



United States
Department of
Agriculture

Food and
Nutrition
Service

Office of
Analysis and
Evaluation

The Evaluation of the Expanded EBT Demonstration in Maryland

**Volume 1:
System Startup, Conversion
and Expansion**

May 1994

**THE EVALUATION OF THE
EXPANDED EBT DEMONSTRATION
IN MARYLAND**

**Volume 1:
System Startup, Conversion and Expansion**

May 1994

Authors:
Margaret Hargreaves
Paul Elwood

Submitted by:
Abt Associates Inc.
55 Wheeler Street
Cambridge, MA 02138

Submitted to:
U.S. Department of Agriculture
Food and Nutrition Service
Office of Analysis and Evaluation
Alexandria, VA 22302

Project Director: John Kirlin

Project Officer: Margaret Andrews

This study was conducted under Contract Number 53-3198-1-019 with the Food and Nutrition Service, U.S. Department of Agriculture, under the authority of the Food Stamp Act of 1977, as amended. Points of view or opinions stated in this report do not necessarily represent the official position of the Food and Nutrition Service.

TABLE OF CONTENTS

CHAPTER ONE:	INTRODUCTION	1
	1.1 Project Overview	1
	1.2 Objectives of the Evaluation and This Report	6
	1.3 Research Methods	7
	1.4 Organization of the Report	9
CHAPTER TWO:	SYSTEM DESCRIPTION	11
	2.1 System Overview	11
	2.2 System Components	14
	2.3 Key EBT Processes	16
	2.4 EBT from the Recipients' Perspective	28
	2.5 EBT from the Merchants' Perspective	31
	2.6 Involvement of Local DSS Offices in the EBT System	35
	2.7 Involvement of Central DHR Staff in the EBT System	35
	2.8 The Role of Banks	36
	2.9 Involvement of the EBT Processor	37
	2.10 Third-Party Processors	37
	2.11 Concluding Note	38
CHAPTER THREE:	PROJECT STARTUP	39
	3.1 Contract Negotiations	39
	3.2 System Development and Design	47
	3.3 System Testing	52
CHAPTER FOUR:	EARLY EXPANSION AND SYSTEM CONVERSION	63
	4.1 Early Expansion and Pre-Conversion Operations	63
	4.2 Conversion	72
CHAPTER FIVE:	SYSTEM EXPANSION	87
	5.1 Expansion Overview	87
	5.2 Expansion Experiences	92
	5.3 Post-Conversion EBT Operations	109

CHAPTER SIX:	LESSONS LEARNED119
	6.1 Project Startup Issues120
	6.2 Development Issues122
	6.3 Early Expansion Issues123
	6.4 Testing Issues125
	6.5 Conversion Issues127
	6.6 Expansion Issues129
APPENDIX A:	GLOSSARY OF TERMS	
APPENDIX B:	INTERVIEW LIST	
APPENDIX C:	COMMUNITY ADVOCACY ORGANIZATIONS	
APPENDIX D:	STANDARD AGREEMENT FOR BENEFITS DISTRIBUTION	
APPENDIX E:	EBTS IMPLEMENTATION CHECK LIST	

LIST OF EXHIBITS

Exhibit 1.1	PROJECT CHRONOLOGY	4
Exhibit 2.1	MARYLAND EBT SYSTEM OVERVIEW	13
Exhibit 2.2	CONFIGURATION OF THE MARYLAND EBT SYSTEM	15
Exhibit 2.3	EBT AUTHORIZATIONS, SEPTEMBER 1993	17
Exhibit 2.4	EBT SYSTEM ACTIVITY, SEPTEMBER 1993	21
Exhibit 2.5	POS - FOOD STAMP SETTLEMENT	24
Exhibit 2.6	POS - CASH SETTLEMENT	26
Exhibit 2.7	ATM - CASH SETTLEMENT	27
Exhibit 3.1	PROJECT CONTRACT CHRONOLOGY	40
Exhibit 3.2	TESTING CHRONOLOGY	52
Exhibit 4.1	EARLY EXPANSION AND PRE-CONVERSION OPERATIONS CHRONOLOGY	64
Exhibit 4.2	CONVERSION CHRONOLOGY	74
Exhibit 5.1	MARYLAND COUNTY EXPANSION SCHEDULE	88
Exhibit 5.2	BALTIMORE CITY EXPANSION SCHEDULE	89
Exhibit 5.3	FOOD STAMPS AND CASH ASSISTANCE: PERCENT ISSUED ON EBTS, JULY 1992 - SEPTEMBER 1993	91
Exhibit 5.4	MASS CLIENT TRAINING IN MARYLAND	101
Exhibit 5.5	MASS CLIENT TRAINING IN BALTIMORE CITY DISTRICTS	102

ACKNOWLEDGEMENTS

On behalf of the entire evaluation team, I wish to acknowledge the many individuals who contributed to the evaluation of the expanded EBT demonstration in Maryland and to the preparation of this report, especially to Margaret Andrews of FNS' Office of Analysis and Evaluation, who served as the FNS project officer and provided valuable guidance and support throughout the evaluation.

The evaluation itself would not have been possible without the cooperation of many people at the Maryland Department of Human Resources (DHR), at FNS and ACF, and at Deluxe Data Systems—vendor for the Maryland EBT system. At DHR, we want to express special gratitude to Dale Brown, who first served as DHR's evaluation coordinator and is now Maryland's EBT Project Director. Additional thanks go to the previous EBT directors, Peg McNamara and Karen Walker, and to all those at DHR and in the local DSS offices who participated in our time studies and interviews.

A number of people at Deluxe Data Systems helped us better understand how the system works and how it was put in place. Space limitations allow me to acknowledge by name only Tom McLaughlin, Jane Coppolino and Jane Jones.

A host of people at FNS and ACF helped provide the evaluation with needed data or reviewed drafts of this and other reports. In addition to Dr. Andrews' assistance, we want to thank Steven Carlson, Carol Olander, Ted Macaluso, Joyce Kohler, Jeff Cohen, and Erin McBride at FNS; and Larry Wolf, Colleen Daly, and Pat Hagen at ACF.

Finally, I personally want to thank the many people at Abt Associates who helped with the evaluation. In addition to the authors of this report, I want to thank the evaluation's research advisor, Chris Hamilton; the project's survey director, Diane Stoner; and MJ Jensen, Chris Holm and Emily Corneliussen. Special thanks to Susan Byers, who managed the production of this report and many project documents.

CHAPTER ONE

INTRODUCTION

This is the first volume of a three-volume final report presenting the results of the evaluation of the expanded EBT demonstration in Maryland. This volume documents the process followed and efforts undertaken to implement the first statewide EBT system in the country. Volume 2 describes the impacts of the demonstration EBT system on administrative costs and benefit loss and diversion.¹ Volume 3 examines the impacts of the demonstration EBT system on program recipients, food retailers, check cashing organizations, and financial institutions.²

A summary of the major findings presented in the three-volume final report is available as a separate document.³

1.1 PROJECT OVERVIEW

Over the past ten years, the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture has been investigating an alternative method of issuing and redeeming benefits in the Food Stamp Program. This method, called electronic benefits transfer (EBT), eliminates the use of paper food stamp coupons and implements a computer system, together with a point-of-sale (POS) terminal network and plastic magnetic-stripe EBT cards, to handle benefit issuance and redemption.⁴

In July 1983, FNS awarded a contract to the Planning Research Corporation to develop and implement an EBT system in Reading, Pennsylvania. The demonstration became fully

1. Christopher Logan *et al.*, *The Evaluation of the Expanded EBT Demonstration in Maryland, Volume 2: System Impacts on Program Costs and Integrity*. Cambridge, MA: Abt Associates Inc., May 1994.

2. Erik Beecroft *et al.*, *The Evaluation of the Expanded EBT Demonstration in Maryland, Volume 3: System Impacts on Demonstration Stakeholders*. Cambridge, MA: Abt Associates Inc., May 1994.

3. John Kirlin, *The Evaluation of the Expanded EBT Demonstration in Maryland: Summary of Findings*. Cambridge, MA: Abt Associates Inc., May 1994.

4. A glossary of terms is provided in Appendix A.

operational by February 1985, serving approximately 3,400 food stamp recipients.⁵ An evaluation of that demonstration concluded that recipients, food retailers, and financial institutions preferred the EBT system to the use of food stamp coupons, and that their costs of participating in the Food Stamp Program were lower under EBT. Nonetheless, while EBT proved to be technically feasible, the system was more costly to operate than the coupon issuance system it replaced.⁶

In 1988, in a further effort to determine whether EBT systems could be cost-competitive with coupon issuance systems, FNS entered into Cooperative Agreements with three state governments, Arizona, New Mexico, and Washington, and one county government, Ramsey County, Minnesota, to conduct additional EBT demonstrations. The new demonstrations were intended to serve as more realistic models for future EBT initiatives. It was also expected that EBT's administrative costs within the Food Stamp Program would be lower due to cost-sharing with other public assistance programs and with commercial electronic funds transfer networks.⁷ Specifically, these demonstrations differed from the Reading demonstration in the following ways:

- The projects were directly managed by state and county government agencies rather than by FNS;
- Each demonstration site served more food stamp households than the Reading demonstration;
- Each of the demonstrations included cash assistance programs, such as Aid to Families with Dependent Children (AFDC), as well as the Food Stamp Program; and
- Each project was to be integrated in some fashion with commercial electronic funds transfer networks.

5. John A. Kirlin, *Developing an Electronic Benefit Transfer System for the Food Stamp Program*, Cambridge, MA: Abt Associates Inc., August 1985.

6. William L. Hamilton *et al.*, *The Impact of an Electronic Benefit Transfer System in the Food Stamp Program*, Cambridge, MA: Abt Associates Inc., May 1987.

7. Electronic funds transfer is a process by which funds are transferred electronically between bank accounts.

Two of the four projects, Arizona and Washington State, were ultimately canceled due to state budget constraints or difficulties negotiating cost-competitive agreements with food retailers and the system vendor.⁸ After overcoming numerous obstacles, the Ramsey County EBS⁹ system was implemented in September 1991, and by March 1992 was issuing benefits to about 18,000 food stamp and 12,600 cash assistance households. New Mexico's EBT system began processing benefits in February 1991, and by March of 1992 was issuing benefits to over 20,800 food stamp and 7,300 AFDC recipients.

A number of other states and federal agencies were also interested in pursuing larger-scale EBT projects. In 1988, the U.S. Office of Management and Budget (OMB) approached several states bordering Washington, D.C. about the possibility of implementing a statewide EBT system. Intrigued by EBT's potential for cost savings and improved client services, the Secretary of the Maryland Department of Human Resources (DHR) asked the director of DHR's Office of Information Management (OIM), the agency's computer services division, to develop a proposal for such a project. Administered through OIM, the proposed Maryland EBT system would serve six assistance programs: the Food Stamp Program (FSP), AFDC, Bonus Child Support (BCS), Non-Public Assistance Child Support (NPACS), Public Assistance for Adults (PAA), and the Disability Assistance Loan Program (DALP).¹⁰

The project moved forward quickly, as shown in Exhibit 1.1. In August 1988, OMB approved DHR's request for a pilot test in the Park Circle district of Baltimore. In November, a Request for Proposals was issued for an EBT contract. In late February, OIM awarded a five-year, \$25.8 million contract to TransFirst Corporation, the Dallas-based firm that was also the EBT vendor for Ramsey County. Under the terms of the contract, the pilot project could be expanded statewide after it reached a steady state of operation in Park Circle and after DHR received approval for expansion from FNS and the U.S. Department of Health and Human Services' Family Support Administration (later renamed the Administration for Children and

8. A description of the development and implementation of the four projects is presented in Michelle Ciurea *et al.*, *The State-Initiated EBT Demonstrations: Their Design, Development and Implementation*, Cambridge, MA: Abt Associates Inc., June 1993.

9. Ramsey County officials use the term EBS (electronic benefits system) rather than EBT.

10. Until December 1992, the Disability Assistance Loan Program was called General Public Assistance.

EXHIBIT 1.1
PROJECT CHRONOLOGY

August 1988	OMB approves DHR's proposal for a statewide EBT demonstration.
November 1988	DHR issues Request for Proposals for the EBT contract.
February 1989	DHR awards \$25.8 million contract to TransFirst Corporation.
November 1989	EBT implemented in Park Circle, a district of Baltimore City.
January 1991	ACF disapproves statewide expansion and continuation of pilot.
September 1991	TransFirst contract assigned to Deluxe Data Systems.
December 1991	Memorandum of Understanding signed among FNS, ACF, and DHR.
January 1, 1992	EBT implemented in Cecil County.
March 1, 1992	EBT implemented in Montgomery County.
March 6, 1992	DHR switches to three-day staggered issuance for cash and food stamps.
March 24-27, 1992	Functional demonstration of the Deluxe EDGE system.
April 1, 1992	EBT implemented in Prince Georges County. Return to single-day issuance.
May 26-29, 1992	State acceptance test of the EDGE system.
June 1, 1992	EBT implemented in Baltimore County and the Liberty Garrison and Steuart Hill districts of Baltimore City.
June 5-8, 1992	Federal acceptance test of the EDGE system.
July 1, 1992	Staggered issuance schedule reinstated.
July 13, 1992	Federal certification of the Deluxe EBT system.
July 17-20, 1992	Conversion from the TransFirst to the Deluxe system.
August 4, 1992	FNS halts September expansion.
September 1, 1992	EBT implemented in Carroll, Hartford and Howard counties and the Clifton, Govans-Waverly and Orangeville districts of Baltimore City.
September 16, 1992	Final implementation schedule approved.
April 1993	Statewide roll-out completed.

Families, or ACF, and hereafter referred to as ACF). Federal approval would be contingent on the project's cost-effectiveness.

TransFirst's EBT system "went live" in Park Circle in November 1989, serving about 5,000 recipients. By February 1990, the program had reached a steady state of operations. Preliminary cost analysis findings, issued in October 1990, revealed that although the pilot program was cost-effective overall and had the potential to reduce food stamp issuance costs if implemented statewide, the system would not be cost-effective for AFDC issuance. Based on this information, ACF officials disapproved the expansion of the project and the continuation of the pilot in January 1991.¹¹ In response, TransFirst attempted to terminate its contract immediately, arguing that it could not afford to operate the system as a pilot. A legal battle between TransFirst and the State ensued over the termination of the Park Circle project.

At this point, OMB organized a federal task force of top-level FNS and ACF administrators to get the Maryland project back on track. Between March and August of 1991, the group worked intensively with OIM staff to restart the project. To resolve ACF's cost concerns, a new cost-sharing agreement was negotiated between DHR, FNS and ACF, making the project cost-neutral to both federal agencies. In settlement of the legal issues, TransFirst sold its EBT contract to the Government Services Group of Deluxe Data Systems, a Milwaukee-based company, in August 1991.¹² TransFirst continued as a subcontractor to Deluxe, processing EBT transactions and adding recipients until Deluxe developed its own EBT system. TransFirst's obligations would end with the conversion of the Maryland EBT caseload to the Deluxe EBT system. The conversion occurred on July 17-20, 1992, after which the Deluxe system was expanded statewide. By the end of April 1993, every county had switched to the new issuance system. By September 1993, the system was issuing \$58 million in benefits per month to 168,000 households.

The expanded Maryland demonstration is important for a number of reasons. In comparison with previous EBT projects, the Maryland demonstration is by far the most

11. ACF did not have the regulatory authority to approve computer systems that were not projected to be cost-effective for Health and Human Services programs

12. Several core EBT staff left TransFirst in 1990 to form Deluxe Data's Government Services Group. The Group's vice president negotiated and signed both the original TransFirst contract and Deluxe's novation of that contract.

ambitious, serving almost ten times the number of recipients in either the New Mexico or the Ramsey County demonstrations. The Maryland demonstration is also the first project to implement EBT statewide, introducing EBT technology to rural as well as urban and suburban areas. This is also the first demonstration to include an evaluation of EBT's effects on cash assistance programs.

Recent changes in food stamp issuance policies have also heightened state and federal interest in the Maryland demonstration. The Food, Agriculture, Conservation and Trade Act of 1990 allowed states to begin using EBT systems on a nonexperimental basis as their regular food stamp benefit issuance systems, as long as the EBT system cost no more than existing coupon-issuance systems.¹³ Since then, more than half of the states have begun planning their own EBT systems. State EBT initiatives were boosted by the Secretary of Agriculture's pledge in May 1993 to initiate EBT in every state by 1996. In his report on the National Performance Review, Vice President Gore supported USDA's commitment to issue food stamps electronically, arguing that it could "eliminate billions of checks, coupons, and all the other paperwork, record keeping and eligibility forms that clutter the welfare system."¹⁴

1.2 OBJECTIVES OF THE EVALUATION AND THIS REPORT

The evaluation of the expanded Maryland EBT demonstration has four major objectives:

- (1) To describe the process by which the expanded Maryland EBT system was designed, developed, and implemented statewide.
- (2) To determine whether it is possible to design and operate a large-scale, multi-program EBT system that costs no more than current benefit issuance systems, yet is secure and acceptable to participants.
- (3) To assess the impact of the Maryland EBT system on agency loss within the food stamp and cash assistance programs and on benefit diversion within the Food Stamp Program.

13. Regulations implementing this portion of the Act were issued April 1, 1992. See "Food Stamp Program: Standards for Approval and Operation of Food Stamp Electronic Benefit Transfer Systems." *Federal Register* 57, no. 63, 1 April 1992.

14. Al Gore, *From Red Tape to Results: Creating a Government that Works Better and Costs Less*, National Performance Review Report, September 1993, p. 113.

- (4) To assess the impact of the Maryland EBT system on recipients, retailers, and financial institutions, with a focus on the costs these groups incur to participate in the food stamp and cash assistance programs.

This report addresses the first objective. Volume 2 of the evaluation's final report addresses the second and third objectives, and Volume 3 addresses the fourth objective.

The first research objective of the evaluation—the process analysis of the Maryland demonstration—has two interrelated goals. The first is to document the steps taken to design, develop, and implement Maryland's Deluxe EBT system on a statewide basis. The second is to provide a complete and comprehensive description of the characteristics and operation of the statewide EBT system. By documenting the development and implementation of the Maryland demonstration, this report seeks to assist in the development of other state and national EBT systems.

1.3 RESEARCH METHODS

A number of data collection methods were used to meet the research requirements outlined above. Our data collection efforts included:

- In-person and telephone interviews with key project participants;
- Interviews with recipient and merchant advocacy groups;
- Observation of key project activities;
- Analysis of merchant and recipient survey data; and
- Review of project documents and cost reports.

Much of the information required to describe and evaluate the project came from two rounds of in-person interviews with *project managers and staff at the federal and state levels*. At the same time, interviews were conducted with representatives of the *project's EBT vendors* (see Appendix B for a list of respondents). The first round of interviews occurred during the fall of 1992, covering the first 12 months of the project, and focused on the EBT system's design, development and early implementation, and the conversion from the TransFirst to the Deluxe system. The second round of in-person interviews with the same personnel occurred one

year later, during the fall of 1993, and focused on the statewide expansion of the project and its steady-state operations.

Two rounds of interviews were also conducted with *recipient advocacy groups* and *retailer organizations* (see Appendix C for a list of organizations and respondents).¹⁵ In-person interviews were conducted in the spring of 1992 to determine these groups' views about the quality of recipient services in the paper-based benefit systems, the level of discrimination and stigma in paper issuance systems, and clients' expectations for the new EBT system. Follow-up interviews were completed with the same groups in the fall of 1993 to determine their reactions to the new system and their perceptions of the quality of service and level of stigma under the new system.

Information about the implementation of the EBT system at the local level came from one round of *site visits* to a sample of 14 county or district offices, conducted during the spring of 1993. The sites were chosen to represent a mix of urban and rural locations, pre-conversion and post-conversion implementation, and caseload size.

The descriptive analysis also drew heavily upon *observations of key project activities and events*. Evaluation staff attended the Deluxe EBT system's functional demonstration and acceptance test at the vendor's operations facility in New Berlin, Wisconsin. Staff were also present at the operations center the weekend of July 17-20, 1992, when EBT processing responsibilities were shifted from TransFirst to Deluxe; they also attended EBT training sessions for staff and clients, EBT kick-off events, and DHR EBT task force and EBT merchant focus group meetings. In addition, evaluation staff visited the state's staff Help Desk and personal computer service center, and observed a number of administrative EBT functions in local offices, including ongoing training and card issuance for new clients, and card replacement for ongoing recipients.

The EBT project's *documentation* was drawn from a wide variety of existing sources, including:

- Project progress memos, problem reports, quarterly program reviews;

15. Two rounds of interviews with numerous retailers and recipients were conducted as well, to gather data on the EBT system's impacts on these groups. These data are presented in Volume 3 of the evaluation's final report.

- Various contractual and planning documents, including the State's Request for Proposals (RFP) for EBT services, the Memorandum of Understanding (MOU) between the State and federal agencies, the State's Advanced Planning Document (APD) for the EBT system, vendor contracts, and merchant agreements;
- Draft and final system design documents, operations manuals, user guides, and other training materials;
- Draft and final system test plans, scripts, incident reports, and other test results;
- Focus group and task force meeting minutes;
- Project press releases, newspaper and journal articles, other media coverage; and
- Local Department of Social Services (DSS) office memos, status reports, and caseload statistics.¹⁶

Finally, as appropriate, information gathered from the monitoring surveys of recipients and merchants and DHR and Deluxe cost reports were used to corroborate the information provided through other data sources.

1.4 ORGANIZATION OF THE REPORT

This report consists of six chapters, including this Introduction. Chapter Two opens with a general description of the Maryland EBT system and how it operates. The system is then described from the perspective of its various participants—recipients, merchants, financial institutions, state DHR and local DSS welfare staff, and the EBT vendor. Chapter Three covers the first six months of the project, during which Deluxe took over the TransFirst EBT contract, the federal MOU was negotiated, and the Deluxe EBT system was designed, developed, and tested. Chapter Four describes the operation of the TransFirst EBT system and the conversion to the Deluxe EBT system. The fifth chapter describes the key activities and issues of the project's second year, during which the Deluxe system was expanded statewide. The final chapter summarizes the lessons learned from the previous chapters, highlighting the information gained from the Maryland demonstration. Several appendices follow, detailing EBT system functions, technical terms, and key respondents.

16. In Maryland, the state welfare department is called the Department of Human Resources; the local welfare departments (which are part of the state department) are called Departments of Social Services.

CHAPTER TWO

SYSTEM DESCRIPTION

Maryland's EBT system is a computer-based electronic system for delivering and redeeming benefits for three federally funded, state-administered programs—food stamps (FSP), Aid to Families with Dependent Children (AFDC), and Bonus Child Support (BCS)—and two State-sponsored programs—the Disability Assistance Loan Program (DALP) and Non-Public Assistance Child Support (NPACS). Some Public Assistance for Adults (PAA) cases are also on the system, but the number is quite small, less than 100.¹ The system is operated by staff at local welfare offices and at the Maryland Department of Human Resources (DHR). It is built around the equipment and staff of the system vendor, Deluxe Data Systems, which has its headquarters and data processing center in Milwaukee and a field office in Baltimore.

This chapter describes the participants, components, processes, and administrative arrangements through which the EBT system operates. The first section briefly describes the various groups that participate in the systems. The next two sections discuss the technology behind the EBT system and describe six key processes: benefit authorization, POS (point of sale) transactions, ATM (automated teller machine) transactions, POS settlement, ATM settlement, and system reconciliation. The balance of the chapter addresses the role of each of the major groups participating in the system: recipients, retail locations, local Departments of Social Service (DSS) staff, central DHR staff, banks, and the system vendor/processor.

2.1 SYSTEM OVERVIEW

The EBT system in Maryland is an on-line system that authorizes the redemption of program benefits at ATMs on the MOST network and at POS terminals installed at retailer locations throughout Maryland.² The MOST network is a regional shared ATM network

1. DHR had originally planned to put all recipients of Public Assistance for Adults (PAA) on the EBT system. After DHR decided not to put PAA recipients on the system, some counties left those PAA recipients already converted to EBT on the system.

2. EBT demonstrations in Reading, PA, Albuquerque, NM, and St. Paul, MN, also used on-line systems. Demonstrations in Dayton, OH, and Wyoming have used off-line technology, where recipients' balance information is stored on a microchip embedded in a plastic card.

operating throughout Maryland and in surrounding states. The network's parent corporation is Internet, Inc. Benefit information for all recipients on the system is stored on a computer at Deluxe Data System's data center in suburban Milwaukee. Recipients redeem food stamps when they present a magnetic-stripe card at a checkout lane equipped with a POS terminal. Cash benefits can be redeemed at POS terminals or at ATMs. Information about each transaction is sent to the Deluxe data center for approval or denial. When the clerk or ATM receives approval, they dispense the benefits.

The DHR currently issues FSP, AFDC, BCS, and DALP benefits via EBT throughout the State of Maryland. In Baltimore only, some NPACS benefits are issued electronically.

For all these programs, benefits are first authorized on DHR's computerized benefit authorization system (Automated Income Maintenance System, or AIMS).³ The department's computer then generates benefit authorization files that it transmits to the Deluxe computer in Milwaukee that houses the EBT data. Deluxe posts the benefits to individual recipient accounts.

Food stamp and cash benefit recipients can purchase food using their Independence card at any one of about 3,250 FNS-authorized stores. As shown in Exhibit 2.1, recipients of cash benefits can make withdrawals from their cash benefit accounts at many of the FNS-authorized stores, at 14 check cashers, at 18 other non-food retailers on the system,⁴ and at over 4,000 ATMs on the MOST network (about 1,800 of which are located in Maryland). In September 1993, over 143,000 food stamp cases⁵ were active on the EBT system. There were 76,000 active AFDC cases and a combined total of 36,500 DALP, BCS, and NPACS cases on the system.⁶

3. DHR is in the process of replacing its current system for authorizing benefits, called AIMS, with a new system, called CARES (for Client Automated Resources Eligibility System). This description is based on research conducted while AIMS was the mechanism for generating most public benefit payments in the state. From the perspective of EBT, CARES will be functionally quite similar to AIMS.

4. The non-food retailers include stores such as clothing and drug stores that have been authorized by DHR to operate a POS terminal.

5. For the Food Stamp Program, cases are defined as recipient households, not individuals. AFDC, BCS, and NPACS consider the family to be the case. DALP treats individuals as the case, since most recipients are by definition single disabled adults.

6. These figures are duplicated case counts, meaning one household receiving benefits from two different programs would be counted as two cases.

EXHIBIT 2.1
MARYLAND EBT SYSTEM OVERVIEW

Groups	Number	User Types	Activities/Responsibilities
Merchants	3,218 ¹	3,197 FNS-authorized 80 voucher merchants 47 border stores 14 check cashers 11 stores using third-party processors 7 non-food retailers	<ul style="list-style-type: none"> • Food stamp redemption • Balance inquiries • Provide cash benefits for purchases and cash-back (33% provide some cash-back, including 16% who do not limit amount of cash-back).
Recipients	256,000 cases ²	143,400 FSP 76,000 AFDC 13,000 BCS 19,700 DALP 80 PAA 3,800 NPACS	<ul style="list-style-type: none"> • Redeem food stamps using POS terminals or vouchers • Redeem cash benefits via POS transaction, ATM, or direct deposit.
MDHR	Central office	EBT system staff PC and telecommunications support User support Data processing AIMS fiscal	<ul style="list-style-type: none"> • System and contract monitoring • Maintain administrative terminals and phone lines • Support DSS users of administrative terminals • Produce auth. files, reports • System financial reconciliation
Local DSS ³	23 counties 48 offices	EBT trainers Fiscal workers Eligibility workers	<ul style="list-style-type: none"> • Recipient intake, AIMS-EBT interface • Recipient training, card issuance • Special benefit authorizations
Baltimore DSS	19 districts 2 training centers BCOCSE ⁴	Eligibility workers EBT trainers Card replacement workers Fiscal workers	<ul style="list-style-type: none"> • Recipient intake, AIMS-EBT interface • Recipient training, card issuance • Replacement card issuance • Emergency benefit authorizations
Processor	Headquarters Data center Field office	<ul style="list-style-type: none"> • Project management • System operations, customer service • Retailer interface 	<ul style="list-style-type: none"> • System oversight, policy • Manage, monitor system operations • Support for recipients and retailers • Installation, support retailers

¹ From Deluxe Data Systems, "Equipment and Store Counts", 9/1/93.

² Approximate duplicate case count for September 1993, based on MDHR caseload data by program.

³ Local Departments of Social Services (DSS) are the field offices of the Maryland Department of Human Resources (MDHR).

⁴ Baltimore City Office of Child Support Enforcement.

Operating the EBT system are 48 local DSS offices, which issue benefits in 23 counties (some counties having more than one local office) and 19 city districts. Staff at DHR's central office in Baltimore manage the contract with the system processor (Deluxe Data Systems), set system-wide support the state's interface software, manage and reconcile funds, and maintain local equipment.

Deluxe Data Systems maintains the authorization database, the POS terminal hardware, and the software driving both the POS terminals and the administrative terminals used by DHR and DSS staff. Deluxe also manages the daily settlement process, reconciles recipient and retailer accounts, and generates reports used to monitor the system. The following section provides an overview of the equipment and procedures these various parties use to issue and redeem benefits electronically.

2.2 SYSTEM COMPONENTS

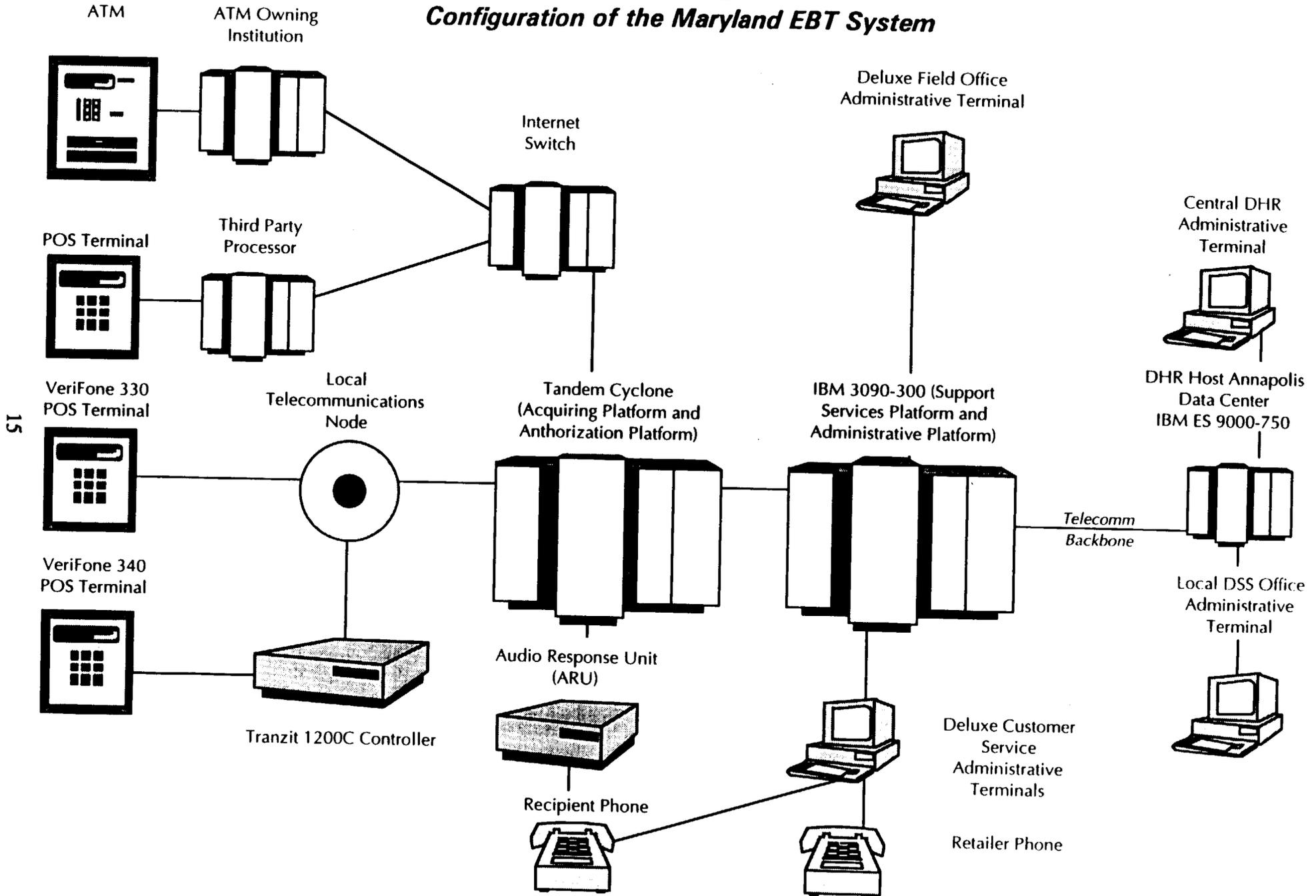
The configuration of Maryland's EBT system is represented graphically in Exhibit 2.2. The technological core of the system is located in Deluxe's New Berlin data center in suburban Milwaukee. The EDGE system, the software and hardware that run the Maryland EBT system, consists of four platforms—the acquiring platform, the authorization platform, the support services platform, and the administrative platform. A Tandem Cyclone computer handles the acquiring and authorization platforms, and an IBM 3090-300 mainframe computer handles the support services and administrative platforms.

The *Acquiring Platform* of the EDGE system includes the equipment and software that clients and retailers use at the POS terminals and ATMs; the equipment, phone lines and software needed to transmit transactions from the client access point to the Tandem computer; and the switch that routes transactions to the authorizer (or, with commercial electronic funds transfer transactions, to other authorizers).

The *Authorization Platform* provides real-time approval of financial requests, including purchases, withdrawals, balance inquiries and refunds.⁷ This platform, sometimes referred to as the "authorization engine," includes the central database on the Tandem that maintains each

7. "Real-time approval" means that the request is acted upon as soon as it is sent to the authorization platform. A response to the request is returned to the ATM or PO terminal before the telecommunication link is dropped.

Exhibit 2.2
Configuration of the Maryland EBT System



client's account balance. The Audio Response Unit for client balance inquiries connects directly to this platform.

The *Support Services Platform*, which runs on the IBM mainframe, consists of database software for storing information about transactions, cards, and cases, as well as software to perform all financial reporting and settlement functions. The support services system receives information from the authorization engine on a real-time basis, storing all transaction information in logs and keeping a running total for settlement purposes for each retailer. The platform supports the business functions of daily settlement, reconciliation, and money movement, and also generates all financial and management reports used by Deluxe and DHR. Account management activities include acquiring and preprocessing daily batches of authorization information from DHR before sending them along to the authorization database. The support services system also generates card orders.

The *Administrative Platform*, also run on the IBM mainframe, is DHR's direct access point into the EDGE system. Research on client transaction histories and manual updates of the EBT database are performed on this platform. It includes the equipment, telecommunications, and PC-based software at DHR's central and local offices. Deluxe's customer service center and Baltimore field office also connect to the system at this point. The administrative terminals are IBM-compatible personal computers that use MicroSoft Windows as the operating system.

2.3 KEY EBT PROCESSES

For a more dynamic perspective on the EBT system, this section examines six key processes: benefit authorization, POS transactions, ATM transactions, POS settlement, ATM settlement, and financial reconciliation. Each description includes a discussion of the key hardware and activities, and identifies the staff involved.

Benefit Authorizations

DHR transmits mass issuance information, which authorizes benefits for all program recipients, to Deluxe once a month. In addition, DHR transmits supplementary authorization information to Deluxe daily to cover the recipients who are added to the AIMS system each day, and other changes made to authorizations. As Exhibit 2.3 shows, there were more than 297,000 EBT benefit authorizations in September 1993.

EXHIBIT 2.3

EBT AUTHORIZATIONS, SEPTEMBER 1993

	Authorizations	Amount
Food Stamps	164,429	\$28,331,289
Cash Public Assistance*	111,592	\$29,332,192
Bonus Child Support	13,651	\$658,717
NPA Child Support	8,196	\$648,758
Total	297,868	\$58,970,956

* Includes AFDC, DALP, and PAA.

One or two days before the last business day of the month, after the close of business on the "cutoff day," DHR data processing staff initiate the monthly batch processing on AIMS required to generate the authorizations. When the process is complete, at 3 or 4 a.m., the authorizations coded as "participating in EBT" are transmitted to the Deluxe data center. All batch transmissions include header and trailer records that allow the receiver to verify that transmissions are complete and all records are processed.

At Deluxe, benefit authorization files are loaded onto the system in a two-phase process: data validation and activation of the maintenance program (which updates the accounts that were changed on AIMS). If an error threshold is exceeded, the entire benefit load is held for review by DHR data processing and AIMS fiscal staff.⁸ All batch maintenance is logged and reported, so that Deluxe can back out benefit loads if incorrect data are submitted.

All batch processing is done at night, when transaction volume is low, to minimize the impact on the performance of the authorization engine. The monthly authorization file is too large for Deluxe to refresh all the benefits in one night. To do so would take nine hours, which

8. If more than 20 percent of the records are rejected, the maintenance program is not activated and the benefit refresh does not take place. If fewer than 20 percent are rejected, the rejected records are included in an exception report.

would leave no time for dealing with any problem that might arise.⁹ Deluxe loads the cash benefits onto the support services platform the night after file receipt. The next night, they process the food stamp benefits. Cash benefits are usually issued on the first three days of the month; food stamp benefits are also issued over three days, starting on the fifth day of the month.¹⁰ The recipients' issuance day is set according to the last digit of the case number. Benefits become available to clients after 9:00 a.m. on designated issuance days.

Expedited issuances, supplemental benefits, and other one-time authorizations are also first authorized on AIMS. Typically, DHR sends the daily authorizations to Deluxe at around 1:00 each morning. Deluxe staff verify the transmission and, if it is verified, load the data onto the support services platform that passes the information along to the authorization platform. Newly authorized benefits become available to the client after 9:00 a.m. the next day. Benefits can also be issued on EBT "manually" by a DSS fiscal worker via the administrative terminal; in this case, benefits are available immediately.

POS Transactions

POS terminals are driven either by Deluxe or by a third-party processor.¹¹ For those driven by Deluxe, two equipment options are available. In single-lane stores, a dial-up stand-alone device, a Tranz VeriFone 330 driven by Deluxe's EDGE switch, is used for POS transactions. In multi-lane stores, Tranz 340 terminals connect to a Tranz VeriFone 1200C dial-up controller. The controller dials up the Deluxe system, holding terminal transactions in queue for more efficient use of the telecommunications connection than would be possible with separate terminals accessing the system. A third-party processor must send EBT transactions through the

9. The CARES system, currently active in three small Maryland counties, generates authorization files on the last day of the month. Cash benefits are available to recipients the next day. Because of the time it takes to process the authorization files, Deluxe anticipates that, as the caseload on CARES grows, it will not be able to maintain the current issuance schedule. Deluxe has therefore proposed issuing cash benefits beginning the third day of the month, in order to process direct deposits on schedule.

10. Benefits are usually not issued on Sundays or holidays.

11. POS terminals and ATMs have very limited internal computer processing capabilities. They are considered to be driven by a parent computer system. Deluxe's EDGE system drives the Deluxe-installed terminals in Maryland. Third-party processors drive the POS terminals they install. The banks that own ATMs have computers that drive their ATMs, or they contract that function out to other processors.

- The requested amount is less than or equal to the recipient's account balance.

The authorization engine also determines the order in which to dispense benefits. A single recipient account may include multiple authorizations for a single program or authorizations from multiple programs. In processing transactions, the system follows a "first in, first out" rule for cash benefits, and then uses a predetermined priority scheme to dispense benefits with the same authorization date. If the recipient's balance is greater than the transaction amount, the amount is subtracted from the recipient's account balance and an approval message is sent back to the POS terminal. If the account has insufficient funds, the system returns a denial message.

Upon completing the transaction, the clerk gives the client a POS terminal receipt with the beginning balance, transaction amount, and ending balance.¹⁶ Balance and transaction amount information are provided for both food stamps and cash benefits on every transaction receipt.

As shown in Exhibit 2.4, the Maryland EBT system processed and approved nearly 1.6 million food stamp transactions at POS terminals in September 1993. Another 230,000 POS transactions were approved and processed against cash benefit accounts. The Audio Response Unit (ARU) is the primary method used by recipients to check account balances. Eighteen percent of all transactions are ARU balance inquiries.

The original Request for Proposals for the Maryland EBT demonstration identified performance standards for transaction response times and downtimes.¹⁷ The RFP required that POS response time not exceed 11 seconds for 95 percent of transactions and not exceed 15 seconds for 98 percent of transactions. The Maryland system has not met these response time standards; in September 1993, 83.6 percent of transactions on the Maryland system were processed within 11 seconds and 94.3 percent were processed within 15 seconds. Even though Deluxe is continuing to monitor response times and to work to decrease them, there is little current concern about response times. Maryland's EBT system must come into compliance with FNS EBT regulations within two years, and the EBT regulations establish a lower standard for

16. The receipt information also includes merchant ID, terminal ID, sequence number, date, and time of transaction.

17. Maryland Expanded EBT System Demonstration RFP, Section III.E.10.b.

EXHIBIT 2.4
EBT SYSTEM ACTIVITY, SEPTEMBER 1993

	Total	Approved	Total Amount	Average Amount per Transaction ¹	Denied	Transactions per Case ²
Food stamp POS transactions	1,649,487	1,588,090	\$27,672,248	\$17.71	61,397	11.50
Cash POS transactions	310,048	232,585	\$7,591,419	\$33.08	77,463	2.75
ATM transactions	335,757	285,525	\$22,299,475	\$85.73	50,232	2.98
POS balance inquiries	87,696	79,729	NA	NA	7,967	0.34
ARU balance inquiries	519,003	486,374	NA	NA	32,629	2.03
Voice authorizations	5,816	4,776	\$172,170	\$37.73	1,040	0.04
Total transactions	2,911,696	2,680,427	\$57,563,142	\$28.04	231,269	11.38

¹ Per approved financial transaction, not including balance inquiries.

² Total transactions, including both approved and denied transactions, divided by the appropriate duplicated caseload (in which one individual receiving benefits from two programs is counted as two cases). A food stamp caseload of 143,372 is used to calculate food stamp POS transactions per case and voice authorizations per case. A duplicated cash program caseload of 112,547 is used for cash POS and ATM transactions. Balance inquiries and total transactions per case use a duplicated caseload of 255,919.

response times. The regulations require that, for dial-up systems like the Maryland system, 95 percent of EBT transactions be processed within 15 seconds or less and all EBT transactions be processed within 20 seconds or less.¹⁸ Maryland's EBT system has also met the downtime standards in the EBT regulations: that the central computer shall be available 99.9 percent of scheduled up-time, 24 hours a day, seven days a week, and the total system shall be available 96 percent of scheduled up-time, 24 hours a day, seven days a week.¹⁹

18. The standard for leased-line systems is 98 percent of transactions within 10 seconds or less, and all transactions within 15 seconds.

19. *Federal Register*, Vol. 57, No. 63, §274.12.h.

ATM Withdrawal

To access cash benefits at an ATM, a recipient puts the Independence card in an ATM affiliated with the MOST network, and punches in the PIN. The client then selects the withdrawal function, checking account function, and the amount of withdrawal. At this point, the machine sends the transaction information over the MOST network to the Internet switch (which is also run by Deluxe). Internet routes the transaction to the EDGE system, based on the routing information in the card number. The authorization engine does much the same review of the transaction as it does for the POS terminal transaction, sending back an approval or denial message to the ATM. In September 1993, the system approved over 280,000 ATM withdrawals worth approximately \$22.3 million.

Settlement

Once each day, Deluxe settles the system's accounts, reimbursing retailers that have conducted POS transactions and banks that have acquired²⁰ ATM transactions. Throughout the day, ATMs have disbursed cash, and clerks at POS terminals have provided food or cash to recipients. State and federal benefit funds must be distributed to the appropriate retailers and banks. Under the EBT system, benefit funds are not drawn down from the state and federal government accounts until they are used by recipients. Deluxe then requests payment from the State of Maryland or the U.S. Treasury. The settlement process, though similar in form for POS and ATM transactions, involves different parties for each.

POS Settlement. For POS transactions, the EBT "cutover" (the end of the business day) is at 5 p.m. Eastern Time. After cutover, Deluxe generates a summary of the day's transactions for each retailer and determines a net credit owed to each retailer.²¹

Deluxe reimburses banks and retailers who acquire EBT transactions through the Federal Reserve System's automated clearinghouse (ACH) network, which handles electronic funds transfers between financial institutions. Deluxe assembles the net credit records for each

20. When an ATM transaction is initiated, the bank that owns the ATM (or its vendor) "acquires" the transaction. Banks receive fees for each transaction they acquire and pass along to the authorizer.

21. Although unusual, a retailer could have a *net debit* if, for example, the value of refund transactions that day exceeded that of purchase transactions. When this occurs, the debit record is held as a merchant overdraft until the retailer processes enough sales to cover the debit amount.

retailer into an ACH file. The ACH file is sent electronically to Deluxe's ACH initiation bank, NorWest, arriving before 9 p.m.²² NorWest adds the Deluxe data to its ACH file, preparing for its 11 p.m. window at the Federal Reserve Bank of Minneapolis. The ACH transmission includes a net credit to each retailer's financial institution and a net debit to Marshall & Isley, Deluxe's settlement bank. The Federal Reserve Bank implements the ACH actions, making funds available to banks by the start of business the following day.

The retailers' financial institutions set their own policies for posting ACH transactions. Typically, they will not post the transaction until the night after the ACH transaction is received, adding another day before the funds are actually available to the retailer.²³ Thus, if a retailer's end-of-business-day time coincides with system cutover, that retailer normally will be reimbursed in two days for "today's" business. If the retailer's business end of day is after system cutover, however, all the transactions for that retailer's business day will be settled and reimbursed with the system's next day settlement. In this situation credited funds would normally not be available until three days after the EBT transaction.

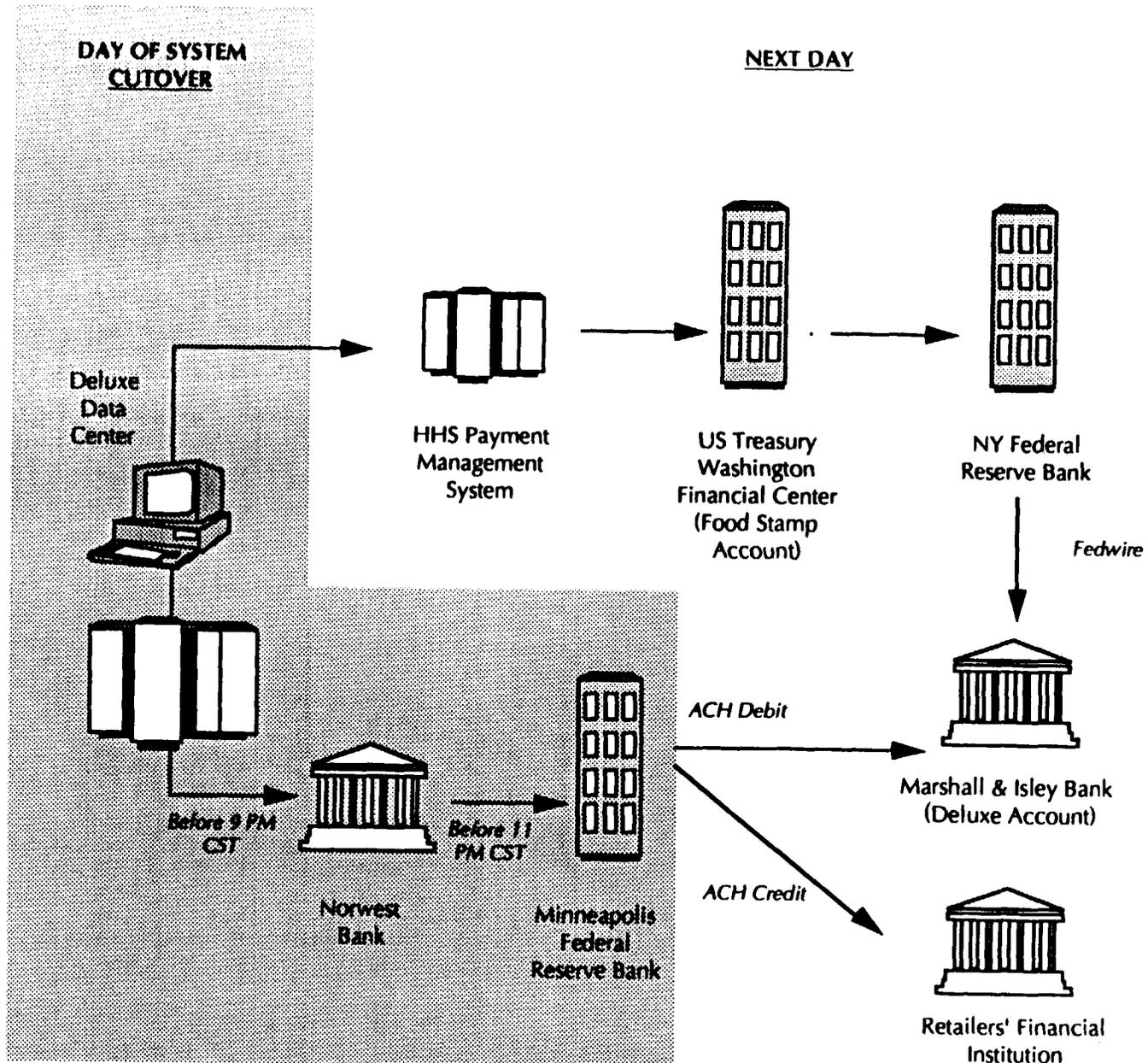
Each day, Deluxe must replenish its account at Marshall & Isley Bank. For food stamps, Deluxe sends a file to the Department of Health and Human Services' Payment Management System²⁴ requesting payment. HHS verifies the availability of funds in FNS's Maryland EBT letter of credit and authorizes the Treasury Department's Washington Financial Center (WFC) to make funds available to Deluxe. WFC directs the Federal Reserve Bank of New York to send funds via FedWire to the Deluxe account at the Marshall & Isley Bank (see Exhibit 2.5).

22. Typically, a concentrator bank assembles ACH transactions from other businesses, and calculates the net credits and debits among those businesses. It then applies those credits and debits to any retailers with accounts at the concentrator bank. The credits and debits for all other businesses are then sent to the ACH operated by the Federal Reserve Bank. This process reduces the number of transactions on the ACH system, concentrating them for greater processing efficiency. In this case, Deluxe actually creates the file of net credits and debits within the EBT system and sends it to NorWest to be included with their ACH transmission. Only ACH member institutions can originate ACH transfers.

23. When ACH credits are posted to interest-bearing accounts, most financial institutions begin paying interest on the funds from the date the ACH credit is received, not posted.

24. The DHHS operates an electronic payment management system that other federal agencies use. The system uses software called SmartLink.

Exhibit 2.5
POS - Food Stamp Settlement



For POS cash transactions, Deluxe requests payment by creating for DHR a Clearing Statement Report that DHR can access via their administrative terminals. The statement, available early in the morning, covers all transactions for the previous day ending at 5 p.m. DHR's AIMS fiscal staff send a wire authorization transferring funds from the state treasury to a Deluxe account at Marshall & Isley bank. Maryland makes an electronic request for compensation for the federal share of cash benefits through the Payment Management System. Again, HHS verifies the availability of funds and authorizes WFC to disburse funds. WFC sends authorization to the Federal Reserve Bank of New York, which generates an ACH transaction to reimburse the DHR account at Signet Bank (see Exhibit 2.6).

ATM Settlement. ATM settlement is initiated by the MOST network. At the end of its business day, the MOST system produces a settlement report, which is sent to the MOST settlement bank, Crestar. The settlement file has the net credit or debit for the business day for each member of the MOST network. The EBT transactions are included with the credits for each of the acquiring banks. The settlement account at Crestar (owned by Signet Bank) is debited for all that day's EBT ATM transactions, offsetting the credits to all banks that have issued cash benefits via their ATMs.²⁵

To refresh the Crestar account, Deluxe creates a Clearing Statement Report. DHR's AIMS Fiscal Unit accesses this with an administrative terminal to determine the amount of payment due to the Crestar account for the day's ATM cash benefit withdrawals (this report is separate from the POS reimbursement request). Through the State Treasurer, DHR instructs Signet Bank to transfer funds from DHR's Signet account to the Crestar account. As in POS cash settlement, DHR uses the HHS Payment Management System to request reimbursement from HHS, which instructs WFC to pay DHR. WFC authorizes the New York Federal Reserve Bank to generate an ACH credit sent to the State's account at Signet Bank (see Exhibit 2.7).

Financial Reconciliation

Reconciliation allows Deluxe, DHR, and FNS to ensure that all funds are being transferred accurately. This is done by comparing balances from accounts held at different

25. Since Deluxe is not a member of the MOST network, one of the member banks, Signet, is Deluxe's sponsor. The account at Crestar Bank is a Signet account used for Deluxe settlement.

Exhibit 2.6
POS - Cash Settlement

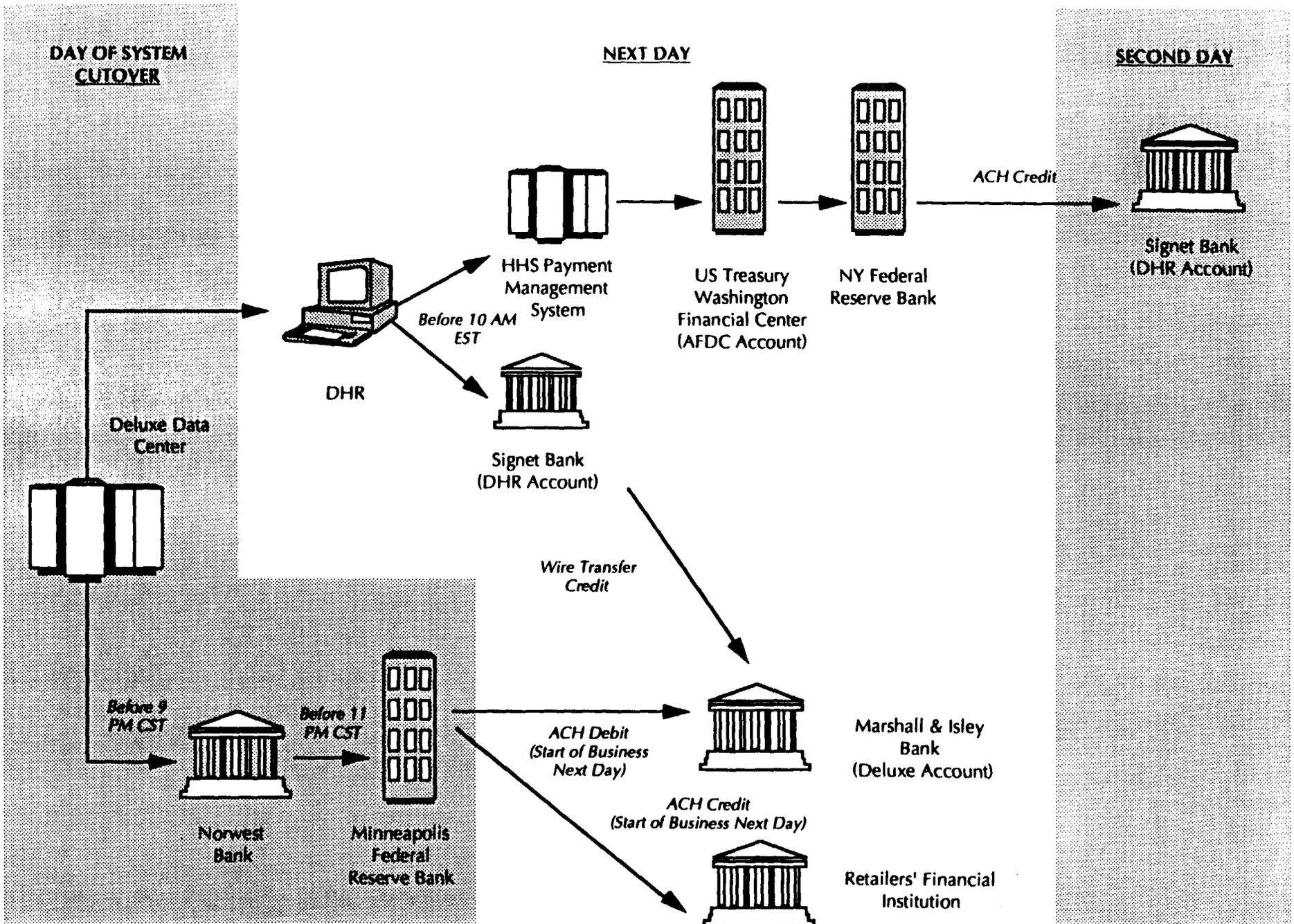


Exhibit 2.7
ATM - Cash Settlement

**DAY OF SYSTEM
CUTOVER**

NEXT DAY

SECOND DAY

Crocker Bank

points in the settlement process. Deluxe generates a variety of reports that are used by DHR, Deluxe, and FNS for system reconciliation and monitoring.

At the end of each day, the EBT system transmits an extract file of the day's EBT database activity and on-line administrative activity to DHR. The extract includes all client-initiated financial transactions and agency-initiated benefit authorizations and cancellations. DHR uses this information to maintain a separate record of each authorization, which it can reconcile with Deluxe transaction data and the original authorization data to verify that state-initiated transactions were correctly applied to the EBT database. When a recipient spends down all of his or her benefits, his or her record in DHR's database is flagged as spent for the month. If the client appears in any subsequent daily extract file during that month, the system will generate a message that triggers a review of the account.

The EDGE system automatically performs a set of reconciliations at the end of each Deluxe business day (10 p.m. Central Time). The process is called the daily audit report. The process "abends"²⁶ if any of the audits are out of balance. Among them are a comparison of the total system beginning balance with the total daily draws and ending balance, and an audit of each retailer account. Net recipient redemptions are compared with the total retailer credits for the day.

Each week, Deluxe sends a file summarizing the redemptions for each retailer to FNS's Minneapolis Computer Services Center (MCSC). Also weekly, the FNS Regional Office compares the retailer redemption information relayed to it from MCSC with data from the HHS Payment Management System and also with the recipient redemptions. The Regional Office also compares the EBT issuance estimates used to fund the letter of credit with the actual issuance figure reported by Deluxe. At the highest level of reconciliation, the FNS National Office compares the federal draw with the debit to the Food Stamp Program account at the U.S. Treasury.

2.4 EBT FROM THE RECIPIENTS' PERSPECTIVE

Participation in the EBT system is mandatory for Maryland residents receiving FSP, AFDC, BCS, or DALP benefits. Residents of Baltimore receiving NPACS may opt to receive

26. "Abend" refers to an "abnormal ending" of the computer process.

their payments via EBT; about 25 percent of those eligible have done so.²⁷ A very small number of PAA recipients (about 80) are on EBT.

Recipients control access to benefits through their Independence card and PIN. The card cannot be used without the PIN, which recipients are told to keep secret. Food stamp recipients use their benefits by presenting their Independence card and entering their PIN at the check-out lane of an FNS-authorized retailer. Recipients who receive cash benefits can withdraw cash either at a POS terminal or at an ATM belonging to the MOST network. Approximately 30 percent of retailers on the EBT system permit cash withdrawal, and 40 percent of these put no limit on the amount withdrawn.

As an alternative to using the Independence card, recipients of cash benefits may have their benefits directly deposited in their bank account. Although this option is available to all recipients with bank accounts, only about 2.2 percent of all recipients choose it.²⁸

To use their benefits efficiently, clients must be able to track their account balance on the EBT system. In Maryland's EBT system, recipients may use any of six methods to check their account balances. First, the beginning and ending balances for both food stamp and cash program benefits are printed on the POS terminal receipt given to recipients after each purchase or withdrawal. Second, a clerk can do a balance inquiry from a POS terminal without a purchase. The balance inquiry also requires recipients to enter their PIN number on the keypad. A third option is the receipt from ATM transactions, which includes both the food stamp and cash balance. Fourth, one can do a balance inquiry at an ATM without making a withdrawal.²⁹ Fifth, clients needing balance information can use a toll-free 800 number to call the ARU. The ARU automatically provides balance information after the client types the card number on the phone keypad. Finally, a client can call the Deluxe customer service desk (using

27. To be eligible for EBT, NPACS participants had to receive at least two child support payments in the previous year.

28. According to a survey of recipients in the EBT system, 12.5 percent of all public assistance recipients have a bank account, and 75.5 percent of NPACS participants have one. Thus, even among those participants with bank accounts, relatively few chose direct deposit of their benefits.

29. Deluxe is in the process of making a system change that will eliminate food stamp balances on ATM receipts. Some ATMs cannot print the food stamp and cash balances in a way that clearly identifies which balance is for which program, a drawback that has led to some confusion among recipients in the past.

another 800 number) and speak with a Deluxe staff member who can look up balance information on an administrative terminal.

When recipients have a problem accessing their benefits, they are instructed first to call Deluxe customer service. However, recipients frequently contact their caseworker before calling Deluxe. The caseworker has the capability to check the AIMS system, as well as the EBT system, to see what benefits have been authorized. Due to a limited number of available administrative terminals (one or two per office), however, such calls are usually referred to the EBT trainer.

EBT adds a step to the normal client intake process for newly approved benefit recipients. Under the AIMS system, eligibility workers fill out an application form that is entered by data processing clerks onto the AIMS system. (Under the CARES system, eligibility workers will enter client information directly onto the system through terminals at their desks.) The authorization system must first determine eligibility, establish a case, and generate a case number. In some counties, recipients are scheduled for EBT training before eligibility is determined; in others, they are scheduled after receiving notification of eligibility. Most DSS offices have training sessions scheduled two or three times a week.

The training consists of a video, a brief verbal presentation, and a question-and-answer period. This group session is conducted by a DSS EBT trainer, or another DSS staffer, and takes about half an hour. After the group session, the trainer works individually with each recipient, issuing temporary Independence cards. These temporary cards, which have no recipient name or case number printed on them, are called "vault" cards because they must be securely stored the way food stamp coupons are stored. The vault card expires 28 days after it is issued.³⁰

The trainer creates a new case on the EBT system using an administrative terminal, entering the card number of the next available vault card and linking the new EBT card number with the AIMS (or CARES) case number. At a prompt from the trainer, the recipient chooses

30. Before January 1993 the vault cards had a 14-day valid period, but that proved too short a time to allow for mail returns.

a PIN by typing the number into a keypad attached to the administrative terminal. Recipients are usually instructed not to choose a number that someone else could guess.³¹

The recipient takes the vault card and can now access benefits with it. In about two weeks, the recipient will receive a permanent Independence card in the mail. The first time the permanent card is used, the vault card is automatically deactivated.

If an Independence card is lost, stolen or damaged, the client is instructed to call the 800 number for Deluxe customer service and report the incident. Customer service staff immediately place the card number on a list of "hot cards," preventing any accessing of benefits with that card. The client then goes to the local DSS office. At most offices, the EBT trainer will issue a replacement vault card. (The City of Baltimore has specialized replacement workers who are assisted by EBT trainers during the first week of the issuance cycle, when demand for replacement cards is highest.) A permanent replacement card is later mailed to the client.³²

Some recipients do not draw down their full benefit authorization during the month in which it is issued. These benefits are rolled over to the next month and are drawn on before benefits issued subsequently. However, if an authorization is untouched for 90 days it will be "aged" off the system. Caseworkers routinely identify authorizations left on the system more than 60 days using a monthly report generated by Deluxe for each local office. They attempt to contact the recipient by letter before the benefits are taken off the system; the letter is not generated automatically by the computer, but the aging off the system happens automatically during a database sweep done around the fourteenth of the month. Benefits aged off the system remain available to the recipient for two years.

2.5 EBT FROM THE MERCHANTS' PERSPECTIVE

Merchants are essential to the EBT food stamp system, and they play a prominent role in delivering cash benefits as well. Most but not all of the 3,218 retailers on the system are in Maryland; recognizing that recipients sometimes use stores beyond the Maryland border, POS devices have been installed in 16 FNS-authorized stores in the District of Columbia, ten in

31. Apparently, some trainers have wrongly counseled recipients to pick a number that would be easy to remember, such as their birthday.

32. In January 1994, card replacement rates averaged 6 percent in metropolitan areas of the State, and 3 percent in non-metropolitan counties.

Pennsylvania, nine in Delaware, three in West Virginia, and one in Virginia. Not all retailers in the system use POS terminals. There are 80 "voucher merchants," including farmers markets and route vendors, whose off-line transactions are recognized by the EBT system (voucher transactions will be discussed in greater detail below). Finally, 14 members of the Maryland Check Cashers Association and 18 other non-food retailers also have POS terminals with which they provide cash to benefit recipients.³³

At the outset of Maryland's statewide EBT demonstration, there was virtually no commercial use of POS terminals for debit cards; therefore, EBT could not piggyback onto any existing commercial electronic funds transfer system. Deluxe's contract with DHR called for the vendor to provide POS terminals to all FNS-authorized merchants free of charge. Non-Maryland merchants and those not authorized by FNS can gain access to the EBT system, subject to the approval of DHR,³⁴ if they pay for the installation of terminals and pay a \$40 monthly terminal lease. Deluxe supports all the terminals with supplies and maintenance. The contract requires that malfunctioning terminals be repaired or replaced within three hours of the service call.

With the introduction of EBT, some merchants in Maryland elected to use the POS terminals for commercial credit or debit transactions as well as EBT transactions. Deluxe Data Systems acts as a switch for these commercial transactions, routing the transaction on to the MOST network. In September 1993, 457 of the 3,218 stores in Maryland (14.2 percent) were accepting commercial transactions on their EBT terminals.³⁵ Most of the participating stores belong to chains. The chains include large and small supermarkets as well as convenience stores. In March 1994, these stores initiated approximately 772,000 commercial transactions.

Returning to the demonstration system itself, the EBT system does not significantly alter retailer authorization procedures for the Food Stamp Program, which are carried out by the two FNS field offices serving Maryland (located in Towson, Maryland, and Alexandria, Virginia).

33. The number of participating stores varies as stores lose Food Stamp Program authorization and new stores are authorized. The figures presented here are from September 1, 1993.

34. DHR policy does not allow EBT issuance in liquor stores. Other stores, such as clothing and furniture stores, are allowed at the EBT project director's discretion.

35. Merchants contract with a bank for these services.

The only difference is that a notice of each approved authorization is faxed to Deluxe Data Systems. When Deluxe receives the notice of authorization, they add the new store to the merchant file on the authorization platform and install the necessary terminals. As required by Deluxe's contract with the state, stores redeeming up to \$10,000 per month in food stamp benefits get one terminal. Stores with more than \$10,000 in food stamp business per month get one terminal for every two checkout lanes. However, if the merchant agrees to provide cash back to Independence card holders at all check-out and customer service lanes, Deluxe will equip all the check-out and customer service lanes with POS terminals.³⁶

Recipients may not be charged a fee for the service of cashing EBT benefits. This provision caused concern for owners of check-cashing stores which, before EBT, had charged 1-2 percent of the value of the check for cashing government checks. In early 1993, the Maryland Check Cashers Association negotiated an agreement with Deluxe that allowed them to charge Deluxe (but not recipients) for redeeming more than \$180 in cash benefits. The charge to Deluxe is \$0.50 for cash-backs of \$180 to \$300, and \$0.75 for more than \$300. Deluxe will pay a fee for only one transaction per recipient per month and will not pay a fee for balance inquiries. FNS-authorized merchants using third-party processors (and non-Deluxe terminals) are paid \$0.037 per EBT transaction.

In-Store Procedures

Generally, clerks can initiate all EBT transactions at the POS terminal, including food stamp and cash purchases, cash withdrawals, and balance inquiries. Food stamp transactions, however, can be initiated only at FNS-authorized stores, and cash purchases and withdrawals are available only if the store elects to do so. Each clerk has a user ID. In addition, a supervisor ID for each store gives the supervisor access to additional capabilities such as getting reports of various daily totals (by terminal, by clerk, and for the entire store).³⁷

When a recipient's card is damaged and the POS terminal cannot read it, clerks can manually enter the card number instead of swiping the card. The rest of the transaction follows

36. These terminal deployment requirements are similar to, but not the same as, those in current federal EBT regulations. The federal EBT regulatory standards were issued in April 1992, after the Deluxe contract was negotiated.

37. Prior to the recent rollout of the POS terminal's Version 3.0 software, totals by clerk were not available.

the normal procedures, except that, for security purposes, a supervisor ID must be entered to complete the transaction. Retailers have been instructed by Deluxe not to issue benefits manually if the client does not present a card.

In cases where the POS terminal cannot access the EDGE system (because of phone line disruptions, host computer system problems, etc.), retailers can call Deluxe customer service for a voice authorization of a food stamp purchase. First, the clerk makes an impression of the Independence card or hand writes the card number on a multi-copy form. Because the PIN is not used in this transaction, the recipient's approval must be recorded through his or her signature. The clerk then calls an 800 number to reach the customer service staff in Milwaukee to request a voice authorization, and provides the store's FNS authorization number, a terminal or store ID number, and the recipient's card number. The customer service staff verifies that the IDs are active on the EBT system and provides an authorization number that must be included on the voucher. The transaction is recorded immediately and the recipient's account decremented as soon as the authorization engine is available. The clerk gives one copy of the voucher to the recipient, sends one to Deluxe, and retains one copy. The retailer has 15 days in which to submit the voucher to Deluxe; if the voucher is not submitted within 15 days, the transaction will be reversed. In the reversal, the recipient's account will be credited and the retailer's account debited in the amount of the voice-approved transaction.³⁸

If the system is down (i.e., neither the retailer nor customer service can access the authorization database), Deluxe will accept liability for \$40 worth of emergency purchases; that is, if the recipient's account turns out not to have sufficient benefits to cover the transaction, Deluxe will guarantee payment of up to \$40 to the retailer. Retailers must limit the customer's purchase to a maximum of \$40 or accept the liability if a transaction for a higher amount is approved.³⁹

38. Deluxe does not actually reverse transactions until 30 days after the transaction to allow time to correct incomplete vouchers submitted by retailers.

39. In response to retailer complaints about difficulties in reaching customer service when the system was slow on issuance days in June and July 1993, Deluxe agreed to accept up to \$100 in liability as long as retailers called in the transaction for authorization within 12 hours. Though not permanent, this policy has been extended several times.

2.6 INVOLVEMENT OF LOCAL DSS OFFICES IN THE EBT SYSTEM

The EBT system has had a significant impact on staffing in local DSS offices. Although the case management process has not changed greatly, the new system obviated the need for issuance workers who had managed coupon distribution at local offices. Most DSS offices lost one or two fiscal workers who had been responsible for issuance. Few issuance workers were actually laid off, however, as they typically were able to retire or move to other positions. Smaller districts hired half-time trainers on a contractual basis. Larger counties have full-time trainers. Baltimore City DSS has centralized the training function. Training and replacement card issuance for all 19 city districts is done by ten permanent staff at two sites.

DHR's computer system, built around a mainframe at the state's Annapolis Data Center, connects to terminals located in each local Department of Social Services, the "retail" offices of DHR.⁴⁰ DHR and Deluxe agreed on the practicality of having administrative terminal activity go through the State's host computer, which would then be linked to the EDGE support services platform, rather than requiring local office transactions to go through an outside communications network to connect to Deluxe. This reduced the cost to Deluxe, which would otherwise have had to pay for these outside network charges. Under the Administrative Network Cost Agreement signed by DHR and Deluxe in May 1992, DHR assumed the responsibility for hardware maintenance and support of the administrative terminals, while Deluxe agreed to give DHR a monthly credit of \$3,000 on DHR's EBT bill beginning in June 1995.

2.7 INVOLVEMENT OF CENTRAL DHR STAFF IN THE EBT SYSTEM

Five central DHR offices have direct roles in the EBT system: the Electronic Benefits Transfer System Project, AIMS Fiscal Unit, PC and Telecommunications Support Unit, Data Processing Division, and User Support. First, the Electronic Benefits Transfer System Project of the Office of Information Management (OIM) Program Management Unit has primary responsibility for managing the Deluxe contract, for monitoring system operations and for solving system problems. The AIMS Fiscal Unit of the Office of Budget and Finance transfers benefit funds to Deluxe. This unit also is responsible for reconciling Deluxe's data with DHR's

40. DSS staff are DHR employees. The local office directors report to DHR's Income Maintenance Administration.

financial records, both for the system as a whole and for individual client accounts. OIM's PC and Telecommunications Support Unit installs and maintains the administrative terminals and phone lines. User Support (part of OIM's Project Management Division) operates a hot line available for state staff having problems using the EBT system.

OIM's Data Processing Division manages the interface between the AIMS system and the EBT system. Operations & Control has responsibility for daily and monthly benefit authorization transmissions and for generating systems reports. Systems and Programming is responsible for modifications to the interface software, and Security administers user IDs. The computer on which the AIMS system resides is operated by the state at its Annapolis Data Center.

2.8 THE ROLE OF BANKS

Banks are involved in the EBT system in three ways. First, their ATMs acquire EBT transactions and pass them along the MOST network, which switches them to the EDGE system at Deluxe. Second, during the settlement process banks acquiring ATM transactions are credited by the MOST network, and banks holding retailers' accounts receive credits for POS transactions during the day. Finally, banks also receive automated clearing house (ACH) deposits for individual recipients who use direct deposit.

Although banks are critical players in the EBT system, their activities are highly automated and undifferentiated from other types of electronic funds transfers. Banks no longer deal with public assistance checks, food stamp coupons, redemption certificates, or deposit documents. Their ATMs acquire EBT transactions along with many other "foreign" and "depositor" transactions (foreign transactions are those involving cards issued by other institutions, while depositor transactions involve cards issued by the acquiring bank). The various ACH transactions that the banks receive in the EBT system (for retailer settlement or direct deposit to recipients) are indistinguishable from the many other ACH transfers the banks receive. The banks post these deposits without knowing that they are EBT transactions.

2.9 INVOLVEMENT OF THE EBT PROCESSOR

Deluxe Data Systems runs the computers and manages the communications network that are at the heart of Maryland's EBT system. Deluxe is responsible for posting benefits, transaction authorization, settlement, management reporting, and solving problems. There are four groups of staff with direct, ongoing responsibilities for Maryland's EBT system: the Baltimore field office, operations staff at the data center, project management staff, and customer service.

The Baltimore office coordinates Deluxe's field operations in Maryland and has primary responsibility for interface with retailers. The operations staff handles real-time monitoring of the system and batch processing, and solves systems problems as they arise. The project management staff played a central role in the conversion and expansion process, solving technical, logistical, and policy problems. Now they serve largely in an oversight and liaison capacity, still addressing various issues and problems as EBT evolves. They also manage a constant stream of small and large modifications to the system, interfacing with state and federal agencies as needed.

The customer service area has proven to be more important and busier than Deluxe originally anticipated. Deluxe has split this operation into two units. The retailer customer service section is staffed with experienced, permanent employees. They receive calls from merchants for voice authorizations, requests for maintenance and supplies, and any transaction problems that arise. Deluxe relies on some temporary staff to respond to recipients' service requests, because the calls come predominantly at the beginning of the month when benefits are issued, dropping off sharply later in the month. Toward the end of the month, the full-time retailer customer service staff handle both retailer and recipient calls. Most calls from recipients are either to check balances or to inquire about an anticipated authorization. Recipients also call customer service to report lost, stolen, or damaged cards.

2.10 THIRD-PARTY PROCESSORS

Although Deluxe runs the authorization engine, other processors can drive POS terminals and thus acquire EBT transactions. Third-party processors must access the EBT system through the MOST network. A third-party must be certified to participate, which means they must demonstrate the ability to meet both MOST and EBT system specifications. At this

time, only one third-party processor is certified on the Maryland EBT system. Memphis-based Concord Computing Corporation acts as the processor for cash-only transactions in eleven stores in Maryland. Deluxe anticipates that Giant stores in Maryland will soon operate terminals driven by an in-house processor, making Giant the largest third-party processor in the state.

2.11 CONCLUDING NOTE

It is important to note that, although this chapter discusses the EBT system in Maryland as a "steady-state" system, it actually describes the system as it was in September and October 1993. At that point, all counties had been "live" on the system for at least five or six months. Since then, the system has been operating smoothly, and some DHR and Deluxe staff involved with implementation activities have moved on to new projects or activities. Nevertheless, at least in small ways, the EBT system is constantly evolving, as new policies and procedures are implemented, bugs are worked out, and new opportunities exploited.

The next chapter turns from the current system to its origins, focusing on the design and development activities that led to the conversion from the predecessor system operated by TransFirst to the Deluxe-run system.

CHAPTER THREE

PROJECT STARTUP

This chapter presents a brief history of the Maryland EBT demonstration from August 1991 through June 1992, during which Deluxe Data Corporation assumed responsibility for the EBT contract and then developed its own system to replace the pilot system operated by TransFirst. As mentioned in Chapter One, the Maryland EBT demonstration almost ended in early 1991 when ACF revoked its approval of the project based on evidence that the EBT system would cost more than a paper-based issuance system for cash assistance. The general objective of this chapter is to describe the process by which the Maryland EBT project was revived and put back on its feet as a statewide EBT demonstration. Although the chapter does not attempt to document every activity or issue that had to be resolved, it cites examples of issues that may arise in establishing EBT systems in other states.

3.1 CONTRACT NEGOTIATIONS

During the summer and fall of 1991, representatives from DHR, FNS, ACF and Deluxe met frequently to negotiate the terms of two key project documents: the Memorandum of Understanding, of which the EBT Single Administrative Grant (EBTSAG) was a part, and the revised EBT contract.¹ While some issues, such as the general framework of the EBTSAG, were resolved relatively quickly and easily, negotiations over other points, such as rights to data, continued for several months. This section discusses the issues involved in these negotiations and their resolution. Exhibit 3.1 presents a summary chronology.

When OMB's federal EBT task force of top-level FNS and ACF administrators was organized in early 1991, its clear goal was speedy federal approval for the Maryland EBT project. ACF wanted certain assurances in return for its approval of the expanded project. Their conditions were that the Maryland EBT project would be cost-neutral to the AFDC program; that ACF would not bear any additional financial liability if the project were terminated before the end of the contract period; that federal requirements regarding the

1. As explained later in this section, the Memorandum of Understanding is a project contract between DHR, FNS, and ACF. The EBTSAG is an attachment to the MOU that outlines the project's funding arrangements.

EXHIBIT 3.1
PROJECT CONTRACT CHRONOLOGY

November 1989	EBT is implemented in the Park Circle district of Baltimore City.
January 1991	ACF disapproves further EBT expansion after cost analysis shows EBT is not cost-neutral for AFDC issuance.
August 1991	Contract assigning TransFirst's responsibilities to Deluxe is signed by TransFirst, Deluxe, and DHR.
December 1991	FNS, ACF, and DHR sign Memorandum of Understanding setting out the terms under which the EBT project would continue, the implementation schedule, and the funding arrangement.
December 13, 1991	FNS issues draft EBT regulations.
April 1, 1992	FNS issues final EBT regulations.
May 28, 1992	Administrative Network Cost Agreement signed.
August 1992	FNS Mid-Atlantic Regional Office (MARO) and ACF Region III conduct fiscal review of Maryland EBT project.
April 1993	Year-end fiscal review of Maryland EBT project.
September 30, 1993	Memorandum of Understanding (MOU) expires.
December 31, 1993	Three-month MOU extension expires. MOU renegotiated to operate unchanged through September 1994.

ownership of Deluxe's EBT software would be met; and that EBT cash benefits would be easily accessible and free of charge to AFDC recipients, particularly in rural areas.

FNS staff, who were responsible for certification of the Deluxe EBT system, focused on system performance issues. Specifically, FNS officials wanted to test the new system rigorously to ensure that the system could handle the transaction volumes anticipated with the project's statewide expansion. In addition, FNS wanted the State and its contractor to develop realistic contingency plans for issuing benefits during any significant periods of system downtime. FNS officials were also interested that any policy decisions made during the Maryland negotiations not conflict with the agency's EBT regulations, which were in the process

of being debated and drafted.² Finally, FNS and ACF wanted an independent evaluation of the project, particularly of its costs.

At the state level, the OIM executive director and the EBT project director pressed for a rapid implementation schedule. They felt political and administrative pressure to meet an early DHR promise to the governor to complete statewide expansion by the end of 1992. They were also concerned that a lengthy implementation process would increase DHR issuance costs, as the fee structure of the EBT contract included price breaks for higher numbers of cases. Finally, they needed to coordinate the timing of the rollout of their EBT system with the implementation of CARES, another new OIM computer system. At the same time, DHR wanted an EBT system that would meet federal EBT standards and perform well even at peak transaction volumes.

The Maryland EBT project offered Deluxe Data Systems a unique opportunity to enter the EBT market, and for this reason, they were willing to take over TransFirst's EBT contract with DHR. Deluxe wanted to develop a state-of-the-art EBT system for the Maryland project that would be flexible enough for later use in other states. In order to maintain a competitive edge, the company needed to keep the design of the Maryland EBT system confidential.

For a number of reasons, Deluxe executives also wanted a fast implementation schedule. First, Deluxe wanted to convert quickly to its own system because Deluxe's interim data processing agreement with TransFirst was costly and included stiff financial penalties for any contract extensions. Deluxe also felt uncomfortable being held accountable for TransFirst's EBT processing performance. Second, Deluxe wanted to expand the project quickly to increase its revenues (the contract's fees were set on a per-case-month basis). Third, Deluxe was anticipating extra revenues through commercial use of the EBT terminals for debit and credit transactions.

Memorandum of Understanding

In December 1991, FNS, ACF and DHR officials signed a 15-page Memorandum of Understanding (MOU) authorizing the project and setting the terms and conditions under which it would operate. In addition to the main body of the document, attachments detailed the

2. FNS' EBT regulations were issued in draft form on December 13, 1991. The final version of the regulations was issued on April 1, 1992.

project's implementation schedule, federal reporting and evaluation requirements, contract termination and disaster conversion procedures, and the EBT Single Administrative Grant.

The project was approved for a 21-month period ending September 30, 1993, at which point the MOU could be extended, renegotiated, or terminated.³ Designated an FNS EBT demonstration, the project would also have a "reasonable amount of time" to comply with FNS EBT regulations. Until then, the project had to meet USDA's 1988 Guidelines for On-Line EBT Demonstration Projects, and comply with many policies that had been developed in earlier EBT demonstrations that were in the process of being written into the regulations.

The AFDC, food stamp, and Bonus Child Support components of the Park Circle EBT project would be expanded statewide. Except in a limited number of circumstances agreed upon by the state and federal agencies, EBT issuance was mandatory for all but the Non-Public Assistance Child Support (NPACS) participants.⁴ Cash benefits would also be available through direct deposit. The NPACS component of the Park Circle project would not be expanded beyond Baltimore City's Office of Child Support Enforcement.⁵

Funding for the AFDC, food stamp, and Bonus Child Support administrative costs of EBT benefit issuance would be reimbursed through the EBT Single Administrative Grant.⁶ NPACS administrative funding would be provided through regular funding procedures. FNS would also reimburse Maryland for all costs incurred by DHR staff involved in evaluation activities, up to \$100,000.

The MOU also defined each agency's responsibilities. DHR's EBT project management team would be responsible for managing the project, supervising the EBT contractor, cooperating with the project's evaluators, and coordinating with the federal agencies. The EBT

3. In September 1993, DHR was granted a three-month extension of its MOU, through December 31, 1993. In December, the MOU was renegotiated to operate unchanged through September 30, 1994.

4. Food stamp clients who leave the state may have their benefits converted to coupons ("stamp-out"). Other temporary exceptions are group homes and drug and alcohol treatment situations in which benefits are pooled.

5. Only the Baltimore City Office of Child Support Enforcement had the requisite computerized case management processing system to provide data files to EBT. Also, ACF was concerned about EBT's high issuance costs for NPACS cases and about clients' complaints of the stigma associated with using EBT's Independence card. NPACS recipients did not want to be confused with welfare recipients.

6. DHR obtains federal funding for these programs by submitting financial reports to ACF and FNS, who then reimburse DHR for the federal share of the program costs.

team was also required to keep FNS and ACF informed of all major project milestones and activities. In addition, any significant EBT contract changes were subject to federal approval. In return, FNS and ACF would provide funding and technical assistance for the project, test the system for certification purposes, monitor project operations, and approve EBT system contract changes. FNS would also fund and manage the project's evaluation.

EBT Single Administrative Grant

The EBT Administrative Grant (EBTSAG) resolved ACF's cost concerns by making the Maryland EBT project cost-neutral to the federal government.⁷ Under this system, both FNS and ACF would pay no more for EBT issuance than for a paper-based issuance system, regardless of EBT's true issuance costs. The EBTSAG defined EBT benefit delivery as a common administrative cost shared by FNS and ACF. Each year, the federal agencies together would pay for half of the EBT system's administrative costs, up to a level equal to each program's federal share of Maryland's paper-based food coupon and check issuance costs. DHR would pay all administrative costs above this capped level.

The EBT System Contract

DHR and Deluxe formalized the transfer of the Maryland EBT system contract from TransFirst to Deluxe in a series of contract amendments signed in August 1991.⁸ The first and second amendments assigned the EBT contract to Deluxe, subcontracted the contract's data processing activities to TransFirst, and settled outstanding litigation between DHR and TransFirst. Under the terms of the second amendment's data processing agreement between Deluxe and TransFirst, TransFirst would continue to perform a number of processing functions until implementation of the Deluxe system, scheduled for April 1992. These functions included data processing, card record support, report production, ATM and POS settlement, and 24-hour customer support for cardholders and merchants. In addition, TransFirst agreed to provide Independence card documentation and training materials to Deluxe, and to assist in the transfer

7. The EBTSAG pioneered the principle of federal cost-neutrality in EBT projects. The idea was later incorporated, with some changes, into the FNS EBT regulations.

8. A fourth amendment covering the rights to data issue (discussed later) was not signed until April 1992.

of data files during the conversion to the Deluxe system. The pricing structure of the agreement between TransFirst and Deluxe would not change for the first eight months of the contract (through April 1992); after that point, a more expensive fee schedule would be used.

The third amendment modified the terms of the original EBT system contract. Key changes included the following:

- The new contract would cover a six-year period and cost \$37.6 million dollars.⁹
- If DHR terminated the project early, it would reimburse Deluxe for all termination-related costs (e.g., unexpired leases). FNS and ACF would not be required to pay any termination costs.
- The Deluxe system would not have to be identical to the TransFirst system, but would provide "comparable functionality."
- Statewide expansion would begin in December 1991, finishing by the end of 1992.
- Deluxe would conduct initial card issuance and training in each county. Ongoing training would be DHR's responsibility.
- All merchants would be allocated POS terminals according to food stamp sales volume.¹⁰ Deluxe would provide full lane coverage to merchants willing to give cash back, provided the merchant paid for the added installation and telecommunication costs.
- In addition to the POS terminals provided to FNS-authorized merchants, Deluxe would provide up to 85 administrative terminals, 25 ATM terminals, and 200 POS terminals (for use in or outside of Maryland).¹¹ These POS and ATM terminals were to be used, if needed, in areas requiring better EBT access.¹²

9. This replaced TransFirst's five-year, \$25.8 million EBT contract.

10. A copy of the agreement signed by merchants is included as Appendix D and discussed further in the next chapter.

11. To date, Deluxe has provided the 85 administrative terminals (PCs) to DHR; DHR also purchased another 40 terminals. The extra terminals have been used in both state and local offices.

12. The State has not requested deployment of any ATMs. Approximately 34 of the 200 POS terminals have been deployed: one in a bank office in an area with few ATMs; one in a rural State Housing Authority office; and the rest in three offices of Baltimore Gas and Electric. These latter terminals allow clients to pay their utility bills with the EBT system.

- Deluxe could use the POS terminals for commercial services, but would credit DHR \$0.0075 cents for each such transaction.
- Deluxe would establish reasonable certification standards and business terms to allow third parties to participate in EBT.
- Deluxe would cooperate in the independent evaluation of the EBT demonstration.

The fourth amendment of the revised EBT contract resolved the issue of rights to data. ACF officials contended that the federal government had a right to certain system documentation because federal funds would help pay for the system's development, implementation and operation. Deluxe executives countered that almost all of the system had already existed before Deluxe signed the Maryland contract, and was therefore proprietary. Over a period of several months, ACF and Deluxe staff reviewed the modules of the Maryland EBT system to determine which components were subject to the software ownership provisions of the federal regulations, and which were considered to be proprietary and therefore exempt from the ownership requirements. In general, these provisions apply to any software designed, developed or installed with federal funds, if the applications software is developed specifically for a public assistance program. These requirements do not apply to commercially available software packages (i.e., proprietary operating/vendor software packages that are provided at established catalogue or market prices, and sold or leased to the general public), nor do they apply to other types of proprietary applications software that are used for other commercial purposes, rather than solely for public assistance programs. Under the contract amendment, Deluxe would keep confidential all information regarding the software structure of the two commercial products at the core of Deluxe's EBT system, CONNEX and EDGE.¹³ The state and federal governments would have access to CONNEX and EDGE user manuals, but would not be allowed to duplicate or distribute these materials.

Negotiation Results

The negotiation process succeeded in advancing the project while meeting the needs of the project's major stakeholders. Deluxe was granted some freedom to build a system consistent

13. CONNEX is a commercial POS software package. EDGE is Deluxe's proprietary software program for authorizing and settling POS and electronic funds transfer transactions.

with its long-term goals. Both DHR and Deluxe were happy with the project's rapid implementation schedule, in which Maryland would convert to a Deluxe system during the spring of 1992 and complete statewide expansion by the end of the year. Nonetheless, FNS reserved the right to slow or halt the process if significant problems appeared, particularly if testing showed that the Deluxe system was not ready for certification. FNS would also work closely with DHR to ensure that project policies meshed with evolving federal EBT regulations.¹⁴ ACF was willing to sign onto the project because it won important concessions, most notably the cost-neutrality provisions of the EBTSAG agreement, the settlement of the rights to data issue, the emphasis on client access issues in the implementation schedule (a rural county would be the first expansion site), and the project's POS and ATM terminal deployment policies (extra ATMs would be installed as needed, merchants would not be allowed to charge clients for cash-back services, etc). Finally, in exchange for the fast schedule, DHR and Deluxe agreed to a large-scale evaluation of the project.

Only one major contract change has been made since the conclusion of the 1991 negotiations. In June 1992, DHR and Deluxe modified the contract by transferring responsibility for the installation and maintenance of DHR's administrative terminals from Deluxe to DHR. This issue is discussed in more detail in the next chapter.

The EBTSAG funding arrangement worked to everyone's satisfaction, with one exception. In August 1992, auditors from the FNS Mid-Atlantic Regional Office and the ACF Region III Office conducted a preliminary review of DHR financial records and found that Maryland was under-reporting its EBT costs by recording Deluxe's billed costs, but not all of its own labor-related costs. At the fiscal review meeting held in September, DHR fiscal staff acknowledged that they were reporting DHR's EBT administrative costs only up to the level of the EBTSAG. There were several reasons for this. First, DHR did not want to have to repay (with interest) any excess funds drawn down from the federal government, as required under the Cash Management Improvement Act, and therefore submitted costs only up to the level allowed by the EBTSAG. Second, federal reporting guidelines required that DHR submit costs accrued by quarter. This was difficult for DHR to accomplish, given the fact that all other DHR

14. Such issues included POS terminal deployment in border stores, photo ID card requirements, replacement card fees, merchant and client training, third-party access, and issuance schedules.

accounting was done on an actual cash flow basis, and that Deluxe often submitted bills to DHR after the information was due to the federal government. These issues were later resolved at subsequent financial reviews.

3.2 SYSTEM DEVELOPMENT AND DESIGN

When Deluxe Data acquired the Maryland EBT contract from TransFirst in August 1991, the company was well established as a leading provider of electronic funds transfer services.¹⁵ Deluxe also had some experience with public assistance programs, working with New York State to provide an electronic medicaid eligibility verification system.¹⁶ The Maryland EBT project was new for Deluxe in several ways, however. The project required Deluxe to install and maintain 20 to 30 times more POS devices than they had ever handled for a single contract; and for the first time Deluxe would serve as the "database of record," with responsibility for maintaining client histories and authorizing benefits. Managing AFDC and food stamp benefits also imposed new requirements on Deluxe, due to drawdown rules requiring that certain funds be used before others. Individual authorizations had to be tracked separately, so that in effect, each monthly benefit allotment for each recipient for each program (AFDC, food stamps, etc.) had to be treated as a separate account, multiplying many times over the number of records to be tracked.

Deluxe was interested in entering the EBT market as a way to extend the market for its electronic funds transfer services. In assuming the contract from TransFirst, Deluxe agreed to provide DHR with a system that offered "comparable functionality," but was not necessarily identical to the TransFirst system. This flexibility allowed Deluxe to develop an EBT system that would interact with its existing products, while adding the authorization, settlement processing and reporting functions necessary to accommodate EBT processing.

15. Deluxe processes transactions and drives terminals for six of the top ten regional electronic funds transfer networks in the U.S., including the MOST network (also known as Internet) in the Maryland and Washington, D.C. area. Deluxe also provides retail POS processing to several major grocery chains, and performs a range of processing services for more than 7,000 financial institutions nationwide.

16. Several of Deluxe's EBT staff had transferred from TransFirst and had direct experience working on the Park Circle pilot, including the Government Service Vice President: his superior, the vice president of

At the time of the contract signing in August, both DHR and Deluxe agreed to put development on a fast track, aiming for certification and conversion to the Deluxe system in May 1992. In addition to providing the same capabilities as the TransFirst system offered, DHR asked that Deluxe also provide three new capabilities: on-line microfiche reports, the addition of client birthdates to card files, and the accommodation of group homes as individual food stamp accounts.¹⁷ The Deluxe team set to work on developing the EBT system, with the goal of using hardware as efficiently as possible and utilizing state-of-the-art software that would increase both the flexibility and marketability of the EBT product.¹⁸

Major Design Issues

As described in Chapter Two, Deluxe's EBT system is built on four platforms—the acquiring platform, the authorization platform, the support services platform, and the administration platform. These are split between two computers: a Tandem Cyclone, which handles the acquiring and authorization platforms, and an IBM 3090-300 mainframe computer, which handles the support services and administration platforms. Developers decided early on to split the four platforms between the Tandem and IBM machines, in order to utilize the attributes of the different machines most efficiently. The Tandem was used to run the acquiring and authorization platforms because these functions were deemed "mission critical," and the non-stop Tandem machine provided the backup processing necessary to safeguard these functions. The other two platforms, support services and administration, were put on the IBM machine, useful for these platforms because it can handle large batch reports with greater efficiency.

DHR and Deluxe agreed on the practicality of having administrative terminal activity go through the state's host computer, which would then be linked to the EDGE support services platform, rather than requiring local office transactions and inquiries to go through an outside

17. All three capabilities have been provided. With regard to group names, DHR and Deluxe agreed in January 1992 not to convert group homes to EBT until after conversion to the Deluxe system. Resolution required that Deluxe establish master accounts where individual benefits could be pooled, and was complicated by federal guidelines requiring that clients have access to at least half of their monthly allotment if they leave a group home before the 15th of the month. The group home software upgrade was installed late in 1993, but has not yet been used.

18. Although the Deluxe development team included some former TransFirst employees, none of the technical managers had any direct experience with the Park Circle pilot.

communications network to connect to Deluxe. This reduced costs to Deluxe, which would otherwise have had to pay these outside network charges. Negotiations on how to compensate DHR for Deluxe's use of the state network were ultimately resolved with the signing of the Administrative Network Cost Agreement between Deluxe and DHR in May.¹⁹ Deluxe agreed to give DHR a \$3,000 monthly credit on DHR's EBT bill, beginning in June 1995, while DHR would assume responsibility for hardware maintenance and support of the administrative terminals.²⁰

Deluxe's decision on how to configure the terminal keypads on the Tranz 330 and Tranz 340 terminals reflected their goal of integrating EBT and commercial processing. Because the number of functions exceeded the number of available keys, keys were often made to serve more than one purpose, with the most commonly used functions accessible on the keypad "as is" and the less commonly-needed transactions available on a second template accessed through a toggle key (analogous to using the control or shift keys in word processing programs to change the function of the function keys). The TransFirst system had the balance inquiry on the first template. Based on some initial input from retailers, Deluxe moved this function to the second, less accessible, template, while moving debit and credit functions up to the first template. After implementation of the Deluxe system, however, retailers complained of cashier frustration with this change because of the frequency with which they must perform balance inquiries. A recent upgrade of the terminal software allows balance inquiries to be initiated from either the first or second template.

Deluxe chose to use the MicroSoft Windows interface for the administrative terminals because it offered advantages both in designing the Maryland EBT system and in marketing its EBT system to other states. PCs were chosen (rather than the "dumb" terminals used with the TransFirst system) because they offered more power and flexibility at little extra cost. Deluxe also recognized that a PC-based product fit in better with their plans to offer the most up-to-date options available and was more marketable than dumb terminals. Windows offered design and navigation capabilities that helped to simplify development of the EBT system—a crucial factor

19. Neither FNS nor ACF were privy to either the negotiations or final terms of this agreement.

20. The credits to DHR would not begin until 1995 because the first three years of credits, totaling \$108,000, were given up by DHR to compensate Deluxe for halting expansion in June 1992. See subsequent chapters for further discussion of this agreement.

given the limited time available for development. Windows was also perceived by Deluxe as the logical successor to Microsoft DOS, and therefore was expected to have support in the field for years to come. As indicated in Chapter Five, Windows proved more difficult to learn than either DHR or Deluxe envisioned. The choice of PCs rather than dumb terminals also meant that users could, in fact, make permanent and destructive changes to the software on their computer, something not possible with TransFirst's dumb terminals.

Deluxe has since made software changes that restrict the user's movement in Windows, and this, combined with increased user familiarity, has significantly decreased the Windows and PC problems. The question remains, however, as to whether these original software and hardware decisions took full account of the limited level of technical expertise in the local offices. Only the EBT project director and a few top-level staff were involved in early development decisions. Communication between DHR and Deluxe rarely touched the Deluxe development staff or the DHR data processing staff directly, but was filtered through several layers of managers. The EBT director at DHR tended to keep a tight rein on communications with the contractor and discouraged communication between the local offices and Deluxe. The director instituted a DHR EBT system task force²¹ that included many key EBT players and met weekly during the summer and fall of 1991. Not every member of the task force was included in design and development decisions.²² Local offices also had negligible input on development issues, and were not represented on the task force until later in the implementation process.

Deluxe developers often felt frustrated at their lack of access to the end users in Maryland and what they saw as DHR's insufficient specificity regarding their requirements. Documentation was rewritten three times, and administrative terminal screens had to be redesigned as meetings between DHR and Deluxe brought further clarification of DHR's needs.

21. The task force included DHR staff from the Food Stamp, Public Information, Personal Computer and Telecommunications Support, EBT, Systems and Programming, Security, User Support, AIMS Fiscal, Staff Training and Development, Accounting Operations, Assistant Secretary, and IMA Field Operations units, and the Baltimore DSS units and City Office of Child Support Enforcement.

22. While the full task force did not participate in design decisions, most participants agree that the task force played a major role in smoothing EBT implementation.

While the requests generally amounted to little more than revisions in how information was presented, the changes consumed valuable development staff time.

Some of the confusion may have been avoided if other players, such as the merchants involved in the Park Circle pilot or the field staff who had worked for TransFirst and then moved to Deluxe, had been more involved in Deluxe's design decisions. While Park Circle provided valuable information on what worked and did not work in the field, the knowledge gained from this pilot was not always transferred to Deluxe. TransFirst and Grocers Electronic Network Service staff,²³ many of whom had joined Deluxe's Government Products division by this time, had been responsible for installation and maintenance of POS equipment in the Park Circle project and had gained a good understanding of the issues important to retailers in the pilot. For the most part, however, these people were busy managing EBT expansion in Maryland and were not consulted by Deluxe development staff as work on the Deluxe EBT system continued. So issues that were successfully resolved in Park Circle, such as the merchants' desire for carryover of clerk totals from machine to machine²⁴ and the need to have the balance inquiry function on the front of the cashier template, were not always incorporated into Deluxe's original design.

The conversion to the Deluxe system, originally planned for April and delayed until July 1992, took longer than expected for several reasons. When the schedule was first being developed, Deluxe underestimated the amount of time and work needed to modify its EDGE product to meet DHR's needs. From Deluxe's perspective, part of the delay was unavoidable, with final integration of the different components more time-consuming than anticipated, but nearly impossible to predict. DHR was also slow to finalize documents detailing exactly what their requirements were for the system, so that the first meeting between Deluxe and DHR to discuss functional requirements did not occur until November 4, 1991, two months after the contract was assigned to Deluxe. As mentioned earlier, DHR was not always as clear as they

23. The Grocers Electronic Network Service is a for-profit subsidiary of the Mid-Atlantic Food Retailers Association. TransFirst contracted with the Service to train retailers and install equipment in the Park Circle pilot project.

24. On the TransFirst system, cashiers would log onto a lane's machine when they began work at that lane. If they switched to another lane, their total for the day would be transferred when they logged off and logged on again at the new lane. On the Deluxe system, cashiers initially had to keep track of their totals manually. The carryover function was later added as part of a general system upgrade in October 1993.

could have been in communicating their requirements to Deluxe, even after this first meeting. For these reasons, development of the system was still in its early stages as Deluxe and DHR prepared to begin expansion of the TransFirst system.

3.3 SYSTEM TESTING

Testing of the Deluxe system began in late March with the functional demonstration, and continued through federal certification of the EDGE system on July 13. This section describes the various tests performed on the Deluxe system in March, May, June and July, the results of these tests, and the resulting modifications made to the Deluxe system. Exhibit 3.2 presents a chronology summarizing testing activities.

EXHIBIT 3.2 TESTING CHRONOLOGY

March 24-26, 1992	Functional demonstration
May 26-29, 1992	DHR acceptance test
June 5-8, 1992	Federal acceptance test
June 10, 1992	Network test #1
June 16, 1992	Live client demonstration
June 30, 1992	Network test #2
July 1, 1992	Host stress test
July 3, 1992	Batch refresh test
July 7, 1992	Administrative terminal test
July 14, 1992	Network test #3
July 17-20, 1992	Conversion to Deluxe system

In preparation for testing the EDGE EBT System, the Deluxe project team issued the "Certification and Stress Test Plan" in late February. The plan provided an overview of the system's processing functions and Deluxe's overall testing approach. The system would be tested in both test and live environments (the live environment included a small number of clients, merchants, and funds), the telecommunications network would be tested, and the

system's host computer would be stress-tested at high transaction volumes using a transaction simulation program. Six major processing functions would be tested:

- Benefit payment (ATM, POS, direct deposit, and voice authorization transactions);
- Benefit authorization loading (benefit issuance);
- Database administration (database maintenance and validation processing);
- Card issuance and management (vault and permanent card issuance, personal identification number (PIN) selection);
- Settlement funds movement and reconciliation (daily system activity reports, transaction histories); and
- Other administrative terminal applications (security parameters, merchant updates, stamp-out procedures).²⁵

The testing plan called for a two-stage process: an initial demonstration of the system's basic functions during mid-March, followed by a round of "acceptance" testing in early April. Conversion to the Deluxe system would then occur in late April.

Federal staff were concerned that this was an ambitious testing schedule that left little room for error or problem resolution. FNS' technical consultant had less than two weeks to review the test plan and suggest changes or clarifications.²⁶ Additionally, only three weeks separated the two rounds of tests, a short time in which to make any major system corrections, if needed. As a precaution, on March 2, federal officials asked that Deluxe run through the test scripts beforehand to demonstrate that the system was ready for such testing.

Almost immediately, Deluxe's management announced a ten-day postponement of the functional demonstration until March 24-26, citing system development delays. This pushed the conversion back to mid-May. The extension was warranted, as the system became operational only on March 19, less than a week before the demonstration. Software engineers were still writing program code for some functions during the demonstration.²⁷

25. *Edge System: Certification and Stress Test Plan*. Deluxe Data Systems, February 28, 1992.

26. The technical consultant did not receive a copy of the test plan until March 3.

27. The testing of the replacement of vault cards with permanent cards was delayed one day to allow engineers time to finish the function's program code.

Functional Demonstration, March 24-26

Representatives from DHR, FNS, and the project's evaluator met at the Deluxe Data Processing Center in New Berlin, Wisconsin, for a three-day demonstration of the EBT system. It was immediately apparent that the system was rough and incomplete. Some functions were not ready for testing (including several voice authorization, audio response unit, and direct deposit functions). In the functions that were tested, over 80 problems were uncovered.²⁸ About half of the problems involved the support services platform. Another 20 involved the authorization engine.

Most of the support services platform problems concerned the administrative terminal, particularly its card issuance function, which was being tried for the first time. The problems included time and date information missing from card issuance and maintenance fields; cards with the same primary account number; permanent cards not carrying over the personal identification number (PIN) from the initial temporary "vault" card (requiring a second PIN selection); a permanent card's issuance not deactivating the vault card (creating two active cards); and two different benefits with the same benefit authorization number (creating "ghost" benefits in certain circumstances). In addition, transactions were improperly approved for lost/stolen cards and for cards for which the maximum number of valid PIN attempts had been exceeded.

During the demonstration, the DHR EBT director also requested a number of system design changes or clarifications. These included putting an alternate payee's food stamp and AFDC benefits on the same card; assigning different alternate payee codes for food stamp and cash benefits, so that a payee for one program would not have access to the other; adding program edits linking clients and benefits; assigning identification numbers to the POS equipment in local DHR offices; blanking out certain information fields, so that data from a previous case would not remain on the screen when a new case was called up; and adding some new labels and transaction counts to system activity reports.

28. The final tally showed a total of four priority level #2 problems (a major malfunction of a component); 55 level #3 problems (a function within a component not working properly), four level #4 problems (a minor edit error, such as a misspelled word), and 21 level #5 problems (system design clarifications or enhancements). There were no level #1 problems, defined as a complete system breakdown.

The testing results were clearly disappointing, and the system changes requested were major, jeopardizing the testing and conversion schedule. The Deluxe test manager promised that he would not agree to any future tests until the changes were made and the system was complete. DHR's EBT director reiterated that Deluxe was required to pay for extra time on the TransFirst system until it could prove that its own system was ready for production. The group reviewed the testing schedule and decided that DHR officials would go alone to the next round of certification testing. If the system met DHR's standards, everyone would then reconvene for federal acceptance testing.

DHR Acceptance Test, May 26-29

During the eight weeks between tests, Deluxe engineers completely redesigned the card issuance function and reworked many of the other administrative functions to meet DHR requirements. The Deluxe test team also ran through the acceptance test scripts several times. The DHR EBT director was pleasantly surprised by the test results, with only 30 problems reported, most of them relatively minor.²⁹

As in the previous test, most of the changes that DHR requested concerned the support services platform. It was agreed that almost all of these changes could be put on hold until after the federal acceptance testing. In fact, many of the changes were made during the week between the state and federal acceptance tests. The requests included adding a scroll backwards function to the transaction history inquiry field; renaming or adding certain report categories (e.g., aged benefit authorizations, benefit program types, cumulative balances); creating several new reports; and changing some POS terminal messages and receipt displays.

The card issuance function generally performed very well during the state acceptance testing. Two problems remained, however. First, alternate payees for AFDC and food stamps were still required to use two cards, one for each program. This was labeled a design problem, to be fixed after acceptance testing. Second, Non-Public Assistance Child Support (NPACS) families were required to use a separate card for each child in possession of a support order, as well as a separate card for food stamps. DHR and Deluxe agreed that the single NPACS card

29. Only seven issues were given a priority #3 status (component function error), and the rest received a status of #4 or #5 (edits and system refinements).

feature would be added during the fall of 1992, prior to the rollout of NPACS clients onto the EBT system.³⁰

Some POS transaction problems were uncovered during the state acceptance testing. Transmit errors occurred in the POS terminal configurations that used Tranz 340 POS devices and Tranzit VeriFone 1200C controller boxes. After VeriFone engineers changed the program code for the controllers, the number of transmit errors dropped, so the matter was closed. Pre-dialing problems also appeared in the testing of the Tranz 330 POS devices. After a POS transaction was entered on a Tranz 330 terminal, the device displayed a "no answer" message even before a call was made to the host. Deluxe staff said they would investigate the matter, and the issue was closed. After conversion, more work was done to adjust the timing of the dial-up function.

Federal Acceptance Test, June 5-8

DHR, FNS, and project evaluation staff rejoined the Deluxe EBT team in New Berlin for the federal acceptance tests. (One important change in testing personnel was the loss of FNS' technical consultant and his replacement by someone new to the project.) In order to cover all the test scripts, the group was divided into teams of two. Each team was responsible for completing a portion of the test scripts. Formal "what-if" scenarios were also developed to cover issues not in the regular test scripts. These included administrative terminal time-outs, security password expirations, the store and forward function (when the link between the host computer's Tandem and IBM components is cut), and food returns against zero benefit balances. Of the approximately 550 transactions that were generated over the four days, only twenty-eight problems were reported: eight priority level #3 problems, four #4, 13 #5, and three uncategorized problems.

Some user-related problems appeared for the first time because newcomers to the system were performing the test scripts. For example, someone activated too many screens on the administrative terminal, depleting the PC's Windows resources.³¹ When an invalid date

30. The combined card feature will actually not be implemented until after DHR's conversion from AIMS to CARES is completed in 1994.

31. Deluxe fixed this problem by adding a warning message to the Windows program.

was accidentally entered in a history search, the PC locked up and had to be rebooted. Also, it was discovered that a user could add a client to the client maintenance screen without filling in an address for that person.

More card problems were discovered as well, involving the following functions: adding a new card, card replacement, PIN selection, card maintenance, and benefit holds. A few transmit errors were also seen. For example, when a tester attempted to log onto a Tranz 340 POS terminal, a "transmit error" message was generated, but when the tester eventually logged onto the system the host returned another error message saying that person was already logged on.³² There was also a transmit error on a POS void last transaction.

By the end of the acceptance testing most of these problems had been resolved.³³ Most of the remaining issues were design clarifications that were scheduled to be made at the conclusion of the testing cycle. After the acceptance test was finished, test participants reviewed the test results and agreed that the EBT system was basically functioning as designed. As soon as the system passed a series of stress tests it would be certified ready for production.

"Live" Functional Demonstration, June 16

On June 16, Deluxe staff conducted a live demonstration of the system in two Baltimore stores: a large Giant supermarket, and a smaller store, Murray's Steaks. In attendance were over a dozen representatives from Giant, FNS, ACF, DHR, and Deluxe. The test lasted about 30 minutes in each store. Five clients were given EBT cards with \$30 of food stamp benefits.³⁴ Each client conducted a food stamp purchase and a food stamp balance inquiry. The average transaction time on the Murray's Steaks Tranz 330 POS device was ten seconds. On the Giant Tranz 340 POS device, transactions averaged 15-16 seconds if the store's 1200C controller had to dial up the system host computer in Wisconsin, and nine seconds if a redial was

32. Deluxe staff said that they would respond to this issue after federal certification of the system. Meanwhile, a procedure to correct the problem would be written for the system Help Desk manual.

33. Of the 30 problems found during the state acceptance test, only 11 remained, and of the 28 problems found in the federal testing, all but 13 were closed.

34. The welfare clients were allowed to keep their food purchases, but had to return their cards after the test.

had originally requested a capacity of eight transactions per second, based on their own estimates of the system's potential peak volumes.³⁷ They revised their estimates after the TransFirst failures, and increased their capacity requirement to ten transactions per second.

The two sides eventually compromised. Deluxe would perform a network access test on-site at DHR's Saratoga Street headquarters in Baltimore on June 10, demonstrating the "end-to-end" functionality of the network at a low transaction volume. The test would use 21 Tranz 330 POS terminals attached to DHR phone lines. Each terminal was programmed to dial up Deluxe's proprietary telecommunications network at a rate of one transaction per second. After 100 transactions, each POS terminal would then dial up the system's backup phone number, a TCI 950 line.³⁸

The June 10 test was, by all accounts, a failure. Only 16 of the 21 POS devices were able to communicate with the host, and those that could communicate with the host were receiving an unexpected "transaction denied" message. Deluxe's test manager later cited poor test preparation for the failure: the POS terminals had not been properly loaded with test software, benefits had not been loaded into the test account, and the wrong authorization engine was used in the test. In reaction, the DHR EBT team demanded that a rigorous host stress test be performed before Deluxe tried a second network access test. In addition, the second access test would have to reach a transaction rate of three transactions per second using 120 POS terminals. DHR and Deluxe argued over the details of the next tests. Deluxe's principal objection was that the Tandem acquiring switch did not yet have enough "ports" (entry points) installed to accommodate 120 terminals.

In the final compromise, the network access test was repeated at DHR's Baltimore headquarters on June 30. The two-hour test used 58 Tranz 330 POS terminals, of which 55 worked. The average POS transaction time on the Deluxe network was 14-16 seconds, and the average time on the TCI 800 network was 25-27 seconds.³⁹ Deluxe reported that of the 13,800 transactions generated during the test, 1,560 were defined as errors (that is, were not

37. The estimates were of peak transaction volumes for 140,000 clients on a single-day issuance schedule.

38. This is a phone line leased through a company named Transaction Telecommunications Interface (TCI).

39. Deluxe used the TCI 800 service for testing purposes only. In production, the TCI 950 number would still be used.

completed successfully)—an 11 percent error rate. The error rate dropped when Deluxe excluded a particular eight-minute period from the test during which someone had inadvertently started a batch job that slowed the system's processing.⁴⁰ When the 249 transmit errors generated during this eight-minute period were eliminated, the error rate dropped to the minimum acceptable standard of 10 percent. Although the project's technical consultant remained skeptical of the accounting, the test was declared a success. Still concerned about the high error rate, the Deluxe testing staff made several more software changes in the POS terminals. Deluxe ran a third version of the access test on July 14, with reportedly better results.

Three additional tests concluded the testing cycle: a test of the Audio Response Unit (ARU), a trial data conversion test, and a host stress test. Deluxe reported all three tests a success. The ARU unit worked as designed. Staff could call the ARU and get benefit information from Deluxe. In the trial data conversion test, 61,000 records were transmitted from DHR to Deluxe. A total of 635 warnings were generated, most often the result of missing county or office codes. In addition, 32 cases were rejected as duplicates. Reviewing these results, DHR staff decided to have Automated Income Maintenance System fiscal staff on hand in Baltimore during the weekend of system conversion to research and resolve such issues as they occurred. The host stress test reportedly peaked at over nine transactions per second, sustaining an average of 8.9 transactions per second.⁴¹ Although there was some debate over the numbers in the Deluxe test report, the results were determined to be acceptable. On July 13, FNS officially certified the system ready for conversion.

Testing Results

By the end of the testing cycle, the project's key participants were confident that the Deluxe EBT system was ready for implementation. The functional tests provided DHR an opportunity to refine the system prior to implementation. The host stress tests convinced all

40. Deluxe reportedly fixed the problem by giving administrative batch processing functions lower priority on the system than benefit transactions.

41. The Deluxe test manager later reported in an interview that, prior to conversion, the host was stressed to a level of 11 transactions per second before it "broke." The current system configuration is reported to be able to sustain even higher transaction levels.

parties that the system could handle the transaction loads anticipated in Maryland. The network stress tests were also instrumental in uncovering some significant transmit problems. The testing was generally considered a success by all parties involved. As a result of the rigorous testing, the system generally performed very well on conversion. The main exceptions were components that were not included in the testing cycle, such as the POS controllers, and merchants' settlement procedures.

In hindsight, of course, better planning and communication between DHR and Deluxe could have improved the testing process. If Deluxe had been more forthcoming about the system's readiness in March, the first functional demonstration might have been avoided. If DHR and Deluxe had worked out the details of the network stress test in March instead of late May, Deluxe testers might have prepared better and conducted a better test on June 10.

Some problems resolved during testing reappeared later. These included Windows users problems, controller transmit errors, dial-up errors, and clerk log-on problems. In particular, if controller devices had been used in the network stress tests, more controller problems might have been found and corrected prior to conversion.

Several factors may have contributed to these testing errors. Time pressures may have pushed Deluxe to start the testing process too early and forced Deluxe to use a quick-fix approach to some of the problems discovered in testing. The DHR EBT director's promotion in early May could have limited the time she devoted to test planning.⁴² Finally, certain testing issues, such as the use of controllers in the stress tests, might have been noticed if the project had not needed to change technical consultants in midstream.

42. On May 1, she became responsible for both CARES and EBT system projects at the Office of Information Management. On June 22, she was promoted to the position of Acting Deputy Director for Program Management in recognition of the change.

CHAPTER FOUR

EARLY EXPANSION AND SYSTEM CONVERSION

After the Deluxe system was developed it had to be implemented in all of the sites that were already on the TransFirst EBT system. These included Park Circle, the original pilot site, and areas covered under the expanded TransFirst system: Cecil, Montgomery, Prince Georges, and Baltimore Counties, and the Liberty Garrison and Steuart Hill districts of Baltimore City. As described below, the expansion of the TransFirst system prior to conversion created problems for both the continued operation of the TransFirst EBT system and the conversion to the new Deluxe system. This chapter follows the early expansion and conversion process from January through October of 1992.

4.1 EARLY EXPANSION AND PRE-CONVERSION OPERATIONS

This section describes the early operations of EBT under the TransFirst system, and covers the period from January 1992 to July 1992, when conversion to the Deluxe system took place. It begins with a general description of the process by which merchants, clients and staff were trained and equipped for EBT implementation, and then moves on to a chronology of operations during those seven months. The main events of early expansion and pre-conversion operations are summarized in Exhibit 4.1.

As Deluxe development staff worked on readying its EDGE product system to accommodate EBT, Deluxe staff in Maryland prepared to begin EBT rollout under the TransFirst system. The contract's implementation schedule required Deluxe to begin expanding EBT in January 1992, beginning with Cecil County, a rural county in the northeast corner of the state. DHR and Deluxe shared a commitment to meeting this schedule, with DHR focused on establishing EBT statewide before the implementation of CARES, OIM's new computer system, and Deluxe eager to increase the EBT caseload, thereby increasing their per-case-month based revenue stream.

Deluxe's staff in Maryland faced two major tasks in implementing the expansion schedule. One was to oversee the EBT activities of TransFirst, which was responsible for providing certain data processing and maintenance services for DHR, including customer

EXHIBIT 4.1

EARLY EXPANSION AND PRE-CONVERSION OPERATIONS CHRONOLOGY

January 1, 1992	Cecil County implementation, with the TransFirst ACCEPT EBT system. 1,900 households and 55 merchants added to EBT.
March 1, 1992	Montgomery County implementation. 9,300 clients and 192 merchants added to EBT.
March 1, 1992	Compuserve node fails, bringing the system down for an hour.
March 6, 1992	At merchant request, DHR adopts three-day staggered benefit issuance cycle.
April 1, 1992	Prince Georges County implementation. 14,300 clients and 306 merchants added to EBT.
April 1, 1992	TransFirst disk failure.
April 2, 1992	Administrative terminal problems. Client problems accessing ARU.
April 3, 1992	At merchant request, DHR moves to one-day issuance.
April 11, 1992	Compuserve trunk line fails for two hours.
May 1, 1992	Excessive ATM queuing and timing out.
May 6, 1992	History file reaching capacity. TransFirst takes system down to add memory.
May 22, 1992	Deluxe assumes customer service function from TransFirst.
June 1, 1992	Implementation in Baltimore County and the Liberty Garrison and Steuart Hill districts. 22,600 clients and 626 merchants added to the system.
June 1, 1992	TransFirst crashes the system due to concerns with excessive queuing. TransFirst misses the ACH settlement windows.
June 1, 1992	DHR asks Deluxe to bring all Baltimore City merchants up by August.
June 5, 1992	TransFirst misses the ACH settlement window.
June 11, 1992	Merchant focus group meeting, arranged by MAFDA.
June 12, 1992	First meeting between FMI and FNS.
June 19, 1992	OIM director resigns.
July 1, 1992	Again due to merchant request, DHR returns to three-day staggered issuance.

service. The other was to prepare merchants and clients for conversion to EBT, including training both groups and installing equipment for the retailers.

Pre-Conversion Expansion

Statewide expansion of EBT in Maryland began with the conversion to EBT of approximately 2,500 households and 55 retailers in *Cecil County* in January of 1992.¹ Negotiations among the state and federal parties to statewide expansion had continued through November and December, limiting the time available to prepare for implementing EBT in January. Training for Cecil clients was held at the local Department of Social Services (DSS) office in the county seat of Elkton, and ran from mid-December to January 10.

While the TransFirst system absorbed Cecil clients with little difficulty and POS operations proceeded smoothly, several ATM problems punctuated the first week of operations in Cecil. Some clients received only half of the cash they requested, and some received none at all, apparently because two ATM machines were not stocked with enough money to handle EBT issuance on top of regular bank use. Although only five of these incidents were reported, news spread quickly and generated understandable reluctance among clients to try out their new EBT cards. Clients were also confused by false zero balances printed on receipts issued by County Bank ATMs.² Although banks were sent notices on December 15 announcing the conversion to EBT, the notices did not remind the banks to fully stock their ATMs for the cash issuance cycle, leaving them unprepared to handle the run on cash. This failure to tell the banks to stock their ATMs was a procedural error that was not repeated.

EBT implementation in *Montgomery County* was originally slated for February 1992, but was pushed back to March when finding short-term lease space for client training proved

1. Prior to implementation in Cecil, only the Park Circle district of Baltimore City (part of which was the EBT pilot for Maryland) was on EBT, with 6,000 clients and 165 stores participating.

2. County Bank, operator of the majority of Cecil ATMs, prints a balance on each receipt produced by one of its ATMs. For County Bank cardholders, the balance is accurate. For "foreign" cardholders (those from any other bank, or Independence cardholders), a \$0.00 balance is printed. In a January 6, 1992 meeting with the EBT project director and County Bank officials, this problem was resolved when the bank agreed to have EBT balances read "XXXX" instead of \$0.00.

unexpectedly difficult.³ During March, 9,900 clients and 192 stores were added to the system. Of these 192 stores, 70 were multi-lane, marking the first time that EBT was implemented in a Maryland environment with significant numbers of larger stores.⁴

EBT operations in Park Circle, Cecil and Montgomery were interrupted for about an hour when a Compuserve node went out on March 1, but few complaints were heard from retailers.⁵ Of greater concern to the stores was client confusion regarding benefit availability. In the Park Circle pilot and in Cecil County, EBT cash and food stamp benefits had been issued on a single day, but beginning with Montgomery County, DHR had decided instead to stagger issuance for food stamps and cash over three-day periods. This decision was made in response to the problems smaller stores in Cecil and Park Circle were having with keeping enough cash on hand on benefit issuance days. Almost immediately, stores in the three EBT areas began to report that clients were arriving in checkout lanes with carts full of groceries, only to find that their benefits had not yet been issued and their accounts were empty.⁶

The resulting need to restock the food hit stores with significant costs for labor and spoiled food, and retailers began to clamor for a way to rectify the situation. A group of merchants, including both large and small stores, met with the EBT project director and the OIM director on March 6 to ask the State to switch to a single issuance date for food stamps and for cash benefits. While some members of the retailer community acknowledge that this decision ran contrary to years of hard-earned knowledge about the difficulties such a decision would impose on smaller retailers, the fear of "shopbacks" (the industry term for restocking goods left in deserted carts) led even the smaller retailers to push for single-day issuance at this meeting. The State agreed, and started planning for a single day for cash issuance and a single day for food stamp issuance beginning in April.

3. This experience led Deluxe to begin looking for rental space in other counties at least 90 days prior to the county's implementation date.

4. Park Circle had only one such retailer, and Cecil County had only five.

5. Under the TransFirst system, POS transactions were sent through Compuserve, a public telecommunications network, to the TransFirst host.

6. Many clients were confused about their new issuance date, even though they had received notice of the change. The confusion was caused by the fact that clients had to know their case numbers, which were not included on their EBT cards, or contact their caseworker to determine their new issuance date.

Prince Georges County was brought up on EBT on April 1, adding 20,200 clients and nearly tripling the number of clients on EBT to over 32,000. Over 300 merchants were converted to EBT in April.

This expansion was accompanied by a succession of TransFirst system glitches. A TransFirst disk failure on April 1 was followed by problems with the administrative terminals used by local and state office staff⁷ and with the operation of the audio response unit (ARU). Clients who were unable to reach the ARU then called customer service, overloading those lines. Nine days later, the Compuserve trunk line into TransFirst was down for two hours, disabling all POS devices in Maryland during a peak shopping time.⁸ As directed in the merchant contracts, stores called customer service (a function then handled by TransFirst) for voice authorization of purchases during the downtime, but they often encountered busy signals due to the heavy volume of calls. Many accepted vouchers without authorization. FNS later agreed to extend the re-presentation policy to cover these unauthorized transactions, in an effort to reassure retailers.⁹ While this and the March outage caused by another Compuserve failure were not within TransFirst's control, both incidents led retailers to question the stability of the EBT system. Deluxe tried to do what they could do to raise the quality of service, deciding in mid-April to assume the customer service responsibilities as of May 15. No new counties were added to EBT in May, and Deluxe hoped for smooth expansion in June.

The month of May nonetheless opened ominously, with excessive queuing of ATM transactions casting doubt on the ability of the TransFirst system to withstand the kind of transaction volumes that would occur with single-day issuance and statewide expansion. TransFirst's system had not been stress-tested to determine whether it could withstand the kind of volume that would occur with statewide expansion. In addition, TransFirst had not been given enough notice to reconfigure its Tandem software to handle the larger transaction

7. Problems in the operation of these terminals were exacerbated by the fact that as late as the first of April, the equipment had not yet been installed or tested in the local offices.

8. All POS devices in Ramsey County, Minnesota, an EBT site also served by TransFirst, were disabled for this same two-hour period.

9. Re-presentation refers to the process of crediting retailers (or a state agency) for overdrafts resulting from manual transactions applied against EBT accounts with insufficient funds. See the Glossary (Appendix A) for a more complete description.

volumes.¹⁰ The resulting capacity problems were key factors in leading FNS to require extensive stress testing of the Deluxe system.

Concerns about TransFirst's processing capabilities increased a few days later on May 6, when TransFirst's history file approached capacity and the transaction processing had to be stopped for an hour and a half to add more DASD (Disk Access Storage Devices) and to reconfigure the Tandem's software to use the additional disk storage space, to accommodate the larger caseload.¹¹ Again, merchants had to obtain voice authorization for transactions, and again, they were often unable to reach customer service. This most recent transaction stoppage led Deluxe to order daily conference calls with TransFirst and to send two technicians to TransFirst in Dallas to try to manage system performance more closely. Because the number of transactions in the history file was slowing down administrative terminal response times, Deluxe had TransFirst remove the option to access those files from the administrative terminals. State and local staff then could only access this information by calling Deluxe customer service in Milwaukee or Deluxe's Maryland office.

The wisdom of continued rollout was debated at DHR.¹² The decision was made to go ahead with EBT expansion in June, and then to delay EBT implementation in the counties scheduled for July until Deluxe's system was operational and all existing EBT clients and merchants were converted to the Deluxe system.¹³ Expansion was then expected to resume on September 1.

This decision had important consequences. Deluxe was feeling pressure to add more cases to EBT in order to recoup some of the costs they were incurring with the TransFirst system subcontract. They estimated that the delay would cost them \$335,000 in lost revenues and ongoing expenses, and asked for compensation if DHR chose to delay further expansion. DHR eventually compensated Deluxe for \$108,000 of this amount by waiving credits DHR was

10. Deluxe did not notify TransFirst of the delay in the conversion schedule until March 30.

11. Ramsey County operations were again adversely affected, as the May 6 outage also resulted in downtime there.

12. The EBT project director had also just assumed responsibility for CARES, OIM's new computer system, on May 1, spreading DHR's resources thin at a time when rollout demanded close DHR oversight.

13. Counties scheduled for July implementation included Carroll, Howard and Harford counties, and the Baltimore City districts of Govans Waverly, Clifton and Orangeville.

to receive for allowing Deluxe to go through the State's network. This "Administrative Cost Network Agreement" also assigned DHR responsibility for installation, maintenance and support of the administrative terminals.¹⁴ DHR's assumption of these tasks did not go smoothly, as discussed below.

On June 1, the State's sole cash issuance day, *Baltimore County* and the *Liberty Garrison and Steuart Hill districts of Baltimore City* were converted to EBT, adding over 31,000 clients, and bringing the statewide total to about 64,000. The number of merchants converted to EBT nearly doubled with this expansion, with 626 merchants brought up on EBT in June.

In an effort to meet the demands that this expansion would place on TransFirst's system, Deluxe had upgraded TransFirst's Compuserve telecommunications line to a larger capacity line (from a 4800 baud to a 19.2 kilobaud line) in order to increase transaction speed. TransFirst's ability to process the volume of transactions sent across the faster line was still limited, however, by the fact that corresponding upgrades were not made to the Tandem's telecommunications interfaces or to its transaction processing logic.

By early morning on June 1, it was clear that the latest expansion had exceeded the transaction processing capabilities of TransFirst's EBT system. At 9:00 a.m., only 1 percent of the attempted ATM transactions were being processed, with that proportion increasing to only 17 percent when a backup line was added that day. By 9:20 a.m., the processing of ATM transactions had slowed down enough to trigger reversals, thereby increasing the transaction volume even further.¹⁵ TransFirst made the decision to prevent a shut-down of the system by deleting transaction messages from the system's ATM transaction queues, resulting in the erasure of 1,800 transactions.¹⁶ The ATM processing problems caused clients to turn to stores to cash out their public assistance benefits, causing a run on cash at some stores.

14. The DHR unit responsible for carrying out the agreement did not approve of it and was very reluctant to take on the assignment.

15. Reversals are system-generated transactions that reverse the effect of any processing performed on a previous transaction that could not be completed.

16. Settlement reports showed that 405 accounts were affected, totaling \$67,950. These benefits were re-entered onto the system by Deluxe the next day.

effectively disbanded. When statewide approval was finally obtained, retailers were unprepared for the speed with which it rolled out, and they played no role, formal or informal, in development of Deluxe's system. June marked the first time that retailers coalesced into a formal group again.

At the June 11 meeting, aware that moving to staggered issuance would help relieve both the cash flow pressures on smaller stores and some of the pressure on the TransFirst system, DHR and the retailers agreed to move back to three-day staggered issuance, effective July 1. A letter would be sent to clients setting out the issuance schedule and explaining how they could use information on their EBT card to determine their issuance date.¹⁸ At this meeting, DHR also informed retailers that they had asked Deluxe to install equipment in all Baltimore City stores by the beginning of August. Although the original implementation schedule called for simultaneous client and merchant installation in each county or district, merchants in city districts not yet on the system had begun to complain that they were losing business to the merchants who had already received their POS equipment. Consequently, DHR asked Deluxe to change the implementation schedule and finish installing all merchants in the city by August 1, even though clients in most city districts had not yet received EBT cards. Apart from these specific concerns, retailers also expressed their general frustration with the lack of information they received about the progress of EBT implementation.

On June 12, representatives from Giant, Safeway and Shoppers Food Warehouse (the three large chains operating in Maryland)¹⁹ and the Food Marketing Institute²⁰ met with

18. Each client's issuance date (within the three-day staggered issuance schedule) was based on the last digit of their case number. Under the TransFirst system, clients' case numbers were printed on their EBT cards, so it was fairly simple to determine what day benefits would be issued.

After system conversion this process become more complicated, because the Deluxe-issued EBT cards did not have case numbers printed on them. Clients therefore had to find out their case number from their case records or a caseworker, in order to determine their issuance date. Later, for security purposes, Deluxe once again started printing case numbers (instead of card numbers) on the card, thereby alleviating the problem.

19. Together, Giant and Safeway account for over 80 percent of consumer spending on food in Maryland, with Giant controlling nearly 50 percent and Safeway just over 30 percent. Market share data for Shoppers Food Warehouse was not available.

20. The Food Marketing Institute (FMI) is a national trade association, with membership covering all aspects of the food industry. The presence of Giant and Safeway representatives on FMI's Electronic Payment Systems Committee led to FMI's involvement in the Maryland EBT project.

officials from FNS, including the deputy administrator and assistant deputy administrator of the Food Stamp Program, to discuss many of the same concerns voiced in the merchant meeting. Retailers were troubled by the system's performance and the difficulty with voice authorizations, complaining that the merchant contracts contained no warranty and no penalties for system nonperformance. Frustrated with what they saw as the lack of a firm State hand in dealings with Deluxe,²¹ the attendees asked FNS to help ensure Deluxe's performance. The deputy food stamp administrator confirmed the points discussed in the FMI meeting in a June 24 letter to the EBT project director, agreeing with DHR's decision to postpone expansion of EBT on the Deluxe system until the stability of the Deluxe system could be proven in July and August.

Maryland returned to staggered issuance for cash and food stamps on July 1, and no system problems were reported. DHR and Deluxe turned their attention towards gaining certification of the Deluxe system and preparing merchants for the conversion. In late June, Deluxe notified retailers operating EBT on the TransFirst system that they would be converted on July 19 and would receive training prior to that date. Equipment would also be delivered to the stores to be held for installation by Deluxe.

Operations Results

The TransFirst system problems from January to June led all parties to push for completion and implementation of Deluxe's system as quickly as possible. The system problems in the early months also meant that, rather than being able to focus on development and conversion, project management at both DHR and Deluxe spent a considerable amount of time focusing on operations issues. The system problems during early expansion also left those retailers already converted to EBT frustrated with the system and with little or no patience for the bumpy road they would travel while converting to the Deluxe system.

4.2 CONVERSION

Deluxe planned to convert to their newly-certified system on the weekend of July 17-19. The conversion plan called for TransFirst to deliver the data files to Deluxe on the night of

21. This perception was strengthened with the resignation of the OIM director on June 12, although his departure was reportedly unrelated to the EBT project.

Friday, July 17, although TransFirst would continue to process on-line EBT transactions. On Saturday, July 18, Deluxe would convert the TransFirst EBT files to a Deluxe format, check the files for problems, and then apply the files to the newly-created Deluxe EBT database. On Sunday evening, July 19, TransFirst would cease processing on-line EBT transactions, although retailers could still obtain voice authorizations for EBT transactions through Sunday night. The conversion plan then called for TransFirst to send the files containing the weekend's transaction activity to Deluxe. Deluxe would begin processing EBT transactions Monday morning. At the same time that the data files were being transferred, retailers would swap their TransFirst equipment for Deluxe equipment.²² This was the strategy Deluxe laid out prior to conversion; the following section describes how that strategy was translated into action. A summary of conversion events can be found in Exhibit 4.2.

The conversion from TransFirst's EBT system to Deluxe's EBT system took place over the weekend of July 17-20. The 72-hour process required the coordination of almost 2,000 people: TransFirst staff in Dallas, Wisconsin Deluxe staff, Deluxe installation crews in Maryland, DHR EBT and AIMS staff, local DHR staff, and all of Maryland's merchants already operating EBT on the TransFirst system.²³ DHR, FNS, and project evaluation staff also returned to Deluxe's New Berlin data processing facility to participate in and observe the conversion process.

Conversion Weekend, July 17-20

The first step in the conversion process was to transfer the Maryland EBT data files from TransFirst's data processing facility in Dallas, Texas, to Deluxe's data processing center in New Berlin, Wisconsin. Over the course of the weekend, data were transferred for 67,257

22. There was a precedent for this kind of conversion between EBT systems, though on a much smaller scale. In the Reading, Pennsylvania EBT demonstration project, the system was changed from an IBM-based system to a Tandem-based system in 1987. See John A. Kirlin *et al.*, *The Impacts of the State-Operated Electronic Benefit Transfer System in Reading, Pennsylvania*. Cambridge, MA: Abt Associates Inc., February 1990.

23. Deluxe management originally planned to complete the conversion in 24 hours, until persuaded of the plan's burden on merchants, especially those not regularly open on Sunday evenings.

**EXHIBIT 4.2
CONVERSION CHRONOLOGY**

July 17, 1992	Conversion process begins: data tapes flown to Milwaukee.
July 19, 1992	TransFirst system stops processing at 5 p.m. EST.
July 20, 1992	Deluxe system goes live at 7:08 a.m. EST.
July 30, 1992	Incorrect ACH file. Correction posted on 8/3/92.
July 31, 1992	Software changes loaded into controllers, solving problems.
August 4, 1992	FNS halts September expansion.
August 7, 1992	Deluxe EBT system outage (80 minutes).
August 14, 1992	DHR EBT director resigns. Replaced by assistant director.
August 21, 1992	Second FMI meeting.
August 25, 1992	FNS approves September expansion.
August 27, 1992	EBT system outage (3 hours).
September 2, 1992	NorWest Bank missed ACH window.
September 11, 1992	Third FMI meeting.
September 16, 1992	FNS approves final implementation schedule.
September 25, 1992	First MAFDA merchant focus group meeting.
October 5, 1992	EBT system outage (3 hours)
October 13, 1992	Acting EBT director promoted to permanent position
October 25, 1992	Second MAFDA focus group meeting.

EBT cardholders, 1,469 merchants, 4,142 POS terminals, and 179,866 transactions.²⁴ Citing security reasons, TransFirst had refused to allow Deluxe to transfer the data electronically from its Dallas facility over an "expand link," so on Friday, July 17, Deluxe staff transported the data tapes by jet to Milwaukee. At the same time, the files were also transferred electronically to Deluxe from a Tandem Corporation data processing facility in Dallas over regular telephone lines. On Sunday at 5 p.m., TransFirst stopped processing Maryland EBT transactions, and tapes containing transaction activity for Saturday and Sunday were flown to Milwaukee.

24. "Deluxe/Maryland EBT Project," Attachment A in 8/19/92 letter from DHR Commissioner C. Colvin to FNS Administrator A. Hornsby.

Deluxe data processing staff spent Friday evening and Saturday running the TransFirst data tapes through a filter program to identify any problems with the records²⁵ and then applying the files to the Deluxe EBT system. In reviewing file exception reports, FNS and DHR staff discovered that over 2,000 cases were missing from the card file. In copying the original card file, TransFirst had apparently filled up a tape and not put the end of the file onto a second tape. The entire card file had to be re-copied and re-sent from Dallas. Other errors were also found in the new data tape that had to be corrected (e.g., some fields contained missing values).

TransFirst staff also created data errors on Sunday when they shut down the Maryland EBT operations. Some transactions were still in progress when the Compuserve POS line was pulled down. The line was then put back up to allow for the processing of non-Maryland POS transactions. Incoming Maryland transactions that were subsequently received by the authorization engine were not processed, because the client database had been removed. Because of a de-activation error on the merchant side, the incomplete transactions were being reversed against the clients' last transactions, increasing their account balances. When the error was discovered, TransFirst personnel identified all 374 reversals and corrected the client database manually. The client file sent to Deluxe was also corrected.

One data error was not discovered until after conversion. TransFirst did not give identifying data to Deluxe regarding the authorized representative status of about 80 cases. After conversion, authorized representatives who tried to use their EBT cards received "transaction denied" messages and were unable to access their EBT benefits. Deluxe retrieved the information from TransFirst and manually changed Deluxe's database.

Early Monday morning, FNS, DHR, Deluxe, and project evaluation staff met to review the status of the conversion. The group decided that the Deluxe EBT system would begin operation as soon as DHR approved the final exception report matching the balances of the Deluxe and TransFirst benefit authorization files. At 7 a.m., about two hours behind schedule, the report was finished. It showed that out of \$18 million in benefits, the file balances were off by \$1.87. This discrepancy was disturbing, but appeared isolated and limited in scope.²⁶ At

25. These problems might include missing data, incorrect formats, problems with transmission of the records, etc.

26. Believed at conversion to be a fluke, the problem reappeared six weeks later and was fixed. It arose because the first record was being left out of a totaling sequence.

7:08 a.m. EST, the Deluxe EBT system "went live." The first transaction was processed at 7:09 a.m. EST—a \$20 cash withdrawal from an ATM machine in Landover, MD. The system processed a total of 11,653 transactions that day.

Merchant/Client Conversion

In early July, Deluxe had sent instructions to merchants describing the conversion process and explaining how to exchange their TransFirst terminals for Deluxe equipment. Merchants with Tranz 330 POS terminals were promised a start-up call on Monday morning. Merchants with Tranz 340 terminals and 1200C controllers, mainly supermarkets and other large stores, were promised a visit from an installation crew during the night on Sunday. The instructions also encouraged merchants to contact the Deluxe Help Desk with questions or concerns.

To state and federal observers watching the Deluxe phone banks in operation on Monday morning, the conversion appeared to be going fine, except for some calls from merchants who were having trouble setting up their clerk codes. Later in the day it was discovered that Deluxe's Help Desk number was having intermittent line trouble, and that many merchants had been unable to get through to the Help Desk to report their problems.²⁷ Most of the merchants reporting problems were multi-lane stores equipped with controllers. The most common problems are described below.

In some of the stores with controllers, clerks could log off the system successfully but could not log back on, a problem that had already appeared and been "fixed" in testing. Deluxe's fix had been to develop a Help Desk procedure for forcing clerks off the system so that they could log back on. The procedure was time-consuming, often involving a 20-minute call to the Help Desk. Deluxe solved the problem permanently on July 24, when corrected software was downloaded into the POS devices.

About 50 merchants also experienced controller transmission problems, of which 20 had such severe timing and reversal problems that their stores could not process any EBT transactions. Most of these were "transmit 1" errors that caused the controller to lock for several minutes. Deluxe responded by sending out technicians from Deluxe, VeriFone (the

27. The telephone company had the line problem fixed by the end of the day.

manufacturer of the POS equipment), and TCI (the owner of the leased phone lines) with "scopes" to observe and diagnose the errors as they occurred. They learned that local phone companies and neighborhood networks had a variety of timing links, not all of which had been considered in the system's original telecommunications design. Even though Deluxe had already worked with VeriFone to resolve the reversal and transmit problems found during network stress testing, not all of the network's phone lines had been scoped prior to conversion. By July 31, corrected software had been downloaded into the controllers, and no more errors of this type were reported after that date.

Some merchants also complained of slow transaction processing speeds, averaging 30-40 seconds, caused by a general failure of the POS terminal pre-dial function. The terminals were designed to increase transaction processing speeds by connecting to the host before the final transaction key was hit. Deluxe tried several times to determine the best time to initiate the pre-dial, and the optimal length of time that the line should stay open following a transaction. The ideal pre-dial timing is dependent on local phone company equipment and protocol, and is not consistent across the state; Deluxe worked for several months to find the optimal timing for all terminals.

Every merchant experienced some ACH settlement problems during the first weeks of conversion. Several issues made it difficult for merchants to reconcile their records of EBT sales against credit received through the ACH. First, merchants had developed their settlement procedures around TransFirst's ACH settlement policies and were reluctant to change their practices. TransFirst settled its ACH accounts on a daily basis and provided merchants with ACH reports broken out by store location. In contrast, while Deluxe also settled system accounts daily, funds were credited to merchants' bank accounts only on weekdays. Without retailer input, Deluxe's system designers were not aware that the change in policy mattered to merchants. The lack of retailer input also contributed to the designers being unaware that settlement by bank account rather than by store would not be acceptable. In response to merchants' complaints, Deluxe quickly returned to a seven-day settlement process and to store-level ACH reports. To help merchants reconcile their July balances, Deluxe offered to provide hard copies of the transaction reports on request.

Second, a few merchants contributed to their settlement problems by making mistakes at their POS terminals. For example, some stores left their POS terminals in the default training

mode after conversion. Transactions performed in the training mode were not credited to the merchant's ACH account, throwing off the store's balance.²⁸ There were also some short system outages during the first week that threw off the merchants' ACH accounts. The system was down for four minutes on Monday, July 20, 15 minutes on Tuesday, July 21, and 13 minutes on Thursday, July 23. Transactions manually processed during these periods of downtime had to be settled separately in order for the merchants to reconcile their balances.

During the shakedown period, there were some ACH processing problems as well. On July 30, an incorrect ACH file was sent to the Federal Reserve. A correction was posted to merchants' accounts on Monday, August 3. On August 29, a file was interrupted while running the ACH settlement process. The file was rerun and the correct amount deposited in merchants' accounts. However, 158 merchants showed incorrect ACH terminal totals. On September 2, NorWest Bank failed to forward Deluxe's ACH files to the Federal Reserve because of a NorWest systems problem. The files were then forwarded on September 3 and posted on the fourth.

Periodic downtime and low rates of successfully completed transactions continued to affect the Deluxe system for the next few months. While the system's POS transaction approval rate²⁹ was generally high (above 85 percent, except during system outages), the ATM approval rate was initially much lower, fluctuating between 43 and 70 percent in July, then dipping down to 21 percent during the first three days of August before climbing above 75 percent (except during outages). The ATM approval rate was apparently lower because of a PIN problem with a segment of the card database that caused some clients to receive "incorrect PIN" messages even when the PIN was entered correctly. While this problem affected all cardholders, it affected POS and ATM transactions differently because of variations in the way that the PIN is translated and encrypted as POS and ATM transactions are processed.

28. At a September 25, 1992 meeting with retailers, Deluxe agreed to change the training mode's security parameters so that only supervisors could change to training mode.

29. "Approval rate" refers to transactions that end in clients actually receiving their benefits. This requires that the correct PIN is entered, sufficient benefits are in the account, and the transaction is successfully processed.

System Outages and Slowdowns

The Deluxe EBT system experienced three major outages or processing slowdowns, which occurred on August 7 (for 80 minutes), on August 27 (for three hours), and on October 5 (for three hours). On August 7 at 5:10 p.m. EST, a prime shopping time on a peak issuance day, a system operator accidentally triggered a batch program. The process ran at a higher priority than incoming transactions, slowing down the entire system and causing POS and ATM transactions to time-out and fail. Support personnel initially diagnosed the problem incorrectly, adding to the system's downtime. The problem was solved around 6:30 p.m. During the 80 minutes of downtime, 72 merchants called in 512 vouchers, worth approximately \$29,000. To prevent a reoccurrence of the problem, Deluxe limited access to the batch program to management.

A second major outage occurred on August 27. At 8:00 a.m. EST, Deluxe staff realized that a database sweep performed the previous evening had wiped out a data file.³⁰ The system operator had incorrectly performed the aging program first, removing \$145,000 in old benefits. The operator then set up the batch program to delete zeroed benefits, using a three-day rather than a three-month parameter, and ran the aging program again, deleting all benefits not used within the last three days, and wiping out most of the database.

The system was shut down at 10:40 a.m. to recover the database from the last system backup, which had occurred at 12:10 a.m. that morning. Although the outage was scheduled to last only ten minutes, an operator error kept the system down until the forward recovery process (the retrieval of a copy of the database) was finished at 1:20 p.m. Deluxe then re-applied to the database the 1,192 transactions that had been generated between 12:10 and 10:40 a.m., succeeding in the recovery of all but \$688. To prevent any recurrence, Deluxe developed better procedures for batch programs and database recovery, provided more training to system operators, and placed tighter internal controls on the system.

In October, the Maryland EBT system was expanded to include several more counties and city districts.³¹ The additional 30,000 clients pushed the system's transaction volumes up

30. A sweep is a sequence of batch programs that calculate the value of the database, delete zeroed authorizations, and then delete "aged" benefits (benefits not used for 90 days or more).

31. Three more counties (Carroll, Harford, and Howard) and three more city districts (Clifton, Govans Waverly, and Orangeville) were added in October.

to almost twice the level of the previous month.³² On the morning of October 5, a peak issuance day, the system became overloaded for reasons explained below, causing POS and ATM processing problems between 9:15 a.m. and 12:15 p.m. EST. Though no complete outage occurred, the system's transaction completion rate fluctuated between 84 and 42 percent during this period. The effect on retailers was that some transactions (1,694 out of the 93,920 transactions that took place that day) were improperly reversed, causing client benefit records to be updated improperly. Client balances were corrected by the next day. Apparently, the reversals occurred when the connection to the MOST link was inadvertently interrupted, stopping ATM traffic briefly and creating a large transaction queue. The long queue caused some of the transactions to time-out, and merchants presumably tried to perform the transactions again. However, the new transactions were at a higher priority than the reversal of the timed-out transaction, putting the reversal out of sequence.

Deluxe corrected the affected accounts by midnight that night. In evaluating the situation, it was determined that the system was not balanced properly to handle the increased transaction volume. Computer central processing units and storage disks were added as needed to increase the system's capacity. Unnecessary transaction processing messages were eliminated. Aged and zeroed benefits were swept from the database. System maintenance was also limited to non-peak periods.

Each of the outages or slowdowns described above disrupted store operations, particularly the incidents that occurred at the beginning of the monthly issuance cycle.³³ Store clerks complained that it was hard to get through to Deluxe's Help Desk for approval of off-line "voucher" transactions. Merchants had to reshelve food abandoned by EBT clients who did not want to wait in line for time-consuming voucher transactions. Clients were calling the Help Desk to see whether their benefit balances had been affected by the downtime.³⁴ Merchants were generally unhappy with Deluxe's EBT Help Desk services, particularly during the first few

32. The Deluxe EBT system processed 51,969 transactions on September 5. On October 5, 93,920 transactions were processed.

33. POS and ATM transaction volumes are typically heaviest during the staggered benefit issuance period at the beginning of each month, when many recipients withdraw their benefits as soon as they are issued.

34. Many clients were at first more comfortable talking to Help Desk staff directly than accessing the system's audio response unit. Help Desk operators routinely provided ARU instructions.

weeks after conversion—the telephone line was often busy, the wait for an operator was often several minutes, the information provided by the operators was not always accurate, and follow-up to service requests seemed slow. It was true that the Help Desk was having troubling keeping up with the demand for its services. In August, Help Desk operators fielded almost 24,000 calls, including 8,324 balance inquiries, 3,500 calls for ARU instructions, 2,100 card problems (lost, damaged, or stolen cards, PIN problems, etc.), 1,115 emergency authorizations, 866 merchant POS questions, 500 POS problems, 262 balance problems, and 5,334 "other" calls.

In response to the merchant and client complaints, Deluxe made a number of changes. The Help Desk supervisor was replaced in August. The Help Desk staff was expanded from a crew of three or four people in July to fifteen people in October. Training for new operators was expanded from one to two days. An analyst was hired in October to track and resolve merchant and client payment disputes. In December, a more advanced phone system was installed to better monitor incoming calls.

Some merchants claimed that they were not properly reimbursed for voucher transactions approved during the August system outages. A few merchants also had settlement problems relating back to the periods of downtime experienced under the TransFirst system. In the rush towards conversion, balance problems that occurred in May and June were not reviewed until July or August, at which time they were perceived as Deluxe's responsibility.³⁵ Negotiations between Deluxe and some merchants over these issues dragged on until FNS intervened in September. The federal agency refused to approve further expansion of the project until, among other conditions, the merchants' claims were resolved. The claims were reportedly settled by September 20.

Conversion Oversight

A small but vocal group of merchants was infuriated by the difficult conversion process. On July 24, the three major chains operating in Maryland (Giant Food, Shoppers Food Warehouse, and Safeway) submitted complaint letters to the Food Marketing Institute (FMI) detailing their experiences. On July 28, FMI forwarded the letters to FNS, requesting that FNS

35. Some merchants reported missing ACH deposits and reimbursements for vouchers issued before July 20.

intervene. On August 4, FNS responded with a letter to DHR, advising the agency to suspend further expansion of the project until DHR could show that the conversion problems had been resolved. Deluxe argued against the decision, stating that the merchants' main concerns had already been resolved and that the August issuance cycle had been free of problems. Backed by the example of the August 7 outage, FNS officials stood by their original position but invited DHR and Deluxe to discuss the matter at the next meeting with FMI, slated for August 21.

The August 21 FMI meeting proved a turning point in merchant relations. A total of 18 people were at the meeting, representing Deluxe, FNS, DHR, FMI, MAFDA (the Mid-Atlantic Food Dealers' Association), and the three grocery chains. For an hour, the merchants vented on a number of topics, including their lack of involvement in system design and testing, the controller problems, and the customer service problems. The group agreed that better communication was needed between Deluxe and the Maryland merchant community, and decided that part of the solution would be to create a formal EBT users group, organized by MAFDA. Members would be selected to represent a variety of stores.

After the meeting, FNS approved the addition of 8,000 new clients in September, but postponed the decision to approve the rest of the implementation schedule until the next FMI meeting. The benefit issuance cycle went smoothly in September. During the first eight days of the month, the system processed an average of 41,000 transactions per day, at an overall transaction approval rate of about 80 percent.

At the FMI meeting on September 11, the merchants returned to the topic of unresolved voucher reimbursement problems. Deluxe countered by arguing that more time was needed to research each incident under debate.³⁶ FNS ended the meeting by agreeing to make a decision about the final rollout schedule after DHR submitted an "action plan" addressing all outstanding merchant issues. The plan submitted by DHR on September 15 outlined a process for resolving the settlement issues by September 30. System design issues would be the subject of the project's first merchant focus group meeting, scheduled for September 25. Based on this information, FNS approved the project's final rollout schedule on September 16. Statewide implementation of Maryland's EBT system would be completed by April of 1993.

36. Deluxe was having trouble getting financial records from TransFirst. Relations between the two companies soured after TransFirst sent Deluxe a \$750,000 bill for conversion on August 11, 1992.

At the September 25 merchant focus group meeting, Deluxe staff presented for discussion a number of system modifications proposed by merchants. These included terminal totals, clerk totals across terminals, new report categories (e.g., off-line versus on-line transactions) for the daily ACH information provided to merchants via their POS terminals, denied transactions printed in bold red type, and switching the placement of the balance inquiry and debit and credit functions on the POS terminal template. At the next focus group meeting, held on October 29, Deluxe reported on which design changes had been implemented, which were planned, and which were not possible. The merchants at the meeting seemed pleased by Deluxe's responsiveness. Deluxe plans to seek out merchant input much earlier in future projects.

At the same meeting, the DHR EBT director broached the subject of making the monthly issuance cycle shorter in order to accommodate client rent payments due on the fifth of the month. After some discussion, the group successfully compromised on a five-day schedule that excluded Sundays and holidays (when merchants would have trouble getting cash for cash-back), but included the third of the month (doubling up EBT and Social Security issuance days). The 1993 schedule for benefit issuance was revised accordingly.

DHR Conversion

The conversion process for the central DHR staff began in June 1992 with the installation of the administrative terminals. OIM's Director of Personal Computers and Telecommunications Support (PCTS) was involved in the negotiations around the Administrative Cost Agreement, but did not agree with the deal signed by her superior, the OIM director, in late May. Under the terms of the agreement, the PCTS unit was responsible for installing and providing hardware maintenance for 85 EBT system administrative workstations (PCs). In return, Deluxe would deliver the PCs to the local offices configured for installation and would support the EDGE EBT software application. This gave the PCTS unit a very short timetable for installing the equipment before conversion in mid-July. Information gathered from interviews with local DSS staff indicates that only a portion of the EBT administrative terminals were installed and functioning in the EBT counties by the time of conversion.

Several problems contributed to the delay in installation. First, the PCTS unit was given little advance warning and no budget to cover the cost of installation. The unit's installers

were already working full-time on another OIM project, and so had to double their work efforts to install both computer systems simultaneously. Second, some equipment was not delivered to local DSS offices until a few days before conversion. DHR staff contended that Deluxe left this detail to the last minute, while Deluxe staff argued that they were instructed not to ship the equipment until after the system was certified because of storage issues. Third, some of the equipment was unusable at delivery. Deluxe staff conceded that some PCs arrived on-site with boards not properly seated, but they argued that they have had far fewer problems than DHR with the same equipment shipped from the same vendor. Realizing that the arrangement was not working, Deluxe began to assist with the installation of the administrative terminals in late fall, and continued to provide assistance until all counties had gone onto the system in April 1993.

At conversion, some local office staff reported having a hard time working with the Windows application. Users often got into trouble by accidentally pulling icons off the screens and getting irretrievably "lost" in the program with several windows open. Some people reported that they then had difficulty recovering, at times losing data and being unable to re-enter Windows after rebooting the PC. Many of these problems reflected the unfamiliarity of local staff with PCs and pointer devices ("mice"). DHR and Deluxe training personnel estimated that only 5 to 10 percent of the local office staff had ever used a PC before.³⁷ Hoping to alleviate these problems, Deluxe has since updated the software on the local DSS and DHR administrative terminals to restrict users' movements in Windows, and to allow them to recover easily if they do get lost.

Conversion Lessons

The conversion of 67,000 clients, 1,500 merchants, and over 4,000 POS terminals from one EBT system to another had never been attempted before in any EBT demonstration project. In several respects, the conversion succeeded. The Deluxe system started up basically on schedule on the morning of July 20. To virtually all clients and most of the system's merchants, the changeover was transparent, except for the planned 14 hours without service during the

37. This complete lack of technical know-how was something of a surprise to Deluxe, who believed that staff would have gained some experience with PCs as DHR prepared to implement CARES. The delay in CARES implementation meant that EBT would be the first experience that local DSS users would have with PCs.

switchover. For the larger, multi-lane stores, however, controller transmission problems made it impossible to process EBT sales, leading to confusion, frustration, and lost sales revenues.

Although the Deluxe EBT system experienced some periods of downtime after conversion, no outage was long enough to warrant a return to paper issuance. By the end of September, the large merchants who bore the brunt of the conversion problems were on speaking terms again with Deluxe and DHR, willing to cooperate in the refinement of the system. During this period, DHR also weathered the loss of the project's two main leaders, the OIM director and EBT project director. Expansion continued under the leadership of the EBT project's new director, the project's former assistant director.

On the other hand, the decision to convert to the Deluxe EBT system as quickly as possible after certification affected the smoothness of the transition. The POS equipment was not pre-tested on all local phone networks, leaving open the possibility that some stores would have transaction processing problems. Deluxe staff at all levels had relatively little experience with the system prior to conversion, resulting in terminal installation problems, operator-related outages, and inaccurate Help Desk advice. Merchant issues were overlooked until they became severe enough to bring the project nearly to a halt, although their requests could have been accommodated in the system's design stage. Administrative terminals were not shipped to local DSS offices until a few days before conversion, jamming the installation schedule. State and local DHR/DSS staff did not have enough training or practice on the EBT administrative terminals, resulting in excessive PC and Windows problems. All of these difficulties could have been avoided with more time and more attention.

CHAPTER FIVE

SYSTEM EXPANSION

The final challenge for the EBT project managers was expanding the EBT system statewide—an undertaking never before attempted in an EBT demonstration. This chapter chronicles the expansion process, providing first an overview of the process, then examining the process from the perspectives of the system's merchants, recipients, and staff. A number of policy and system design issues were revisited during the expansion process, and new approaches were adopted as appropriate. The chapter closes with a discussion of these issues and the status of their resolution.

5.1 EXPANSION OVERVIEW

System expansion is a complex process, requiring the training of merchants, the installation of telecommunications lines and POS equipment in stores, the notification and training of all current and new EBT recipients, and the installation of administrative equipment and training of all state and local staff. Over the course of the 16 months, from December 1991 through April 1993, this expansion was repeated in 23 counties and 17 city districts. The first site to be expanded was Park Circle.

When Deluxe Data Systems took over the Maryland EBT contract in August 1991, not all of the public assistance recipients in Baltimore City's Park Circle district were EBT participants. Because the original EBT contract did not require the training of new clients, TransFirst stopped adding clients to the system after the pilot test's target enrollment of 5,000 cases was met. New recipients were kept on paper issuance systems, requiring the district to manage both forms of issuance. In December 1991, Deluxe trained and transferred the remainder of the Park Circle caseload (about 6,000 recipients and authorized representatives) to EBT.

Deluxe's original statewide implementation plan called for an 11-month expansion schedule, going from January to November 1992. This schedule is reflected in the "Proposed Go Live" columns of Exhibits 5.1 (Maryland counties) and 5.2 (Baltimore City districts). EBT was implemented in Cecil County, as planned, in January. At that point, the expansion schedule

EXHIBIT 5.1

MARYLAND COUNTY EXPANSION SCHEDULE

Maryland County	Initial Plan for Training	Initially Planned Date to Go Live	Actual Training	Actual Go Live	Percent Food Stamps on EBT ^a	Percent Cash on EBT ^a
Cecil	12/16/91 - 01/08/92	01/08/92	12/02/91 - 01/10/92	01/01/92	100.0	62.9
Montgomery	01/10/92 - 02/10/92	02/10/92	02/03/92 - 03/11/92	03/01/92	99.5	95.0
Prince George's	02/10/92 - 03/10/92	03/10/92	03/02/92 - 04/13/92	04/01/92	98.6	97.7
Baltimore	05/11/92 - 06/05/92	06/08/92	05/01/92 - 06/15/92	06/01/92	99.5	96.0
Carroll	06/01/92 - 06/15/92	06/15/92	08/03/92 - 09/17/92	09/01/92	100.0	86.4
Howard	06/22/92 - 07/07/92	07/08/92	08/03/92 - 09/17/92	09/01/92	100.0	93.0
Harford	06/11/92 - 07/07/92	07/08/92	08/03/92 - 08/17/92	09/01/92	100.0	98.0
Kent	07/01/92 - 07/09/92	07/09/92	11/09/92 - 12/15/92	12/01/92	100.0	100.0
Calvert	07/01/92 - 07/14/92	07/14/92	02/24/93 - 03/12/93	03/01/93	100.0	97.1
Queen Anne's	07/10/92 - 07/17/92	07/17/92	11/09/92 - 12/15/92	12/01/92	100.0	97.2
Caroline	07/20/92 - 07/27/92	07/27/92	11/09/92 - 12/15/92	12/01/92	100.0	93.2
Charles	07/15/92 - 08/07/92	08/07/92	02/24/93 - 03/31/93	03/01/93	98.5	96.3
Anne Arundel	07/09/92 - 08/07/92	08/07/92	09/21/92 - 10/28/92	10/01/92	95.7	93.5
St. Mary's	07/21/92 - 08/07/92	08/07/92	02/24/93 - 03/24/93	03/01/93	100.0	95.2
Talbot	07/28/92 - 08/07/92	08/07/92	11/09/92 - 12/15/92	12/01/92	100.0	98.2
Frederick	08/03/92 - 08/21/92	08/21/92	09/21/92 - 10/28/92	10/01/92	100.0	87.5
Garrett	08/24/92 - 09/08/92	09/08/92	09/21/92 - 10/28/92	10/01/92	100.0	98.5
Allegany	08/04/92 - 09/08/92	09/08/92	09/21/92 - 10/28/92	10/01/92	100.0	96.8
Washington	08/06/92 - 09/08/92	09/08/92	09/21/92 - 10/28/92	10/01/92	96.4	95.0
Dorchester	09/01/92 - 09/17/92	09/17/92	12/28/92 - 02/03/93	02/01/93	100.0	100.0
Somerset	09/23/92 - 10/07/92	10/07/92	12/28/92 - 01/15/93	02/01/93	98.4	98.5
Wicomico	09/10/92 - 10/07/92	10/07/92	12/28/92 - 02/03/93	02/01/93	100.0	97.2
Worcester	09/23/92 - 10/07/92	10/07/92	12/28/92 - 01/22/93	02/01/93	100.0	97.9

^a As of September 1993.

SOURCES: Maryland EBTS Statewide Implementation Plan, October 17, 1991; Maryland Recipient Training Statistical Report, March 29, 1993.

EXHIBIT 5.2

BALTIMORE CITY EXPANSION SCHEDULE

Baltimore City District	Initial Plan for Training	Initially Planned Date to Go Live	Actual Training	Actual Go Live	Percent Food Stamps on EBT ^a	Percent Cash on EBT ^a
Park Circle	10/01/89 - 12/01/92	—	12/01/92 - 12/31/92	—	100.0	100.0
Liberty Garrison	05/11/92 - 06/08/92	06/08/92	05/01/92 - 06/12/92	06/01/92	99.8	99.8
Steuart Hill	05/11/92 - 06/08/92	06/08/92	05/01/92 - 06/11/92	06/01/92	99.8	100.0
Govans Waverly	06/09/92 - 07/10/92	07/10/92	08/03/92 - 09/17/92	09/01/92	99.6	100.0
Orangeville	06/09/92 - 07/10/92	07/10/92	08/03/92 - 09/17/92	09/01/92	99.6	99.6
Clifton	06/09/92 - 07/10/92	07/10/92	08/03/92 - 09/17/92	09/01/92	99.9	98.9
Cherry Hill	07/08/92 - 08/07/92	08/07/92	11/09/92 - 12/15/92	12/01/92	98.8	98.9
Patapsco	07/08/92 - 08/07/92	08/07/92	11/09/92 - 12/15/92	12/01/92	99.9	99.9
Rosemont	07/08/92 - 08/07/92	08/07/92	11/09/92 - 12/15/92	12/01/92	99.4	99.4
Westwood	08/11/92 - 09/08/92	09/08/92	09/21/92 - 10/27/92	10/01/92	99.8	99.8
Mount Clare	08/11/92 - 09/08/92	09/08/92	09/21/92 - 10/27/92	10/01/92	96.0	97.5
Collington Square	09/09/92 - 10/07/92	10/07/92	12/28/92 - 02/05/93	02/01/93	99.7	99.7
Upton	09/09/92 - 10/07/92	10/07/92	12/28/92 - 02/05/93	02/01/93	95.9	96.0
Johnson Square	09/09/92 - 10/07/92	10/07/92	02/24/93 - 03/31/93	04/01/93	99.7	99.7
Refugee/Homeless	09/09/92 - 10/07/92	10/07/92	02/24/93 - 03/31/93	04/01/93	98.6	98.4
Dunbar	10/09/92 - 11/06/92	11/06/92	03/02/93 - 03/31/93	04/01/93	99.6	99.5
NPACS	10/09/92 - 11/06/92	11/06/92	11/09/92 - 03/31/93	12/92 - 4/93	NA	NA

^a As of September 1993.

SOURCES: Maryland EBTS Statewide Implementation Plan, October 17, 1991; Maryland Recipient Training Statistical Report, March 29, 1993.

began to slip. Implementation in Montgomery County was delayed one month, from February to March, after the Deluxe training staff had unexpected trouble finding and leasing appropriate space for the county's mass client training sessions.¹ This pushed back to April the implementation date for Prince Georges County. By May the increased caseload was beginning to tax the capacity of the TransFirst system, as discussed in Chapter Four. DHR and Deluxe, after arranging for increased capacity resources, pushed forward with the expansion schedule, adding Baltimore County and two Baltimore City districts (Liberty Garrison and Steuart Hill) in June. The problems experienced during the June benefit issuance cycle led all parties to agree to suspend further expansion until after conversion to the larger-capacity Deluxe EBT system.

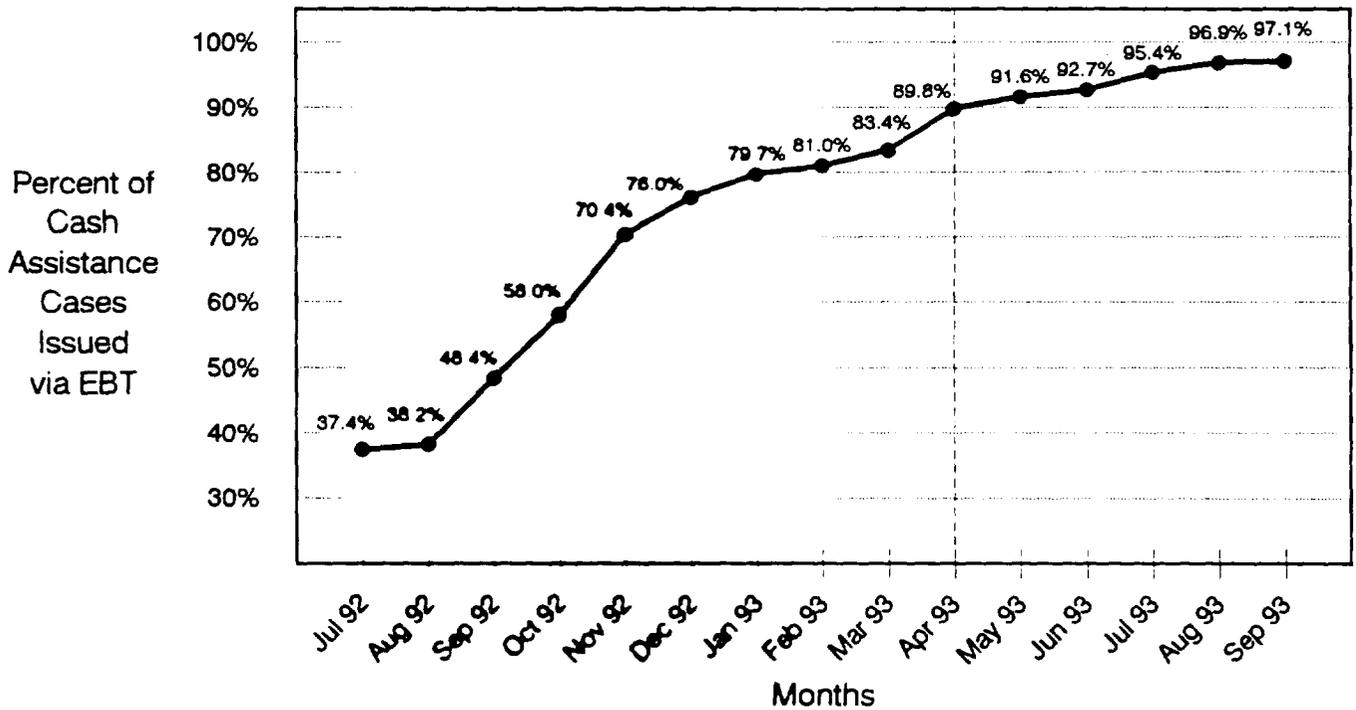
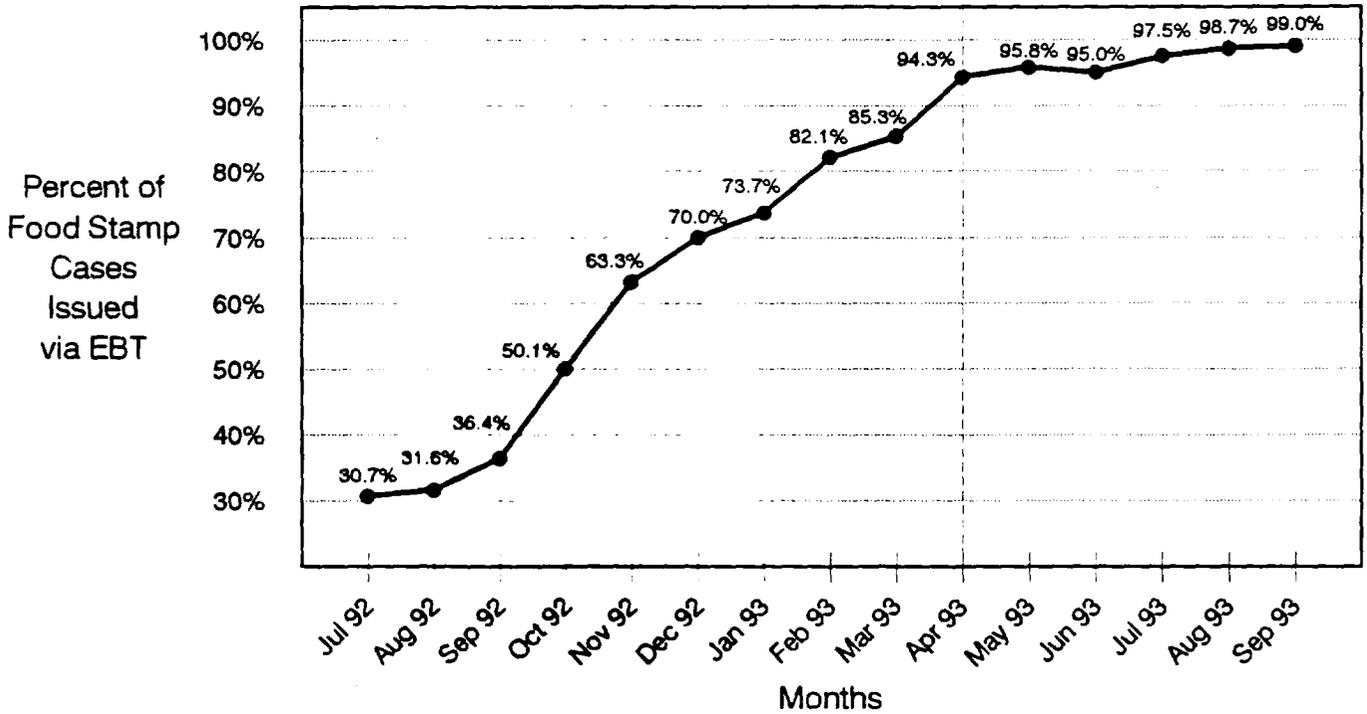
Reflecting this agreement, the statewide implementation plan was modified in June, extending the expansion schedule through April 1993. The revised schedule was implemented basically as planned, although in August FNS considered delaying expansion in response to merchant complaints about the new EBT system. When the September issuance cycle went smoothly as three more counties and city districts were added, FNS decided to approve the final schedule. New sites were then added at two-month intervals—in October, December, February, and April. Still, not all recipients were participating in EBT in April. At that point, 90 percent of all cash assistance and 94 percent of all food stamp recipients were on the system (see Exhibit 5.3).

One reason for the delay in adding all recipients was that ongoing client training had fallen behind schedule in Baltimore City, mainly because the City had underestimated the number of clients requiring ongoing training and had not leased enough training space.² The client training function had been centralized into two offices, each staffed by three permanent, full-time trainers. The North Broadway site, a former emergency food storage facility, had the capacity to serve 150-200 clients per day. The Mondawmin Mall site, on the city's west side, was much smaller, accommodating only 50-60 people per day. The space problem was solved

1. Few commercial landlords were willing to lease office space for only the two to three months needed for training. Deluxe turned to the use of church basements, fire halls, and other public use facilities with greater success. Deluxe staff also began to look for rental space at least 90 days prior to county training start-up, begin in a county.

2. State staff had to train more clients than expected because many did not show up for the mass client training sessions conducted by Deluxe staff.

Exhibit 5.3
Food Stamps and Cash Assistance:
Percent Issued on EBTS
July 1992 - Sept 1993



Source: DHR monthly issuance statistical reports

in April 1993, when the City sub-leased two additional rooms in the Mondawmin Mall originally used by Deluxe for mass client training.³ By the end of the summer, the training backlog had largely been eliminated, and the space was turned into a card replacement site.

As of September 1993, over 99 percent of all food stamp cases had been transferred to EBT and 97 percent of all cash assistance recipients were on the system.⁴ Nonparticipants fall into four categories. Recipients who are residents of group homes or who are in in-patient drug and alcohol treatment programs make up the largest group of EBT non-participants. They have been exempted until new software allowing multiple-case accounts is implemented.⁵ Another group includes cash assistance and child support clients who have elected to have their benefits directly deposited into bank accounts and are therefore not participating in EBT. A small number of migrant workers on Maryland's Eastern Shore were informally exempted from EBT in 1993.⁶ Finally, a few homebound and/or disabled clients who have been unable to find appropriate authorized representatives have been allowed to stay temporarily on paper issuance.⁷

5.2 EXPANSION EXPERIENCES

Expansion within each county and Baltimore district was a complex process, requiring the careful coordination of a number of different parties in a tight, two- to three-month time-frame. Merchants had to be recruited to participate, trained, and have equipment installed while

3. Two additional trainers were contracted to handle the increased training load.

4. During May and June, DHR completed the switch from paper to electronic issuance by systematically shredding all the food stamp coupons remaining in local DSS offices. Some coupons remained in DHR's central offices to handle stamp-out procedures.

5. The software was installed in late 1993, but actual conversion awaits additional planning activities. Some counties, unaware that EBT participation was not mandatory for group homes, found ways to get them on the system, either by making the home's director each resident's authorized representative or by linking clients by giving them the same street address.

6. DHR administrators had tentatively planned to exempt migrant workers from EBT because of the time and expense involved in training and issuing cards to people who would be on EBT only a few months. FNS will not allow such a general policy, arguing that no group should be treated differentially under EBT. Maryland migrants will go on EBT in the summer of 1994.

7. These are primarily elderly recipients who have resisted giving one person the authority to withdraw all of their benefits, preferring to give a few food stamp coupons to several different people.

banks were notified of the change. Training space had to be secured, equipment installed, and trainers hired for both mass and ongoing client training functions. In each site, hundreds to thousands of recipients received training and were issued EBT cards over a period of a few weeks. Finally, local staff, many of whom had little or no computer experience, had to learn how to use a fairly sophisticated software package. This process was refined through reiteration and was running smoothly by the late fall of 1992. In the sections below, the statewide expansion process is described from the perspectives of the system's merchants, clients, and staff. Lessons learned are presented as appropriate.

Merchant Implementation

Merchants were formally introduced to EBT during two-hour community meetings held two to three months prior to each county's scheduled conversion date. During the meeting, DHR and Deluxe explained EBT's history and rationale and responded to general questions from the merchants about costs, contracts, etc. The merchants understood from the group merchant meetings that the only way they could retain their food stamp redemption business was to sign up for EBT, although they did have the options of signing up either with Deluxe or with a third party, or using in-house processing.⁸

The merchant contract detailed the conditions under which Deluxe would provide POS terminals: for example, clients could not be charged for using the terminals, client access could not be restricted to certain lanes or store hours, the merchant was responsible for equipment damage, and faulty equipment had to be reported for immediate repair. Deluxe started with a single generic contract, modifying it as needed to accommodate different kinds of merchants. By April 1993, Deluxe had developed eight different contracts, for:

- FNS-authorized food retailers located in Maryland (the standard contract),
- FNS-authorized food retailers located outside Maryland (border stores),
- Voucher merchants (non-traditional food retailers) located in Maryland,

8. "In-house processing" refers to retailers' owning and operating their electronic funds transfer system. In Maryland, only a handful of large retailers have such a capability, most notably Giant and Safeway. So far, none of the retailers currently operating electronic funds transfer systems in Maryland have adapted their systems to handle EBT transactions, although Giant may begin in-house processing of EBT transactions in the first quarter of 1994.

- Voucher merchants located outside Maryland,
- Maryland merchants using non-Deluxe equipment (i.e., third-party or in-house processors),
- Non-Maryland merchants using non-Deluxe equipment,
- Check cashers (members of the Maryland Check Cashers Association),⁹ and
- Other cash-only merchants (non-food retailers).¹⁰

Under the standard Maryland food merchant contract, installation and maintenance of terminals, controllers and dedicated telephone lines would be provided by Deluxe at no charge. If the merchant redeemed less than \$10,000 in monthly food stamp benefits, the store would receive one terminal; if more than \$10,000 in food stamps were redeemed monthly, terminals would be supplied for half of the store's lanes. If merchants agreed to offer cash back at all lanes, they would receive free terminals at every lane.¹¹ A copy of the standard Maryland merchant agreement is included as Appendix D.

Guided by a list provided by FNS' Mid-Atlantic Region Office of all FNS-authorized retailers, Deluxe sent out surveyors to "sweep" all stores in a county to explain the contract and discuss stores' equipment needs. Most merchants reportedly signed the contract quite willingly. After the contract was signed, the surveyors would help the merchants complete forms asking for the store's FNS authorization number, cutover time, and bank name and account number, and information on the number of checkout lanes and the number and type of terminals required.

9. This was a contract offered for a limited time in early 1993 to check-cashing establishments in the Baltimore City area. In exchange for improved client access to cash benefits, Deluxe offered check cashers

The Deluxe staff in Maryland then used this information to order phone lines for the stores and to arrange for electrical wiring, if necessary.¹²

Information from this survey was then used by Deluxe staff to order equipment. Within two weeks, this equipment was sent from Milwaukee to the stores, where it was held for installation by Deluxe staff. In single-lane stores with Tranz 330 terminals and no controllers, equipment installation and training of store staff were done by one person. In multi-lane stores, installation and training responsibilities were usually split between different personnel because of the wiring changes needed for controller installation. Deluxe was required to train as many staff as the store owner desired, but for larger stores they generally trained a store trainer who then prepared the store's staff for EBT implementation.

In general, merchant recruitment, installation, and training went smoothly, particularly after more installation staff were hired and routine procedures were established. In Cecil County, the first expansion site, the installation supervisor and her assistant handled the entire process by themselves, surveying the sites, ordering supplies, assembling and loading the hardware in Deluxe's Baltimore field office, and then delivering and installing the equipment on-site. In later counties, the equipment was delivered directly to the stores and then installed by a team of technicians managed by the supervisor.

One of the key questions concerning Maryland's merchant recruitment process is why it went so much more smoothly than recruitment in other EBT projects, particularly in Ramsey County where retailer demands for contract changes delayed implementation by about five months, and in Washington State, where retailer demands contributed to delays that ultimately led to project cancellation.¹³ A combination of strategic alliances forged early in the Park Circle pilot project, historical circumstances, and lack of competition from third-party processors led to Maryland's successful recruitment of merchants.

12. Rewiring was only necessary in multi-lane stores where controllers would be installed. Merchants were given the option to arrange for wiring themselves, but most reportedly chose to have Deluxe handle these arrangements. Deluxe arranged for the electrical wiring through a subsidiary of C & P Telephone, the local phone company.

13. For a full discussion of recruiting problems in other EBT sites, see Michelle Ciurea *et al.*, *The State-Initiated EBT Demonstrations: Their Design, Development, and Implementation*. Cambridge, MA: Abt Associates Inc., June 1993.

TransFirst had learned from its negotiations with the Washington State Food Retailers Association that gaining the cooperation of merchants was key to the successful implementation of an EBT project. When TransFirst won the Maryland EBT contract in 1988, project managers immediately contracted with the retired president of the Mid-Atlantic Food Dealers Association (MAFDA) to gain entry into the Maryland food retailer community. Through the introduction of MAFDA's former president, TransFirst contracted with Grocers' Electronic Network Services (GENS), a for-profit subsidiary of MAFDA, to recruit, train, and install merchants on EBT. While GENS held focus group meetings with merchants to educate them about EBT, TransFirst was also being educated about the needs and concerns of the merchants.

After TransFirst developed a prototype of its EBT system, merchants had an opportunity to comment on the system's design prior to implementation. Certain enhancements were made at the merchants' request that were missing from the later Deluxe design, developed without such merchant feedback.¹⁴ As discussed in the previous chapter, Deluxe reinstated the merchant focus group meetings after merchants protested during system conversion. Since then, a more open dialogue has developed between Deluxe and the merchants, a model that Deluxe has followed in New Jersey, where it is implementing another EBT project.

The Maryland project also profited from starting after many EBT policies had already been worked out in negotiations among the federal government, EBT vendors, and food retailers. Although representatives from several large grocery chains approached TransFirst with a list of standard demands developed by FMI (Food Marketing Institute), a national food retailer association, TransFirst was able to show that many of the demands had already been accommodated in its system design or that the matter had been settled through federal policy decisions. TransFirst also met the retailers' demands for free full-lane coverage by offering such coverage if, in return, retailers provided cash-back to cash assistance recipients. A "win-win" deal was struck.

The third factor that favored the merchant recruitment process in Maryland was the state's lack of third-party processors. During the Park Circle pilot and the first year of the expanded EBT project, DHR's vendor had no competition from third parties. Deluxe's position,

14. Examples include daily settlement, terminal and clerk totals, and the placement of the balance inquiry function on the POS template.

supported by DHR, was that third parties would not be certified until the Deluxe EBT system was operational.¹⁵ Safeway, one of the state's largest food retail chains, was developing its own electronic funds transfer system in early 1992 and expressed an interest in becoming an EBT third-party processor, but did not ask for system specifications until late in the year.

Concord, a Memphis-based processor, first approached Deluxe about becoming an EBT third-party processor during the summer of 1992. In the fall, Concord asked for system specifications in order to start the certification process. The specifications were not made available until November. In February, Concord filed a lawsuit arguing that Deluxe had delayed in providing specifications until it had nearly completed installing its own POS devices throughout Maryland.¹⁶ Concord also alleged that by not offering third parties free access to Deluxe-installed POS terminals, Deluxe had gained an unfair competitive advantage in providing commercial electronic funds transfer services to Maryland merchants at a lower cost than its competitors. Although Concord was certified on the Deluxe EBT system in March 1993, to date the lawsuit has not been settled. Its outcome could have a significant impact on future relationships between vendors and third-party processors.

About 5 percent of FNS-authorized food retailers in Maryland decided not to participate in the EBT demonstration. Of a sample of 30 nonparticipating retailers surveyed in early 1993, 63 percent said that they did not believe they conducted enough food stamp business to justify their participation in EBT. Half of the retailers surveyed reported that they conducted zero food stamp sales in a given month. The average monthly redemption for the entire group was \$57. Other reasons were given by one retailer who did not trust EBT, another who claimed the EBT representative was rude, and three who, in general, did not want to hassle with EBT.

15. Deluxe's Statewide Implementation Plan stipulated that "any third-party requests would be serviced following conversion." Third-party processors were to be certified by the MOST network. Prior to conversion, stores with third-party processors were to receive free POS terminals connected to the TransFirst system so they could accept food stamp sales. Thus, their limitation on EBT access would last from the date of conversion to the Deluxe system to whenever the store's processor could gain certification on the Deluxe system. In February 1992 the MOST network had completed specifications for third-party certification.

16. Indeed, merchant installation was completed by Christmas of 1992.

Client Implementation

Before converting each county or city district to EBT, program recipients needed to receive their access cards, select their PINs, and learn how to use the system. By plan, most recipients were to be trained in group sessions conducted by Deluxe around the time of conversion. Local DSS staff were responsible for training and issuing cards to new clients or those who missed Deluxe's mass training sessions. Experiences from each training approach are described below.

Mass Client Training. Deluxe was responsible for training all clients who were receiving benefits at the time a county or city district converted to EBT ("mass training"). The entire mass training cycle generally lasted for six weeks in each site.¹⁷ DHR would send Deluxe a data file with the county's caseload three weeks before the beginning of the mass training cycle. Deluxe would then add those clients to the EBT database and would send out letters to clients three weeks before training began in each county, giving scheduled appointment times. No-shows were sent a second letter and rescheduled for another session. If a client failed to attend either session, that person's file was sent to the local office for follow-up. Mass training was scheduled to overlap with the first week of benefit issuance, to provide extra mass training sessions for clients who had failed to attend earlier sessions. The number of training centers (often local DSS offices, churches, senior centers, schools, etc.) varied among counties, with Deluxe using a general rule that one center was needed for every 5,000 clients. The quality of the selected sites varied: some lacked parking or handicapped access; others were not accessible by public transportation.

The hour-and-a-half training session consisted of an introduction to EBT and basic information on card security, ATM and POS use, problem resolution, and balance inquiry procedures (accompanied by a video presentation). Clients also received handouts, available in English, Russian, Spanish and Vietnamese, outlining step-by-step procedures for POS and ATM transactions.¹⁸ The content and organization of the sessions were generic—that is, clients were

17. Originally, one month was set aside for client training in each county. However, as Montgomery County implementation progressed it became clear that at least six weeks were necessary to mail out the two rounds of letters and hold the two sets of training sessions in counties with large caseloads.

18. Some advocacy organizations translated and embellished these handouts for particular non-English speaking groups.

not segregated by program or by primary language spoken. Relatively little information was routinely provided about the direct deposit option, or about specific EBT benefit issuance policies for NPACS clients. Because non-English speakers usually brought their own interpreters, the language difference proved not to be a barrier. However, NPACS clients sometimes complained about being forced to mingle with welfare recipients. After the group session, clients met individually with a trainer to receive their card and to choose a PIN number. Under the TransFirst system, clients were given an EBT card embossed with their name, a card number,¹⁹ a generation number, and an expiration date. Later, with the Deluxe system, clients received a temporary "vault" card at training, set to expire within 14 days (subsequently 28 days), and were mailed a permanent magnetic-stripe card printed with their name and card number.²⁰ Following card issuance, clients could practice using the card (for balance inquiries) at an on-site POS terminal and a mock (training unit) ATM.

Evaluation interviews were done with ten community organizations in late May and early June of 1992 to assess clients' EBT experiences in the early stages of implementation, and were repeated during the fall of 1993 to assess clients' longer-term experiences under EBT. The organizations expressed some concern about the adequacy of the training, referring to the lack of training in all languages, the lack of training in elderly housing developments, and confusion in the training information regarding the role and card status of authorized representatives. Advocacy staff also mentioned that the sensitivity of the trainers to clients' concerns varied considerably by site. Some sites recognized that clients, particularly those with jobs, had a legitimate need to reschedule their training sessions. In other sites, trainers were strict about not allowing clients to change their training appointments, and would not allow latecomers to join training sessions already in progress. Elderly clients seemed to have the most trouble adjusting to the new EBT technology, requiring hands-on practice with ATM and POS devices during the training or later at an actual ATM, usually with an elder services worker. According to the community advocates interviewed, some elderly clients who did not want to learn how to

19. The card number on the TransFirst EBT cards had a code that indicated whether the cardholder was a public assistance recipient, food stamp or Bonus Child Support recipient, or an alternate payee. The card number also included the client's case number.

20. Problems with clients not receiving a permanent card by the time the vault card expired led DHR to extend the expiration date on the vault cards to 28 days, effective January 28, 1993.

use EBT dropped out of the program or designated an authorized representative to access their benefits. In general, however, the groups said the clients seemed to be responding positively to EBT, and most organizations had spent minimal time dealing with client conversion from food stamps and cash.²¹

As indicated in Exhibits 5.4 and 5.5, the attendance rate at the mass client training sessions ranged from 35 to 75 percent, with a statewide average of 59 percent. Any client who missed the mass training and who failed to make an appointment with a DSS trainer to pick up their card was eventually "dumped" onto the EBT system. Once they were on the system, benefits could be authorized, but not redeemed until the client came into the office for training, card issuance, and PIN selection. Several factors may account for the relatively low rate. First, the client data file was sometimes transmitted to Deluxe two to three months before the EBT implementation date. Many of the "no-shows" turned out to be clients whose cases had been closed, or who had moved out of the area in the interim. If the data files could have been transmitted closer to the county implementation date, they might have contained more accurate client information. Second, the counties that allowed clients to reschedule training appointments (Caroline County, for example) tended to have a slightly higher overall attendance rate. Third, although DHR did send an "EBT is Coming" letter prior to the first training appointment letter, attendance rates might have been higher if the impending change and its consequences had received more publicity.²²

NPACS clients had by far the worst attendance rate, for a number of reasons. First, about 20 percent had elected to receive their benefits through direct deposit, and were unwilling

21. If concern or uncertainty about the EBT system causes some recipients to drop out of a program, the number affected must be relatively small. An analysis of month-to-month caseload changes before and after EBT implementation shows no clear pattern of effects. See Chapter Three in Erik Beecroft *et al.*, *The Evaluation of the Expanded EBT Demonstration in Maryland, Volume 3: System Impacts on Demonstration Stakeholders*. Cambridge, MA: Abt Associates Inc., May 1994.

22. For its New Jersey EBT project, Deluxe plans to advertise the coming of EBT, through posters in neighborhood storefronts, well in advance of the client training schedule, and to provide EBT training to local welfare staff before the training notices are mailed, to give the staff an opportunity to answer clients' questions about EBT before the beginning of training.

EXHIBIT 5.4
MASS CLIENT TRAINING IN MARYLAND

Site	Expected Number of Trainees	Total Number Scheduled	Total Number Attended ^a	Attendance Rate (%)
Cecil	1,881	2,484	1,876	75.5
Montgomery	9,338	9,878	6,152	62.3
Prince George's	14,312	20,193	12,442	61.6
Baltimore	11,659	16,657	9,652	57.9
Carroll	1,308	1,802	1,032	57.3
Howard	1,356	2,101	1,200	57.1
Harford	2,730	4,780	2,475	51.8
Kent	470	686	381	55.5
Calvert	1,044	1,516	851	56.1
Queen Anne's	640	917	518	56.5
Caroline	821	1,013	641	63.3
Charles	2,519	2,903	1,694	58.4
Anne Arundel	6,496	9,713	4,944	50.9
St. Mary's	1,809	2,632	1,480	56.2
Talbot	814	1,160	675	58.2
Frederick	2,166	3,146	1,749	55.6
Garrett	1,189	1,509	934	61.9
Allegany	3,845	5,033	3,104	61.7
Washington	3,545	4,434	2,594	58.5
Dorchester	1,372	2,073	1,284	61.9
Somerset	1,133	1,629	992	60.9
Wicomico	2,962	3,994	2,377	59.5
Worcester	1,104	1,594	1,043	65.4
Baltimore City	85,806	114,079	66,362	58.2
TOTAL	160,319	215,926	126,452	58.6

SOURCES: Maryland EBTS Statewide Implementation Plan, October 17, 1991.
Maryland Recipient Training Statistical Report, March 29, 1993.

^a Includes authorized representatives.

EXHIBIT 5.5

MASS CLIENT TRAINING IN BALTIMORE CITY DISTRICTS

Baltimore City District	Expected Number of Trainees	Total Number Scheduled	Total Number Attended ^a	Attendance Rate (%)
Park Circle	5,700 ^b	5,700	6,050	106.1
Liberty Garrison	5,420	7,745	4,387	56.6
Steuart Hill	5,482	7,254	4,366	60.2
Govans Waverly	6,144	8,959	5,281	58.9
Orangeville	6,429	8,643	5,177	59.9
Clifton	5,687	8,022	4,813	60.0
Cherry Hill	2,822	3,653	2,330	63.8
Patapsco	1,257	1,681	931	55.4
Rosemont	6,486	8,166	4,792	58.7
Westwood	5,705	7,476	4,489	60.0
Mount Clare	6,182	8,143	4,697	57.7
Collington Square	4,170	7,106	4,276	60.2
Upton	5,993	7,333	4,276	58.3
Johnson Square	4,702	5,139	3,003	58.4
Refugee/Homeless	1,059	1,421	501	35.3
Dunbar	4,768	3,626	1,983	54.7
NPACS	7,800	14,012	5,010	35.8
TOTAL	85,806	114,079	66,362	58.2

SOURCES: Maryland EBTS Statewide Implementation Plan, October 17, 1991.
Maryland Recipient Training Statistical Report, March 29, 1993.

^a Includes authorized representatives.

^b Represents recipients not added to EBT until December 1991.

to give up work time to be issued a card they would probably never use.²³ Second, many NPACS clients felt unsafe traveling to the neighborhood in which the Mondawmin Mall training site was located, and many NPACS clients did not care to be trained along with welfare recipients. Finally, training attendance could not be mandated by DHR, because NPACS clients' participation in EBT is voluntary.

Ongoing Client Training. The responsibility for "ongoing" training, that is, training of those clients who were added to the welfare rolls after transmission of the card file to Deluxe, belonged to the local DSS offices. Although TransFirst had responsibility for this under its contract with DHR, upon assuming the contract Deluxe argued that the cost of maintaining a trainer in each county was too high, and DHR agreed to assume responsibility for the ongoing training duties.

This "ongoing" training typically started after the end of Deluxe's mass training. Within a week or so after the end of mass training, boxes of permanent cards were delivered to the local offices for distribution to clients who had missed the mass training sessions. Although it was theoretically possible to search through the boxes to find clients' cards, it proved impractical, as the cards were not organized in any particular order. Consequently, new vault and permanent cards were issued to all mass training no-shows and to all ongoing training participants. The old cards were eventually destroyed.

The counties developed a variety of training referral procedures. Some sites trained and issued vault cards to applicants immediately following the application interview; once the person was certified eligible for assistance, a permanent card was mailed to the client. This approach had two disadvantages. If the trainer entered a wrong number when creating the EBT case before the case was input onto the AIMS system, the AIMS benefits would not link to the EBT card. Also, some permanent cards were not delivered to the client before the temporary cards expired. Other sites waited to send a training letter to clients until after they were determined eligible for assistance. This policy reduced the number of ineligible applicants receiving vault cards, but it required eligible clients to return to the office for the training session. These sites kept the practice of mailing the permanent card. Several of the last counties to convert to EBT

23. Because NPACS benefits are posted to clients' accounts as soon as they are received, an EBT card is needed to distribute any benefits issued before a direct deposit account can be set up — a process that can take over a month.

tried a third, more successful training procedure. Case workers waited until after the eligibility determination was made to order a client's permanent card. After the card arrived, the client would be called in for training. This eliminated the need to mail the permanent card to the client, and it eliminated the need for a vault card.

As expansion progressed, it became clear that ongoing trainers would be needed as soon as mass training began, earlier than DHR had anticipated. This was necessary because any individuals who applied and were approved for benefits after transmission of the card file to Deluxe (which happened a few weeks prior to training) were DHR's responsibility to train. DHR also had to be ready to retrain and to assign PINs for replacement cards. This realization caused some confusion in the local offices regarding how the trainers would be trained, and what kind of space and equipment they would need for training.

Some ongoing trainers were hired early enough to participate in Deluxe's two-week training course for its mass trainers. Other counties had more trouble finding qualified applicants with the required four-year college degree to take a part-time contractual position paying, on average, \$8 per hour. In these counties, trainers were hired much closer to their county's implementation dates and had to learn the system by attending Deluxe's half-day EBT systems training and by watching mass client training sessions, if permitted.²⁴ DHR's client training sessions follow a format similar to Deluxe's mass training. After a client listens to a short introduction to EBT and watches an EBT training video, he or she is issued a card and selects a PIN for the card.²⁵

In hindsight, the college degree requirement for the ongoing trainer position seems excessive,²⁶ and has contributed to considerable turnover. In half of the counties, the original trainer has been replaced at least once in the last year. One county reported having hired six trainers in a seven-month period. Because the ongoing trainer inevitably becomes the local

24. In some counties, the Deluxe trainers were willing to allow DHR trainers to observe and help with the mass training sessions; in others, DHR staff were not allowed inside the mass training sessions.

25. Although many generally like the EBT video, it has been criticized for not stressing the difference between vault and permanent cards.

26. As evidence of the excessive requirement, several OIM staff pointed out that not all of their own trainers have college degrees. As the training backlog is completed and more clients need replacement cards, the trainer's functions are becoming more clerical in nature. Finally, the back-up trainers are most often clerical workers.

office's EBT expert and is relied on to handle many of the caseworkers' EBT inquiries, the high turnover rate has caused a hardship for many local offices. DHR's EBT management is aware of the problem, and is trying to revamp the job's requirements and grant these workers more permanent status.

Local DSS Office Implementation

Local DSS staff, who would play key roles in the new benefit issuance system, also needed training before the system could be implemented. The next section discusses the training process, as well as issues that emerged during local office implementation. Although some problems continued throughout the start-up process, the process tended to go more smoothly as time went on, thanks largely to the lessons learned by Deluxe and DHR staff in the first counties to go on the Deluxe EBT system.

Staff Training. Responsibility for providing EBT training to state and local DSS staff was shared by DHR and Deluxe. For counties and districts that converted to EBT during TransFirst's tenure, Deluxe's training on the TransFirst system was approximately three hours long and consisted of general information about EBT and a slide presentation of the different screens that workers would encounter on the system. Fiscal, income maintenance (IM), and supervisory staff received the same general information about the system. Selected staff (the trainer, fiscal officer, and an IM supervisor) in the four counties and two Baltimore City districts that were initially on the TransFirst EBT system also later traveled to Baltimore in June to attend the half-day Deluxe EBT systems training (see below).

DHR's training for state and local staff consisted of a two-hour introductory course, referred to as "EBTS 101," presented to IM, fiscal, clerical, and supervisory staff in their own offices.²⁷ Between 25 and 30 percent of these people then received hands-on training on the system itself conducted by Deluxe in Baltimore City. The training consisted of a four-hour block for caseworkers and an eight-hour block for fiscal staff, supervisors and the local office's ongoing client trainers.²⁸

27. In Baltimore City, EBTS 101 training was provided centrally, at DHR's headquarters.

28. While the Deluxe training staff acknowledged that the four-hour training block for caseworkers would ideally be twice that length, this represented a compromise: one- to two-hour training sessions had been advocated by the EBT project director at the time the training schedule was being developed.

The systems training introduced many local DSS staff to personal computers, and specifically to Windows-based software and the use of a "mouse." Although a practice session using the card game Solitaire had been added to the training session in order to help workers get a better feel for the new system, the Deluxe training staff were still surprised by the workers' lack of computer experience. Because of time limitations, the Deluxe trainer felt constrained to cover all of the assigned material within the four-hour period. As a result, some trainees were uncomfortable with the brisk pace of the training. For lack of time, EBT policy issues were not discussed to the displeasure of many local staff, particularly fiscal workers.²⁹

Until the system's conversion was complete, Deluxe and DHR staff operated in a state of almost constant crisis, under great pressure to prepare a new EBT system for implementation while solving the operational problems of the previous system. After conversion, local implementation issues took priority for the first time. Four additional DHR staff were added to the EBT team for the duration of the expansion phase, on loan from the stalled CARES project. One of the four, a DHR trainer with extensive system implementation experience, was chosen to lead the on-site implementation team. He immediately developed an implementation checklist (see Appendix E), which guided the EBT implementation process in the rest of the counties.

The checklist included many of the implementation lessons learned from the earlier expansion sites. Interviews with local DSS staff indicate that the precautions listed were often learned through direct experience. The checklist calls for a planning meeting to be held three or four months in advance of the implementation date, during which a DHR implementation specialist would lay out the State's expectations for the implementation process and EBT's potential impact on local operations. After the meeting, DHR would provide up-to-date caseload statistics to Deluxe, and Deluxe would send back a list of all non-EBT cases, identified by zip code, to each local office to transfer or close any cases that have moved out of its jurisdiction. Next, ongoing trainers need to be hired and back-up trainers selected at least 60 days prior to rollout to allow for adequate training and set-up of the ongoing training unit. In preparation for the installation of administrative terminals in the training, IM, and fiscal units, adequate space must be allocated and dedicated telephone lines installed to operate the administrative terminals and POS devices used for PIN encryption. The ongoing training site, accessible to handicapped clients, must be operational by the first day of mass training.

The office equipment (terminals, POS devices, and printers) should be delivered and installed in a permanent location at least two to three weeks prior to the implementation date to allow for hands-on practice and any necessary repairs. As part of the terminal installation process, installers should log onto the system and have all relevant staff also log onto the system in order to verify that each terminal is correctly linked to the vendor's host computer and that workers' security parameters have been set appropriately. As part of the linking process, each terminal's "address" (identification number) must be identified correctly and added to the EBT

system. In order to avoid confusion and installation delays, oversight for each task must be clearly assigned to either the State or the vendor.

The EBT implementation specialist should be on-site during the first week of start-up, arriving a day or so ahead to provide hands-on refresher training to local staff and staying a day or two after start-up to troubleshoot any problems that appear. Because staff retention of training information is usually limited and key staff sometimes miss EBT training sessions, such on-site training is inevitable. No client training appointments should be scheduled for the first day or so after implementation, to allow time for local staff to become comfortable handling the equipment. After implementation, the state specialist should pass along all program changes or system updates to the local liaison, and respond quickly to local implementation questions.

Two of the most vexing local implementation problems involved the installation and repair of the administrative terminals and the coordination of AIMS and EBT case maintenance procedures. DHR staff were most frustrated by the condition in which the administrative terminals were delivered to the local offices. An estimated half of the terminals were inoperable on arrival.³¹ The most common cause was that the equipment had been packaged poorly, so that internal circuit boards had shaken loose during shipping. Deluxe preferred that local staff send the faulty equipment back to the manufacturer, via Deluxe, for repair, while the terminals were still under a one-year warranty. However, the one- to three-week turnaround time for equipment repair proved to be too long for the local offices. DHR's Personal Computers and Telecommunications Support (PCTS) unit, which was responsible for installing and maintaining the EBT hardware, attempted to help the local offices by cannibalizing the equipment in order to fix terminals quickly. Upset that such "tampering" potentially voided the terms of the equipment's warranty, Deluxe operations staff began taping shut the terminals' CPUs. Deluxe field staff also started assisting in the installation process in order to keep the local office installation schedule on track.

Although hard feelings lingered, the equipment problems diminished after all the local office equipment was installed. By the end of the warranty period in July 1993, all responsibility for the maintenance of the PCs was handed over to the PCTS unit, in accordance with the 1992 installation agreement.

31. By late fall the proportion of inoperable terminals had fallen to 33 percent.

The second largest start-up problem for the local sites proved to be the inclusion of authorized representatives, also called alternate payees, in the EBT system. Many persons—spouses, relatives, etc.—served as informal alternate payees, but as the client card files were created from AIMS data, these alternates were either not notified of the training or arrived at the training without a referral. They then had to be processed, scheduled for training, and issued EBT cards. Additional staff were needed on some days to process these cardholders. For many alternate payees, benefit issuance problems occurred after they received their EBT cards. Unless a worker or clerk manually entered their names onto the AIMS database, as well as the EBT database, they could not access the benefits issued. For many months DHR staff were willing to correct alternate payees' status centrally, but eventually notified the counties in the summer of 1993 that from then on, the client code changes had to be made permanently at the local level.

5.3 POST-CONVERSION EBT OPERATIONS

With the expansion of the Maryland EBT system complete in April 1993, some DHR and Deluxe project staff were re-assigned to other duties, and EBT support functions were transferred to operations units. For instance, at DHR the EBT site implementation and training specialists began preparing for the implementation of CARES, the agency's new income maintenance management information system. Other EBT team members returned to their former IMA positions. DHR's user support unit took over responsibility for handling all system-related calls from local DSS offices. DHR's EBT director became more involved in showcasing the new system to other interested states and attending EBT policy task force meetings and conferences at the regional and national levels.³² Meanwhile, the EBT evaluation coordinator divided most of her time between project evaluation duties and media events, the most significant of which was the Maryland EBT kick-off event, attended by Maryland's Governor and the Secretary of the U.S. Department of Agriculture.

At Deluxe, the core group of managers that had handled the project's daily operations was also dispersed. The Maryland EBT project director and assistant director were transferred

32. An issue of major concern was the Federal Reserve Board's preliminary decision to extend Regulation E's consumer protections to EBT participants.

to Deluxe's new EBT project with the State of New Jersey and were replaced by new EBT staff. They were joined briefly on the New Jersey project by Maryland's merchant installation coordinator, before she was promoted to the post of Maryland field manager. Maryland's testing coordinator moved on to manage system development for the New Jersey project. Responsibility for the system's routine monitoring was handed over to the operations group at the New Berlin Data Center.

These personnel changes at DHR and Deluxe are not unusual in EBT projects. System specialists handle the tasks of developing and implementing a system, and then turn over the routine operation of the system to operations staff; however, the specialists are usually still available if system problems arise.

System Performance Issues

System performance issues were a major concern throughout the implementation process because severe disruptions can occur when the system goes down or runs slowly, especially on busy issuance days. Poor performance affects people not directly involved with the EBT system, such as customers waiting in checkout lines.

The vendor contract required Deluxe to meet performance standards articulated in the original Request for Proposals. As discussed in Chapter Two, the system currently falls short of the contract's response time standard, but meets the standard in the EBT regulations. The system appears to meet the downtime standards in both the contract and the regulations.

As discussed below, the Deluxe system had some significant performance problems. Our description of these can be read as a cautionary tale about how seemingly minor difficulties can sometimes lead to severe disruptions.

The operations group at the Data Center was responsible both for monitoring the system's ongoing operations and for overseeing the installation of any system enhancements. The system had been stress-tested to determine how well it could handle anticipated transaction volumes under normal operating conditions. Over the spring and summer, Deluxe learned how easily the system's balance could be thrown by any disruption to normal routines.

In late March and April 1993, the system experienced its first significant problems in months. The problems were the result of increasing transaction volumes and routine maintenance errors. On March 31, the food stamp benefit refresh file was larger than expected

and problems were encountered during the transfer of the file from the Tandem system to the IBM.³³ The batch process was still running in the morning when DSS staff began adding new cards to the system. The system then had problems linking benefits to these cards. To solve the problem, Deluxe added new software to handle the transfer of larger files.

On April 10, Deluxe had to shut down the entire system for about 20 minutes to clear up severe problems in the EBT switch and acquiring platform. New software had been installed the previous day that contained a parameter set too low to handle the switch's transaction volume. The parameter was reset to accommodate the higher volumes. Also during the same period, the audio response units were "locking up" at peak traffic volumes. On April 18 and 19, three more problems occurred. An aging sweep code calculated the aging date incorrectly, causing Bonus Child Support benefits to be aged off the system. These were then re-added manually. In addition, incorrect maintenance procedures caused a hardware failure in the equipment linking the SSP platform to the Tandem, resulting in a two-hour period when administrative terminals could not access the authorization processor. For about three hours on the 19th, an incorrect setting of a database parameter prevented DSS workers from issuing cards and Deluxe Help Desk staff from processing voice authorizations or matching vouchers.

More problems occurred in June and July, interrupting the benefit issuance cycle in both months. On June 6, batch maintenance was performed during the day in order to add a group of merchants inadvertently removed from the database. However, the transaction volumes on the switch that day were peaking at 18 percent over the previous month. The system could not handle the higher traffic volume together with the drain on system resources caused by the batch processing. All nonessential processes and four of the systems 42 terminal handlers (which bring transactions into the EBT switch) were shut down to reduce the flow of transactions to a manageable level. To prevent a reoccurrence, Tandem representatives were brought in to advise Deluxe on how to increase the system's efficiency and expand the switch's resources in order to give the system "more room" to make emergency changes.

In July, two more emergencies tested the system's ability to operate under stress. On July 6, a telephone circuit problem disabled half of the Washington DC area's telecommunications node. Traffic was rerouted to another node, but the increased system communication time

33. Mass authorizations increased by 10,000, from 125,000 in March to 135,000 in April.

caused some transactions to be reversed.³⁴ Because this occurred on a very high-volume issuance day and the reversals consumed significant system resources, the system could not handle all the additional activity. Various system processes began timing out and had to be shut down. Within two hours, the system's transaction queue had emptied out and processing returned to normal. On July 9, administrative terminal software was mistakenly auto-downloaded into all DHR/DSS terminals. When all the local offices logged on in the morning, downloading the software simultaneously, the host's resources were depleted. Processing code and procedures were changed to prevent another massive software download.

Later in the month, batch maintenance processes tripped up the system on two occasions. On July 27, some 300 benefit records were not updated on the anniversary of their first appearance on the system (i.e., after the Deluxe conversion on July 20, 1992) because they had been identified only by month and date, and not by year. After the problem was discovered, the benefits were reapplied the next day. In response, case status information over 30 days old is now purged from the system on a monthly basis. On August 2, the first month of CARES issuance, six new types of GPA benefits installed with CARES were not added to the daily history report, preventing the transmission of the report to the State. The file was later corrected. In August, daily meetings with operations management and staff were instituted at the Data Center to review routine EBT operations and ensure that proper procedures were being followed for introduction of any new changes to the system. Since then, the system has had very few operational problems.

The system problems caused great concern among Maryland merchants, clients, and DHR/DSS staff. At the July 15 meeting of the Maryland EBT merchant focus group, several merchants complained about the inadequacy of the \$40 liability limit on purchases during periods of system downtime. In response, Deluxe agreed to increase the limit to \$100 per client for a trial period of three months.³⁵

34. Typical practice in EBT systems is to reverse, or back out, any database changes that have occurred while processing a transaction if the entire processing cycle cannot be completed within a specified time limit.

35. At the October 1993 merchant focus group meeting, the Deluxe staff reviewed this policy, remarking that it had never been tested as there had been no downtime during the three-month period. The policy remains in effect as of May 1994; it has still never been used.

Fraud issues were also discussed at the July focus group meeting. Deluxe reminded merchants not to disconnect their store telephone lines from their POS devices to make long-distance and 900 line service calls.³⁶ Merchants noted that some clients were bringing two or three different cards to pay for one set of groceries. They were told that such a practice was not strictly illegal but was highly questionable from a fraud standpoint, and they were encouraged to relay such information to FNS' Towson field office or to DHR for follow-up. DHR did not have any staff assigned to client fraud (its fraud unit had been eliminated in a previous round of budget cuts) but was willing to try to respond to complaints on an *ad hoc* basis. Merchants were also alerted to the problem of clerks observing client's PIN numbers and later making manual withdrawals using the card number printed on the client's transaction receipt. Deluxe proposed to replace the card number on the receipt with the case number in order to reduce fraud.

The primary complaint of DHR's recipients was the inaccessibility of Deluxe's Help Desk. Especially during issuance cycles, clients had considerable difficulty getting through to a Help Desk operator. In response to such criticisms, Deluxe completely revamped its Help Desk function. The original Help Desk manager was let go in August 1992, and a permanent replacement selected by the end of the year. Soon after, an enhanced telephone system was installed that offered improved statistical reporting and the ability to route calls to particular staff. Help Desk operator training was improved and lengthened. A full-time research analyst was hired to research and respond to merchant and client reports of errors involving direct deposit accounts, ATM misfeeds, settlement imbalances, and other reconciliation problems. In addition, operations staff and system monitoring equipment were transferred downstairs to the Help Desk from the central control room to facilitate the troubleshooting and resolution of systems problems reported by callers. Finally, an on-line system was implemented for logging and sending dispatches for POS service.

Baltimore City participants also complained about the long lines at the City's centralized card replacement center.³⁷ Baltimore DSS administrators had underestimated both the numbers of clients requiring card replacements on a monthly basis, and the increased level of

36. According to Deluxe, inappropriate use of these lines led to more than \$12,000 in extra costs in 1993.

37. During the first week of each month, clients waited in line an average of 1.5 to 2 hours for service.

demand for card replacements at the beginning of each month during the benefit issuance cycle. The monthly card replacement rate in the City averaged 6 to 7 percent, higher than anticipated. In the short term, the City solved the problem by opening up a second card replacement site at the Mondawmin Mall.

DHR staff are also reviewing various options for reducing the card replacement rate over the long term. At the state level, the replacement rate was about 2-3 percent at the end of 1992, but it has been increasing steadily at a rate of 0.2 to 0.3 percentage points per month, and is now at about 6 percent. The reasons for the increased replacement rate are hard to diagnose, because the system reports did not track why the cards needed replacing.³⁸ (Some portion of the cards are lost, stolen, damaged, or even sold.) The policy decisions made will depend on the extent to which card replacement is caused by these problems.

DHR administrators and staff were concerned about slow administrative terminal processing speeds, particularly during each month's benefit issuance cycle. Staff reported that compared to the administrative terminal processing speeds of the AIMS (4-5 seconds) and TransFirst EBT systems (2-3 seconds), Deluxe administrative terminal transaction times were much slower, averaging about 9-10 seconds. The contract has no comparable performance standards for administrative processing, and the problem thus far has remained unresolved.³⁹ DHR staff also have complained about the slow printing speeds of the EBT printers—it apparently takes the dot-matrix printers almost two minutes to print a single page of history screen information because of Windows' complicated graphics. At DHR's central headquarters, a laser printer will be installed to speed up system printing. At the local level, no "fix" has been made available.

System Enhancements

Over the course of the past year, the project's managers at Deluxe and DHR have had a chance to observe the system in operation and make adjustments or enhancements where appropriate. In December 1993, Deluxe implemented an upgrade (Version 1.1) of its EBT

38. A new category, "damaged cards," has been added to the card replacement report to determine the rate at which the cards are wearing out and must be systematically replaced.

39. Initial research by Deluxe shows that response times differ dramatically across terminal locations, suggesting that differing line speeds in the telecommunications network may be part of the problem.

software. In addition, new POS terminal software (Version 3.0) was rolled out on a merchant-by-merchant basis early in 1994.

The key design change in Version 1.1 of the system software is the addition of the Group Home function. It will allow the transfer of food stamp benefits for individual clients to a single benefit used by a group home to purchase food on behalf of its residents.⁴⁰ The new function involves several new screens, new reports, and additional fields in existing reports. The new software also improves various history extract file, batch refresh, and database sweep functions. In addition, the version addresses a number of existing administrative terminal software problems, including blank screens, erroneous data, and minimal on-line help screens.

New system enhancements also include the following:

- The client code can now be changed as a single entry, rather than having to enter the new client code, manipulate cards and benefits, and delete the old client code;
- Information has been added to the "About" screen to assist with problem resolution, including the terminal ID, system ID, and the amount of free Windows resources;
- The History screen will require a store ID as well as a terminal ID when requesting the history of a POS device, in order to better identify POS devices operated by third parties;
- For security purposes, a time period may be specified for inactivity on a terminal (e.g., 15 minutes). Once elapsed, the user must re-enter their password;
- The system was improved to better control the downloading of software into the administrative terminals;
- The card issuance function will allow the issuance of a vault card as a permanent card, and use plotting equipment to inscribe data on the card;⁴¹

40. If a recipient enters a Group Home after all benefits in his or her EBT account have been depleted, the recipient's next month's benefits will be automatically deposited in the Group Home's benefit account. When a recipient leaves a Group Home, a pro-rated share of the current month's benefits (based on when he or she leaves during the month) is transferred to the recipient's EBT account.

41. The use of a plotter would eliminate the middle steps of issuing a vault card and mailing a permanent card.

- A new option may be set to allow benefits to be authorized for a client before the client has been issued a card, and the system will link the benefit to the card when a card is issued;
- An option can be set to edit for a maximum benefit for cash and for food stamps; and
- A new option can be set to force an operator to cancel existing active cards before issuing a replacement card.

The POS Terminal Load Version 3.0 includes a number of changes recommended by the Maryland merchant community, DHR staff, and Deluxe staff. These include:

- The client's case number rather than card number will now be printed on the receipt (to improve security);
- Denied transactions will now cause the terminal to beep for ten seconds, to alert the cashier of the denial. The receipt will also print the word "DECLINED" in large letters to stand out on the receipt;
- The merchant can now obtain a report of all clerk totals or all terminals with a single request rather than collecting totals from each terminal;
- ACH totals will now be broken down into three categories: on-line, off-line (i.e., vouchers), and adjustments (i.e., refunds), to assist merchants in their daily reconciliation activities;
- Cashier log-on requests will be forwarded to the host with the first real transaction to increase POS transaction speeds; and
- The balance inquiry function is now a primary function on the POS device, rather than a second-tier function.

Deluxe product development staff point out that the changes listed above, though significant, will probably not be the final enhancements to the Maryland EBT system. As other states review the Maryland system and suggest modifications for their own systems, Maryland will benefit by getting the upgrades gratis. At this point, the Maryland DHR staff are very happy with the enhanced system, but expect to continue making improvements in response to evolving merchant and clients needs. To develop a forum for local DSS feedback, DHR's EBT director conducted regional EBT conferences for local DSS staff in December 1992. The

attendees appreciated the opportunity to meet staff from other counties and share their EBT experiences. The EBT director plans to conduct such conferences on an annual basis.

The Maryland EBT staff also came to realize that the large numbers of moving parts in a statewide EBT project made the task of coordination both enormous and crucial. DHR and Deluxe staff had to ensure that operations continued smoothly under the TransFirst system while new counties were being added to it, at the same time that the new system was being developed and tested. Problems in any one area also tended to ripple throughout the entire project. For example, the addition of several new sites to the TransFirst EBT system in June 1992 caused the system to shut down for several hours. Merchants and clients were infuriated by the inconvenience; clients left their food carts in the checkout lanes, requiring merchants to "shop-back" the unpurchased items at some expense. The incident eventually halted the expansion of the TransFirst system, prompted additional stress testing of the Deluxe EBT system, moved benefit issuance to a staggered schedule, and led to the reactivation of the project's merchant focus group.

The previous chapters recounted the project's development and implementation in considerable detail, highlighting the demonstration's successes as well as its failures. In general, the Maryland EBT project was a great success, proving that statewide EBT systems are eminently "do-able." The purpose of this chapter, however, is to advise future EBT planners on what types of issues or problems they might encounter. Many issues were handled without incident on this project. At this point, we cannot say whether those matters are easily managed, or were avoided through luck or good management that may be lacking next time. This chapter also tries to present only the most important lessons; many smaller "mini-lessons" are found in the main body of the report.

6.1 PROJECT STARTUP ISSUES

Without the commitment of the project's major stakeholders to make the project work while finding ways to accommodate each party's interests, the expansion of the Maryland EBT system would not have been possible. In the process, a new organizational structure was created—a federal EBT task force—to provide a forum for everyone's concerns. A unique financial arrangement—the EBTSAG—was also created to allow the experimental program to meet federal cost-neutrality requirements. Although the handling of cost-sharing issues in future EBT projects will most likely be governed by federal regulations rather than through an

EBTSAG agreement, the federal task force model is already being replicated for use in the development of a national EBT prototype.

The high-level task federal EBT task force worked well as a way to gain consensus from the necessary parties, quickly and efficiently.

Although the task force was formed to respond to a critical juncture in the progress of the Maryland EBT project, it proved a useful forum for resolving procedural and policy issues. Gathering the main decisionmakers around a single table helped to focus and condense the discussions. The one amendment to the EBT vendor contract not negotiated by this task force was the "rights to data" issue.³ The negotiations between ACF and Deluxe over this issue continued for another eight months, ending with the signing of the agreement in April 1992. There were a number of reasons for the lengthy negotiations. The issue was very complicated and draft agreements required review by Deluxe's systems, production, and legal staff. Deluxe was also very reluctant to agree to the amendment, requiring several sessions to resolve the issues. In addition, there was little pressure on Deluxe to conclude the negotiations after ACF granted DHR permission to proceed with the project. This issue might have been resolved more quickly had it remained part of the task force's negotiations.

The cost-neutrality provisions embodied in the EBTSAG proved a useful way to limit federal liability and resolve federal concerns about cost, but may obscure the full extent of state costs.

The EBTSAG helped resolve ACF's concerns about costs they would have incurred over and above the costs of paper-based AFDC benefit issuance, clearing the way for federal approval of statewide expansion. However, as the fiscal review conducted by the FNS regional office revealed, the provisions of the EBTSAG led Maryland to submit bills based on the SAG limitations rather than its true costs of running the EBT project. The problem lay in the differences between DHR's accounting practices, which were based on cash-flow accounting, and the federal billing requirements, which were based on accrual accounting procedures. New, more flexible billing policies that meshed with the EBTSAG's requirements were needed to improve the project's accounting practices and present a better picture of the project's actual costs.

3. See the section entitled "The EBT System Contract" in Chapter Three for more detail on this issue.

6.2 DEVELOPMENT ISSUES

Relatively few system development problems appeared in the expanded Maryland project, primarily because the Maryland EBT team was fairly clear about what kind of EBT system they wanted Deluxe to design. DHR had already been through the system development process with TransFirst, and had had an opportunity to see the TransFirst system in operation in the Park Circle pilot test. Based on the results of the pilot test, DHR staff knew which system features they wanted to keep and in which areas they were willing to try newer, often less expensive system designs.

The most radical change between the TransFirst and Deluxe systems was the use of Windows for DHR's administrative terminals. Deluxe developed an attractive, flexible system, but overestimated the technical sophistication of local DSS staff and initially designed software that was too error-prone, a problem that was quickly solved after conversion. As mentioned below, the project's planners also underestimated the amount of time needed for system design and development, perhaps because so few design changes were initially being requested.

Design and development of the Deluxe system took longer than expected, in part because end users were not included in design and development discussions.

DHR failed to include local office staff or state-level technical personnel in design and development discussions with Deluxe. Including these people is critical, because they will use the system on a daily basis, issuing and maintaining cards and benefits and sending batch transmissions. The EBT project director recognized the importance of department-wide communication and instituted the EBT system task force, yet only a few task force members ever saw the early iterations of Deluxe's design documents and user manuals. County and city DSS personnel were also underrepresented on the task force. One person represented Baltimore City DSS, and another represented all 23 counties.

The chain of communication that funneled all input on design issues through the EBT project director and the Deluxe EBT project manager was needed to speed the system design process as rapidly as possible. However, it also inadvertently discouraged the wide-ranging input necessary for a project that would affect the day-to-day operations of so many people. Expanding the scope of design and development discussions might also have helped Deluxe understand the actual resources and expertise available in the local offices, and avoided some

of the early PC and Windows difficulties. Local DSS staff might also have been more receptive to EBT if they had had more opportunity to provide input on the system's original design.

Deluxe's Maryland field staff who had worked directly with merchants as TransFirst contractors in the Park Circle pilot had gained a good understanding of system features and procedures that were important to the merchants—the format of the ACH settlement information, the most frequently used functions on the keypad, the usefulness of clerk totals, seven-day settlement—but were not adequately consulted on design and development issues. While the TransFirst and Deluxe systems were not intended or expected to be identical, merchant conversion to the Deluxe system might have been eased had the changeover been more transparent for retailers. A useful format for merchant input might have been the continuation of the merchant focus group meetings organized by TransFirst. Deluxe did not use the focus group on a regular basis until after conversion, when merchant complaints had escalated to the federal level.

The cycle of design revisions and DHR's late requests for major changes at the system's functional demonstration (e.g., of the card issuance function) fostered by the lack of communication also contributed to the delay in completing development of the Deluxe system. The schedule must allow time for user input, as well as programming, even if it is the redesign of an earlier system.

6.3 EARLY EXPANSION ISSUES

In an effort to recoup the costs of a two-month lag in the implementation schedule,⁴ several counties and city districts were added to the TransFirst system during the final months prior to conversion, rather than onto the Deluxe system as originally planned. The pre-conversion decision to expand carried its own costs, however. Not designed to handle such large transaction volumes, the TransFirst system's performance faltered, angering the system's users. Ultimately responsible for managing the performance of the TransFirst system, Deluxe ended up paying for a number of system improvements and making a number of procedural changes in order to improve the TransFirst system's capacity to handle the increased transaction

4. Under the subcontract with TransFirst, Deluxe was required to pay much higher transaction processing fees to TransFirst after April.

volume.⁵ These operational problems pushed the EBT project, which was already on a very fast implementation track, into a crisis management mode, causing considerable stress for all involved. Project management resources were stretched thin as problems cropped up in different areas simultaneously.⁶ In hindsight, it seems apparent that too much was attempted in too short a time.

Perceptions of system problems are cumulative, and retailer frustration can be expected to increase even when each incident is relatively minor.

During the months of April, May and June 1992, the TransFirst EBT system experienced significant operations problems after adding additional clients, stopping the flow of POS or ATM transactions on five different occasions. While any one of the TransFirst system incidents had a relatively small impact on any single retailer's business, the frequency of these "glitches" increased the retailers' perception that the system was unreliable and fanned retailer frustration. Thus, retailer patience was already stretched thin when it came time to convert to Deluxe's system, and the Deluxe system's problems were not readily tolerated. Although users can understand that new systems may have shakedown difficulties, they may be less tolerant when an existing system is taken away and replaced by a new one that has problems. Future EBT projects should reconsider the wisdom of stressing any system beyond its tested capacity; users demand a high level of dependability, and become irate over less than perfect performance, especially when they are also asked to deal with the problems inherent in switching from one system to another. If expansion is required, then sufficient time must be allocated for the planning and installation of system upgrades to enable the system to handle the expanded volume. More education may also be needed to readjust merchants' expectations of the performance of a newly implemented or newly developed system. Some shakedown problems are probably unavoidable, and users should be warned of the likelihood of this happening, even during conversion to a new system.

5. In an attempt to reduce transaction volumes during the monthly issuance cycle, the Maryland EBT project management team switched from a one-day to a three-day issuance cycle for cash and food stamp benefits.

6. The sites that converted to the TransFirst system had particularly rough implementation experiences. Equipment did not arrive on time, staff were confused about how to use the system, state-level assistance was sparse or nonexistent, and local offices had trouble getting answers to policy and procedural questions.

While the installation schedule was originally set to implement clients and merchants simultaneously in a given county, retailers and potential third parties became concerned about the effect that that schedule would have on competitiveness.

The original schedule agreed on by Deluxe and DHR called for implementing clients and merchants at the same time in each county or city district. Once the first districts of Baltimore City were implemented, however, retailers not yet equipped with EBT terminals expressed concern that nearby stores with EBT would have a competitive advantage. The assumption that clients will shop only in neighborhood stores is too simple in metropolitan areas, where district boundaries may not reflect neighborhood shopping patterns. In June 1992, DHR and Deluxe quickly agreed to respond to merchant concerns, changing the schedule so that all city merchants were installed on the EBT system by August 1. After conversion to the Deluxe system, the merchant installation schedule was accelerated in all counties, finishing by Christmas of 1992, four months before the final groups of clients were converted to EBT. After speeding up the schedule, Deluxe received complaints from a potential third-party processor, Concord, that it had not had an opportunity to compete with Deluxe for merchant contracts because it had not received system certification specifications until late in the fall. In future EBT projects, third-party competitiveness as well as merchant competitiveness should be taken into account when creating the merchant installation schedule.

6.4 TESTING ISSUES

In an attempt to follow the original implementation schedule as closely as possible, Deluxe conducted a functional demonstration of its EBT system for a group of state, federal, and evaluation staff before all of the system's functions were completed. Although the system was obviously not ready for further testing, the demonstration did offer DHR staff an early opportunity to see the system's design in action and to suggest mid-course corrections and improvements. As a result of this "preview," the two-card (vault and permanent) issuance function was completely redesigned between the functional demonstration and the next round of testing. DHR's hands-on review of the Deluxe EBT system during this stage of its development helped to improve the final product. Such active tinkering may actually be more productive than repetitive rounds of editing and re-editing system design documents, if sufficient time is scheduled for making the requested changes.

The aggressive development and implementation schedule led Deluxe developers to begin testing the system prematurely. This schedule raised expectations that conversion to the Deluxe system was imminent, and increased frustration when this did not occur.

The timetable led Deluxe to schedule the functional demonstration for late March, sending misleading signals as to the status of the system's development. The results of some of the tests, such as the first network stress test, were disappointing for all participants. By requiring tests to be repeated, the aggressive schedule in fact contributed to the project's delays. Additional costs were also incurred as state, federal and evaluation staff reconvened to repeat the failed tests. The test problems also diverted management focus away from TransFirst operations in Maryland, increasing the chances that TransFirst's capacity problems were underestimated.

The fast pace also rushed correction of problems uncovered in testing. Some of these, such as problems with cashier log-on, reappeared at conversion, complicating an already complex undertaking.

Testing protocol required that all problems uncovered in testing be fixed prior to implementation of Deluxe's system, but the push to get the Deluxe EBT system certified meant that some problems, such as user difficulties with Windows and problems with cashier log-ons, were not explored beyond the initial analysis needed to fix the specific problem uncovered in testing. At the live client demonstration, merchants identified issues of concern, such as the need for clearly visible "denied" messages, yet they were told that there was insufficient time to accommodate these concerns. This meant that some of these problems resurfaced during and after conversion, aggravating the difficulties involved in converting nearly 1,500 merchants to a new system virtually overnight. If not for these problems, conversion would actually have gone quite smoothly.

The failure to test the Tranz 1200C controllers under a variety of circumstances was a major planning mistake and led to serious problems for merchants when conversion took place. The crucial lesson is the need not only to test the host and stand-alone terminals, but also to try to duplicate both the volume and telecommunications conditions of a live environment as much as possible, and to test those components of the system that would be most affected by high volume and by different dial-up environments.

6.5 CONVERSION ISSUES

Over the weekend of July 17-20, 1992, Deluxe successfully converted over 67,000 cardholders and 4,100 POS terminals from one EBT system to another—an extraordinary feat of coordination and timing among the TransFirst system operations unit, Deluxe system operations unit, Deluxe and DHR equipment installation crews, DHR EBT and AIMS fiscal units, and local DSS offices.⁷ The conversion process went very smoothly from the standpoint of most of the system's users; for example, the switchover was virtually invisible for small merchants with single-lane stores. On the other hand, larger merchants with controller equipment and complicated accounting practices were particularly frustrated by the conversion process.

Merchant conversion was complicated by the difference in settlement procedures between the TransFirst and the Deluxe systems, as well as by early errors in Deluxe's settlement procedures.

Converting merchants from the TransFirst to the Deluxe systems required retailers to relearn many aspects of EBT, including procedures for settlement. Adding to their burden was the fact that Deluxe had not set the system's daily cutoff parameters correctly, throwing off merchants' settlement totals. During the first two weeks after conversion, merchants generally received the monies to which they were entitled, but not necessarily on the right days.⁸ Some of this settlement confusion could have been avoided had Deluxe chosen one of two paths in preparing merchants for the change. In the first alternative, Deluxe could have trained retailers more thoroughly on the settlement process, ensuring that the individuals in each store's organization who were actually responsible for fiscal management received the training; in the second, Deluxe could have worked to ensure that the conversion from the TransFirst to the Deluxe system was more transparent to the retailer. Following neither path set the stage for confusion, causing extra work and frustration for both the merchants and Deluxe.

7. Dozens of volunteers from Deluxe's corporate headquarters also helped out, handling a special conversion phone bank.

8. After Deluxe auditing staff were finished settling each merchant's account manually, only four merchants were owed money, each less than \$300.

Local office staff also were confronted with major differences between the two systems and received only limited training.

For local office staff, the change to the Deluxe system was substantial: they now had PCs on their desks instead of dumb terminals, and they had to learn how to use a mouse to access the EBT system on the Windows software.⁹ Again, while the Deluxe administrative terminal interface offered significant benefits in terms of flexibility and future applications, DHR's limitation on the amount of training provided to local staff increased their difficulty in adjusting to the Deluxe system. The consequences were that staff did not understand the capabilities of the new system, either its benefits or its increased vulnerability to user error. Better training might have avoided costly repairs and continuing frustration.

The amount of training provided by Deluxe was determined during the contract novation negotiations by DHR EBT managers who had limited local office experience, and therefore relatively little understanding of the local sites' training needs. In future projects, trainers experienced in system implementation issues should be consulted before contractual training arrangements are finalized.

The agreement that transferred responsibility for administrative terminal installation, maintenance and support to DHR was poorly timed and did not adequately assess whether the DHR unit responsible for carrying out the agreement had sufficient resources to do so.

The Administrative Network Cost Agreement signed by Deluxe and DHR gave DHR responsibility for installing, maintaining and supporting the local DSS PCs. The director of the unit responsible for implementing the agreement on DHR's end (Personal Computer and Telecommunications Support, PCTS) was not officially assigned the task until only weeks before the terminals needed to be installed. The lack of forewarning meant that the PCTS unit was unprepared and understaffed for the task, and unappreciative of the unit's new EBT role. The difficulties the PCTS unit had in fulfilling these responsibilities, which led Deluxe to move towards reclaiming responsibility for PC installation and maintenance in the short term, reemphasizes the importance of assessing organizational resources prior to assigning new tasks.

9. The Windows software could also be manipulated without the use of a mouse, although relatively few DSS staff understood that this option was available.

The involvement of both Deluxe and DHR installation staff in the rollout of the system caused confusion among local DSS office staff over the installation and maintenance duties of the two groups and their respective help desks. This was compounded by the fact that some PC problems were hard to diagnose as either DHR's or Deluxe's responsibility. Now that most or all of the Windows-based problems have been fixed and the one-year warranty on the PC terminals has ended, DHR has reemerged as the primary contact for administrative terminal problems. In future projects, the division of tasks should be clear to all parties, or one group should handle all field issues.

6.6 EXPANSION ISSUES

The final challenge for the EBT project team was the statewide expansion of EBT, a task that was accomplished over a 16-month period between December 1991 and April 1993. Because EBT client training lagged in certain sites, particularly in Baltimore City, and some groups, such as migrant workers and group home residents, were temporarily excluded from participating in the program, not all clients were converted to electronic issuance by April. By the fall of 1993, however, 99 percent of all food stamp recipients and 97 percent of all cash recipients had made the conversion.

The expansion process in each county was complex, requiring the careful coordination of many different parties within a tight timeframe. Over a two- to three-month period, merchants were recruited, trained and installed on the EBT system. Community meetings were held to inform all interested parties, including local banks, of the change in procedures. Space was secured, EBT equipment installed, and trainers hired for both the Deluxe mass client training and DHR individual client training activities. Local DSS offices were equipped and trained on the EBT system as well. The Deluxe and DHR EBT staff perfected the expansion process iteratively—lessons learned in earlier counties were eventually applied to later sites.

Relations between EBT project staff and the merchant community were much smoother in Maryland than in previous state-initiated EBT projects.

While earlier discussions in this report indicate a sometimes acrimonious relationship between the EBT project and the state's merchant community, the overall relationship was much more positive than in some previous EBT demonstrations. Three factors contributed to this

positive relationship. First, early in the Park Circle pilot test TransFirst EBT staff formed strategic alliances with influential members of the merchant community. A merchant focus group was formed, sponsored by MAFDA, which provided a neutral forum in which merchant concerns could be discussed and compromises reached on important issues. The merchant focus group was reinstated, with good results, after conversion to the Deluxe EBT system in order to manage merchants' complaints about the new system.

Also key to the merchant/EBT relationship was the fact that many policy issues had already been resolved in earlier EBT projects. There were thus fewer substantive issues to negotiate in the Maryland project. Finally, neither of DHR's EBT vendors had to contend with third-party processors until after the merchant installation process was nearly completed. In this regard, the Maryland demonstration offers few new lessons, except that clear rules regarding third-party participation must be established at the national level so that in future projects a vendor can follow specific guidelines without the fear of a potential competitor crying foul after the fact

separate training sessions for specific staff and client groups, including NPACS clients and local fiscal workers; to make sure that the EBT equipment is installed and operational well in advance of the EBT "go-live" date; and finally, to provide knowledgeable implementation staff on-site during the first week of conversion to provide additional training and to answer staff questions.

Deluxe has configured its EBT system to operate as efficiently as possible, but the system has not always been able to handle excess resource demands resulting from non-routine operations and emergencies.

During the spring and summer of 1993, the Deluxe EBT system experienced a number of operations problems, primarily caused by routine maintenance errors or by higher than expected system transaction volumes. At the Deluxe Data Center, daily operations team meetings were established in August 1993 to monitor any changes or activities that might affect the system's performance. Since then the system has performed well. Two cautions remain, however. Deluxe plans to put the New Jersey EBT administrative functions on the same IBM computer used by the Maryland EBT project and to have New Jersey's POS transactions travel through the same EBT switch within Deluxe's Data Center. This could increase the probability of problems and emergencies affecting the Maryland EBT system, potentially affecting its performance. In addition, commercial debit and credit traffic on the EBT system has increased and is expected to increase further, potentially stressing the Maryland EBT system by increasing transaction volumes above anticipated levels.¹⁰ Both of these potential problems, however, should be avoidable with careful planning, system monitoring, and technical upgrading.

In summary, a number of functions "went wrong" during the expansion of the Maryland EBT demonstration, and many of these problems could have been avoided or better handled. This demonstration will hopefully help others avoid repeating these mistakes. It should not go unrecognized, however, that the Maryland project accomplished a great deal in a relatively short time. Deluxe developed a state-of-the-art EBT system under considerable time constraints. In addition, thousands of merchants and recipients were switched, almost transparently, from one EBT system to another in the course of one weekend. Finally, Maryland currently enjoys a very

10. Commercial traffic is routed through the EBT system, but the system does not process any commercial transactions. Thus, commercial traffic utilizes resources only within the acquiring platform.

smoothly running EBT operation, and all parties involved in the project have developed strong working relationships.

APPENDIX A
GLOSSARY OF TERMS

ACF	Administration for Children and Families. Division of U.S. Department of Health and Human Services that administers the AFDC program.
ACH	Automated Clearing House. Financial network operated by the Federal Reserve and used to process electronic funds transfer requests.
ACCEPT	TransFirst's EBT system.
AFDC	Aid to Families with Dependent Children. An entitlement program that provides cash assistance to needy families.
Aging	A process to make unavailable and later delete inactive or "dormant" client EBT accounts.
AIMS	Automated Income Maintenance System. DHR's current computer system, soon to be replaced by CARES.
ARU	Audio Response Unit. An automated system used to provide EBT participants with account information by telephone. Recipients use it to obtain account balances; merchants use it to obtain deposit information or authorizations for backup transactions.
ATM	Automated Teller Machine. A machine installed by a bank that reads a financial transaction card and permits the cardholder to make banking transactions.
CARES	Client Automated Resources Eligibility System. This statewide computer system is replacing AIMS.
Controller	Equipment used in multi-terminal stores to channel terminal communication lines into one outside telephone line.
Cutover/Cutoff	The predetermined time at which a POS terminal or an EBT system switches from one business day to the next. Cutover initiates a process by which all terminal transaction activity is accumulated for the day and the retailer is credited for the net sum of all purchases and refunds. Terminal cutover times can be established by retailers or can default to the system's cutover time.

Deluxe	Deluxe Data Systems. The system processor for Maryland EBT project, as of September, 1991.
DHR	Maryland Department of Human Resources.
EBT	Electronic Benefit Transfer. An EBT system uses electronic funds transfer and point-of-sale technologies for the transfer of program benefits.
EBTS	Electronic Benefit Transfer System (the name for the Maryland EBT system).
EBTSAG	EBT Single Administrative Grant. A funding agreement between DHR, FNS and ACF that assured federal cost neutrality of the EBT project.
EDGE	Deluxe's EBT system software.
EFT	Electronic Funds Transfer. A process by which funds are transferred electronically between bank accounts.
FMI	Food Marketing Institute. A national food retailer trade association.
FNS	Food and Nutrition Service (of the USDA). Administers the Food Stamp and other family nutrition programs.
FSP	Food Stamp Program.
GENS	Grocers Electronic Network Service. A for-profit subsidiary of MAFDA involved in merchant support in the Park Circle pilot.
HHS	U.S. Department of Health and Human Services. Administers the AFDC program.
Holdover Transaction	Transactions that are held over when a retailer sets cutover at a time that differs from system cutover. For example, a retailer sets a 2:00 pm cutover and the system cuts over at 4:00 pm. Transactions processed between 2:00 and 4:00 are held over until the next system cutover period.
LDSS	Local Department of Social Services. A DHR local office.
MAFDA	Mid-Atlantic Food Dealers Association. The region's main trade association of food retailers.

MOU	Memorandum of Understanding. The agreement between FNS, ACF and DHR setting out the terms of the operation of the Maryland EBT project.
Mouse	A pointing device attached to a personal computer, enabling the user to move a cursor rapidly to an instruction and to select that instruction.
NPACS	Non-Public Assistance Child Support. EBT participants receiving child support only, or child support and food stamps.
Off-line Transaction	A transaction completed without direct communications with the system host computer. Performed when the on-line system is not available. Off-line transactions are compiled and stored for later processing.
OIM	Office of Information Management (a unit of DHR that contains the EBTS unit).
On-line Transaction	A type of transaction that involves direct communication with the system host computer. Typical EBT transactions through POS terminals are completed on-line.
PAN	Primary Account Number.
PIN	Personal Identification Number. A (secret) number selected by the client that must be entered on a terminal to allow the EBT card to be used for transactions.
PIN Offset	A special number that is based on a client's card number and PIN. For security reasons, the offset, rather than the PIN itself, is encoded on the card.
POS	Point-of-Sale. A technology by which purchases can be paid for electronically using a magnetic card (e.g., credit, debit, or EBT cards) that is swiped through a terminal at the checkout base.
Real-time	Indicates that a system message is acted upon as soon as it is received by the host computer. The telecommunications link is maintained until a response message is sent.

Re-presentation	A process to credit retailers or a state agency for overdrafts resulting from backup transactions applied against EBT accounts with insufficient funds. Under re-presentation, benefits are withdrawn from the client's future food stamp allotments (if any). Federal regulations limit re-presentation only to situations in which the backup transaction was needed because telephone lines were down or the EBT host computer was down and (when the computer is down) the retailer called and received authorization for the backup transaction.
Reversal	A system-generated transaction that reverses the effects of any processing performed on a previous transaction that could not be completed (e.g., due to a terminal timeout).
SmartLink	An electronic procedure used by the U.S. Department of Health and Human Services to process state requests for grant reimbursements.
System Processor	A firm chosen by the EBT project to operate the EBT transactions processing system.
Third-Party Processor	A firm other than the EBT system processor that operates an online point-of-sale network that must interface with the system processor in order to operate EBT.
Timeouts	A transaction processing event wherein, if a transaction is unable to be completed within a specified time period (e.g., 30 seconds), it is canceled.
TransFirst	TransFirst Corporation. The system processor for the Maryland EBT pilot in Park Circle, and processing subcontractor to Deluxe from January 1992 to July 1992. TransFirst continues as the system processor for the Ramsey County, Minnesota EBT project.
USDA	United States Department of Agriculture.
Void	A terminal transaction function used to delete the previous transaction because wrong information (e.g., incorrect purchase amount) was entered into the terminal.
Voucher Transaction	A process to complete food stamp purchase transactions when the host computer, store terminal or system telecommunications are unavailable. Sometimes known as "manual" or "backup" transactions.

APPENDIX B
INTERVIEW RESPONDENTS AND DATES

Administration for Children and Families (ACF)

Linda Basham
Management Analyst
State Systems Policy Staff
December 10, 1992

Colleen Daly
Management Analyst
State Systems Policy Staff
December 10, 1992; October 13, 1993

Joe Costa
Director
State Systems Policy Staff
December 10, 1992

Peg McNamara
Management Analyst
State Systems Policy Staff
October 13, 1993

Baltimore City Office of Child Support Enforcement

Richard Chavis
November 13, 1992

Clyde Johnson
November 13, 1992

Deluxe Data Systems

Dinah Aaron
Maryland Field Manager
November 12, 1992; November 23, 1993

Mike Curtis
Installation Manager
October 5, 1993

Marilyn Carlson
Compliance Officer and Auditing
October 5, 1993

Sue Curtis
Asst. Supervisor, Merchant Installation
November 12, 1992

Nancy Celaya
Temporary Hotline Manager
January, 1993

Mildred Distance
Asst. Supervisor, Client Training
January 15, 1993

Barbara Cloud
Training Coordinator
January 7, 1993

Martin Dukler
Vice President, Payment Products
January 8, 1993

Jane Coppolino
Former EBT Project Director
January 7, 1993; October 4, 1993

Charlene Gardner
Former Maryland Field Manager
November 12, 1992

Deluxe Data Systems (continued)

John Haught
Development Manager
January 8, 1993

Mike Nell
Product Manager
January 7, 1993; October 4, 1993

Kay Johnson
Supervisor, Client Training
January 15, 1993

Linda Nelson
Manager, Help Desk Services
October 5, 1993

Jane Jones
Director, Customer Accounts
October 4, 1993

Peter Relich
Integration Manager
January 7, 1993

Tom McLaughlin
Vice President, Payment Products
January 8, 1993; October 5, 1993

Lisa Thacker
Account Manager, Customer Support
October 4, 1993

Food and Nutrition Service (FNS)

Jeff Cohen
Supervisor, Demonstration Projects Section
Program Design Branch
December 10, 1992; October 14, 1993

Joyce Kohler
FSP Specialist and Federal Project Manager
for the Maryland EBT Project
December 10, 1992; October 14, 1993

Joe Devereaux
Towson Field Office
February 4, 1993

Cathy Lueck
Grants Management Supervisor
Mid-Atlantic Regional Office
February 2, 1993

Art Foley
Chief, Program Design Branch
December 10, 1992

Bonny O'Neil
Associate Deputy Administrator
Food Stamp Programs
December 10, 1992

Jim Goodale
Chief, Program Evaluation Section
Food Stamp Program
February 8, 1993

Dave Temoshok
Director, Grants Management
December 10, 1992

Maryland Department of Human Resources

Leo (Mick) Allman
Asst. Director, Food Stamp Program
Income Maintenance Administration
November 13, 1992; August 4, 1993

Mary Jane Boulden
Asst. Director, Income Maintenance
Cecil County Department of Social Services
January 21, 1993

Dale Brown
Evaluation Coordinator
November 13, 1992; October 23, 1993

Cathy Calimer
Director, PC and Telecommunications
Support
November 13, 1992; September 9, 1993

Carolyn Castellow
Cecil County Dept. of Social Services
January 21, 1993

Debbie Elburn
Assistant Finance Officer
Cecil County Dept. of Social Services
February 1, 1993

Stan Frerking
Director, Office of Information Management
June 11, 1992

Helen Grier-Wynder
Trainer
September 8, 1993

Dick Heslin
Technical Support
September 9, 1993

Tim Hickman
Help Desk Manager
October 14, 1993

Greg Klein
AIMS Fiscal Analyst
December 2, 1993

Larry Larson
Installation Manager
October 28, 1992; September 9, 1993

Juanita Little
Certification Coordinator
October 28, 1992; September 8, 1993

Peg McNamara
EBT Director
June, 1992

John Murray
Implementation Coordinator
October 29, 1992; September 8, 1993

Octavia Pritchett
Systems and Programming
Technical Support
October 30, 1992; September 9, 1993

Cheryl Robinson
Cecil County Dept. of Social Services
January 21, 1993

Ellis Scott
Cecil County Dept. of Social Services
February 1, 1993

Paul Swenson
AIMS Fiscal Analyst
December 2, 1992; October 23, 1993

Frank Valenti
Director, Staff Development and Training
November 12, 1992; September 8, 1993

Karen Walker
EBT Director
October 28, 1992; October 14, 1993

Maryland Department of Human Resources (continued)

Ken Walters
AIMS Fiscal Analyst
December 2, 1992

Bob Wissman
Director, Division of Accounting and
Operations
October 29, 1992; September 9, 1993

Retailers

Mike Mann
Manager, Financial Systems & Programming
Giant Food, Inc.
March 16, 1993

Bill Miller
President & CEO
Mid-Atlantic Food Dealers Association
March 16, 1993

TransFirst-ACS

Lynette Cromer
Vice President
November 23, 1993

Joan Rollins
Development Group Manager
November 23, 1993

APPENDIX C

COMMUNITY ADVOCACY ORGANIZATIONS

Evaluation interviews were conducted with welfare advocates at ten community organizations in late May and early June 1992 to assess clients' EBT experiences in the early stages of implementation. The interviews were repeated during the fall of 1993 to assess clients' longer-term experiences under EBT.

Adrienne Carr
Community Ministries of Montgomery
County
November X, 1993

Viet Pham
Maryland Vietnamese Mutual Assistance
Association
November 2, 1993

Elizabeth Carter
Emergency Assistance Worker
Associated Catholic Charities
November 11, 1993

Patricia Risinger
Manager
Tess Community Center
November X, 1993

Anna Coolie
Family Services Foundation
November 1, 1993

Ada Ruiz
Social Services Worker
Spanish Speaking Community of Maryland
November 8, 1993

Ruth Ann Dawson
Refugee Services Supervisor
Lutheran Social Services
October 27, 1993

Greg Turlik
Community Outreach Worker
Bethesda Community Outreach
Bethesda CARES
October 27, 1993

Roberta Drucker
Case Worker
Newcomer Resettlement Program
Jewish Social Service Agency
October 27, 1993

Dana Markowitz
Case Worker
Newcomer Resettlement Program
Jewish Social Service Agency
October 27, 1993

Lynda Meade or Peg Cronyn
Welfare Advocates
Catholic Charities
October 29, 1993

APPENDIX D

STANDARD AGREEMENT FOR BENEFITS DISTRIBUTION



**STATE OF MARYLAND
AGREEMENT FOR BENEFITS DISTRIBUTION
MARYLAND MERCHANTS**

THIS AGREEMENT is entered into this _____ day of _____, 199__, by and between Deluxe Data Systems, Inc. ("Deluxe"), and _____ (hereinafter "Merchant"). Merchant is a (circle one) corporation, partnership, or individual.

WHEREAS, Deluxe has developed a system for the distribution of certain public assistance, food stamp, child support and other benefits to eligible recipients, and has contracted with the State of Maryland, Department of Human Resources ("State") to distribute those benefits; and

WHEREAS, Merchant desires to participate in one or more of such programs, which requires the placement of one or more terminals, printers and PIN pads (collectively "Terminals") and/or the use of vouchers through the use of which recipients will be able to obtain either cash or food stamps or both;

NOW THEREFORE, Deluxe and Merchant hereby agree as follows:

I. FOOD STAMPS AND CASH - ELECTRONIC AUTHORIZATION

Merchant represents itself to be properly authorized by the Food and Nutrition Service of the U.S. Department of Agriculture ("FNS") to accept food stamp benefits. To participate, one or more terminals, printers and PIN pads (collectively "Terminals") must be placed in locations in which Merchant operates a retail store through which recipients will be able to utilize food stamps.

This Agreement supplements the FNS merchant authorization by addressing those issues specific and/or unique to the electronic benefits transfer ("EBT") process. Nothing in this Agreement is intended to conflict with or in any way circumvent the FNS authorization process.

I.1 Equipment, Installation and Training

A. Equipment and Installation.

Deluxe will furnish Terminal(s) for installation in Merchant's stores as listed in Exhibit A. Each Terminal shall be placed in a prominent and readily accessible location in a customer service area or checkout lane. If presently existing in each store, Merchant may provide an existing telephone line and an existing electrical power outlet accessible to each Terminal. Deluxe may also supply a controller. The Terminals and any controllers shall remain the property of Deluxe and shall be returned to Deluxe in good working order, normal wear and tear excepted, upon termination of this Agreement. Merchant is liable for lost, stolen or damaged Terminals or controllers at replacement cost. Merchant must notify Deluxe promptly if Terminals or controllers are lost, stolen or damaged.

The provision, installation and maintenance of the Terminals and any controllers for distribution of benefits (including the ordinary cost of newly installed dedicated telephone lines) shall be Deluxe's or its designated representative's responsibility and at no cost to Merchant, according to the following schedule:

If Merchant redeems less than \$10,000 in monthly food stamp redemptions at the store, 1 Terminal.

If Merchant redeems at least \$10,000 in monthly food stamp redemptions at the store, 1 Terminal for every two lanes.

In addition, if Merchant agrees to do cash back at all store lanes and courtesy counters, Deluxe will supply Merchant with Terminals for all store lanes and courtesy counters at no charge, other than the cost of telecommunications and wiring of the additional Terminals, and a pro rata cost of any controller. Merchant will be responsible for these charges.

Terminals in addition to the Terminals supplied at no charge as set forth above will be charged at \$40 per month, per Terminal, in advance.

Deluxe will supply, at no charge, adequate supplies of paper tape, ribbons and vouchers to support Merchant's volume of EBT transactions. Additional supplies are available at Deluxe's standard fees.

B. Terminal Problems.

If Merchant believes a Terminal is malfunctioning, Merchant shall call the appropriate phone number to report such problem. Deluxe will attempt to determine by phone if there is a Terminal problem. Merchant shall cooperate with Deluxe in attempting to resolve any Terminal problems.

If a Terminal is defective, Deluxe shall use its best efforts to replace the Terminal within 3 hours after notice of a problem. A Terminal that is reported defective after 3 p.m. will be replaced by 10 p.m. the next day.

C. Training.

Deluxe shall supply initial training to Merchant's trainers. Merchant shall be responsible for training its employees.

D. Operating Instructions.

Merchant will be furnished operating instructions and manuals governing the operation of the system including the instructions attached hereto as Exhibit C. Deluxe reserves the right to change the Exhibit C procedures on ten days written notice.

E. Exclusivity.

During the term of this Agreement, Merchant's stores shall not enter into any agreement, directly or indirectly, to provide POS distribution of State of Maryland benefits as provided under this Agreement with any entity other than Deluxe.

F. Confidentiality.

Merchant will not disclose to any person directly or indirectly, except as required in the proper performance of this Agreement, any information regarding the Deluxe system.

I.2 Use Of The Terminals

A. Use of Terminals.

Merchant shall use the Terminals only to (check and initial applicable options):

- _____ provide only food stamp benefits; or
- _____ provide food stamp benefits and cash toward purchase; or
- _____ provide food stamp benefits, cash toward purchase and limited cash back up to \$_____; or
- _____ provide food stamp benefits, cash toward purchase and full cash back.

B. Availability.

Such Terminals as are warranted by transaction volumes shall have available a designated employee of Merchant to operate such Terminals and assist recipients with (if applicable) cash transactions at all times between the hours of ___ and ___ and at all times during normal store hours of operation for food stamps. If the system is unable to electronically authorize food stamp benefits and Merchant chooses to complete the sale, Merchant's employees must comply with the Off-Line Processing Procedures set out in Exhibit B in order to complete the transaction. Deluxe reserves the right to change the Exhibit B procedures on ten days written notice.

C. Security.

Merchant shall maintain security procedures reasonably necessary to ensure the physical security of the Terminals and any controllers.

I.3 Settlement

A. Merchant Account.

Merchant shall maintain a bank account at a financial institution of Merchant's choice for purposes of electronic settlement of transactions.

B. Credits to Account.

Merchant's bank account shall be credited in an amount equal to the aggregate value of all on-line transactions completed pursuant to this Agreement no later than, at Merchant's option depending upon time of Merchant processing cutover, either one (1) or two (2) bank business days following the day on which such transactions occur, subject to Deluxe's timely receipt of sufficient funds from the appropriate government agency. A "bank business day" shall mean the day other than Saturday, Sunday or a day on which financial institutions are closed.

Merchant's bank account shall be credited in an amount equal to the aggregate value of all off-line transactions completed pursuant to this Agreement as set forth in Exhibit B.

C. Adjustments.

Merchant's adjustments to credits will be performed in the appropriate amount if: (a) Merchant performs a food stamp refund transaction; or (b) Merchant performs an off-line entry and Deluxe does not receive the corresponding voucher within fifteen (15) business days of such transaction; provided that if sufficient credits are not available Deluxe may debit future credits intended for the Merchant.

Merchant shall notify Deluxe of any out-of-balance discrepancies within 60 days of the transaction which is being questioned, and supply Deluxe with any supporting documentation. Failure to notify Deluxe within such 60 day period waives any right to an adjustment.

I.4 Additional Provisions.

A. Responsibilities.

Merchant is responsible for complying with all state and federal regulations and the Operating Rules for Maryland EBT ("Operating Rules"), as amended from time to time. Merchant shall reimburse Deluxe 125% of any costs incurred by Deluxe as a result of Merchant's failure to follow the Operating Rules or any other provisions of this Agreement.

II. CORRECTION OF DATA/LIMITATION OF LIABILITY

II.1 Correction of Data.

In the event Deluxe employees cause errors in Merchant's data to occur and Merchant requests correction of such data within sixty (60) days from the date of the error, Deluxe will correct such data as necessary at Deluxe's expense. Merchant is required to supply all information requested with respect to alleged errors. The expense to Deluxe of correcting such data shall be the only responsibility of Deluxe and shall constitute Merchant's sole and exclusive remedy with respect to such errors.

II.2 Limitation of Liability.

Deluxe's liability under this Agreement shall be limited to Merchant's direct damages caused by misconduct, fraud or gross negligence of Deluxe's employees. Merchant hereby releases, indemnifies and holds Deluxe harmless from and against any claim for damages caused by Merchant.

II.3 No Warranties.

DELUXE MAKES NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE POS TERMINALS PROVIDED BY DELUXE AND ALL WARRANTIES, EXPRESS OR IMPLIED,

ARE HEREBY DISCLAIMED INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

III. NONDISCRIMINATION

services, or similar condition. Merchant shall not require a balance inquiry as a condition to a food purchase or cash withdrawal.

V.3 Fees.

Fees may be adjusted January 1 of each year but no more than 10% annually.

VI. MISCELLANEOUS

VI.1 Advertising and Promotional Materials.

Merchant may state in advertisements or other promotional materials that the Merchant is available for use by recipients in obtaining benefits, provided that all such advertising or promotional materials are approved by Deluxe prior to use, which approval shall not be a unreasonably withheld. Merchant shall allow state approved signage indicating the availability and/or procedures of the benefit programs.

VI.2 Signage.

EBT Cardholders shall not be identified or otherwise singled out as recipients of the Food Stamp Program and/or the AFDC Program. Specifically prohibited is the designation of "Food Stamp only" or "welfare only" lanes. Merchant agrees to maintain signage as requested by the State to indicate participation and within the store which allows the EBT Cardholder to determine which lane(s) accept EBT cards without overtly referencing the recipients public assistance status. Signs and other information indicating which cards are accepted at such check-out stations shall identify EBT only by its logo and/or its initials unless otherwise agreed to by the State.

VI.3 Cash Maintenance.

If Merchant elects to offer cash distribution services to eligible recipients, Merchant shall use reasonable efforts to maintain a sufficient amount of cash on hand to accommodate reasonably anticipated transaction volume.

VI.4 Disclosure.

The use or disclosure by Merchant of any information concerning a recipient for any purpose not directly connected with the performance of Merchant's duties pursuant to this Agreement is prohibited.

VI.5 Record Retention

Merchant shall retain audit tapes, documents and records associated with performance of this Agreement for a period of three (3) years from date of Transaction. Such data shall be made available for inspection by Deluxe upon request.

VI.6 Compliance with Applicable Laws.

At all times during the term of this Agreement Merchant shall use the terminals in compliance with applicable laws, including the Civil Rights Act of 1964, the Rehabilitation Act of 1973, the Americans With Disabilities Act of 1990, the Clean Air Act, the Clean Water Act, the Energy Policy and Conservation Act and the Immigration Reform and Control Act of 1986. Merchant's failure to remain authorized by FNS to distribute the benefits in accordance with this Agreement shall be grounds for termination of this Agreement by Deluxe. Merchant shall immediately notify Deluxe of any such failure.

VI.7 Notice.

Any notice required or permitted hereunder shall be in writing and shall be deemed given when sent by certified mail, return receipt requested, to the address of the party receiving notice as appears on the signature page of this Agreement or as changed through written notice to the other party.

VI.8 No Assignment.

Merchant may not assign this Agreement without the prior written consent of Deluxe, which consent shall not unreasonably be withheld. Any assignment without such consent shall be void.

VI.9 Force Majeure.

Each party hereto shall be excused from performance hereunder for any period and to the extent that it is prevented or delayed in the performance of any obligation as a result of acts of God or other causes beyond its control.

VI.10 Governing Law.

This agreement shall be construed in accordance with Maryland law.

This Agreement is executed as of the date appearing on the first page hereof.

VI.11 Other Uses.

Merchant understands the Terminals remain the property of Deluxe. Merchant may not use or allow others to use the Terminals for any purpose other than distribution of government benefits without Deluxe's consent.

DELUXE DATA SYSTEMS, INC.

The address of
Deluxe is:

400 W. Deluxe Parkway
Milwaukee, WI 53212

By: Martin Dukler

Title: Vice President

The address of
Merchant is:

By: _____
(Authorized signature)

Name: _____
(Please print or type)

Title: _____

Merchant Employer Identification
or Social Security Number

Merchant Phone Number

Merchant Contact Name (Operations)

Merchant ABA Routing Number

Merchant Bank Name

Merchant Bank Account Number

Merchant FNS Number

**AGREEMENT FOR POINT OF SALE TERMINALS
EXHIBIT A**

STORE ADDRESS(S)

HOURS OF OPERATION

OF TERMINALS

**AGREEMENT FOR POINT OF SALE TERMINALS
EXHIBIT B**

Off-Line Processing Procedures For Food Stamp Transactions When Terminal or Third Party Processor is Not Functioning

1. The Merchant determines the terminal or third party processor is not operating.
2. An impression of the EBT card (or Merchant hand writes card number) will be made on a multicopy form. The Merchant requires customer's signature on form and verifies against signature on their plastic card.
3. The Merchant will call customer service ("CSR") and provide the representative with their FNS authorization number, terminal or store identification number, client card number and the requested debit amount.
4. Based on an available balance, the customer service representative will respond with an approved transaction. The CSR will provide an authorization number which must be recorded on the voucher along with the Merchant's signature.
5. The Merchant will accept the debit as payment for groceries and will then distribute a copy of the voucher to the client; retain a copy and mail the original to the Deluxe office within fifteen (15) business days.
6. The transaction will be processed as a normal debit transaction and will be settled as described in Section I.3.
7. If Merchant fails to get authorization of an off-line transaction, it thereby assumes liability for the transaction amount.

Off-Line Processing Procedures For Food Stamp Transactions When Host Computer is Not Functioning.

1. The Merchant determines the host computer is not operating.
2. An impression of the EBT card (or Merchant hand writes card number) will be made on a multipart form. The Merchant requires customer's signature on form and verifies identification.
3. The Merchant will call CSR and provide representative with their FNS authorization number, terminal or store identification number, client number and requested debit amount.
4. The CSR will explain the system is unavailable and verify the client has not already received \$40.00 emergency benefits. If the transaction is approved, the following steps are taken:
 - a. The CSR will provide the Merchant with an authorization number which must be recorded on the voucher along with the Merchant's signature.
 - b. The Merchant will accept the debit as payment for groceries not to exceed \$40 per day and will then distribute a copy of the voucher to the client; retain a copy and mail the original to the Deluxe office within fifteen (15) days.

**AGREEMENT FOR POINT OF SALE TERMINALS
EXHIBIT B**

- c. The transaction will be processed as a normal debit transaction and will be settled as described in Section I.3.
- d. If Merchant fails to get authorization of an off-line transaction, it thereby assumes liability for the transaction amount.

**AGREEMENT FOR POINT OF SALE TERMINALS
EXHIBIT B**

Manual Entry of Card Number For Cash And Food Stamp Transactions.

(For Deluxe supplied Terminals only; Procedures, if any, for systems with Non-Deluxe supplied Terminals may be available from the alternate supplier).

1. The Client will present his/her card to the designated employee.
2. The terminal will prompt the designated employees to enter the amount of the withdrawal. This will be entered on the terminal keyboard.
3. The designated employee will swipe the card through the POS card reader. If the card cannot be read through the card reader, the designated employee will request manual entry.
4. The terminal will prompt for entry of a supervisor password, then prompt for manual entry of card number on the terminal keyboard.
5. The designated employee will then direct the Client to enter the assigned PIN into the remotely attached PIN pad.
6. The Transaction request is formatted and passed to the Transaction Authorization Module through the use of an internal modem within the Terminal.
7. The Authorization response is returned to the Terminal.
8. Depending upon the Transaction response, one of the following events takes place;
 - a. An approved Food Stamp purchase or cash withdrawal request for an amount less than or equal to the available balance will cause a prompt to be displayed which directs the designated employee to accept the debit as payment for groceries or provide requested amount of cash. Receipt is given to Client.
 - b. A Food Stamp purchase or cash withdrawal request for an amount which exceeds the available balance will cause a denied prompt to be displayed to the designated employee and a receipt will print indicating an insufficient balance and the total available balance. The designated employee will request a revised purchase amount from the Client and enter that amount.
 - c. An invalid PIN entry will cause a prompt to be displayed to the designated employee. The designated employee will then direct the Client to re-enter the PIN.
9. A call to Customer Service is not required for manual card number entry.

**AGREEMENT FOR POINT OF SALE TERMINALS
EXHIBIT C
OPERATING INSTRUCTIONS**

POS Distribution Of Cash Benefits or Balance Inquiry.

Transactions will be initiated by a designated employee and consist of the following steps:

1. The Client will present his/her Card to the designated employee.
2. The Terminal will prompt the designated employee to enter the requested transaction. This will be entered on the Terminal keyboard.
3. The designated employee will swipe the Card through the POS card reader or manually enter the Card number on the Terminal keyboard.

Manual entry of card number requires supervisor approval. The terminal will prompt for entry of a supervisor password, then prompt for manual entry of card number on the terminal keyboard. A call to Customer Service is not required for manual card entry.

4. The designated employee will then direct the Client to enter the assigned PIN into the remotely attached PIN pad.
5. The Transaction request is formatted and passed to the Transaction Authorization Module through the use of an internal modem within the Terminal.
6. The Authorization response is returned to the Terminal.
7. Depending upon the Transaction response, one of the following events takes place:
 - a. An approved withdrawal request for an amount less than or equal to the available balance will cause a prompt to be displayed which directs the designated employee to provide the Client with the requested amount of cash.
 - b. A withdrawal request for an amount which exceeds the available balance will cause a denied prompt to be displayed to the designated employee and a receipt will print indicating an insufficient balance and the total available balance. The designated employee will request a revised withdrawal amount from the Client and enter that amount.
 - c. An invalid PIN entry will cause a prompt to be displayed to the designated employee. The designated employee will then direct the Client to re-enter the PIN.
 - d. A balance amount will be printed on the receipt.

APPENDIX E
EBTS IMPLEMENTATION CHECK LIST

Three Months Prior to "Go-Live"

1. EBTS office will coordinate the initial meeting with local department directors, assistant directors and finance officers. Implementation package will be provided and discussed.
2. EBTS office will provide current caseload statistics to Deluxe Data.
3. EBTS office will provide the local offices with the "cases not on EBTS" report. This report will identify cases by zip codes. Local offices will utilize this report to transfer or close out any cases that have moved out of their jurisdiction.
4. EBTS office will coordinate the mailing of the "EBTS Is Coming" letter. OIM user support will facilitate. This mailing will be coordinated through the AIMS mailroom at DHR. Language requirements for the local jurisdiction will be reviewed and incorporated into the mailing as required.
5. EBTS office will assist local departments in developing mass training site recommendations as required. Due to space availability, time constraints, and the need to accommodate the clients, we ask that anyone wishing to sit in on the mass training be referred to EBTS for scheduling. EBTS will coordinate your special requests (i.e., advocates, clergy, etc.) with Deluxe.
6. EBTS office will coordinate the specific locations of EBTS administrative terminals in the local offices. This will be coordinated through OIM office of telecommunications.
7. EBTS office will provide sufficient envelopes to Deluxe Data for implementation.
8. DHR public information office will coordinate presentations to advocates and providers in the specific jurisdiction.
9. Local office staff will assist EBTS office in identifying any special needs groups within the jurisdiction.
10. OIM user support and data processing will provide Deluxe Data with the card file for card production.
11. OIM user support and data processing will provide the card file printout and labels to Deluxe Data for training scheduling.
12. The EBTS Desk Guide and EBTS Contact Directory will be forwarded to LDSS administrative staff.

13. EBTS office will coordinate the specific location of the POS stamp out machine in the local fiscal offices and provide that information to Deluxe Data.

14. The LDSS will hire their ongoing trainers. EBTS office will be notified and coordinate their training with Deluxe Data. These trainers should be trained 60 days prior to going live.

Two Months Prior to "Go-Live"

1. The local office will identify staff requiring EBTS logon ID, and the appropriate level of security access. Forms will be provided to OIM security officer (Bob Langhirt).

2. Local offices will coordinate hiring ongoing EBTS trainers. These positions need to be filled prior to the month in which mass training begins.

3. The EBTS office will confirm ongoing trainer training coordination.

4. The EBTS office will assist Deluxe Data and the local office in identifying space for ongoing training, ordering communication lines, and coordinating equipment installation. ***This site must be established and operational prior to the first day of mass client training.*** EBTS office will assist in special needs in this area.

NOTE:

The coordination of the installation of telephone lines is critical to EBTS implementation. Please do the following:

- Designate a contact person to coordinate the installation of the lines.
 - Provide the EBTS office with a map denoting the exact location where these lines are to be installed. Include the address, room number, and contact person's name on the map.
 - The designated contact person ***must*** meet the installer from the telephone company to show them where to install the lines.
 - Select your site ***carefully***; once you make your decision ***it cannot be changed*** due to implementation time-lines.
5. DHR staff development and training office will coordinate and provide caseworker training on EBTS. The Desk Guide will be distributed to caseworkers during training.
6. EBTS office will provide the first supply of EBTS forms to the local office. Future forms inventory will be ordered by the local office as needed.

7. Deluxe Data will be establishing the mass training sites.
8. EBTS office will certify the coordination of line installation for the LDSS administrative terminals and the ongoing training sites in the respective district offices.
9. EBTS office will provide the information and referral office with the telephone numbers of the mass training sites as they are established. They often receive calls from clients who have lost their EBTS notices and require these numbers.

One Month Prior to "Go-Live"

1. DHR IMA will arrange for food stamp inventory to be removed.
2. EBTS office will track returned envelopes. Both Deluxe Data and the local offices will be notified of incorrect addresses.
3. EBTS office will ensure that site preparedness standards for retailers have been met.
4. Deluxe Data will be training clients and issuing cards.
5. Deluxe Data will be training merchants and installing POS devices in certified grocery stores.
6. The ongoing training sites will be operation in each local office.

"Go-Live Month"

1. EBTS office and AIMS fiscal staff will be on-site in each jurisdiction during the first week of EBTS implementation.
2. EBTS office will coordinate providing the "Non-EBTS" list for each jurisdiction. This list provides the local office with the names and case numbers of any clients who have not been issued an EBTS card, and are still receiving paper benefits.
3. EBTS office and IMA will assist in managing ongoing training issues during the transition.

Month One After EBTS Implementation

1. EBTS office and the local office staff will meet to discuss implementation issues and follow up on recommendations for improvement.