on closer coordination among the LEAs visually impaired community, the DPI, and publishers of modified material. Some improvements in modified texts warehouse operations are needed and are outlined in the study. The project team also recommends the DPI conduct a cost benefit analysis for implementing an instructional resource center under the management of the Exceptional Children Division at the DPI. This cost benefit analysis would be the foundation for developing a business case to market the concept, organization, benefits, and overall efficiencies achievable through this growing practice among state Board's of Education nationwide. Summaries of the instructional resource centers in the benchmarked states for this study are included in this document.

In summary, the study concluded that the DPI Textbook Warehouse operates in a cost-effective manner. Further improvements and reductions in errors, order and shipping cycles could be achieved. Modified textbook distribution could be improved with better statewide coordination among the community of interest. The study further identified other opportunities for cost-savings outside the scope of the study and which is included in the document. A more detailed review is provided in the following sections.

2. Background

This study was conducted in response to a request made by the North Carolina General Assembly to review the operational efficiency of the Textbook Warehouse. The request required a comparison of DPI's textbook warehouse against other state textbook distribution centers in South Carolina, Tennessee, Florida, Texas, New Mexico, and Virginia. The study was to provide detailed recommendations for possible improvements or strategies that provide the best and most efficient method to manage textbook distribution to the NC local schools. The study considered financial impacts these efficiencies would have on the Local Education Authorities (LEA).

The study had four objectives:

1) Review and analyze NC's existing practices for textbook distribution
2) Review and analyze NC's existing practices for modified textbook distribution
3) Benchmark efficiency of operations among other state distribution centers
4) Provide a cost comparison of textbook titles

In order to achieve the study objectives, the project team established and completed the following milestones:

- Examined past audits and studies
- Reviewed staffing levels against requirements
- Conducted interviews with DPI staff, the warehouse, and four LEA textbook coordinators
- Conducted interviews with textbook services personnel in other states (depository staff)
- Conducted interviews with publisher's representatives
- Conducted interviews with modified textbook staff in various states and the North Carolina Exceptional Children's Division.
- Conducted on-site observations of daily operations of office and warehouse staff

3. Overview

North Carolina's Textbook Warehouse is a part of the Textbook Services Section of the Financial Services Division of the Department of Public Instruction (DPI). The Textbook Services section is responsible for the ordering, receipt, staging, and delivery of textbooks to each LEA (See Figure 1). The LEAs are responsible for delivery of textbooks to the individual schools. The textbook warehouse manages the textbook delivery process for 117 LEAs statewide.

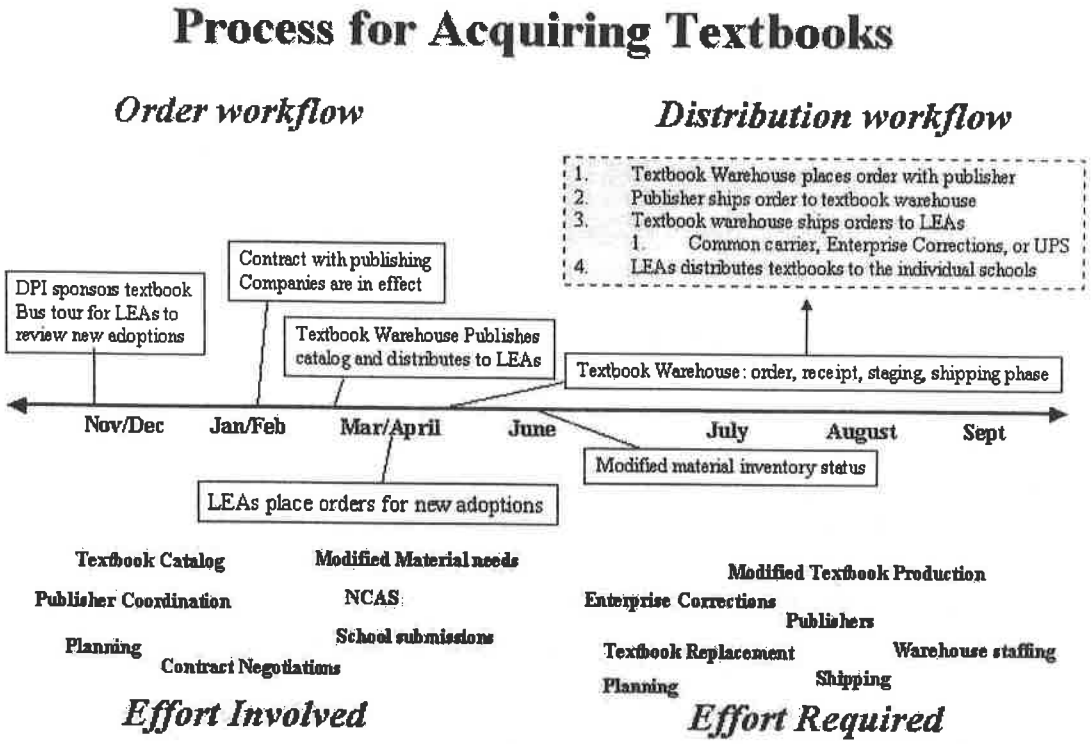


Figure 1 – Process for Acquiring Textbooks

In addition to standard textbooks, the textbook warehouse has the responsibility of obtaining and maintaining textbook materials for the visually impaired referred to as "modified" textbooks in the State of North Carolina. Modified textbooks are managed differently than standard textbooks. Modified materials are housed at the textbook warehouse as a textbook "library" and loaned out to the LEAs. If the modified textbooks are not available in the warehouse's library, the warehouse orders the material through various publishing companies specializing in the production of textbook material in Braille, large print and audiotape formats.

The volume of textbooks ordered and delivered is primarily based on NC's textbook adoption cycle (See Figure 2). A particular subject area's adoption drives the level of activity within the warehouse as it determines the percentage of students required to participate in that subject area in any given year. The North Carolina Textbook Commission manages this adoption cycle. As governed by the State Board of Education,

the Commission is responsible for the review, evaluation, selection, and recommendation for all state adopted textbooks used in the North Carolina's public school system.

NORTH CAROLINA'S TEXTBOOK ADOPTION SCHEDULE

2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
ELEMENTARY GRADES				
Arts Education K-8	**Social Studies**	**Mathematics K-8**	**Science K-8**	**Communication Skills**
Visual Arts	Elementary K-5	Elementary K-5	Second Languages	Language Arts 3-8
Music	Middle School 6-8	Middle School 6-8	French	Reading K-8
Dance	**Business Ed**	**Healthful Living K-5, 6-8**	Spanish	Spelling 2-8
Theatre Arts	Keyboarding 6-8	**Technology Ed**	**Exploratory 6-8**	Handwriting 1-5
Family & Consumer Science	Computer Tech 7-8	Exploring Technology Sys	French	
Exploring Life Skills	Exploring Bus Tech 6-8	**Career Development**	Spanish	
		Exploring Career Decisions	**Agriculture Ed**	
			Exploring Biotech	
SECONDARY GRADES				
Arts Education	**Social Studies**	**Mathematics**	**Science**	**Communication Skills**
Visual Arts	Civics & Economics	Advanced Math	Biology	Language Arts 9-12
Music	World History	AP Statistics	Advanced Biology	Literature 9-12
Dance	US History	Algebra I, II	Chemistry	
Theatre Arts	American Govt	Geometry	Advanced Chemistry	
Family & Consumer Sci Ed	Sociology	Algebra 1-A	Physical Science	
Clothing Design	Economics	Algebra 1-B	Physics	
Foods & Nutrition	Psycology	Technical Math I, II	Anatomy & Physiology	
Life Management	Contemporary Law	Introductry Math	Earth/Environmental Sci	
Interior Design & Housing	African Amer History	Discrete Math	**Agriculture Ed**	
Parenting & Child Develop,	American Indian Studies	Integrated Math I, II, III, IV	Agriscience Appl	
Teen Living	**Business Ed**	Adv Algebra & Trig	Agriculture Eng Tech I, II	
Early Childhood Ed I, II	Priciples of Business	Pre-Calculus	Agriculture Prod Mgmt I, II	
Culinary Arts & Hospitality I, II	Bus & Electronics Comm	AP Calculus	Horticulture I, II	
Second Languages	Computerized Acct. I, II	**Healthful Living Grade 9**	**Second Languages**	
Latin, Levels 1-4	Business Law	**Health Occupations**	French, Levels 1-4	
	Bus Mangement & Appl	Biomedical Tech	Spanish, Levels 1-4	
	Computer Applications I, II	Medical Sciences I, II	German, Levels 1-4	
	Keyboard Applications	Health Team Relations	Spanish for Natives, Lv 1-2	
	E Commerce	Allied Health Sci I, II		
	Marketing Ed	**Technology Ed**		
	Marketing Ed	Fundamentals of Tech		
	Marketing Management	Manufacturing Sys		
	Small Bus/Entreprenshp	Communication Sys		
	Fashions Merchandising	Transportation Sys		
	Bus & Financial Mgmt I, II	Structual Systems		
		Trade & Industrial Ed		
		Automotive Tech		
		Construct Tech-Carpentry		
		Graphics Comm		
		Masonry		
		Drafting I		
		Drafting-Architect		

Figure 2 – NC Adoption Cycle

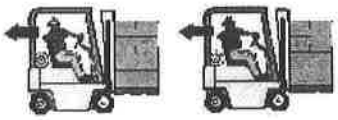
The organizational structure of the textbook warehouse is depicted in Figure 3 below. This represents a reduction in staffing since 1997. Improvements in warehouse operations over the past three years have reduced warehouse staff by 20%. Current warehouse operation practices significantly reduced the need for temporary employees during the high workload period, March to October.

Textbook Warehouse Organization Structure
(comparison between 1997 and 2002)

1997

1 x Warehouse Section Chief

Administration
- 1 x Accounting technician
- 1 x Purchase order technician
- 1 x Processing Assistant
- 1 x Stock clerk



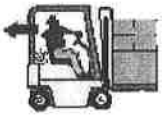
Warehouse Operations
- 1 x Warehouse manager
- 1 x Stock supervisor
- 1 x Stock clerk
- 1 x Sales order technician
- 12 x temps (seasonal)

Nine (9) full-time positions
Twelve (12) temp employees (Mar-Oct)

2002

1 x Warehouse Section Chief

Administration
- 3 x Accounting technician
- 1 x Processing Assistant
- 1 x temp



Warehouse Operations
- 1 x Warehouse manager
- 1 x Stock supervisor
- 4 x Stock clerk
- 1 x temp

Eleven (11) full-time positions
Two (2) temp employees

Figure 3 – Textbook Warehouse Organizational Comparison

4. Baseline of Existing Operations

The North Carolina Department of Public Instruction (DPI) operates a centralized textbook distribution center which services approximately 1.25 million students in North Carolina's 99 Local Education Authorities (LEA) and 18 City School Districts. The center is approximately 80,000 square feet on two (2) floors. The second floor is where the modified textbooks for the visually impaired are inventoried and processed.

The facility is a much more efficient operation than was the case during the 1997 State Auditor's performance report. For the most part, the receiving, selection and shipping are done in a timely manner. This improvement in efficiency was in response to the recommendations presented in the 1997 State Auditors Report and new processes instituted by the textbook warehouse manager, Drew Fairchild. Mr. Fairchild has improved warehouse operations and developed staff to streamline warehouse operations at the State level. Although just piloted in February 2003, the integration of a North Carolina Accounting System (NCAS) ordering component has already proved valuable and will foster further improvements with a statewide rollout to all LEAs.

Warehouse staffing consists of primarily State Full-Time Equivalents (FTEs). The warehouse employs a manager, two (2) receivers/selectors, two (2) shippers, one (1) person assigned to process modified textbooks, and one (1) temporary employee. The warehouse office has four (4) full time textbook administration staff members and one (1) temporary.

The current active vendor list has thirty-nine (39) publishers on it, although the top ten (10) vendors account for 98% of the volume in units and dollars.

The textbook operation is primarily a "push" concept, which means it operates virtually without inventory. The LEA's submit orders to the warehouse where they are consolidated and sent to the publishers. As the product is received at the warehouse, the system creates pick tickets for immediate selection. The product is primarily cross-docked, with little placed into inventory. As soon as there is a viable accumulation of books for an LEA, it is scheduled for shipment.

4.1 Textbook Warehouse Costs Summary

The table below contains the operating expenses and revenues for textbook operations for FY 2000-2002. It also shows the net savings that are derived after applying costs of the Warehouse, Commission, freight and modified textbooks against the 8% discount. *During the most recent three (3) years the annual savings netted against all expenses have averaged almost $3M per year.* The project team used figures provided by the DPI and do not include various reconciliations conducted by the budget office, as those actions do not change the result of our findings.

Textbook Warehouse Costs

Expenditures	**FY2000**	**FY2001**	**FY2002**	**Total**	**Avg**
Warehouse Operating Costs	510,521	603,702	506,266	1,620,489	540,163
Freight Costs	177,926	298,231	217,837	693,994	231,331
Textbook Commission Costs	203,193	239,811	158,705	601,709	200,570
Total Expenditures	**891,640**	**1,141,744**	**882,808**	**2,916,192**	972,064
Number of Books Shipped	1,399,876	2,359,630	979,270	4,738,776	1,579,592
Warehouse Cost/Book	**0.64**	**0.48**	**0.90**	**0.68**	**0.68**

Textbook Cost/Revenue

Gross cost of textbook sales	48,031,646	93,852,269	35,721,445	177,605,360	59,201,787
Freight costs	177,926	298,231	217,837	693,994	231,331
Modified textbook expenses	850,186	797,414	1,094,486	2,742,086	914,029
Warehouse Operating Costs	510,521	603,702	506,266	1,620,489	540,163
Textbook Commission Costs	203,193	239,811	158,705	601,709	200,570
Total Expenditures	**49,773,472**	**95,791,427**	**37,698,739**	**183,263,638**	**61,087,879**
Publisher fines paid	0	37,000	600	37,600	12,533
Damage fees	89,306	67,933	90,206	247,445	82,482
8% Discount	3,842,532	7,508,182	2,857,716	14,208,429	4,736,143
Total Revenues	**3,931,838**	**7,613,115**	**2,948,522**	**14,493,474**	**4,831,158**
NET COST	**45,841,634**	**88,178,312**	**34,750,217**	**168,770,164**	**56,256,721**
Total Savings	**2,190,012**	**5,673,957**	**971,228**	**8,835,196**	2,945,065

Note: Total savings represents the remainder of the 8% discount after expensing the Textbook Warehouse, the Textbook Commission, modified textbooks, and freight.

The budgeting process is outside the scope of this study but while Table 1 depicted the expenses and revenues for the warehouse, table 2 measures actual costs against appropriated funds. It establishes that the budget for textbook purchases *does not* reflect the volatility of the adoption cycle; as a result, there are major swings between actual performance and the budget. It further establishes that modified textbook expenses and freight costs are consistently over budget. As with textbook expenses, the study determined that the freight budget doesn't reflect the adoption cycles. Additional data on modified textbooks would be needed to fully determine whether the problem is operational or if it, too, is a product of the budget process. However, Table 2 clearly shows that the 1.75% up charge is more than adequate to support both the Warehouse and Textbook Commission. In the most recent three (3) years, the surplus averaged almost $300,000 per year. If the freight costs were also included in the 1.75% up charge, there still would have been a surplus of about $20,000 a year. This would suggest that freight costs could be included in the up charge rather than be budgeted as a separate cost.

Actual vs. Appropriations

Expenditures	**FY2000**	**FY2001***	**FY2002***	**Total**	**Avg**
Textbook appropriations	54,707,010	56,887,555	63,877,815	175,472,380	58,490,793
Gross cost of textbook sales	48,031,646	93,852,269	35,721,445	177,605,360	59,201,787
Surplus/(Deficit)	**6,675,364**	**(36,964,714)**	**28,156,370**	**(2,132,980)**	**(710,993)**
Freight appropriation	111,000	111,000	191,270	413,270	137,757
Actual Freight costs	177,926	298,231	217,837	693,994	231,331
Surplus/(Deficit)	**(66,926)**	**(187,231)**	**(26,567)**	**(280,724)**	**(93,575)**
Modified textbook appropriation	758,424	792,815	1,016,715	2,567,954	855,985
Actual Modified textbook expenses	850,186	797,414	1,094,486	2,742,086	914,029
Surplus/(Deficit)	**(91,762)**	**(4,599)**	**(77,771)**	**(174,132)**	**(58,044)**
Textbook Warehouse	510,521	603,702	506,266	1,620,489	540,163
Textbook Commission	203,193	239,811	158,705	601,709	200,570
Sub-Total	**713,714**	**843,513**	**664,971**	**2,222,198**	**740,733**
1.75% Up charge	840,554	1,642,415	625,125	3,108,094	1,036,031
Surplus/(Deficit)	**126,840**	**798,902**	**(39,846)**	**885,896**	**295,299**
Total vs Budget	**6,710,442**	**36,170,411**	**(28,038,753)**	**1,421,216**	**473,739**

** FY2001 and FY2002 figures reflect the volatility of the adoption cycle.*

4.2. Standard Textbooks

NC's Textbook Warehouse has accountability and responsibility for all textbooks ordered for new adoptions, returns, and reorders. For the purposes of the study, we classify standard textbooks as all textbooks, excluding modified textbook materials (covered in section 4.4) and teacher resource material, which is provided to the LEAs by the publishers.

4.2.1 Receiving Process

- Publishers or truckers call DPI for a delivery appointment.
- The truck is received using the publisher's packing list.
- The product is staged on the dock for next day order selection.
- The packing list with receiver counts is turned into the receiving office for input into NCAS. This input creates the pick tickets.

4.2.2 Selection Process

- Selectors sort through pick tickets, which are printed in triplicate. Each ticket represents a single item for one LEA.
- The selector locates the item, which is usually among the recent receivings on the dock, although the item may also be in back stock inventory. The warehouse does not use location or slot numbers.
- The order quantities are individual books so the selector divides the order quantity by the case pack to determine the proper number of full cases, then multiplies the case pack by the number of full cases, and subtracts that number from the order quantity to determine the number of loose books that are required to complete the order.
  - ➢ *EXAMPLE: Order is for 785 books. The case pack equals 8. Selector divides 785 by 8 to get 98 full cases. Then he multiplies 98 times 8, which equals 784. 785 minus 784, which leaves one (1) book. The correct selection would be 98 full cases and one (1) loose book.*
- Once the order is selected, the selector searches the order assembly area to see if other selected pallets exist for that LEA, and combines the pallets if appropriate.

4.2.3 Shipping Process

- The Shipper walks the facility and manually lists the pallets by LEA. These pallets could be from the prior day selection or they could be several days old.
- The Shipper determines which orders to ship based on order size and Correction Enterprises' route schedule.
- After the delivery routes are determined, the pallets are shrink-wrapped, weighed and loaded onto outbound trucks.

Deliveries are usually made in one or two days, but at times, Correction Enterprises will hold merchandise at their facility for an undetermined period of time.

4.3 Findings

An analysis of the current warehouse process led to the following observations on the current workflows along with recommendations for improved practices that could reduce the cycle time and the potential for errors. These improved practices could potentially reduce labor costs, but given the size of the current workforce (6 warehouse, 5 office) it is unlikely that a full time position could be eliminated. There may be an opportunity to eliminate the use of temporary staff during peak periods. At current staffing that would represent a 20% reduction in the warehouse.

RECOMMENDATION #1 - LEA's should order electronically through NCAS.

Process: LEAs fax or mail orders to warehouse staff. The order numbers get assigned at the warehouse.

Problem: Some LEAs will fax the order and follow-up with a mailed copy. Others will unknowingly fax an order more than once because there is no verification that the first fax was successful. Although warehouse staff catches most of these duplications, it is still a manual and time-consuming process.

Recommendation:
LEAs should electronically transmit their orders directly into NCAS. This is currently being piloted at nine (9) LEAs. This would not only solve the risk of duplicate orders, it would also reduce clerical labor at DPI. *This could reduce the order cycle by one (1) day.*

Requirement: Roll out NCAS statewide by end of this year to meet the March 2004 textbook order cycle.

RECOMMENDATION #2 – Reduce NCAS data entry

Process: When LEAs electronically transmit their orders on the NCAS, they are creating that order a second time. All of the LEAs maintain their own system for tracking their school orders and are generally tied to their financial systems. These systems range from simple manual applications to Excel spreadsheets to more sophisticated software programs like INVENTEXT. None of these interfaces with the NCAS, so every order has to be separately entered into both systems.

Problem: This increases input time and the potential for keying errors.

Recommend: Implement a software application that each LEA can deploy for internal textbook order tracking and provide an interface between that system and the NCAS. Feasibility of a statewide application at the LEA level, although costly, can reduce the redundant efforts ongoing as individual LEAs continue to develop/use ad hoc systems or contract out for application development support.

Requirement: A statewide software program for LEAs.

RECOMMENDATION #3 - Create "suggested" requisitions

Process: Once or twice a week warehouse staff prints the Replenishment Action Report from NCAS, which shows the quantities of each item that have to be ordered from each publisher to satisfy open orders. The report is reviewed and if it is determined that there are sufficient quantities to create an order to the publisher(s), the accounting technician uses the Replenishment Action Report to manually create (key-in) requisitions for each publisher into NCAS.

Problem: The manual creation of requisitions is very time consuming and it has the potential to be error prone. There is a process to catch these errors before the purchase order is sent to the publisher. The NCAS does support a function called "Auto-Rec" which will automatically create requisitions. However, the trigger is based on "on hand" inventory. Since DPI doesn't carry inventory, every usage order would create a requisition.

Recommend: Make a change to the system so that the trigger would automatically release once a week instead of looking at inventory.

Requirement: A program enhancement to the requisition creation screen.

RECOMMENDATION #4 - Add publisher name to the approval screen

Process: As requisitions are created, they become available on the Requisition Approval Screen where the Manager must approve each requisition before it can be listed on the Listing Of Purchase Orders Report.

Problem: The approval screen does not display vendor name. This limits its usefulness.

Recommend:

Add publisher name to the approval screen to make the approval process more meaningful.

Requirement: A program enhancement to the requisition approval and purchase order creation screens. If recommendation #3 were implemented, this would not be needed.

RECOMMENDATION #5 – Eliminate report comparison checks

Process: Warehouse staff prints out a Listing Of Purchase Orders Report, which shows all open orders. This report is manually compared to the Replenishment Action Report to check for input errors. If there are any errors, the accounting technician has to correct both the requisition and the purchase order screens. After any errors have been corrected, the purchase orders are printed and faxed to the publishers. Delivery is usually in 2 to 3 weeks.

Recommend: If the earlier recommendation of having NCAS automatically create "suggested" requisitions from the Replenishment Action Report were implemented, all of the checking and correcting would be eliminated. Warehouse staff would only need to print the purchase orders and fax them to the publishers. *This could reduce the order cycle by one (1) day*.

Requirement: Implement Recommendation #3

RECOMMENDATION #6 – Eliminate the manual faxing of PO's to the publishers

Process: The accounting technician currently prints out all of the newly created purchase orders, and faxes them to the publisher.

Problem: Creates unnecessary work

Recommend: Use the "Auto=Fax" feature that is part of the NCAS ordering system. The contact name can be modified for DPI.

Requirement: Turn on the "Auto-Fax" flag in NCAS.

RECOMMENDATION #7 - Publishers submit Advance Shipping Notice (ASN)

Process: Deliveries are scheduled in advance by appointment. The trucks are manually received using the publisher's packing list. Product is counted and staged on the dock. The receivings are entered into NCAS throughout the day. Overnight the NCAS will print pick tickets for the items received

Problem: The warehouse is primarily a "push" operation, which means that the bulk of its shipments are from new receivings rather than from inventoried stock; it is essentially a cross-dock operation. Staging the product overnight adds labor and time.

Recommend: A 'best practice' would be for the DPI to insist that publishers send an Advance Shipping Notice (ASN) for each truck. Focusing on the ten top publishers would impact 98% of the volume. This ASN could be as simple as faxing a copy of each truck's packing list as soon as that truck has been

loaded and sealed. The warehouse would use this ASN to do an advanced receiving prior to unloading the truck. The advanced receiving would generate pick tickets for the books on that truck. The product can be disbursed (reverse picked) onto LEA dedicated skids as it comes off the truck. This can be done without any changes to NCAS, but if the pick tickets could be redesigned and separated from the shipping document it could be even more efficient. *This could reduce the shipping cycle by one (1) day .*

Requirement:

- Meet with the top ten vendors to obtain compliance on ASNs.
- Layout a staging area with dedicated positions for each LEA.
- Redesign the pick tickets, or create a super pick ticket, which would be for one item across all LEAs.

RECOMMENDATION #8 - Restrict order quantities to full cases

Process: All selection is done in eaches (individual items).

Problem: Selecting individual books is necessary for fill-in orders and some replacements, but it slows selection and contributes to selection errors.

Recommend: During the peak shipping period (Mar-June) when schools are ordering new adoptions and next year's replacements, restrict the order quantities to full cases, unless the case pack exceeds 14. This could be simplified if the publishers were required to supply case pack, weight, and pallet quantity with their adoption applications. It would also be necessary for the NCAS application to be modified to automatically round the orders to case quantities. If restricting orders to full cases is deemed not to be a good business practice, the publishers should still be required to supply the data to enhance load building and eliminate the need to weigh every outbound skid. This information could also be used to simplify the pick ticket. It could be modified to give the selector the full case quantity and the loose book quantity, and avoid the need for each selector to carry a calculator.

Requirement: This would require a change in business practices. The publishers would be required to provide case pack, case weight and pallet pattern on their new adoption submissions.

RECOMMENDATION #9 – Establish schedule and delivery notification policy

Process: LEAs receive their merchandise. The arrival of merchandise at the LEA can be impacted by order size and/or Correction Enterprises route schedules.

Problem: The LEAs do not receive advance notice of an arriving shipment. They normally receive notice on the morning of the delivery.

Recommend: LEAs could be shipped on a fixed schedule that should coincide with Correction Enterprises' route schedules. If the LEA has no order, or if the order is too small to ship, the LEA should be notified. If Correction Enterprises does not have space on their truck, the LEA should be called to see if the order can wait until the next delivery, or should be shipped by other means. The warehouse should not make this decision unilaterally. If an LEA accumulates a large volume prior to their scheduled delivery, DPI should notify them prior to delivery. *In no case should DPI transfer these shipments to another facility to be held until there is space available on a delivery vehicle.*

Requirement: This would require a change in business practices

RECOMMENDATION #10 – Establish Inventory control procedures

Process: Currently the warehouse has no formal inventory control procedures.

Problem: The actual physical inventory may differ from the book inventory. If inventory is in the warehouse, but not on the book, that merchandise will never be shipped; it will sit there until it expires. On the other hand, if there is inventory on the book, but its not in the warehouse it will trigger pick tickets for merchandise that can't be selected, and it will not create an order from the publisher.

Recommend: The warehouse should implement the following inventory procedures:

- They should assign slot (bin) numbers to the racked area.
- They should assign all back stock inventories to a slot.
- They should process returns on a timely and regular basis, give credit to the LEA, determine if the item is active or expired, and assign a slot location. Use a special range of slot numbers for expired merchandise that is slated for return to the publisher.
- Any merchandise that is damaged should be assigned to a "non-active" location until it has been replaced. This will eliminate pick tickets that can't be filled.
- Daily or weekly exception counts that are based on a minimum quantity and a formal schedule of cycle counts.

Requirement: A commitment by the warehouse to maintain good inventory controls.

RECOMMENDATION #11 – Revise warehouse layout

Process: Currently the warehouse has a receiving area, shipping area, and racks for storage (See Figure 4).

Problem: There is no formal division between the prior day's receiving, which are being picked, and the current day receiving yet to be picked. This can cause prior day's material being "left behind" and obscured by new receivings. There is also no formal staging area for reverse selection (disbursement). The areas are intermingled and could cause errors in picking.

Recommend: The warehouse should implement the following warehouse layout:

- Divide the receiving area into two sections to separate the prior day (active selection) from the current day (active receiving). This practice would facilitate observing that the area has been completely picked at the end of the day. Any remaining inventory would be researched and either correctly selected or put into inventory and given a slot number.
- Establish a staging area with one pallet per LEA. When the LEA pallet is full, it would be moved to the shipping area and staged by DCE route number. *(The warehouse selects to LEA pallets now, but this would formalize the process and align the LEAs in numerical order for easier selection, auditing, and discrepancy resolution).*
- Revise rack layout. The proposed layout utilizes most of the existing racks. Only one single row and one double row are recommended for removal. As depicted in Figure 5, the rack along the back wall would be numbered and flagged as "active". This is where all active inventory, except the prior and current day receiving would reside. Pick tickets could be issued for this product. The rack along the front would be setup by publisher, numbered, and flagged as "non-active". This is where the warehouse would store the returns or expired textbooks until they accumulated enough to ship to the publisher.

Requirement: A commitment by the warehouse to reorganize the warehouse after the peak period ends.

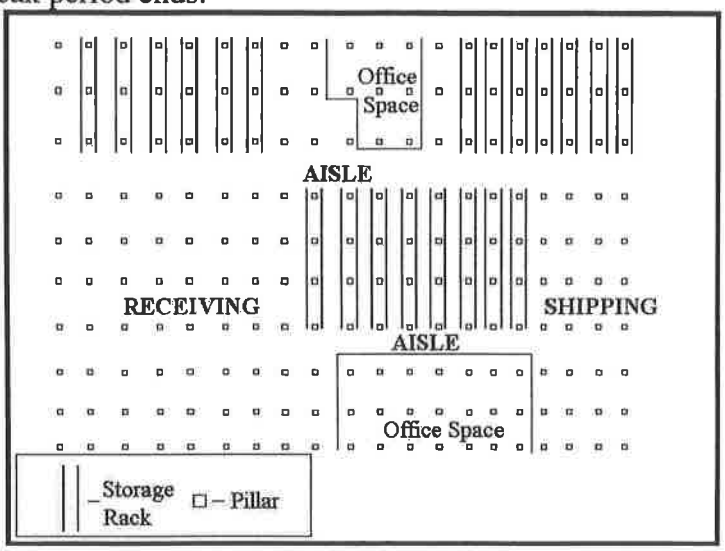


Figure 4 (current warehouse layout)

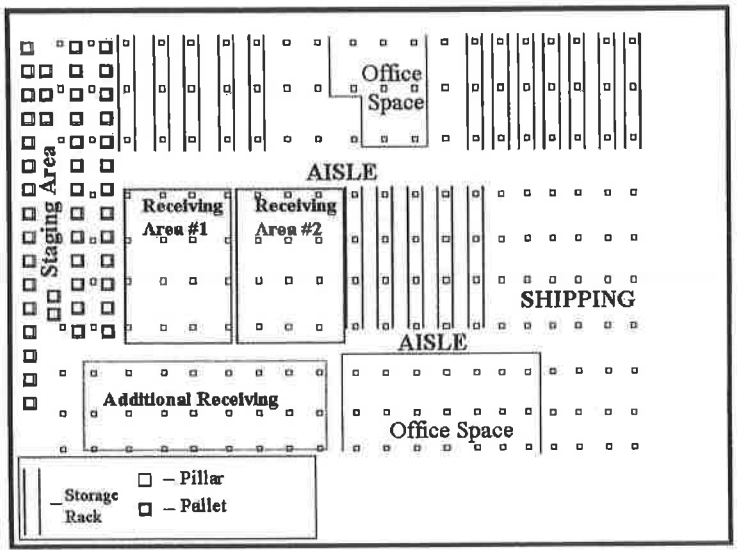


Figure 5 (recommended warehouse layout)

4.3.1 Observations

During the course of the study, the project team identified other areas of interest that in some cases merit further investigation. If adopted they could contribute to operational improvements, reduce dependencies and provide overall fiscal value to the state. These findings/recommendations do not follow the format used under Section 3.2.5.

1. Outdated warehouse procedures documentation
With the improvements made to the efficiency of the warehouse since 1999, changes to warehouse operations remain undocumented. New processes, coordination points, NCAS functionality, staff roles and responsibilities should be documented to reduce the warehouse's dependency on current staff. While a "hands on" approach has produced significant results, it also places an unneeded burden on the warehouse manager.

2. Performance metrics are not developed/maintained
The efficiencies achieved over the past three years are currently measured by the number of complaints or issues brought to the attention of DPI staff. While this is an indicator of performance, it is subjective data and not measurable against textbook warehouse operations as a whole. There are many areas of performance that should be documented on a periodic basis to ensure performance continues at its current level and maintained through measured evaluation of activities. Metrics should include:

- Input/Output volume report (on a monthly basis)
- Transaction report (timeframes from order receipt to delivery to the LEA)
- Monthly discrepancy report (number/type of discrepancy, issue resolution logs, etc.)
- Late order report
- Delivery notification (if standard is 24hrs, document those inside that window)

- Modified material production (timeliness of delivery)
- Enterprise Corrections carrier report (document delivery timeframes and adjust contract as needed to ensure adherence)

3. North Carolina's five-year adoption cycle

Although this study did not include a review and analysis of the adoption cycle for newly adopted textbooks, the benchmark effort determined that of the 23 states reviewed, 22% have a five-year adoption periods. 70% have a six-year or longer adoption cycle (some states having 6 or 7 year adoption periods have longer or shorter periods for certain subjects). 8% of the states had a period of four years or less.

The project team recommends that the DPI, in coordination with the Textbook Commission, conduct an internal review and analysis of the current adoption cycle to ensure the approach and reasoning for a five-year period justify potential cost reductions associated with an extension of a textbook lifespan in the schools. A preliminary review by the warehouse manager developed the following findings:

In a major subject (math, science, social studies or reading) year, extending the adoption from 5 to 7 years could save $25 - $35 million. This figure deserves further analysis and discussions with the Commission are in order to determine the impact to areas such as testing, base materials and programs. Analysis could be conducted to identify the percentage of textbooks replaced within a particular five-year adoption period. A needs analysis is required to determine what it would take to extend the lifespan of that book for additional year or two. (Wake County currently rebinds books at a cost of ~$5.00 a book). This analysis of the adoption period should maintain flexibility for subjects determined to have a direct workforce relationship.

Savings could accrue from the following:

- Foregoing/extending the adoption (replacements should be a fraction of the total adoption cost for the number of years extended)
- Textbook Commission costs to review adoptive replacements may be reduced.
- Savings as much as $500,000.00 in newly-adopted modified materials costs.
- Purchase of used textbooks when there is only a year or two left in the adoption.

4. Electronic delivery of textbook material

The DPI should review and document the impact of adopting new methods of deploying educational material to the LEAs. One current trend for delivery of educational material is electronic dissemination. Providing resources in formats relevant to how students acquire information, using today's technology, has led to initiatives in various states being tested and in some cases mandated. The Georgia Legislature in House Bill 228, passed by the Georgia Board of Education, September 12, 2002, requires that textbook publishers submitting textbooks for the recommended list in Georgia produce an electronic version of that textbook. Georgia's guidelines for the production of electronic materials are provided in Appendix 3.

In order to understand the impact this bill has on textbook material practices at the State level, the team contacted Phyllis Martin, Textbook Program Specialist at the Georgia Dept. of Education. Ms. Martin's comments on the program are below:

- All publishers placed on the state adoption list are required to also make the book(s) available on-line. They can determine the format (CD Rom, web site, etc.).
- Only student textbooks are required to be available electronically. The law doesn't apply to teacher materials.
- Students or parents who want to access these electronic textbooks must pay a fee to the publisher.
- At this point, Ms. Martin is not aware of any school that has adopted in-school electronic material instead of a printed textbook. In which case the school would pay for the electronic version for classroom use.
- The program is new so there hasn't been an opportunity to predict future impact; to date, participation has been very light.

Should North Carolina consider similar legislature, analysis should be conducted to address possible concerns such as:

- The appropriateness of electronic versions for all textbooks should be addressed (e.g. handwriting, math, etc).
- Publishers may raise concerns about copyright protection and some may decline to submit books for a State adoption.
- Equality issues. Not all students have access to computers. Are they being placed in an unfair position?

5 E-Procurement and discounts from the publishers

Outside the scope of this study but during our benchmarking of how other states order, receive, and distribute textbooks it is evident many states have moved to an online process for LEAs to obtain textbook materials. Should NC offer this service to the LEAs it would be reasonable to consider NC's e-Procurement system for handling the ordering process for the State. Excluding the technical issues associated with such a roll out, it is as important to analyze the cost associated with a move to e-Procurement. Currently the State receives an 8% discount from the publishers. Should the publishers be required to utilize e-Procurement, many have stated the fees incurred on the publisher from e-Procurement would be taken out of the discount already extended to the State for textbook purchases. Currently e-procurement fees are ~1.75%. Combined with the 1.75% taken out of the 8% discount for warehouse operations and the textbook commission, this would reduce the net discount to 4.5%. This has a financial impact to the LEAs. If the publishers also shipped directly to the LEAs the discount would be reduced to zero. The LEAs could also incur increased shipping charges. In FY2001, Wake County had gross textbooks sales of $4,810,815. If Wake County ordered their textbooks directly from the publishers via e-Procurement they would have spent $5,135,545. That's an increase of $324,730 (excluding possible freight increases).

6 Enterprise Corrections contract

The signing of an agreement in Feb 2003 between the DPI and Correction Enterprises (the prison industry division of the Department of Correction) to transport textbooks bound for students in North Carolina's public school classrooms offers shipping cost reductions to the state. Follow up reviews and performance record tracking should be conducted. As stated in a Department of Correction (DOC) news release in Feb 2003, " Using trucks and drivers from the Correction Enterprises fleet, Department of Public Instruction officials hope to save 40-50 percent of the approximately $250,000 spent annually with private trucking and package shipping companies. The partnership was born when state school officials realized that Correction Enterprises trucks were making regular deliveries to many prison facilities located adjacent to school system maintenance shops, where textbooks are delivered."

This agreement offers value from a tax savings standpoint as well as maximizes additional space left over from the DOC's product shipments. From a review of the contract between DPI and Enterprise Corrections, a few points should be made and reviewed on a periodic basis between the textbook warehouse management and Enterprise Corrections.

1) The fifth paragraph on page one of the contract states that "NCCE can *often* accommodate additional cargo on it scheduled routes..." Although the contract also specifies that freight shall not remain at the carrier's warehouse for longer than ten (10) working days, DPI should ensure this standard is adhered to throughout the year. LEAs should be informed of this agreement so they understand that although their textbooks may have been shipped from the publisher to the textbook warehouse, delivery to the LEA can take two weeks (assumes the textbook warehouse "pushes" the textbooks out of their warehouse and to enterprise corrections in a timely manner)
2) The textbook warehouse needs to ensure procedures are in place to inform the carrier of shipments of freight for pick up.
3) The textbook warehouse needs to ensure procedures are in place to notify LEAs on expected shipment arrivals based on anticipated delivery schedules. The project team agrees that 24 hr notice should be sufficient notice to the LEAs from the carrier, but up front knowledge of expected delivery provides additional response time to the LEAs. At a minimum this could be achieved by providing each LEA with the carrier route schedules.
4) The agreement states that the "carrier shall make every effort to see that orders received by the shipper (DPI) are delivered to the LEA by the September start of School". This does not place sufficient liability on the carrier to guarantee shipment before the start of the school year. The DPI should revise the agreement to ensure delivery of textbooks occurs in a timely manner and ***before*** the start of the school year for the LEAs.
5) The Agreement, as written, is between the DPI and Enterprise Corrections. The DPI should review the potential of LEAs using the carrier for textbook returns due back to DPI. This assumes the carrier returns with space available and time allocated to the carrier to return materials to DPI. Current policies regarding returns would determine whether the LEAs or the warehouse would incur freight costs.

4.4 Modified Textbooks

The term 'modified' textbooks is used to define textbooks that have been converted to Braille, large print or audiotapes. These materials are provided to students who are visually impaired.

The DPI's textbook warehouse has the responsibility for ordering, coordinating production, shipment, and returns, and maintaining a modified textbook library. This study focused on the distribution cycle regarding modified textbooks. In conducting the distribution analysis it was clear that the entire modified textbook process is poorly defined. A better aligned program involving the DPI's Exceptional Children Division could yield significant improvements. Although that effort is outside the scope of this project, the project team's research suggests further analysis to ensure the most efficient and cost effective methods of providing these materials to the State's blind visually impaired students.

Before describing the modified textbook process, it's important to review the differences in distribution between modified textbooks and standard textbooks.

In the ordering and delivery of standard textbooks, DPI functions as a consolidation and cross-docking facility supporting the LEAs, except when there is excess inventory due to a cancelled order by an LEA or because of an over shipment or mis-selection. When standard textbooks are received at the warehouse, they are immediately selected and sent on to the LEAs. A different approach is required for modified textbooks due, in part, to the long lead times required for acquiring modified textbooks. The DPI must often order them based on internal forecasting procedures to ensure materials are on hand for the LEAs. When these materials arrive at DPI, they are put into inventory and booked as a warehouse asset. When modified textbooks are ordered the warehouse delivers them to the LEA at no charge, while the warehouse retains ownership. In this approach, the warehouse serves as a 'lending library'. The LEAs return unneeded modified material to the warehouse at the end of each school year.

The modified textbook process is described below with findings outlined.

4.4.1 Ordering

The LEA's submit orders to the warehouse. These orders are currently faxed or phoned into DPI and entered into the NCAS by an accounting technician. Future roll-out of NCAS ordering will have the LEA enter these orders directly into the NCAS system, which will run the orders against inventory and issue pick tickets overnight for items in stock. The balance of the items will be posted automatically to the Replenishment Action Report. To this point, the process is identical to the order process for regular textbooks.

When the accounting technician reviews the Replenishment Action Report for regular textbooks, she simply uses the "qty needed" column as her next order. However, when the Replenishment Action Report is used for modified materials the accounting

technician also needs to peruse the materials that are being returned from the LEA's to see if the order(s) can be filled from them. An order is placed only after DPI stock and expected LEA returns have been exhausted.

When a regular textbook is shipped to an LEA, ownership transfers from the DPI to the LEA. For modified materials, the DPI retains ownership. There is no charge to the LEA's for modified textbooks. The DPI performs the role of a lending library, and they maintain an inventory for DPI and also for each LEA. Near the end of each school year, the accounting technician prints the inventory for each LEA and sends them a form to list the modified materials they will be returning at the end of the school term. When the stock clerk receives these lists, they are posted on an Excel worksheet, which is used to determine if there are sufficient materials available to fill new orders.

4.4.2 Receiving

Modified materials are not obtained from the standard publishers; specialty companies that convert textbooks into large print, Braille or audiotapes provide them. When modified material is received, it is re-packed into eaches. Often a single book in large print or Braille will require multiple volumes in several boxes. The receiver marking the boxes appropriately accommodates this. For example: if a book is split into 30 volumes and fits into 4 boxes, the stock clerk will mark each box with the volumes inside and the total volumes. Box 1 would say "Vol 1-8 of 30". Box 2 would be "Vol 2-16 of 30". Box 3 would be Vol 17-24 of 30". Box 4 would be "Vol 25-30 of 30". This way when the item is ordered and picked, the selector would know to pick 4 boxes for that single item.

With regular textbooks, most of the receiving is required to fill open orders. With modified, most of the receiving is placed into warehouse inventory. This inventory is built by the DPI warehouse manager based on his projections of the usage of new adoptions. As these materials have long lead times, the orders are placed as soon as the new adoptions are announced in October or November of the year prior to books being put into service.

4.4.3 Selection & Shipping

Orders are selected from inventory stored in bins. The pick tickets are the same as the ones used in regular textbooks, but a dedicated person who works solely in the modified textbook area does the selection. The items are stored in bins and are sorted by grade and type. These orders are assembled onto skids and when the quantity is sufficient, the skid(s) are sent down to the main warehouse area where they will be shipped with the regular textbooks. If the material is required immediately, arrangements are made to ship it as soon as it is selected.

4.5 Findings

The major recommendations at the warehouse are:

- The Warehouse operation needs to establish formal inventory protocols. The warehouse should have procedures to guarantee their book inventory is the same as their physical (actual) inventory. These procedures should include cycle counts and exception counts based on minimum quantity.

- The Warehouse operation housekeeping needs improvement. There is "clutter" that could impact safety, accuracy and productivity.

- There are no consistent procedures for disposal of outdated or unusable materials.

- Contracts between the warehouse and publishers are not executed for modified textbooks. *This recommendation was also annotated in the 1997 State auditor's report and remains to be implemented.*

  Warehouse management stated that formal contracts would create too many problems. Their position is that most of the modified vendors are so small they wouldn't respond to a bid, while others are the sole- source for a particular item. At other times, for cost and timeliness, they turn to the vendor who has the master. Warehouse management foresee that time constraints don't necessarily accommodate a formal bid process. The project team believes the audit recommendation should be adopted. While there may not be opportunity for a formal competitive bid process, formal purchase contract language should be included in the purchase order. At a minimum there should be a policy guiding the purchase of Braille, large print, and audio materials to include a system to determine priority for Braille production (to include standards). Additionally, the DPI should consider adding a clause to publisher contracts to include the receipt of electronic files from the publishers to expedite production times.

4.5.1 Additional Observations Regarding Modified materials

The project team identified findings and recommendations outside the scope of warehouse operations. In the process of developing these recommendations we had discussions with Drew Fairchild, the Textbook Warehouse Manager and Tom Winton, Consultant for the Visually Impaired at the Exceptional Children's Division.

Under the current scenario, the Textbook Warehouse Manager has the responsibility of ordering the modified materials and determining which vendors to use. He also controls the expenditure of State funds for modified textbooks. The Consultant for Visually Impaired has the responsibility for using the Federal Quota Funds to acquire modified materials. This overlap of responsibilities can cause confusion and conflict, and it may

result in additional costs as the State and Federal monies are administered in two different areas. Below are some observations:

- North Carolina qualifies for Federal Quota Funds, which are distributed to North Carolina based on the number of legally blind students in the state. This year, North Carolina has about 800 students who meet the criteria for being legally blind, and the Federal Government allocates $208 for each student, resulting in North Carolina receiving about $170,000 in Federal money. The State also has an additional 700 to 1200 students who don't meet the criteria for legal blindness, but do meet the criteria for being visually impaired. These students do not qualify for federal money, but the state provides funds for the purchase of modified textbooks that supports these students.

- The Federal Quota Funds would be used more effectively if they were managed by the same party who managed the State fund for modified textbooks.

- The decision making about which textbooks should be modified, which format(s) they should be put into, and which vendor should be hired for a particular book should be vested with the Exceptional Children's Division. By design the Textbook Warehouse Manager is a person with a logistics background, whereas the personnel at the Exceptional Children's Division have backgrounds in education and special needs. The warehouse staff is well versed in the requirements for receiving, storing, inventorying and distributing modified textbook materials, but they are not educators, nor do they work in any capacity with visually impaired programs at the state and local level. A modified textbook program could be established at the state level utilizing the expertise and resources available to the EC community to order the modified textbooks and to establish some policies regarding:

  1) Development of a system for determining priority for Braille production
  2) Establishment of policy guiding the purchase of modified textbook material
  3) Establishment of policy and enforcement requiring publishers to deliver electronic files of all adopted textbooks in a format following the required file format protocol for development of modified textbook materials

- The warehousing, order picking and shipping of modified textbooks should remain as a function of the Textbook Warehouse (DPI).

- A statewide decision on the best method(s) of modifying each text at the time of adoption could reduce costs and assist in modified material reaching students in a timely manner. For example, some books may not lend themselves to one of the formats. Large print may not work well for a book that uses picture association. Some books are too large and/or heavy to be practical. These issues may be more easily resolved if the Exceptional Children's Division was making the determinations on modified textbooks.

- The project team recommends the DPI develop a business case to establish an Instructional Materials Resource Center (IRC). Many states manage an IRC to better

serve the visually impaired and blind citizens, in many cases specifically students, to achieve instructional material equality in accessibility of educational materials. Although this activity goes far beyond the purposes of this document, the project team has highlighted such programs in progress in the benchmarked states in section 8.

5. Status of 1997 Recommendations

Based on the findings in the 1997 State Auditors Report it is obvious there is little resemblance between the textbook warehouse operations then and now. At the time of that study, DPI was shipping the bulk of the adoptions and replacements from July to November, which was too late for many textbooks to get into the hands of the students in time for the start of the school year. DPI also had to supplement their normal staff with 12 to 15 temporary employees. Today, the heavy shipping period for adoptions and replacements ends by July, and DPI does this with their full time staff. As a result, the books are arriving on time and claims for shortages, damages and mis-selections have been reduced significantly. These observations have been reinforced by comments received from the LEAs we were able to visit (See Appendix 2). DPI provided a textbook operations update in 2001, and this section elaborates that update with status of each recommendation from the 1997 audit.

1. **LEAs are not submitting orders to DPI by the required dates.**
   Although this study did not analyze the performance of the LEAs, indications are that this is no longer a problem. The warehouse staff is now able to manage order issues on an individual basis.

2. **The State Board of Education has not enforced the nonperformance clause in the standard textbook contract.**
   Based on interviews with the warehouse manager, this enforcement is left to the DPI, rather than the Board of Education. Late deliveries from the publishers are minimal and the warehouse manager does enforce the penalty, but only as a last resort. The DPI should leverage their purchasing power with the publishers and enforce the nonperformance clause for every instance setting the bar to a standard versus an exception.

3. **Contracts between the warehouse and publishers are not executed for modified textbooks.**
   This recommendation has not been implemented. Warehouse management stated that formal contracts would create too many problems. Their position is that most of the modified vendors are so small they wouldn't respond to a bid, while others are the sole-source for a particular item. At other times, for cost and timeliness, they turn to the vendor who has the master. They foresee that time constraints don't necessarily accommodate a formal bid process. The project team believes the audit recommendation should be adopted. While there may not be opportunity for a formal competitive bid process, formal purchase contract language should be included in the purchase order. At a minimum there should be a policy guiding the purchase of Braille, large print, and audio materials to include a system to determine priority for Braille production (to include standards). Additionally, DPI should consider adding a clause to publisher contracts to include the receipt of electronic files from the publishers to expedite production times.

4. **Warehouse design hampers efficient and economical operations.**
   At the time of the 1997 study, DPI was a "pull" warehouse, which means they received everything into inventory and then selected orders from that inventory. Today, DPI is a "push" warehouse, which means that they select product without placing it into inventory

(with the exception of Modified Textbooks). Essentially the warehouse is a cross-dock operation, which is the most effective method for this type of distribution. With the change from "pull" to "push" the project team believes that DPI has installed sufficient racks to support the small amount of inventory that accumulates in a "push" concept.

5. **Warehouse inventory records are not accurate.**
   Recently DPI converted their systems to NCAS. During conversion a complete inventory of the facility was conducted but not followed through. Although as a "push" operation inventory should be minimal it needs to be accurate. If the system has an item in its inventory, but the item doesn't exist in the warehouse, a pick ticket will be generated for an item that can't be shipped. This will reduce productivity and may lead to a late shipment. If product exists in the warehouse, but not in the system's inventory, the result could be unneeded orders from the publisher(s). The warehouse needs to develop a comprehensive physical inventory protocol, which should include cycle counts on a regular basis, exception counts based on a minimal balance (e.g. < 5), and an immediate and comprehensive research into any inventory problems, such as: a pick ticket is created, but there is no merchandise, or there are claims for shortages, overages or mis-selections. The warehouse should also create location numbers (bin# or slot#) for all inventories.

6. **Shipping and Receiving procedures are not clearly communicated to staff or LEAs**
   The 1997 recommendation was for "management to develop and implement an internal orientation program, especially for temporary warehouse employees". It also suggested that regularly scheduled meetings should be held with staff to review performance and solicit ideas. This has not been done, but at the time of the recommendation DPI had a much larger staff consisting mostly of temporary employees. Today, DPI has only six (6) people in the warehouse. With a staff this size, a formal orientation can be handled at the warehouse level. This also applies to staff meetings. The warehouse manager spends the majority of his time in the warehouse working side by side with staff. This style is informal, but effective in this environment. Part of this recommendation addressed lack of communication from DPI to the LEAs. Based on interviews with the LEAs, this appears to have been addressed.

7. **The warehouse does not have an established system to track discrepancies in shipments**.
   Claims from the LEAs are handled on a timely basis and the warehouse follows up on each claim to see how it occurred. More important, claims are now monitored through the use of a discrepancy log.

8. **Mark-up percentage exceeds the amount required to operate the textbook warehouse and textbook commission**.
   At the time of the 1997 study, the mark-up was 2%. It has since been reduced to 1.75%. A baseline analysis of financial records was outside the scope of our study.

9. **Freight costs may be incorrectly determined.**
   The recommendation was to weigh each outbound shipment to calculate the actual freight costs. This is currently being done at the warehouse.

10. **The textbook warehouse does not have formal cash management procedures in place**.
    Sales to the public are a minor part of the overall operation. If the warehouse has the book in stock, they will sell it to the public with a 25% mark up. From discussions with warehouse staff, in most cases the warehouse does not have the books in stock so they provide the requestor (e.g., parent) with an order form to order directly from the publisher. Volume of sales lends itself to the decision on whether or not to even offer this service. If State law requires this service, a policy and procedures for managing accounting processes remain a necessary process within the warehouse.

11. **The lack of technology impedes efficient operations.**
    Since the 1997 audit, DPI has integrated the NCAS ordering and inventory system. While this is an improvement, there continue to be opportunities for enhancements in the current system, which are addressed in this study.

6. Benchmark Evaluation

The project team analyzed the textbook operations of six distribution centers (South Carolina, Tennessee, Florida, Texas, New Mexico, and Virginia), and compared the efficiency of operation between those states and North Carolina. Since North Carolina remains the only known state operated textbook depository (a non-profit model) in the U.S., comparative analysis was done from an efficiency standpoint and to a lesser extent the financial implications. As private depositories are largely unwilling to share financial records, cost comparisons are extracted through a review of specific textbook pricing based on the benchmarked states textbook catalog prices and are summarized later in this section.

The benchmarking was conducted via questionnaires submitted to the various states' education agency as well as specific textbook depositories. In most cases, interviews were required to obtain detailed explanation of processes and policies as they related to the distribution centers and corresponding practices for the ordering, receipt, shipment, and delivery of textbooks statewide.

Although the textbook adoption cycle for NC was not part of the study, the adoption periods for various states differed enough to justify a summary section capturing this information and led to recommendations for consideration. [*The study looked at warehouse operations specifically. NC's adoption cycle would require further analysis in conjunction with the textbook commission and controls used to document, monitor, report, and audit expenditures, etc.*]

This section of the study consists of the following sub sections:

- Adoption Cycle Periods
- Textbook Delivery Comparison
- Individual Benchmark State Summaries
- Findings and Recommendations
- Modified Materials

6.1 Adoption Cycles

Twenty-three (23) states have an adoption policy. The table below is a breakdown of the adoption periods for those states. The states included in the benchmark portions of this document are in ***bold italics***:

Adoption Period	State	Comments
Seven (7) years	Louisiana	
Six (6) years	Alabama Arkansas California ***Florida*** Georgia Indiana Kentucky ***New Mexico*** Oklahoma Oregon ***South Carolina*** ***Tennessee*** ***Texas*** ***Virginia*** West Virginia	California also has a eight (8) year adoption period for certain non-core subjects. Florida has some shorter periods for select subjects and/or grades.
Five (5) years	Idaho Mississippi ***North Carolina*** Utah Vermont	
Four (4) years	Nevada	
One (1) year	Illinois	

7. Textbook Delivery Options comparison

During the survey of the six benchmarked states, various options for delivery of textbooks to the local levels are being used. Figure 6 below provides an overview of the findings. Details for each of the six benchmark states is provided in the individual State findings in Section 8.

Summary of Textbook Delivery Options in Benchmark States

State	# of students	Who contracts with Publishers	Who Orders Textbooks from Publishers	Who pays Publishers	Who Distributes Textbooks to the local level	% Received by private depository for Services
Florida	2,495,426	State	Private Depository	Private Depository	Private Depository	Not provided
New Mexico	325,000	State	Private Depository	Private Depository	Private Depository	Not provided
South Carolina	656,995	State	Private Depository	Private Depository	Private Depository	8%
Tennessee	900,000	State	Private Depository	Private Depository	Private Depository	8%
Texas	4,163,447	State	LEAs	LEAs	State	Publishers located within State
Virginia	1,200,000	LEAs	LEAs	LEAs	LEAs	N/A
North Carolina	1,245,627	State	State	State	State	N/A

2000-01 School Year N/A Not Applicable

Source: Department of Education in each state

Figure 6 – Summary of textbook delivery options

8. Individual Benchmark State Report Summary

All six textbook distribution centers were interviewed and several also completed a survey questionnaire developed by the project team. All distribution centers are either privately held, or in the case of Virginia, the school districts order directly from the publisher. As private organizations, they were not open to providing financial data to operating expenses or revenues, but did share details about depository practices and policies regarding the purchase of textbooks for their state's public school systems. Each of the six benchmark state summary reports are divided into the following sub sections:

1. Student enrollment
2. Volume
3. Publisher Contracts
4. Distribution process
5. Depository staffing
6. Facility overview
7. Shipping
8. Misc

8.1 Florida

The state of Florida utilizes a privately run depository for all aspects of the textbook delivery process, excluding contracts with the publishers. Florida has a six (6) year adoption cycle and coordinates contracts directly with the publishers. Florida has 67 independent school districts. The depository orders all adopted textbooks for the State of Florida's 67 school districts. Florida's private depository has been providing textbooks to the state of Florida for the past 85 years.

Student enrollment – 2,500,000 in 2001-2002

Volume – The depository maintains about 10,000,000 textbooks on hand and distributes ~ 8-9 million each school year. The depository maintains an average of 2 million textbooks during their off season.

Publisher Contracts - State of Florida contracts with the publisher as part of the adoption process, while the depository contracts separately with the publishers to serve as the publisher's distribution center for the State of Florida. Publishers pay the depository so publisher rates to the states should be inclusive of depository fees. The depository orders all adopted textbooks for the State of Florida's 67 school districts. School Districts pay the publishers for textbooks to include shipping charges (usually less than 1% for transportation costs

Distribution process – Local school districts order their textbooks from the depository via an online system. Mail and fax orders are accepted but larger school districts must request these means of ordering through the depository management. Three methods or ordering and receiving textbooks for the State of Florida:

1) Districts can order textbooks at the district level and is responsible for distribution down to the school level,
2) District can place orders for individual schools and textbooks are shipped to the district for distribution to that school, or
3) District orders for single school and has books distributed directly from the depository to the school.

Depository staffing - Full time - 25 (office), 50 (warehouse); summer – 4-5 office, 25-30 warehouse (part time)

Facility overview - 280,000 sq ft facility completely dedicated to textbook depository operations. Highly labor intensive, they have fast order pickers, 2 ton pallet jacks, and fork lifts. They use a wide isle racking system, stage by volume and by usage (most used up front concept). They have 5 distinct shipping departments organized by size of order_

Shipping - Books are on consignment so next day delivery is common. UPS for all orders less than 200lbs, a special carrier is contracted for all other shipments. School Districts pay the publishers for textbooks to include shipping charges (usually less than 1% for transportation costs.

Miscellaneous - they have contracts with 76 publishers, 21,000 titles and maintain inventory throughout the year. The publishers pay depository so service fees are not articulated to the State unless the publisher is willing to share those cost figures with the State and depict them with the total contract fee structure at time of bidding. The depository offer books sales to the general public (Florida residents only) but that is not a published service offering.

8.2.New Mexico

New Mexico uses a multiple third party depositories, with the Albuquerque depository handling more than 90% of the volume. The depositories maintain consignment inventory and deal directly with the publishers for purchases and payments. The local school districts pay for shipping from the depository. The Albuquerque depository manages textbooks by consignment from the publishers.

Student enrollment - 325,000

Volume - $25-30M textbooks

Publisher Contracts - The State works with the publishers on adoptions, but all other contracts are between the publishers and the third party depositories.

Distribution process - By state law schools have to order by May 15, and the books are received at the schools by mid August

Depository staffing – 16 employees

Facility overview - Shipping - About 75% common carrier, the rest is either UPS or customer pick-up

Miscellaneous – The depository sells textbooks to the general public, but limits sales to state residents that home school.

8.3 South Carolina

The State Textbook Office is responsible for the purchase, allocation, distribution, and accounting of state-owned instructional materials throughout the public schools of South Carolina. The R.L. Bryan Company, as an agent of the publishing companies, operates the Central Textbook Depository under contract with the State Department of Education. All materials adopted by the State Board of Education are available through the depository.

South Carolina differs from the other states we interviewed in how they view ownership. The state provides adopted textbooks to the schools at no cost. They categorize a school's instructional inventory consisting of three types of material: school owned materials, out-of-adoption titles, and currently adopted state-owned materials. The State pays for the adopted textbooks and enforces an inventory management system at the school level for accountability of inventory and enforces charges for discrepancies in state owned materials. State law requires each school to count all state owned materials each year and report the totals to the State Textbook Office. The schools are responsible for **all** shortages at the end of the school year. Schools/districts are charged for these shortages in inventory. The state does not charge the full contract price for lost materials. The amount of the charge varies with the contract year of the material.

A school's eligibility to order instructional materials under South Carolina's free textbook program is determined by class or course enrollment, the school/district curriculum, and the principle—one textbook per child—in a subject area. The procedure for calculating the allocation for a given subject area uses the contract price for the materials under adoption, membership projections by grade using the materials, ordering information, and books in state inventory. A portion of the appropriation for instructional materials is allocated to schools and districts for maintenance. A maintenance allocation is provided to schools for replacement of damaged materials and to purchase grades 1–2 consumables.

Orders for new adoptions are placed beginning June 1 unless otherwise notified by the State Textbook Office. Once a new adoption is selected and put into use by a school, it cannot be exchanged for at least six years. Funds for the replacement of materials in any given subject area are provided by the legislature every six years. Replacements of subject areas that have been on hand in a school for less than the six-year cycle are not funded. In some instances, used materials may be available to fulfill a need for exchange

Student enrollment - 656,995

Volume - ~$40 million

Publisher Contracts – Board of Education contracts with the publishers.

Distribution process. Schools order directly from the central depository via an online system. Mail and fax orders are accepted as well. Pre-Order and Orders placed before August 1 are shipped to schools by mid August. Late Orders and Fill ins placed August through September are normally shipped within a week to ten days. This varies based on the volume requested. Order placed in October through May is generally shipped daily.

Depository staffing – 15-20 full time employees

Facility overview – Not released by the private depository.

Shipping - The shipment of materials to schools by the Central Depository begins on June 1 of each year. Most materials are shipped during the summer and will be shipped directly to the school unless otherwise specified. An official shipment advisory is sent within a week of delivery. From June-August 96% common, 4% UPS/FEDEX, Sept-May 85% UPS/ FEDEX, 15% common

Miscellaneous - a textbook is considered on consignment from the publisher and are not purchased by the state until a school numbers and issues them to a student. Any new, unmarked materials left over can be turned in to the Central Depository to obtain a refund from the publisher. *This enforces the recommendation made by NC's textbook warehouse for schools to wait on marking textbooks until issuance to a student.*

8.4 Tennessee

The State of Tennessee utilizes the services of the Tennessee Book Company to manage their textbook distribution process for the State.

Student enrollment - 900,000

Volume –$40M textbooks

Publisher Contracts – The State Textbook Commission contracts with the publishers. The depositories order textbooks from the publisher and also pay the publisher

Distribution process - Depository distributes to the school district and they ship to the individual schools, except that for Hamilton County (Chattanooga) the depository ships directly to the individual schools. The depository carries a full consignment inventory. They pay the publisher when they ship to a school district

Depository staffing - 32 FTE (14 warehouse, 18 admin) During the summer, 6 temps are added to the warehouse staff.

Facility overview – Not released by the Tennessee Book Company

Shipping – An average of 3-4 days from order to delivery. They use 2 common carriers, one for TL and one for LTL. They also use UPS for very small shipments

Miscellaneous - The depository is not involved with modified materials. Staff assigned to the State School for the Blind manages this at the state level

8.5 Texas

Texas provides school districts and charter schools with annual funding for the purchase of textbooks adopted by the State Board of Education (SBOE). The Texas Education Agency (TEA) administers (18 staff personnel) and operates a State Textbook Depository (nine staff personnel) in Austin, Texas, which once played an important role in the purchase and distribution of public school textbooks. Now, however, schools can order and purchase textbooks directly from the publishers through TEA's Internet-based electronic materials (EMAT) system. Texas public schools now order, purchase and track textbooks directly from their publishers through the Texas Education Agency's (TEA's) electronic materials system. SBOE officials state the use of this system should allow TEA to eliminate its State Textbook Depository.

The use of EMAT has changed the State Textbook Depository's roles and responsibilities. While the depository still assists some schools with textbook orders, its current primary function is to receive, store and return excess textbooks to the publishers. By filling orders from school districts with the excess textbooks it receives, the depository helps limit the need for additional copies. It also receives surplus or excess Braille, large-type and audiotape textbooks for students with visual impairments and redistributes them as needed. Finally, the depository also publishes a list of outdated books in its inventory that are still in good shape and can be provided to private entities free of charge. The State Textbook Depository's total operating budget for fiscal 2001 was $762,000. According to TEA staff, the value of redistributed materials processed through the State Textbook Depository each year remains fairly constant at about $9 million

Student enrollment - 4,163,447

Volume – Not provided by the State depository

Publisher Contracts – Contracts are signed at the State level with the school districts responsible for direct ordering through various publisher depositories in the State. Recent changes allow school districts to order directly from any publisher located within 300 miles of the State border.

Distribution process - Orders for new instructional materials are transmitted to the agency for processing. Local adoption, requisition, and membership data are entered into an automated system for verification based on the enrollment of the district and the distribution quota established for the course or subject.

Depository staffing - Not provided for the publisher depositories.

Facility overview – Not provided by the State depository

Shipping - Publishers are required to have adopted materials in stock in one of the approved depositories in the Dallas area, and instructional materials are ordered and shipped from one or more of the depositories. Shipments are made to school districts throughout the summer based on the district's preferred shipment date. After the first day of school, requisitions are processed within one day of receipt and depositories are instructed to ship materials as soon as the orders are received from the agency. Districts are allowed to submit orders throughout the school year, as necessary. Instructional materials are usually shipped within seven days of receipt of a requisition.

8.6 Virginia

Student enrollment – 1,200,000

Volume – Not tracked at the State level

Publisher Contracts - State sets original contract, but Local Districts can set additional requirements.

Distribution process. The local school districts are responsible for ordering directly through the publishers for textbooks are distributed directly to the school districts.

Depository staffing - NA

Facility overview - NA

Shipping - Publishers control method of shipment

Miscellaneous - Variations were notes among different organizations in Virginia's Department of Education. Textbook coordinator stated Virginia continues to be an adopted state, but modified materials director stated that Virginia stopped this practice in 1998 and plans to reinstate it winter of 2003.

8.7 Summary of various shipping channels

These observations are based on interviews with the benchmark states as well as various publishers to include Scholastic Press, and Macmillan/McGraw Hill.

- All books that are adopted by any state have to be sold at the same contract price to every state. The price is protected by a "Most favored nations" clause. This contract price only applies to books on a state's adopted list. Only 23 states have formal adoptions.

- States that operate depositories (either public or private) receive the books at 8% below the contract price; the publishers pay the freight to the depositories.

- Private (3rd party) depositories act as agents of the publishers. They charge the schools the full contract price and keep the 8% discount to cover expenses and profit. The depositories bill the schools for the shipping costs from the depository to the school district, usually around 1 to 2%. North Carolina manages shipping for 0.4%

- In states that don't have central depositories, the school districts order directly from the publishers. In these cases, they pay the full contract price plus shipping costs, usually 8-10%.

- The private depositories operate as "pull" facilities, ie, they maintain an inventory and ship orders from existing stock. These inventories are on consignment; they are not billed to the depository until they are shipped to a school. *This may be an opportunity for NC to pursue for any items they do have in inventory.*

Cost comparisons among like textbook titles can be found in section 9 of this document. A normalized analysis based on a contract price of $40/book is used for comparative purposes.

	North Carolina	Private Depository	Direct to School
Book Cost	$40.00	$40.00	$40.00
Discount @ 8%	$ 3.20	3.20	0.00
Net Cost	$36.80	$36.80	$40.00
Up charge %	1.75%	8.00%	
Up charge $	.70	3.20	
New Cost	$37.50	40.00	40.00
Shipping %	0.40%	0.40%	9%
Shipping $	.16	.16	3.60
Total Cost	$37.66	$40.16	$43.60

In the three (3) fiscal years ending in 2002, NC purchased 4,738,772 textbooks. Based on the costs of each channel, their savings were:

- If they opted to convert to a 3rd party depository, the cost would increase by $2.50 per book.
  - ✓ For the 3 years, the cost would have increased by $11.8M
  - ✓ **Per year the increase would have been $3.9M**

- If they opted to close the depository and have the LEAs order directly from the publishers, the cost would increase by $5.94 per book.
  - ✓ For the 3 years, the cost would have increased by $28.1M
  - ✓ **Per year the increase would have been $ $9.0M**

These savings are contingent on the Textbook Warehouse operating within the 1.75% up charge. In fact, the up charge is likely sufficient to support the Textbook Commission and could absorb the shipping costs to the LEAs. If the shipping costs were rolled into the up charge, the savings between NC and the other channels would increase by an additional $250,000 a year. Another point concerning funding is that if North Carolina were to adopt one of the other channels, the State would need to identify an alternative funding source for the Textbook Commission (~ $200,000 annually).

8.8 Findings and Recommendations

North Carolina has the last state run textbook depository, and as the analysis above shows, it is the most economical system for distributing textbooks. There are two (2) other channels that are used by a majority of states. Some States bypass a central depository completely and have the publishers ship directly to the school districts. Our study could not find any advantages to this approach; it is the most expensive method of distribution, the order cycle times are at least as long as North Carolina's, and those States need to find an alternative outlet for their modified textbooks. Like North Carolina, a lot of the other States also use central depositories, but third party distributors operate them for profit.

The question then becomes which central depository model (private or public) represents the best practice? Four (4) of the States we benchmarked use private depositories. The major difference in the models is that the private depositories carry a full inventory of textbooks; they fill the school orders from warehouse stock. They can afford this because as agents of the publishers, they get that inventory on a consignment basis; they don't pay for it until they ship it to a school. Obtaining financial data was difficult as private sector companies are reluctant to share that information. We were able to compare the number of warehouse employees to the number of students for four (4) of those States:

- Florida employs 90 FTEs to support 2.5M students.
- South Carolina employs 20 FTEs to support 656,995 students.
- Tennessee employs 35 FTEs to support 900,000 students.
- New Mexico employs 16 FTEs to support 325,000 students.

North Carolina employs 12 FTEs to support 1.2M students. The reason North Carolina can do more with less is that the DPI warehouse operates without inventory; it is essentially a cross-dock facility where textbooks come in one day and get order picked the next day without the need to put them in stock. A traditional warehouse operation has five (5) basic tasks: receiving, put-away, replenishment, selection and shipping. DPI has eliminated two of the more labor-intensive tasks: put-away and replenishment, and have reduced the selection time significantly as they disburse product rather than select it. Operating without inventory also significantly reduces the amount of staff needed for inventory control functions.

This analysis suggests that the North Carolina method of operating without warehouse inventory appears to be the most cost-effective approach. The only downside to this method is longer order cycle times. With good scheduling that is manageable for new adoptions and annual replacements. The only exposure is for emergency requirements, but with on-line ordering that too, can be accommodated. All depositories, public and private, receive an 8% discount from the publishers and free shipping to the depository. The difference is that the private depositories keep the 8% to cover operating expenses and profit. In North Carolina, the depository keeps 1.75% to cover operating expenses for DPI and the Textbook Commission. The remaining 6.25% is sufficient to cover the freight from DPI to the LEAs as well as all costs associated with modified textbooks. The other States have to appropriate additional money for this freight.

8.9 Modified Materials

None of the textbook depositories interviewed were directly or indirectly involved with the acquisition of modified materials. As a result, the project team has included information on how each state manages modified materials separately from the individual textbook depository section (Section 8) as benchmarking depository practices for modified material is not feasible.

Florida

The Florida Instructional Materials Center for the Visually Impaired (FIMCVI) is a statewide resource center (staff of sixteen) designed to assist schools in obtaining specialized materials for students with visual impairments. Established in 1972 by the Florida Legislature, FIMCVI operates under the Florida Department of Education, Bureau of Instructional Support and Community Services. FIMCVI serves students with visual impairments enrolled in Florida's public and private schools and teachers in those schools, both exceptional student educators and regular educators, who work with visually impaired students, with the exception of Florida's School for the Blind. There is no charge for any services offered by FIMCVI. Materials are produced by the Center staff, prepared by certified volunteer transcribers, and/or purchased by the Center. These materials are then loaned to schools within Florida. Consultation and training are also provided to instructional personnel throughout the State at no charge. The FIMCVI produced 138 instructional materials in the past year and provided over 5000 materials overall to the State.

New Mexico

There is no statewide program or budget for modified textbooks. If a school or local district needs modified material they must notify the publisher, who then has 10 days to supply an electronic version which the school or district will use to contract with a local source to transcribe into a useable format.

South Carolina

South Carolina's Office of Exceptional Children did not provide details of their program during the timeframe of this study. Project team has made arrangements with SC to interview selected personnel but will follow the publishing of this document.

Tennessee

Tennessee Board of Education manages an Educational Resource Center for the Visually Impaired to provide access to instructional materials to students with visual disabilities, including those with multiple disabilities, enrolled in local education agencies across the state of Tennessee. The Resource Center exists to assist local education agencies in meeting this critical need. The Resource Center conducts the annual Federal Quota Registration of legally blind pupils in public and private schools across the state and assists local education agencies in providing accessible instructional materials to students with visual disabilities.

The services of the RCVI are available to public school systems, to eligible, private non-profit local education agencies, and to state special schools across the state. An inventory of more than 22,000 Braille and large type textbooks and ancillaries, and non-book instructional materials is available on an annual loan basis. The Resource Center provides service to over 850 students with visual disabilities each school year. The RCVI processes over 1200 requests for adapted educational materials each year. Accessible materials provided by the Resource Center are available in two categories: textbooks and non-book instructional materials. The RCVI loans Braille and large type textbooks and ancillaries. Ancillaries include practice exercises, texts, and workbooks and other accompanying materials. Non-book instructional materials include Braille and bold-line paper, cassette recorder/players, Braillewriter and bold-line paper, low vision materials, tactile devices, and kits that include sensory development items.

Texas

Texas' State Board of Education (SBOE) is authorized to acquire, purchase, and contract for free instructional materials for the education of blind and visually impaired public school students. Local school districts submit orders for Braille and large type materials to the agency, which manages acquisition from producers. Teachers who are blind or visually impaired are provided with Braille or large type teacher materials to accompany materials the teacher uses in the instruction of students. A contractor provides audiotape instructional materials to school districts. Publishers are required to provide the agency with computerized files for rapid production of adopted Braille instructional materials whenever such files are requested by the SBOE.

Virginia

Virginia's Department for the Blind and Vision Impaired (DBVI) is responsible for instructional materials for blind and visually impaired. The Library and Resource Center (LRC) is a component of the DBVI from which two fundamental programs are administered. Library services are offered to individuals who are physically disabled, visually disabled, hearing impaired or reading disabled. Resource Center services are provided to local school divisions to support education of visually impaired and blind children.

The LRC has ten (10) staff dedicated to the instructional materials program. The LRC has three personnel to manage order and receipt processing and well as shipping and recovery (returns), four personnel for the production of braille (plus a volunteer force of

35 part time transcriber), and two personnel for large print production. The LRC provides Braille and large print materials. Recorded materials are handled at the school district level. The LRC produced 100 new titles last year. A variety of LRC services are provided to blind and visually impaired children and vision professionals in the Commonwealth. The Center houses an inventory of adaptive equipment that is distributed to blind and visually impaired infants, children and youth throughout the state. Inventory items range from technology, such as braille note-takers and software, to folding canes and braille paper.

The LRC also provides braille and large print textbooks and novels for use by blind and visually impaired students in their local school districts. Textbooks are produced in the appropriate medium or purchased from another state, and loaned for the school year. Services also include braille transcription and reproduction of special materials, enlargement of supplemental materials, and the provision of resource and reference services for instructional materials. Materials are loaned to Virginia's blind and visually impaired students and educators for as long as they are needed.

9. Cost Comparison

As many of the states discussed in this document are using the services of a private depository to manage the order and distribution process for public school textbooks, it is difficult to compare operational expenses against DPI's textbook warehouse. One method used to compare costs is a comparison of book prices, same title book, among the states. This was accomplished by a review of each state's adopted textbook catalog as well as interviews with the depositories concerning freight charges incurred, as this should be included into the total cost per book. [Note: with the differing adoption cycles for each state, like titled book did not always include like editions. Calculations include some assumptions made to more closely align cost factors across all states].

One issue concerning cost comparisons involved the adoption cycle for each state. North Carolina, South Carolina, Tennessee, and New Mexico all use the same edition, but NM and TN adopted in 2000. NC and SC did not adopt it until 2002. FL has a newer addition (2003) but it has the same list price as the older edition (2000) had in 2002. During interviews with the publisher, they informed us that NC, SC, NM and TN all have the same book with the same ISBN number, but the price is based on the year of the contract. NM and TN adopted the book in 2000 when the list price was $40.17. That price is protected for the length of the adoption. NC and SC adopted the same book in 2002 when the list price was $45.99, and that price will remain the same through their adoption period. FL adopted a newer edition (different ISBN number) in 2003.

Texas was not included as they had a significantly older edition specific to Texas. Virginia's school districts order directly from the publisher and their costs were not specifically known but the publisher charges 8-9% in shipping on top of paying list price so their costs far exceed that of a public or private depository (Section 8.7 details out the cost comparison is regarding the various shipping channels)

All books that are adopted by any state have to be sold at the same contract price to every state. The price is protected by a "Most favored nations" clause. This contract price only applies to books on a state's adopted list. The "most favored nations" clause ensures all publishers charge the states the same cost for books, but the differences in actual cost to the LEAs is derived by the percentage of discount actually pushed down to the LEA level. As shown in Figure 7 below, North Carolina is getting the best price because the textbook warehouse operates at a budgetary level allowing the LEAs to benefit from a 6.25% discount from publisher list price, whereas LEAs receiving books from private depositories are paying a net cost equal to the publishers list price as the discounts are absorbed into private depository operating expenses.

Book Cost Comparison										
				Cost						
ISBN	Publisher	Title	Edition	NC	SC	FL	NM	TN	TX	VA
22953701	MCGraw-Hill	Share the Music (4th grade)		43.05***	45.99**	$45.99**	40.17***	$40.17***	$42.57 (95 edition)	$45.99
		Adoption Year		2002	2002	2003	2000	2000		
		List Price		$45.99	$45.99	$45.99	$40.17	$40.17		
		Discount @ 8%		$3.68	$3.68	$3.68	$3.21	$3.21		
		Discounted List Price		$42.31	$42.31	$42.31	$36.96	$36.96		
		Depository Charge		$0.74	$3.68	$3.68	$3.21	$3.21		
		Net Cost		$43.05	$45.99	$45.99	$40.17	$40.17		
		Shipping Costs @ 1%		incl	$0.46	$0.46	$0.40	$0.40		
		Cost To LEA		**$43.05**	**$46.45**	**$46.45**	**$40.57**	**$40.57**		
		* Texas edition								
		**2003 edition								
		***2000 edition								

Figure 7 – Same Title Book Cost Comparison

Appendix 1 – Benchmark Survey

North Carolina's Textbook Warehouse is managed by the Department of Public Instruction (DPI) and operates solely as a state run operation. DPI is currently directly an efficiency study to determine areas for improvement, best practices, and benchmark against other State's textbook depository practices to look for possible new approaches to adopt to improve NC's ability to provide textbooks to the students and citizens of North Carolina in a timely and cost effective manner.

Please answer as many questions in this survey as possible or provide contact information in order for us to further research data in support of this benchmark effort.

1. What was your state's total number of students for the 2000-2001 and/or 2001-2002 school year? 2000_____2001_____
2. Total number of books shipped for 2000_____2001_____?
3. Who contracts with the publishers? _____
4. Who orders Textbooks from the publisher? _____
5. Who pays publishers? _____
6. Who Distributes Textbooks to the local level? _____
7. If using the services of a private depository, what % received by private depository for services? _____
8. What was your annual volume for textbooks (2000, 2001, and 2002 if available)? 2000_____2001_____2002 _____
9. How many staff for textbook depository (people involved in ordering, receipt, staging, shipping, etc. (to include modified textbook material)? _____
10. How does the volume trend (wkly or monthly)? _____ . What are your busiest six months? _____
11. Does your depository use any warehouse automation (conveyors, pik-to-lite,etc)? _____
12. What is the cycle time from order to delivery for newly adopted textbooks? _____. Does the cycle time change if ordering replacements? _____ If so, by how much? _____
13. Is your textbook operation state run, non-profit, 3rd party, other? _____
14. What are your methods of textbook shipment (contract truck, common carrier, UPS, other)? _____What % of each is used on an annual average basis? _____

15. What were your operating costs for 2000-2001 and 2001-2002? (If using private depository, state the fee (%) for services)

    _____

16. Do you carry any inventory stock? _____ If so, please explain

    _____

17. Do you sell textbooks to the general public? If so, what is the standard process for this? _____

18. Do you carry textbooks on consignment? If so, please elaborate _____

19. Is your textbook depository responsible for modified textbook material (Braille books, audio tapes, large print, etc.)? _____ If so, how do you manage this activity to include returns?

    _____

    _____

    If not, please provide contact information for organization responsible for this activity _____

20. If textbooks are purchased at the Local Education Agency (LEA) level, what discount, if any, are they getting from the publishers? _____

21. If shipping directly to the LEAs, what are the freight charges (% of book cost)?

    _____

Appendix 2 - LEA Interview Summary

This section contains project team notes only.

Guilford County

- Met with Wanda Frazier and Becky Kirkman
- Guilford County includes the cities of Greensboro and High Point
- Serve more than 60,000 students. NC's 3rd largest LEA
- Pilot on NCAS ordering, they like it, but would like to see some enhancements:
  - Ability to enter acct number & usage number once, not on each line
  - Would like to see description appear when ISBN is entered
  - Would like to se an interface between NCAS and their local system
- They use INVENTEXT between LEA and the schools
- Every order has to be keyed twice, once in NCAS, then in INVENTEXT
- The shipping documents from DPI are cumbersome in that there is a separate document for each item on a given shipment. The LEAs would prefer a single document containing all of the merchandise for each of their usage orders.
- Wanda has seen significant improvement from DPI in last 3 years
- They could not handle direct shipments from publishers; their warehouse is too small
- They ship books to the schools as soon as they get them

Person County

- Met with Leon Hamlin
- Person County serves 11 schools and 6,000 students
- Still faxes orders to DPI
- He deals directly with publishers for non-adopted materials
- He holds all inventory until the current school year ends
- He has no system between the LEA and the schools; everything is pen & paper
- One damage claim of a few books; looked to be transit damage. Otherwise few claims.
- Service from DPI has improved. This is the earliest he has seen the new materials

Orange County

- Telephone conversation with Patsy Johnson
- Also a pilot for ordering via NCAS
- She use an Excel worksheet between the LEA and schools

- Would like to see a way to avoid double entry of orders
- No claims to speak of
- Very happy with DPI; service has greatly improved last few years

Wake County

- Met with Marilyn Poole, Scott Doolittle & Fred Harrells
- Wake serves 100,000 students & 125 schools; NC's 2nd largest LEA
- They pick up at DPI
- This year books are arriving earlier than ever; "A good thing!"
- Wake County is site managed; schools and teachers have autonomy
- They receive materials (non-adoptions and resource) directly from the publisher(s); lose the 8% discount, but freight is paid by publisher
- Concerning DPI, "Last 2 years a remarkable turnaround".
- They are developing a new system to service the schools
- They are another pilot for ordering, but hadn't used it yet. Supposed to transmit first order on 4/25/03

Overall Impressions

- The LEAs are satisfied with DPI's performance. All noted improvement.
- There is an opportunity to improve performance by adopting a single system between the LEAs and the schools. Right now the LEAs are using a variety of systems that range from a package (INVENTEXT) that is no longer supported by the vendor, to Excel spreadsheets, to pen and paper. Wake is spending $48,000 for a new system, but they're working alone. The DPI should consider developing an approach that all the LEAs could use, and it should include a link into NCAS to eliminate the double entry of orders.
- There is an opportunity to develop a recycle program for old textbooks. Right now each LEA and/or school is doing something on its own. If there were a state program with a direct incentive to either the school or LEA, more textbooks would be recycled.
- Some LEAs are more centrally controlled than others. This may impact the acceptance of any common software or procedures.

Appendix 3 – Georgia guidelines for the production of electronic materials

GEORGIA DEPARTMENT OF EDUCATION

GUIDELINES FOR THE ELECTRONIC VERSIONS OF TEXTBOOKS

The Georgia Legislature in House Bill 228 requires that textbook publishers submitting textbooks for the recommended list in Georgia produce an electronic version of that textbook. The following is a list of guidelines for the production of electronic materials.

1. The electronic version must be a usable edition of the textbook. Teachers must be able to use the electronic version for instruction and to assign homework.

2. Publishers may establish any reasonable usage restrictions except that the electronic version may not be limited to use only by vision-impaired students.

3. The electronic version does not have to be a page-by-page reproduction of the text. The electronic version may be text only. If a publisher is unable to gain copyright clearance on some of the passages, those passages may be omitted as long as the electronic edition remains a usable text for instruction.

4. The electronic version is required for student editions only. Otherwise, design and format is left up to the publisher. It does not have to be an exact copy, but it must be a usable electronic version.

5. The electronic version may be a read-only document. It may be a CD-ROM or an on-line version. The format is a decision of the publisher.

6. Publishers must design their own controls over electronic versions. The Georgia Department of Education does not market nor otherwise monitor usage of these electronic versions.

7. Pricing for the electronic version is established according to the publisher's contract, using the same process as the regular textbooks. However, the price for the electronic version can be different from that of the print version.

8. The electronic version of any subject area text shall be on the same adoption schedule as its print counterpart.

9. The content of an electronic version at a minimum should be updated when the textbook is revised. At the publisher's option, it may be updated more frequently as long as it complies with the Textbook Agreement.

Passed by the Georgia Board of Education, September 12, 2002.