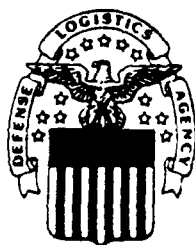


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Los Angeles EDDS Site  
Transportation Cost Analysis  
for the Pooling Phase  
July - December 1989

OPERATIONS RESEARCH AND ECONOMIC ANALYSIS OFFICE



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DEPARTMENT OF DEFENSE

DEFENSE LOGISTICS AGENCY

1990

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**Los Angeles EDDS Site Transportation  
Cost Analysis for the Pooling Phase  
July - December 1989**

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DEFENSE LOGISTICS AGENCY  
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October 1990



**DEFENSE LOGISTICS AGENCY  
HEADQUARTERS  
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**FOREWORD**

The Los Angeles Enhanced DLA Distribution System (EDDS) Site Pooling Study is an analysis of the cost effectiveness of the Los Angeles EDDS site in comparison with direct shipment to the customer. Pooling is defined as the consolidation of truckload shipments from the depots into large less-than-truckload or truckload lots for transshipment to the customer.

Comparison of the cost of EDDS pooling at Los Angeles with the potential cost of direct shipment to the customer showed that during the second 6 months of operations, (July - December 1989), the Los Angeles EDDS site has absorbed a loss of approximately \$82,000. Analysis showed that although shipments are being consolidated at a higher rate than the first 6 months, outbound shipment rates from the Los Angeles EDDS site are still too high.

Several scenarios are presented and their respective costs calculated to demonstrate under what conditions the EDDS concept can generate savings at the Los Angeles EDDS site. Recommendations were made to increase the direct shipment performance at the depots, to eliminate from the EDDS program shipments to customers greater than 400 miles from Los Angeles, and to negotiate a further reduction in the EDDS outbound pooling rates to a level that is competitive with the depots' Guaranteed Traffic Rates.

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**ROGER C. ROY**  
 Assistant Director  
 Office of Policy and Plans



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## EXECUTIVE SUMMARY

The Defense Logistics Agency's (DLA) Operations Research and Economic Analysis Management Support Office was tasked by the DLA Directorate of Supply Operations, Transportation Division to provide an analysis of the savings/loss associated with the operation of the pooling phase of the Enhanced DLA Distribution System (EDDS) program for the Los Angeles EDDS region.

The objectives of the study were to estimate the cost of direct shipment from the six major DLA depots to customers, to calculate the cost of those same shipments under the EDDS program, and to compare the two.

The scope of the study was limited to shipment data for the Los Angeles EDDS region. Data was for the period of July through December 1989, which represents the second 6 months of EDDS operation at Los Angeles.

The principal conclusion of the study is that the cost in transportation dollars for EDDS pooling is estimated to have exceeded the potential cost of direct shipment by \$82,400 for the 6-month period studied. If the DLA depots increased consolidation of direct shipments the estimated loss would be reduced to \$64,071.

Five different scenarios are proposed and examined to gain an insight into the program changes required to produce a savings in transportation dollars at the Los Angeles EDDS site for pooled shipments. None of the scenarios provided savings when compared to direct shipment to the customer. An analysis was conducted which showed that a reduction in outbound rates of only 13.3 percent across the board would have established a breakeven point for all shipments shipped through Los Angeles. A reduction in outbound rates of only 10.6 percent across the board would have established a breakeven point for the increased depot consolidation of direct shipments case. When customers greater than 400 miles from the Los Angeles EDDS site were eliminated, the breakeven point for the increased depot consolidation of direct shipments case decreased to only 4.80 percent across the board.

Recommendations are to increase the consolidation of direct shipments at the DLA depots, to eliminate from the EDDS program shipments to customers greater than 400 miles from the Los Angeles EDDS site, and to negotiate a reduction in pooling rates to Guaranteed Traffic Program levels.

I. INTRODUCTION. The Defense Logistics Agency's (DLA) Operations Research and Economic Analysis Management Support Office was tasked by the DLA Directorate of Supply Operations, Transportation Division to provide an analysis of the savings/loss associated with the operation of the pooling phase of the Enhanced DLA Distribution System (EDDS) program for the Los Angeles EDDS region.

A. Background.

Studies made during the planning stage of EDDS predicted \$16 million annual savings by consolidating small parcel and less-than-truckload (LTL) shipments at the depots into larger LTL lots or truckload lots before forwarding to the EDDS sites for delivery to customers.[1] This is known as pool delivery.

In December 1988, the first phase of the implementation of EDDS pool delivery was initiated, beginning with the Los Angeles commercial EDDS site. The New York commercial EDDS site came on-line in April 1989.

The principal purpose of EDDS is to reduce transportation costs while simultaneously maintaining the required level of customer service. Information is needed to estimate the magnitude of savings/loss DLA is experiencing as a result of the implementation of the depot pooling phase of EDDS.

An initial cost benefit analysis of the Los Angeles EDDS site showed that during the period December 1988 - June 1989, a loss of over \$200,000 had been incurred.[2]

B. Problem Statement. Determine the magnitude of the savings/loss in transportation dollars DLA is incurring as a result of the implementation of the pooling phase of EDDS for the Los Angeles EDDS region for the period of July through December 1989.

C. Objectives.

1. Calculate the cost of shipping direct under the Guaranteed Traffic Program (GTP) to customers in the Los Angeles EDDS region.

2. Calculate the cost of those same shipments under the EDDS pooled distribution method.

3. Compare the cost results of direct shipment with the EDDS cost results.

D. Scope.

1. The shipment data included only the Los Angeles EDDS region for the fourth quarter of Fiscal Year (FY) 1989 and the first quarter of FY 1990.

2. The EDDS site data consisted of all "pooled" data on the Los Angeles EDDS site files available (July through December 1989).

E. Assumptions. Shipments assumed to go direct were built from the EDDS site files by aggregating by inbound Government Bill of Lading (GBL) and Destination Cross Reference (DCR) code. All shipments were assumed to be moved by the prime carrier.

II. CONCLUSIONS AND RECOMMENDATION

A. Conclusions.

1. The cost in transportation dollars for the EDDS pooling phase was estimated to have exceeded the potential cost of direct shipments (hereafter referred to as the cost of direct shipment) by \$82,400 for the 6-month period studied.

2. If the DLA depots had maximized depot direct shipment performance, then the cost in transportation dollars for EDDS pooling phase was estimated to exceed the direct shipment cost by \$64,071 for the 6-month period. Maximized depot direct shipment performance occurs when the consolidated EDDS inbound GBL and DCR pairings that exceed an aggregate weight of 10,000 pounds are shipped direct from the depot to the customer.

3. Consolidation is taking place at the Los Angeles EDDS site (see Figure 3). As consolidation performance (measured by the average outbound GBL weight) increases, the dollar loss decreases. The initial Los Angeles EDDS analysis found that the average outbound GBL weight was 754 pounds. During this period, the average outbound GBL weight has improved to 1,695 pounds and has resulted in reduced costs.

4. Several selected mileage ranges from the Los Angeles EDDS site were analyzed. Shipments to customers that are greater than 400 miles from the Los Angeles EDDS site were not cost effective. When shipments to customers in the greater than 400 mile delivery zone were eliminated, the following occurred:

a. Total weight shipped dropped by 10.72 percent while the total dollar loss dropped from \$82,400 to \$38,529, a decrease of 53.24 percent for all shipments shipped through the Los Angeles EDDS site (see paragraph II.A.1.)

b. If the depots maximized depot direct shipments (see paragraph II.A.2.) the total weight shipped dropped by 11.41 percent while the total dollar loss dropped from \$64,071 to \$23,760, a decrease of 62.92 percent.

5. Sensitivity analysis for the breakeven point for direct shipments versus shipments through the Los Angeles EDDS site indicated that the rate level structure for the Los Angeles EDDS site must be more in line with the GTP.

a. For the first case, all shipments (see paragraph II.A.1.), the breakeven for the second leg (cost of shipment consolidation and transportation cost from EDDS site to customer) required a 13.32 percent across the board rate reduction (see Table 4).

b. For the second case, maximize depot direct shipments (see paragraph II.A.2.), the breakeven for the second leg required a 10.62 percent across the board rate reduction (see Table 18).

c. For the maximized depot direct shipments and excluding customers less than 400 miles from Los Angeles EDDS site scenario, the breakeven for the second leg of these shipments required a 37.18 percent rate reduction (see Table 30).

d. For the maximized depot direct shipments and excluding customers greater than 400 miles from Los Angeles EDDS site scenario, the breakeven for the second leg required a 4.80 percent rate reduction (see Table 31).

#### B. Recommendations.

o Maximize depot direct shipments by consolidating multiple Materiel Release Orders (MROs) for a single DCR that exceed an aggregate weight of 10,000 pounds.

o Eliminate shipments to customers in excess of 400 miles from the Los Angeles EDDS site and negotiate a 4.80 percent rate reduction in pooling rates.

OR

include shipments to customers greater than 400 miles from the Los Angeles EDDS site and negotiate a 10.62 percent across the board rate reduction in pooling rates.

OR

include shipments to customers greater than 400 miles from the Los Angeles EDDS site and negotiate a 4.80 percent rate reduction for shipments less than 400 miles from the Los Angeles EDDS site and negotiate a 37.18 per-

cent rate reduction for shipments greater than 400 miles from the Los Angeles EDDS site.

### III. METHODOLOGY

#### A. Calculation of Cost of Direct Shipments.

1. The rates used to estimate the cost of direct shipments were obtained from the current GTP agreements in use at each of the six depots.

2. All shipments on the EDDS site history tapes were aggregated by inbound GBL number and consignee to emulate direct shipment to customers. The consignee was identified by either the DCR or the Department of Defense Activity Address Code (DODAAC).

#### B. Calculation of Cost of EDDS Shipments.

1. Computation of the cost of shipments from depots to EDDS site. Using the MRO history files for the fourth quarter of FY 1989 and the first quarter of FY 1990, an average rate per hundredweight for shipping to the Los Angeles EDDS site was obtained for each depot. After aggregating the weight from the EDDS site files by depot and inbound GBL, the average rate per hundredweight was applied to obtain an estimate of the inbound transportation cost from the depots to the EDDS site.

2. Computation of cost of shipments from EDDS site to customers. Shipments from the EDDS site to customers were rolled-up by outbound GBL numbers to obtain shipment weights. Shipments were then rated using the rates negotiated for the Los Angeles EDDS site pooled shipments.

3. The total cost of an EDDS shipment. The total cost of an EDDS shipment is the sum of the costs calculated in paragraphs III.B.1. and III.B.2.

### IV. ANALYSIS

#### A. Results.

Table 1 shows the results of the transportation cost comparison between direct shipment and shipment through EDDS. The columns are arranged according to depot. "DDMP" is Defense Depot, Mechanicsburg, PA, "DDTC" is Defense Depot, Tracy, CA, "DDCO" is Defense Depot, Columbus, OH, "DDMT" is Defense Depot, Memphis, TN, "DDRVA" is Defense Depot, Richmond, VA, and "DDOU" is Defense Depot, Ogden, UT. The "Direct Delivery Cost Estimate" is the estimated cost of shipping from the depots direct to the customer. The next section breaks the EDDS cost down by inbound cost (transportation cost from depots to EDDS site) and outbound cost (cost of consolidating shipments and transportation cost from EDDS site to customer). The "Cost Analysis" section shows the net savings/loss. This format is used throughout this report to analyze the effect of various scenarios.

The estimated loss for the 6-month period July through December 1989 is \$82,400. The direct cost of \$825,869 is estimated to be the cost of moving freight under the existing GTP agreements in effect at the six major DLA depots. The EDDS cost is composed of the inbound transportation cost of \$289,605 for the first leg (moving freight from the depots to the EDDS site) and the outbound transportation cost of \$618,664 for the second leg (moving freight from the EDDS site to regional customers). The cost of the second leg is clearly the principal contributor to the transportation cost of the EDDS program.

Table 1

Direct Cost vs. EDDS Cost  
by Origin Depot

Direct Delivery Cost Estimate

	DDMP	DDTC	DDCO	DDMT	DDRV	DDOU	TOTAL
Weight(lb)	428,265	4,216,930	113,343	730,880	503,381	2,420,809	8,413,608
Rate(cwt)	\$16.5956	\$8.1650	\$15.9207	\$13.6954	\$22.3290	\$7.4331	\$9.8159
GBLs	1,011	4,094	309	1,155	1,310	2,254	10,133
Cost	\$71,073	\$344,313	\$18,045	\$100,097	\$112,400	\$179,941	\$825,869

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	4,216,930	113,343	730,880	503,381	2,420,809	8,413,608
Rate(cwt)	\$9.6615	\$1.7853	\$7.8496	\$8.1247	\$13.2891	\$1.5602	\$3.4421
GBLs	163	182	31	73	201	79	729
Cost	\$41,377	\$75,285	\$8,897	\$59,382	\$66,895	\$37,769	\$289,605

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	8,413,608
Rate(cwt)	\$7.3531
GBLs	4,964
Cost	\$618,664

Total EDDS Cost

Rate(cwt)	\$10.7952
Cost	\$908,269

Cost Analysis

Cost Difference (Direct - EDDS)	(\$82,400)
( ) - Loss	

Figure 1 graphically displays the direct cost vs. EDDS cost by month with the total freight volume indicated by the line diagram. The graph indicates that the loss was spread over all 6 months and that the EDDS program lost money in each of the 6 months albeit some more than others.

Figure 2 reflects the relationship between the monthly dollar loss and the volume of freight handled at the EDDS site. The graph shows that the monthly loss is not proportional to the freight moved through the EDDS site.

**Direct Cost vs. EDDS Cost**  
Los Angeles EDDS Site

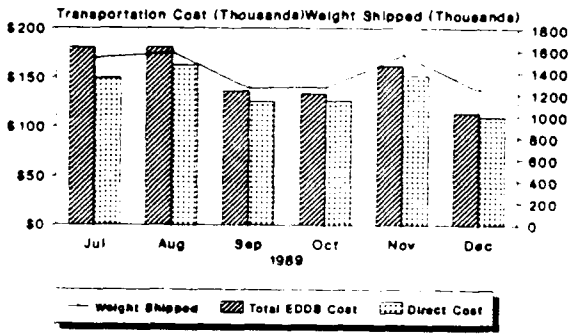


Figure 1

**Dollar Loss vs. Freight Volume**  
Los Angeles EDDS Site

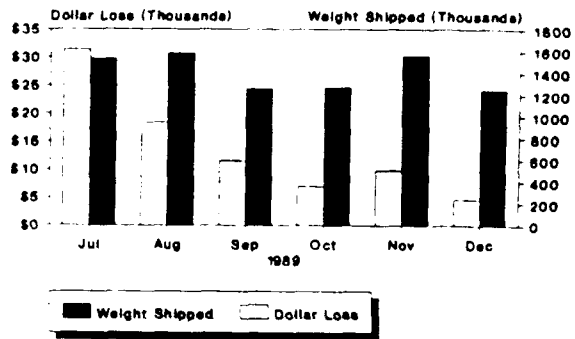


Figure 2

Similarly, Figure 3 shows that the average outbound GBL weight may be an indicator of dollar loss. In general, average outbound GBL weight has increased throughout this period while the dollar loss has decreased. These graphs indicate that consolidation is taking place and that increasing the current hold time may yield additional savings.

Figure 4 demonstrates a relationship between average outbound GBL weight and average hold time. From July through October average hold time increases at the same rate as average GBL weight increases. In November and December average hold time drastically increases and average GBL weight increases somewhat. However, dollar loss also increases in November. Dollar loss had a downward trend until November. In general, the overall dollar loss trend appears to decrease from July to December.

**Dollar Loss vs. Average Outbound GBL Wgt**  
Los Angeles EDDS Site

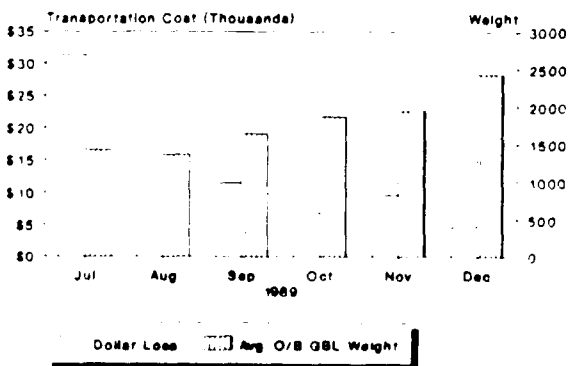


Figure 3

**Avg. GBL Weight vs. Avg. Hold Time**  
Los Angeles EDDS Site

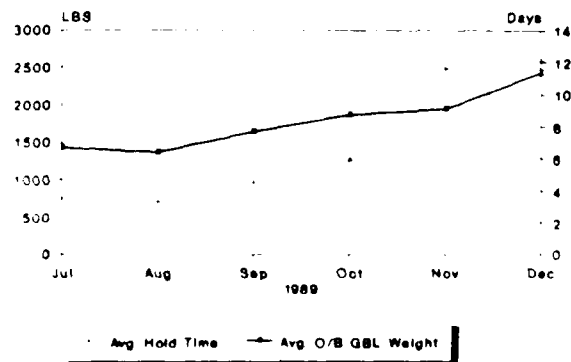


Figure 4

It was determined upon investigation, that abnormal conditions existed at the Los Angeles EDDS site during late November and December. The commercial consolidator was involved in moving his entire operation to another location in the Los Angeles area. Additionally, it was discovered that the Los Angeles EDDS site was having difficulties dealing with large amounts of raw steel shipments from DDTC. One could speculate that had the trend continued into November and December, hold times would have increased to approximately 7 days with average GBL weights increasing. It is obvious that the Los Angeles EDDS operation has improved its consolidation effort. The initial EDDS analysis found that the average outbound GBL weight was 754 pounds. During this period, the average weight has improved to 1,695 pounds.

Table 2 shows the distribution of weight by depot by month. DDTC accounts for 50.12 percent of the weight moving through the Los Angeles EDDS site and DDOU accounts for 28.77 percent of the weight. The remaining four depots make up the remaining 21.11 percent of the weight.

Table 2

Weight by Depot by Month

MONTH	DEPOT						ALL
	DDCO	DDMP	DDMT	DDOU	DDRV	DDTC	
July	21,684	65,987	172,456	369,337	108,920	729,448	1,467,832
August	21,163	79,243	158,490	475,136	68,227	783,705	1,585,964
September	24,232	54,379	85,855	329,768	83,561	660,135	1,237,930
October	10,170	78,204	98,904	287,708	95,597	678,988	1,249,571
November	24,396	85,567	134,719	576,171	94,359	744,364	1,659,576
December	11,698	64,885	80,456	382,689	52,717	620,290	1,212,735
Totals	113,343	428,265	730,880	2,420,809	503,381	4,216,930	8,413,608
Percent	1.35%	5.09%	8.69%	28.77%	5.98%	50.12%	100.00%

B. Sensitivity. To gain insight into the program changes required to make the EDDS pooling phase cost effective, five scenarios were generated. The cost of each scenario was calculated and compared to the cost of direct shipment to the customer. Scenarios that included omitting small shipments, outbound shipments weighing 65 pounds or less, 100 pounds or less and 200 pounds or less were examined in the original Los Angeles EDDS site analysis and found to have negligible impact.[2] Therefore, these scenarios were not included in this study.

1. Remove Civilian DODAACs from Los Angeles EDDS Program.

The first scenario compares the cost of direct shipment to the EDDS shipment cost after removing all DODAACs beginning with a number. These DODAACs identify customers who are civilian agencies. The volume of traffic being sent to these customers is not believed to be cost effective under the EDDS

program. Table 3 shows the first and second leg EDDS cost and the direct cost using data with civilian DODAACs eliminated. The inbound and the outbound weight for a given month normally will not agree due to consolidation hold time at the EDDS site. However, the total inbound weight and the total outbound weight do agree due to the way the data base was constructed (i.e., all shipments shipped from the EDDS site for the 6-month period were analyzed.) This monthly format is used for several scenarios.

The total weight shipped dropped by 246,529 pounds. Comparing Table 3 to Table 1, the total direct cost has dropped by 1.44 percent and the total EDDS cost has dropped by 3.60 percent. The net result is that the loss for the 6 month period is reduced from \$82,400 to \$61,649. The volume of freight being handled by the EDDS program for these DODAACs is only 2.93 percent of the total volume. The effect on the cost effectiveness of EDDS is slight when these customers are eliminated from the EDDS program.

Table 3

Direct Cost vs. EDDS Cost  
by Month  
(Omitting Shipments to Civilian Agencies (Numeric DODAACs))

Month	EDDS In Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,411,848	\$54,290	1,469,242	\$120,391	\$174,681	\$147,057
Average Rate		\$3.845		\$8.194	\$12.039	\$10.416
August	1,533,101	\$51,335	1,521,453	\$122,120	\$173,455	\$160,427
Average Rate		\$3.348		\$8.027	\$11.375	\$10.464
September	1,205,818	\$41,316	1,224,200	\$90,513	\$131,829	\$123,578
Average Rate		\$3.426		\$7.394	\$10.820	\$10.248
October	1,232,168	\$45,371	1,246,787	\$85,885	\$131,256	\$126,121
Average Rate		\$3.682		\$6.889	\$10.571	\$10.236
November	1,607,409	\$53,988	1,502,981	\$100,685	\$154,673	\$149,233
Average Rate		\$3.359		\$6.699	\$10.058	\$9.284
December	1,176,735	\$36,532	1,202,416	\$73,179	\$109,711	\$107,540
Average Rate		\$3.105		\$6.086	\$9.191	\$9.139
Subtotal		\$282,832		\$592,773	\$875,605	
Average Rate		\$3.463		\$7.258	\$10.721	
Total	8,167,079		8,167,079		\$875,605	\$813,956
Average Rate					\$10.721	\$9.966
Cost Difference (Direct - EDDS)						(\$61,649)
( ) - Loss						

2. Breakeven Reduction in Pooling Rates. This scenario identifies the magnitude of discount required for EDDS to breakeven when compared with direct shipment to customers. Table 4 presents a comparison of the cost of direct shipment to the EDDS cost with a 13.32 percent across-the-board reduction in pooling rates. The results show that EDDS breaks even when such a reduction is applied.

Table 4

Direct Cost vs. EDDS Cost  
by Month  
Second Leg Rates Reduced by 13.32 Percent)

Month	EDDS In Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,467,832	\$55,349	1,525,226	\$108,835	\$164,184	\$149,556
Average Rate		\$3.771		\$7.136	\$10.906	\$10.189
August	1,585,964	\$52,665	1,577,981	\$110,981	\$163,646	\$162,380
Average Rate		\$3.321		\$7.033	\$10.354	\$10.239
September	1,237,930	\$42,166	1,254,227	\$81,882	\$124,048	\$125,156
Average Rate		\$3.406		\$6.529	\$9.935	\$10.110
October	1,249,571	\$45,704	1,262,610	\$76,350	\$122,054	\$126,912
Average Rate		\$3.658		\$6.047	\$9.705	\$10.156
November	1,659,576	\$55,946	1,556,188	\$91,815	\$147,761	\$152,169
Average Rate		\$3.371		\$5.900	\$9.271	\$9.169
December	1,212,733	\$37,774	1,237,376	\$66,400	\$104,174	\$109,695
Average Rate		\$3.115		\$5.366	\$8.481	\$9.045
Subtotal		\$289,604		\$536,264	\$825,868	
Average Rate		\$3.442		\$6.374	\$9.816	
Total	8,413,608		8,413,608		\$825,868	\$825,868
Average Rate					\$9.816	\$9.816
Cost Difference (Direct - EDDS)						(\$0)
( ) - Loss						

3. Eliminating Shipments Originating at Selected Depots. We attempted to determine if omitting shipments originating at any one of the six DLA depots had an impact on EDDS losses. Tables 5 through 10 show the results of these scenarios. Omitting shipments originating at DDTC had the most favorable effect - a loss of \$66,592. On the other hand, omitting shipments originating at DDRV actually caused the EDDS loss to become more severe - a loss of \$101,024.

Table 5

Direct Cost vs. EDDS Cost  
by Origin Depot  
(Omitting Shipments Originating at DDMP)

Direct Delivery Cost Estimate

	DDTC	DDCO	DDMT	DDRV	DDOU	TOTAL
Weight(lb)	4,216,930	113,343	730,880	503,381	2,420,809	7,985,343
Rate(cwt)	\$8.1650	\$15.9207	\$13.6954	\$22.3290	\$7.4331	\$9.4523
GBLs	4,094	309	1,155	1,310	2,254	9,122
Cost	\$344,313	\$18,045	\$100,097	\$112,400	\$179,941	\$754,796

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	4,216,930	113,343	730,880	503,381	2,420,809	7,985,343
Rate(cwt)	\$1.7853	\$7.8496	\$8.1247	\$13.2891	\$1.5602	\$3.1085
GBLs	182	31	73	201	79	566
Cost	\$75,285	\$8,897	\$59,382	\$66,895	\$37,769	\$248,228

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	7,985,343
Rate(cwt)	\$7.4783
GBLs	4,849
Cost	\$597,169

Total EDDS Cost

Rate(cwt)	\$10.5869
Cost	\$845,397

Cost Analysis

Cost Difference (Direct - EDDS)

(\$90,601)

( ) - Loss

Table 6

Direct Cost vs. EDDS Cost  
by Origin Depot  
(Omitting Shipments Originating at DDTC)

Direct Delivery Cost Estimate

	DDMP	DDCO	DDMT	DDRV	DDOU	TOTAL
Weight(lb)	428,265	113,343	730,880	503,381	2,420,809	4,196,678
Rate(cwt)	\$16.5956	\$15.9207	\$13.6954	\$22.3290	\$7.4331	\$11.4747
GBLs	1,011	309	1,155	1,310	2,254	6,039
Cost	\$71,073	\$18,045	\$100,097	\$112,400	\$179,941	\$481,556

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	113,343	730,880	503,381	2,420,809	4,196,678
Rate(cwt)	\$9.6615	\$7.8496	\$8.1247	\$13.2891	\$1.5602	\$5.1069
GBLs	163	31	73	201	79	547
Cost	\$41,377	\$8,897	\$59,382	\$66,895	\$37,769	\$214,320

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	4,196,678
Rate(cwt)	\$7.9546
GBLs	3,273
Cost	\$333,828

Total EDDS Cost

Rate(cwt)	\$13.0615
Cost	\$548,148

Cost Analysis

Cost Difference (Direct - EDDS)	(\$66,592)
( ) - Loss	

Table 7

Direct Cost vs. EDDS Cost  
by Origin Depot  
(Omitting Shipments Originating at LDCO)

Direct Delivery Cost Estimate

	DDMP	DDTC	DDMT	DDRV	DDOU	TOTAL
Weight(lb)	428,265	4,216,930	730,880	503,381	2,420,809	8,300,265
Rate(cwt)	\$16.5956	\$8.1650	\$13.6954	\$22.3290	\$7.4331	\$9.7325
GBLs	1,011	4,094	1,155	1,310	2,254	9,824
Cost	\$71,073	\$344,313	\$100,097	\$112,400	\$179,941	\$807,824

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	4,216,930	730,880	503,381	2,420,809	8,300,265
Rate(cwt)	\$9.6615	\$1.7853	\$8.1247	\$13.2891	\$1.5602	\$3.3819
GBLs	163	182	73	201	79	698
Cost	\$41,377	\$75,285	\$59,382	\$66,895	\$37,769	\$280,708

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	8,300,265
Rate(cwt)	\$7.3723
GBLs	4,918
Cost	\$611,924

Total EDDS Cost

Rate(cwt)	\$10.7543
Cost	\$892,632

Cost Analysis

Cost Difference (Direct - EDDS)	(\$84,808)
( ) - Loss	

Table 8

Direct Cost vs. EDDS Cost  
by Origin Depot  
(Omitting Shipments Originating at DDMT)

Direct Delivery Cost Estimate

	DDMP	DDTC	DDCO	DDRV	DDOU	TOTAL
Weight(lb)	428,265	4,216,930	113,343	503,381	2,420,809	7,682,728
Rate(cwt)	\$16.5956	\$8.1650	\$15.9207	\$22.3290	\$7.4331	\$9.4468
GBLs	1,011	4,094	309	1,310	2,254	8,978
Cost	\$71,073	\$344,313	\$18,045	\$112,400	\$179,941	\$725,772

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	4,216,930	113,343	503,381	2,420,809	7,682,728
Rate(cwt)	\$9.6615	\$1.7853	\$7.8496	\$13.2891	\$1.5602	\$2.9966
GBLs	163	182	31	201	79	656
Cost	\$41,377	\$75,285	\$8,897	\$66,895	\$37,769	\$230,223

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	7,682,728
Rate(cwt)	\$7.5291
GBLs	4,754
Cost	\$578,443

Total EDDS Cost

Rate(cwt)	\$10.5258
Cost	\$808,566

Cost Analysis

Cost Difference (Direct - EDDS)	(\$82,894)
( ) - Loss	

Table 9

Direct Cost vs. EDDS Cost  
by Origin Depot  
(Omitting Shipments Originating at DDRV)

Direct Delivery Cost Estimate

	DDMP	DDTC	DDCO	DDMT	DDOU	TOTAL
Weight(lb)	428,265	4,216,930	113,343	730,880	2,420,809	7,910,227
Rate(cwt)	\$16.5956	\$8.1650	\$15.9207	\$13.6954	\$7.4331	\$9.0196
GBLs	1,011	4,094	309	1,155	2,254	8,823
Cost	\$71,073	\$344,313	\$18,045	\$100,097	\$179,941	\$713,469

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	4,216,930	113,343	730,880	2,420,809	7,910,227
Rate(cwt)	\$9.6615	\$1.7853	\$7.8496	\$8.1247	\$1.5602	\$2.8155
GBLs	163	182	31	73	79	528
Cost	\$41,377	\$75,285	\$8,897	\$59,382	\$37,769	\$222,710

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	7,910,227
Rate(cwt)	\$7.4812
GBLs	4,807
Cost	\$591,783

Total EDDS Cost

Rate(cwt)	\$10.2967
Cost	\$814,493

Cost Analysis

Cost Difference (Direct - EDDS)	(\$101,024)
( ) - Loss	

Table 10

Direct Cost vs. EDDS Cost  
by Origin Depot  
(Omitting Shipments Originating at DDOU)

Direct Delivery Cost Estimate

	DDMP	DDTC	DDCO	DDMT	DDRV	TOTAL
Weight(lb)	428,265	4,216,930	113,343	730,880	503,381	5,992,799
Rate(cwt)	\$16.5956	\$8.1650	\$15.9207	\$13.6954	\$22.3290	\$10.7784
GBLs	1,011	4,094	309	1,155	1,310	7,879
Cost	\$71,073	\$344,313	\$18,045	\$100,097	\$112,400	\$645,928

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	4,216,930	113,343	730,880	503,381	5,992,799
Rate(cwt)	\$9.6615	\$1.7853	\$7.8496	\$8.1247	\$13.2891	\$4.2023
GBLs	163	182	31	73	201	650
Cost	\$41,377	\$75,285	\$8,897	\$59,382	\$66,895	\$251,836

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	5,992,799
Rate(cwt)	\$8.1074
GBLs	4,271
Cost	\$485,861

Total EDDS Cost	Rate(cwt)	\$12.3097
	Cost	\$737,697

Cost Analysis

Cost Difference (Direct - EDDS)	(\$91,769)
( ) - Loss	

4. Eliminating Shipments in a Selected Range from the EDDS Site.  
 Tables 11 through 13 display the cost comparison between the direct shipment cost and the cost of the EDDS program. This assumes that shipments delivered by the Los Angeles EDDS site are omitted depending upon the distance between the customer and the EDDS site. The scenario depicted in Table 13 offers the best chance to realize EDDS savings. One can see from the total weight shipped in each case that most of the freight volume falls in the less than 400 mile category. In the greater than 400 mile delivery zone, total weight shipped drops by only 10.72 percent while the total dollar loss due to EDDS has dropped from \$82,400 to \$38,529 a decrease of 53.24 percent.

Table 11

<u>Direct Cost vs. EDDS Cost</u>						
<u>by Month</u>						
<u>(Omitting Shipments 200 miles or Less from EDDS Site to Customer)</u>						
Month	EDDS In Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	469,577	\$14,787	480,547	\$50,154	\$64,941	\$47,842
Average Rate		\$3.149		\$10.437	\$13.586	\$10.188
August	376,980	\$9,456	391,402	\$42,271	\$51,727	\$40,857
Average Rate		\$2.508		\$10.800	\$13.308	\$10.838
September	320,834	\$8,891	304,976	\$31,539	\$40,430	\$32,857
Average Rate		\$2.771		\$10.341	\$13.113	\$10.241
October	211,220	\$7,084	208,904	\$23,045	\$30,129	\$24,052
Average Rate		\$3.354		\$11.031	\$14.385	\$11.387
November	420,602	\$13,403	437,582	\$41,326	\$54,729	\$43,166
Average Rate		\$3.187		\$9.444	\$12.631	\$10.263
December	285,562	\$8,612	261,364	\$24,622	\$33,234	\$29,785
Average Rate		\$3.016		\$9.421	\$12.441	\$10.430
Subtotal		\$62,233		\$212,957	\$275,190	
Average Rate		\$2.985		\$10.215	\$13.200	
Total	2,084,775		2,084,775		\$275,190	\$218,559
Average Rate					\$13.200	\$10.484
Cost Difference (Direct - EDDS)						(\$56,631)
( ) - Loss						

Table 12

Direct Cost vs. EDDS Cost  
by Month

(Omitting Shipments 201-400 miles from EDDS Site to Customer)

Month	EDDS In	----- EDDS Out		EDDS Cost -----		Direct Cost
	Weight	First Leg	Weight	Second Leg	Total	
July	1,230,762	\$46,981	1,282,890	\$103,125	\$150,106	\$125,480
Average Rate		\$3.817		\$8.038	\$11.856	\$10.195
August	1,374,959	\$47,387	1,354,050	\$108,366	\$155,753	\$141,704
Average Rate		\$3.446		\$8.003	\$11.450	\$10.306
September	1,061,536	\$37,394	1,088,390	\$79,914	\$117,308	\$108,375
Average Rate		\$3.523		\$7.342	\$10.865	\$10.209
October	1,115,797	\$41,306	1,129,550	\$76,573	\$117,879	\$114,351
Average Rate		\$3.702		\$6.779	\$10.481	\$10.248
November	1,408,115	\$48,780	1,304,569	\$86,426	\$135,206	\$128,887
Average Rate		\$3.464		\$6.625	\$10.089	\$9.153
December	1,040,002	\$33,453	1,071,722	\$63,908	\$97,361	\$93,603
Average Rate		\$3.217		\$5.963	\$9.180	\$9.000
Subtotal		\$255,301		\$518,312	\$773,613	
Average Rate		\$3.531		\$7.168	\$10.698	
Total	7,231,171		7,231,171		\$773,613	\$712,400
Average Rate					\$10.698	\$9.852
Cost Difference (Direct - EDDS)						(\$61,213)
( ) - Loss						

Table 13

Direct Cost vs. EDDS Costby Month(Omitting Shipments 400 miles or Greater from EDDS Site to Customer)

Month	EDDS in Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,235,325	\$48,929	1,286,865	\$98,260	\$147,189	\$128,526
Average Rate		\$3.961		\$7.636	\$11.596	\$10.404
August	1,419,989	\$48,488	1,410,660	\$106,274	\$154,762	\$145,236
Average Rate		\$3.415		\$7.534	\$10.948	\$10.228
September	1,093,490	\$38,047	1,115,088	\$78,298	\$116,345	\$110,815
Average Rate		\$3.479		\$7.022	\$10.501	\$10.134
October	1,172,125	\$43,019	1,186,766	\$77,421	\$120,440	\$117,099
Average Rate		\$3.670		\$6.524	\$10.194	\$9.990
November	1,490,435	\$49,708	1,368,703	\$84,511	\$134,219	\$134,213
Average Rate		\$3.335		\$6.175	\$9.510	\$9.005
December	1,099,906	\$33,484	1,143,188	\$65,021	\$98,505	\$97,042
Average Rate		\$3.044		\$5.688	\$8.732	\$8.823
Subtotal		\$261,675		\$509,785	\$771,460	
Average Rate		\$3.484		\$6.787	\$10.271	
Total	7,511,270		7,511,270		\$771,460	\$732,931
Average Rate					\$10.271	\$9.758
Cost Difference (Direct - EDDS)						(\$38,529)
( ) - Loss						

5. Eliminating Shipments to Eastern Arizona. As shown in Table 14, the final scenario speculates that shipments destined for customers in Eastern Arizona would be eliminated. These customers were identified as having a Standard Point Location Code (SPLC) between 8661 and 8685. This scenario goes hand in hand with the third part of scenario number 4 (see Table 13). Unfortunately, there are so few customers in this region, that total weight shipped is not affected. There is virtually no effect on direct or EDDS costs.

Table 14

Direct Cost vs. EDDS Cost  
by Month  
(Omitting Shipments to SPLCs 8661-8685)

Month	EDDS In Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,467,242	\$55,338	1,524,636	\$125,477	\$180,815	\$149,576
Average Rate		\$3.772		\$8.230	\$12.002	\$13.194
August	1,584,099	\$52,632	1,576,116	\$127,817	\$180,449	\$162,380
Average Rate		\$3.323		\$8.110	\$11.432	\$10.251
September	1,231,786	\$42,057	1,248,083	\$93,981	\$136,038	\$124,928
Average Rate		\$3.414		\$7.530	\$10.944	\$10.142
October	1,247,111	\$45,660	1,260,150	\$87,815	\$133,475	\$126,869
Average Rate		\$3.661		\$6.969	\$10.630	\$10.173
November	1,651,896	\$55,809	1,547,508	\$105,314	\$161,123	\$151,932
Average Rate		\$3.378		\$6.805	\$10.184	\$9.197
December	1,211,063	\$37,745	1,236,704	\$76,498	\$114,243	\$109,631
Average Rate		\$3.117		\$6.186	\$9.302	\$9.052
Subtotal		\$289,241		\$616,902	\$906,143	
Average Rate		\$3.446		\$7.350	\$10.796	
Total	8,393,197		8,393,197		\$906,143	\$825,316
Average Rate					\$10.796	\$9.833
Cost Difference (Direct - EDDS)						(\$60,827)
( ) - Loss						

C. Results - Maximizing Depot Direct Shipments.

It was determined upon investigation of the low direct cost rate for the months of November and December (see Table 4), that certain shipments into the Los Angeles EDDS site could have been consolidated at a depot and shipped directly to the customer. Maximized depot direct shipments occur when the consolidated EDDS inbound GBL and DCR pairings that exceed an aggregate weight of 10,000 pounds are shipped direct from the depot to the customer.

Table 15 shows the results of the transportation cost comparison between direct shipments and the EDDS program if maximized depot direct shipments occur. The estimated loss for the 6-month period, July through December 1989, is \$64,071. The direct cost of moving freight under the existing GTP agreements in effect was estimated to be \$812,548. The estimated EDDS program costs were \$273,328 for the inbound leg and \$603,291 for the outbound leg for a total cost of \$876,619. By eliminating shipments that could have been consolidated at the depot and shipped direct, the overall loss was reduced 22.24 percent while the weight reduced only 7.18 percent.

Table 15

Direct Cost vs. EDDS Cost  
by Origin Depot with Maximized Depot Direct Shipments

Direct Delivery Cost Estimate

	DDMP	DDTC	DDCO	DDMT	DDRv	DDOU	TOTAL
Weight(lb)	428,265	3,891,787	113,343	682,378	478,339	2,215,514	7,809,626
Rate(cwt)	\$16.5970	\$8.7761	\$15.9207	\$14.1745	\$22.9712	\$7.9112	\$10.4044
GBLs	1,011	4,204	309	1,160	1,308	2,256	10,248
Cost	\$71,079	\$341,546	\$18,045	\$96,724	\$109,880	\$175,274	\$812,548

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	3,891,787	113,343	682,378	478,339	2,215,514	7,809,626
Rate(cwt)	\$9.6615	\$1.7853	\$7.8496	\$8.1247	\$13.2891	\$1.5602	\$3.4999
GBLs	163	182	31	73	201	79	729
Cost	\$41,377	\$69,480	\$8,897	\$55,441	\$63,567	\$34,566	\$273,328

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	7,809,626
Rate(cwt)	\$7.7250
GBLs	4,964
Cost	\$603,291

Total EDDS Cost	Rate(cwt)	\$11.2249
	Cost	\$876,619

Cost Analysis

Cost Difference (Direct - EDDS)	( \$64,071 )
( ) - Loss	

Figure 5 graphically displays the direct cost versus the EDDS cost by month with the total freight volume indicated by the line diagram. The graphs indicate that the loss was spread over all 6 months, with December almost reaching breakeven.

Figure 6 reflects the relationship between the monthly dollar loss and the volume of freight handled at the EDDS site. The graph shows that the monthly loss is not proportional to the freight moved through the EDDS site.

**Direct Cost vs. EDDS Cost with Maximized Depot Direct Shipments**

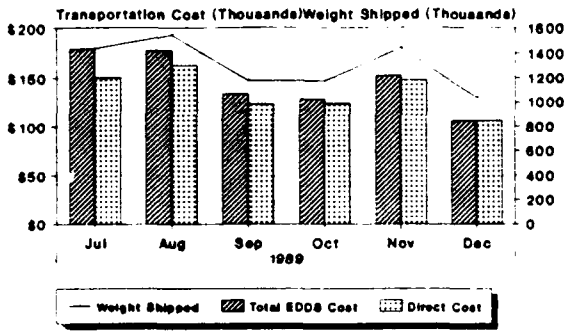


Figure 5

**Dollar Loss vs. Freight Volume with Maximized Depot Direct Shipments**

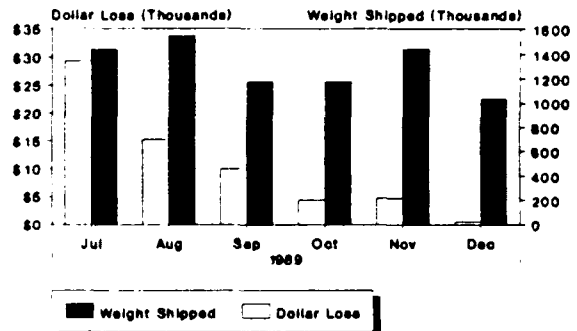


Figure 6

Figure 7 shows that average outbound GBL weight may be an indicator of dollar loss. Average outbound GBL weight appears to be inversely proportional to dollar loss. As the average outbound GBL weight increases the dollar loss decreases.

Figure 8 demonstrates the relationship between average outbound GBL weight and average hold time. Again, from July through October average hold time increases at the same rate as average GBL weight increases. In November and December average hold time drastically increases (recall that abnormal conditions did occur at the Los Angeles EDDS site during November and December) and average GBL weight increases somewhat. But the dollar loss remained constant. The overall dollar loss trend decreased from July to December.

**Dollar Loss vs. Average Outbound GBL Wgt with Maximized Depot Direct Shipments**

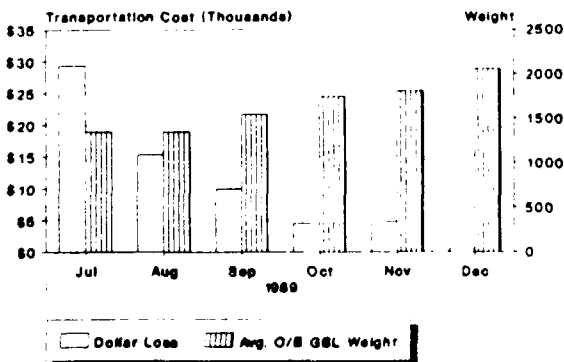


Figure 7

**Avg. GBL Weight vs. Avg. Hold Time with Maximized Depot Direct Shipments**

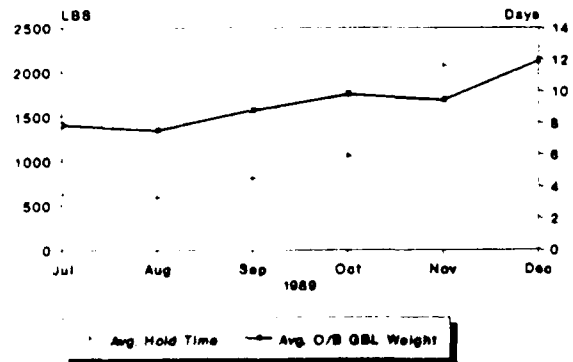


Figure 8

Table 16 shows the distribution of weight by depot by month. DDTC accounts for 49.83 percent of the weight and DDOU accounts for 28.37 percent of the weight moving through Los Angeles EDSS site. The other four depots account for the remaining 21.80 percent of the weight.

Table 16

Weight by Depot by Month  
with Maximized Depot Direct Shipments

MONTH	DEPOT						ALL
	DDCO	DDMP	DDMT	DDOU	DDRV	DDTC	
July	21,684	65,987	172,456	354,794	108,920	713,492	1,437,333
August	21,163	9,243	145,822	475,136	68,227	757,944	1,547,535
September	24,232	54,379	74,774	329,768	83,561	610,349	1,177,063
October	10,170	8,204	98,904	287,708	81,835	617,629	1,174,450
November	24,396	85,567	109,966	460,952	94,359	663,636	1,438,876
December	11,698	34,885	80,456	307,156	41,437	528,737	1,034,369
Totals	113,343	428,265	682,378	2,215,514	478,339	3,891,787	7,809,626
Percent	1.45%	5.48%	8.74%	28.37%	6.12%	49.83%	100.00%

D. Sensitivity - Maximizing Depot Direct Shipments. To gain further insight into the program changes required to make the Los Angeles EDSS pooling phase cost effective, five scenarios were generated based on maximized depot direct shipments. The cost of each scenario was calculated and compared to the cost of direct shipments to the customers.

1. Remove Civilian DODAACs from Los Angeles EDSS program. The first scenario was to compare the cost of direct shipments with the EDSS shipment cost after removing all DODAACs beginning with a number. Table 17 presents the results of eliminating these customers. The total weight dropped by 246,529 pounds. Comparing Table 17 with Table 15 the net results is that the loss for the 6-month period is reduced from \$64,071 to \$46,242. The volume of freight being handled by these DODAACs is only 3.16 percent of the total freight. The effect on the cost effectiveness of EDSS is slight when these customers are eliminated.

Table 17

Direct Cost vs. EDDS Cost  
by Month with Maximized Depot Direct Shipments  
(Omitting Shipments to Civilian Agencies (Numeric DODAACs))

Month	EDDS In Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,381,349	\$53,778	1,438,743	\$119,707	\$173,485	\$147,202
Average Rate		\$3.893		\$8.320	\$12.213	\$10.656
August	1,494,672	\$49,846	1,483,024	\$120,672	\$170,518	\$159,577
Average Rate		\$3.335		\$8.137	\$11.472	\$10.676
September	1,144,951	\$39,527	1,163,333	\$88,616	\$128,143	\$121,177
Average Rate		\$3.452		\$7.617	\$11.070	\$10.584
October	1,157,047	\$42,447	1,161,904	\$83,089	\$125,536	\$122,900
Average Rate		\$3.669		\$7.151	\$10.820	\$10.622
November	1,386,709	\$48,738	1,284,840	\$96,035	\$144,773	\$143,616
Average Rate		\$3.515		\$7.474	\$10.989	\$10.357
December	998,369	\$32,220	1,031,253	\$69,283	\$101,503	\$103,244
Average Rate		\$3.227		\$6.718	\$9.946	\$10.341
Subtotal		\$266,556		\$577,402	\$843,958	
Average Rate		\$3.524		\$7.634	\$11.159	
Total	7,563,097		7,563,097		\$843,958	\$797,716
Average Rate					\$11.159	\$10.547
Cost Difference (Direct - EDDS)						(\$46,242)
( ) - Loss						

2. Breakeven Reduction in Pooling Rates. This scenario identifies the magnitude of discount required for EDDS to breakeven. Table 18 presents a comparison of the cost of direct shipments to the EDDS cost with a 10.62 percent across-the-board reduction in pooling rates. The results show that EDDS breaks even when such a reduction is applied.

Table 18

Direct Cost vs. EDDS Cost  
by Month with Maximized Depot Direct Shipments  
(Second Leg Rates Reduced by 10.62 Percent)

Month	EDDS in Weight	----- First Leg	EDDS out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,437,333	\$54,837	1,494,727	\$111,612	\$166,449	\$150,360
Average Rate		\$3.815		\$7.467	\$11.282	\$10.461
August	1,547,535	\$51,176	1,539,552	\$113,142	\$164,318	\$162,564
Average Rate		\$3.307		\$7.349	\$10.656	\$10.505
September	1,177,063	\$40,377	1,193,360	\$82,736	\$123,113	\$123,012
Average Rate		\$3.430		\$6.933	\$10.363	\$10.451
October	1,174,450	\$42,780	1,177,727	\$76,229	\$119,009	\$123,664
Average Rate		\$3.643		\$6.473	\$10.115	\$10.530
November	1,438,876	\$50,696	1,338,047	\$90,518	\$141,214	\$147,271
Average Rate		\$3.523		\$6.765	\$10.288	\$10.235
December	1,034,369	\$33,462	1,066,213	\$64,986	\$98,448	\$105,679
Average Rate		\$3.235		\$6.095	\$9.330	\$10.217
Subtotal		\$273,328		\$539,222	\$812,550	
Average Rate		\$3.500		\$6.905	\$10.404	
Total	7,809,626		7,809,626		\$812,550	\$812,550
Average Rate					\$10.404	\$10.404
Cost Difference (Direct - EDDS)						(\$0)
( ) - Loss						

3. Eliminating Shipments Originating at Selected Depots. Tables 19 through 24 show the results when any one of the six DLA depots are omitted. Again, omitting shipments originating at DDTC had the most favorable effect - a loss of \$60,235. On the other hand, omitting shipments originating at DDRV actually caused the EDDS loss to become more severe a loss of \$83,978.

Table 19

Direct Cost vs. EDDS Cost  
by Origin Depot with Maximised Depot Direct Shipments  
(Omitting Shipments Originating at DDMP)

Direct Delivery Cost Estimate

	DDTC	DDCO	DDMT	DDRV	DDOU	TOTAL
Weight(lb)	3,891,787	113,343	682,378	478,339	2,215,514	7,381,361
Rate(cwt)	\$8.7761	\$15.9207	\$14.1745	\$22.9712	\$7.9112	\$10.0452
GBLs	4,204	309	1,160	1,308	2,256	9,237
Cost	\$341,346	\$18,045	\$96,724	\$109,880	\$175,274	\$741,469

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	3,891,787	113,343	682,378	478,339	2,215,514	7,381,361
Rate(cwt)	\$1.7853	\$7.8496	\$8.1247	\$13.2891	\$1.5602	\$3.1424
GBLs	182	31	73	201	79	566
Cost	\$69,480	\$8,897	\$55,441	\$63,567	\$34,566	\$231,951

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	7,381,361
Rate(cwt)	\$7.8729
GBLs	4,836
Cost	\$581,130

Total EDDS Cost

Rate(cwt)	\$11.0153
Cost	\$813,081

Cost Analysis

Cost Difference (Direct - EDDS)	(\$71,612)
( ) - Loss	

Table 20

Direct Cost vs. EDDS Cost  
by Origin Depot with Maximized Depot Direct Shipments  
(Omitting Shipments Originating at DDTC)

Direct Delivery Cost Estimate

	DDMP	DDCO	DDMT	DDRV	DDOU	TOTAL
Weight(lb)	28,265	113,343	682,378	478,339	2,215,514	3,917,839
Rate(cwt)	\$6.5970	\$15.9207	\$14.1745	\$22.9712	\$7.9112	\$12.0220
GBLs	1,011	309	1,160	1,308	2,256	6,044
Cost	\$71,079	\$18,045	\$96,724	\$109,880	\$175,274	\$471,002

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	113,343	682,378	478,339	2,215,514	3,917,839
Rate(cwt)	\$9.6615	\$7.8496	\$8.1247	\$13.2891	\$1.5602	\$5.2031
GBLs	163	31	73	201	79	547
Cost	\$41,377	\$8,897	\$55,441	\$63,567	\$34,566	\$203,848

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	3,917,839
Rate(cwt)	\$8.3564
GBLs	3,271
Cost	\$327,389

Total EDDS Cost

Rate(cwt)	\$13.5594
Cost	\$531,237

Cost Analysis

Cost Difference (Direct - EDDS)	(\$60,235)
( ) - Loss	

Table 21

Direct Cost vs. EDDS Cost  
by Origin Depot with Maximized Depot Direct Shipments  
(Omitting Shipments Originating at DDCO)

Direct Delivery Cost Estimate

	DDMP	DDTC	DDMT	DDRV	DDOU	TOTAL
Weight(lb)	428,265	3,891,787	682,378	478,339	2,215,514	7,696,283
Rate(cwt)	\$16.5970	\$8.7761	\$14.1745	\$22.9712	\$7.9112	\$10.3232
GBLs	1,011	4,204	1,180	1,308	2,256	9,939
Cost	\$71,079	\$341,546	\$96,724	\$109,880	\$175,274	\$794,503

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	3,891,787	682,378	478,339	2,215,514	7,696,283
Rate(cwt)	\$9.8615	\$1.7853	\$8.1247	\$13.2891	\$1.5602	\$3.4358
GBLs	163	182	73	201	79	698
Cost	\$41,377	\$69,480	\$55,441	\$63,567	\$34,566	\$264,431

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	7,696,283
Rate(cwt)	\$7.7511
GBLs	4,905
Cost	\$596,547

Total EDDS Cost

Rate(cwt)	\$11.1869
Cost	\$860,978

Cost Analysis

Cost Difference (Direct - EDDS)	(\$66,475)
( ) - Loss	

Table 22

Direct Cost vs. EDDS Cost  
by Origin Depot with Maximized Depot Direct Shipments  
(Omitting Shipments Originating at DDMT)

Direct Delivery Cost Analysis

	DDMP	DDTC	DDCO	DDRV	DDOU	TOTAL
Weight(lb)	428,265	3,891,787	113,343	478,339	2,215,514	7,127,248
Rate(cwt)	\$16.5970	\$8.7761	\$15.9207	\$22.9712	\$7.9112	\$10.0435
GBLs	1,011	4,204	309	1,308	2,256	9,088
Cost	\$71,079	\$341,546	\$18,045	\$109,880	\$175,274	\$715,824

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	3,891,787	113,343	478,339	2,215,514	7,127,248
Rate(cwt)	\$9.6615	\$1.7853	\$7.8496	\$13.2891	\$1.5602	\$3.0571
GBLs	163	182	31	201	79	656
Cost	\$41,377	\$69,480	\$8,897	\$63,567	\$34,566	\$217,887

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	7,127,248
Rate(cwt)	\$7.9178
GBLs	4,739
Cost	\$564,318

Total EDDS Cost

Rate(cwt)	\$10.9749
Cost	\$782,205

Cost Analysis

Cost Difference (Direct - EDDS)	(\$66,381)
( ) - Loss	

Table 23

Direct Cost vs. EDDS Cost  
by Origin Depot with Maximized Depot Direct Shipments  
(Omitting Shipments Originating at DDRV)

Direct Delivery Cost Analysis

	DDMP	DDTC	DDCO	DDMT	DDOU	TOTAL
Weight(lb)	428,265	3,891,787	113,343	682,378	2,215,514	7,331,287
Rate(cwt)	\$16.5970	\$8.7761	\$15.9207	\$14.1745	\$7.9112	\$9.5845
GBLs	1,011	4,204	309	1,160	2,256	8,940
Cost	\$71,079	\$341,546	\$18,045	\$96,724	\$175,274	\$702,668

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	3,891,787	113,343	682,378	2,215,514	7,331,287
Rate(cwt)	\$9.6615	\$1.7853	\$7.8496	\$8.1247	\$1.5602	\$2.8612
GBLs	163	182	31	73	79	528
Cost	\$41,377	\$69,480	\$8,897	\$55,441	\$34,566	\$209,761

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	7,331,287
Rate(cwt)	\$7.8688
GBLs	4,793
Cost	\$576,885

Total EDDS Cost

Rate(cwt)	\$10.7300
Cost	\$786,646

Cost Analysis

Cost Difference (Direct - EDDS)	(\$83,978)
( ) - Loss	

Table 24

Direct Cost vs. EDDS Cost  
by Origin Depot with Maximized Depot Direct Shipments  
(Omitting Shipments Originating at DDOU)

Direct Delivery Cost Estimate

	DDMP	DDTC	DDCO	DDMT	DDRV	TOTAL
Weight(lb)	428,265	3,891,787	113,343	682,378	478,339	5,594,112
Rate(cwt)	\$16.5970	\$8.7761	\$15.9207	\$14.1745	\$22.9712	\$11.3919
GBLs	1,011	4,204	309	1,160	1,308	7,992
Cost	\$71,079	\$341,546	\$18,045	\$96,724	\$109,880	637,274

EDDS 1st Leg - Inbound Transportation Cost

Weight(lb)	428,265	3,891,787	113,343	682,378	478,339	5,594,112
Rate(cwt)	\$9.6615	\$1.7853	\$7.8496	\$8.1247	\$13.2891	\$4.2681
GBLs	163	182	31	73	201	650
Cost	\$41,377	\$69,480	\$8,897	\$55,441	\$63,567	238,762

EDDS 2nd Leg - Outbound Transportation Cost

Weight(lb)	5,594,112
Rate(cwt)	\$8.4630
GBLs	4,259
Cost	\$473,430

Total EDDS Cost

Rate(cwt)	\$12.7311
Cost	\$712,192

Cost Analysis

Cost Difference (Direct - EDDS)

( ) - Loss

(\$74,918)

4. Eliminating Shipments in a Selected Range from the EDDS Site.

Tables 25 through 27 display the cost comparison between the direct shipment cost and the EDDS cost assuming that certain shipments delivered by the Los Angeles EDDS site are omitted depending on the distance between the customer and the EDDS site. Again, one can see from the total weight shipped in each case that most of the freight volume falls in the less than 400 mile category. In the greater than 400 mile delivery zone, Table 27, total weight shipped drops by only 11.41 percent while the total dollar loss has dropped from \$64,071 to \$23,760, a decrease of 62.92 percent. When this case is compared to the actual shipments, total weight shipped dropped from 8,413,608 to 6,918,568 pounds, a decrease of 17.77 percent, and the total dollar loss drops from \$82,400 to \$23,760, a decrease of 71.16 percent.

Table 25

Direct Cost vs. EDDS Cost  
by Month with Maximized Depot Direct Shipments  
(Omitting Shipments 200 miles or Less from EDDS Site to Customer)

Month	EDDS In Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	469,577	\$14,787	480,547	\$50,154	\$64,941	\$48,401
Average Rate		\$3.149		\$10.437	\$13.586	\$10.307
August	361,555	\$9,181	375,977	\$41,635	\$50,816	\$40,591
Average Rate		\$2.539		\$11.074	\$13.613	\$11.227
September	305,496	\$8,618	289,638	\$30,865	\$39,483	\$32,108
Average Rate		\$2.821		\$10.656	\$13.477	\$10.510
October	196,544	\$6,822	194,228	\$22,202	\$29,024	\$23,672
Average Rate		\$3.471		\$11.431	\$14.902	\$12.044
November	383,826	\$12,746	389,526	\$39,934	\$52,680	\$42,588
Average Rate		\$3.321		\$10.252	\$13.573	\$11.096
December	274,282	\$7,113	261,364	\$24,622	\$31,735	\$28,896
Average Rate		\$2.593		\$9.421	\$12.014	\$10.535
Subtotal		\$59,267		\$209,412	\$268,679	
Average Rate		\$2.976		\$10.516	\$13.493	
Total	1,991,280		1,991,280		\$268,679	\$216,256
Average Rate					\$13.493	\$10.860
Cost Difference (Direct - EDDS)						(\$52,423)
( ) - Loss						

Table 26

Direct Cost vs. EDDS Cost  
by Month with Maximized Depot Direct Shipments  
(Omitting Shipments 201-400 miles from EDDS Site to Customer)

Month	EDDS In Weight	----- \$46,469 First Leg \$3.872	EDDS Out Weight	EDDS Cost Second Leg \$8.180	----- \$148,910 Total \$12.051	Direct Cost
July	1,200,263		1,252,391	\$102,441	\$148,910	\$125,837
Average Rate		\$3.872		\$8.180	\$12.051	\$10.484
August	1,351,955	\$46,173	1,331,046	\$107,554	\$153,727	\$142,053
Average Rate		\$3.415		\$8.080	\$11.496	\$10.507
September	1,016,007	\$35,879	1,042,861	\$78,660	\$114,539	\$106,905
Average Rate		\$3.531		\$7.543	\$11.074	\$10.522
October	1,055,352	\$38,644	1,059,343	\$74,620	\$113,264	\$111,470
Average Rate		\$3.662		\$7.044	\$10.706	\$10.562
November	1,224,191	\$44,187	1,123,204	\$82,656	\$126,843	\$125,169
Average Rate		\$3.609		\$7.359	\$10.968	\$10.225
December	861,636	\$29,141	900,559	\$60,012	\$89,153	\$89,473
Average Rate		\$3.382		\$6.664	\$10.046	\$10.384
Subtotal		\$240,493		\$505,943	\$746,436	
Average Rate		\$3.584		\$7.541	\$11.125	
Total	6,709,404		6,709,404		\$746,436	\$700,907
Average Rate					\$11.125	\$10.447
Cost Difference (Direct - EDDS)						(\$45,529)
( ) - Loss						

Table 27

Direct Cost vs. EDDS Cost  
by Month with Maximized Depot Direct Shipments  
(Omitting Shipments 400 miles or Greater from EDDS Site to Customer)

Month	EDDS In Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,204,826	\$48,418	1,256,366	\$97,575	\$145,993	\$128,623
Average Rate		\$4.019		\$7.766	\$11.785	\$10.676
August	1,381,560	\$46,999	1,372,231	\$104,826	\$151,825	\$144,840
Average Rate		\$3.402		\$7.639	\$11.041	\$10.484
September	1,032,623	\$36,358	1,054,221	\$76,401	\$112,759	\$108,810
Average Rate		\$3.521		\$7.247	\$10.768	\$10.537
October	1,097,004	\$40,095	1,101,883	\$74,625	\$114,720	\$113,885
Average Rate		\$3.655		\$6.772	\$10.427	\$10.381
November	1,269,735	\$44,458	1,161,842	\$80,312	\$124,770	\$128,076
Average Rate		\$3.501		\$6.912	\$10.414	\$10.087
December	932,820	\$30,671	972,025	\$61,125	\$91,796	\$93,869
Average Rate		\$3.288		\$6.288	\$9.576	\$10.063
Subtotal		\$246,999		\$494,864	\$741,863	
Average Rate		\$3.570		\$7.153	\$10.723	
Total	6,918,568		6,918,568		\$741,863	\$718,103
Average Rate					\$10.723	\$10.379
Cost Difference (Direct - EDDS)						(\$23,760)
( ) - Loss						

5. Eliminating Shipments to Eastern Arizona. As shown in Table 28, the final scenario speculates that shipments destined for customers in Eastern Arizona would be eliminated. These customers were identified as having a SPLC between 8661 and 8685. This scenario goes hand in hand with the third part of scenario number 4 (see Table 27). Again, there are so few customers in this region, that total weight shipped and costs are not affected.

Table 28

Direct Cost vs. EDDS Cost  
by Month with Maximized Depot Direct Shipments  
(Omitting Shipments to SPLCs 8661-8685)

Month	EDDS In Weight	----- First Leg	EDDS Out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,436,743	\$54,826	1,494,137	\$124,793	\$179,619	\$150,301
Average Rate		\$3.816		\$8.352	\$12.168	\$10.461
August	1,545,670	\$51,143	1,537,687	\$126,368	\$177,511	\$162,427
Average Rate		\$3.309		\$8.218	\$11.527	\$10.509
September	1,170,919	\$40,267	1,187,216	\$92,083	\$132,350	\$122,649
Average Rate		\$3.439		\$7.756	\$11.195	\$10.475
October	1,171,990	\$42,736	1,175,267	\$85,019	\$127,755	\$123,620
Average Rate		\$3.646		\$7.234	\$10.880	\$10.548
November	1,431,196	\$50,559	1,329,367	\$100,663	\$151,222	\$147,034
Average Rate		\$3.533		\$7.572	\$11.105	\$10.274
December	1,032,697	\$33,432	1,065,541	\$72,602	\$106,034	\$105,614
Average Rate		\$3.237		\$6.814	\$10.051	\$10.227
Subtotal		\$272,963		\$601,528	\$874,491	
Average Rate		\$3.504		\$7.723	\$11.227	
Total	7,789,215		7,789,215		\$874,491	\$811,645
Average Rate					\$11.227	\$10.420
Cost Difference (Direct - EDDS)						(\$62,846)
( ) - Loss						

E. Maximized Depot Direct Shipments and Customers Greater Than 400 Miles from Los Angeles EDDS Site Analysis.

The elimination of shipments greater than 400 miles from Los Angeles EDDS site is cost effective for the all shipment case and the maximized depot direct shipment case. To illustrate the cost ineffectiveness of these shipments, further analysis was conducted on the maximized depot direct shipment case. Table 29 which gives the cost allocation and weight allocation of shipments greater than 400 miles from the Los Angeles EDDS site to customers for the maximized depot direct shipments case. These shipments contributed \$40,309 of the \$64,071 loss of the Los Angeles EDDS site or 62.91 percent.

Table 29

Direct Cost vs. EDDS Cost  
by Month for Maximized Depot Direct Shipments  
and Customers Greater than 400 Miles

Month	EDDS in Weight	----- First Leg	EDDS out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	232,507	\$6,419	238,361	\$27,299	\$33,718	\$21,737
Average Rate		\$2.761		\$11.453	\$14.214	\$9.349
August	165,975	\$4,177	167,321	\$21,759	\$25,936	\$17,724
Average Rate		\$2.517		\$13.004	\$15.521	\$10.679
September	144,440	\$4,019	139,139	\$16,165	\$20,184	\$14,202
Average Rate		\$2.782		\$11.618	\$14.400	\$9.832
October	77,446	\$2,685	75,844	\$10,661	\$13,346	\$9,779
Average Rate		\$3.467		\$14.056	\$17.523	\$12.627
November	169,141	\$6,238	176,205	\$20,961	\$27,199	\$19,195
Average Rate		\$3.688		\$11.896	\$15.584	\$11.349
December	101,549	\$2,791	94,188	\$11,582	\$14,373	\$11,810
Average Rate		\$2.748		\$12.297	\$15.045	\$11.630
Subtotal		\$26,329		\$108,427	\$134,756	
Average Rate		\$2.955		\$12.168	\$15.123	
Total	891,058		891,058		\$134,756	\$94,447
Average Rate					\$15.123	\$10.599
Cost Difference (Direct - EDDS)						(\$40,309)
( ) - Loss						

A breakeven analysis for these shipments was performed. The breakeven analysis, shown in Table 30, shows that a 37.18 percent rate reduction is necessary for customers greater than 400 miles from the Los Angeles EDDS site, with maximized depot direct shipments.

Table 30

Direct Cost vs. EDDS Cost  
by Month for Maximised Depot Direct Shipments  
and Customers Greater than 400 Miles  
(Second Leg Rates Reduced by 37.18 Percent)

Month	EDDS in Weight	----- First Leg	EDDS out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	232,507	\$6,419	238,361	\$17,150	\$23,569	\$21,737
Average Rate		\$2.761		\$7.195	\$9.956	\$9.349
August	165,975	\$4,177	167,321	\$13,670	\$17,847	\$17,724
Average Rate		\$2.517		\$8.170	\$10.686	\$10.679
September	144,440	\$4,019	139,139	\$10,155	\$14,174	\$14,202
Average Rate		\$2.782		\$7.299	\$10.081	\$9.832
October	77,446	\$2,685	75,844	\$6,698	\$9,383	\$9,779
Average Rate		\$3.467		\$8.831	\$12.298	\$12.627
November	169,141	\$6,238	176,205	\$13,169	\$19,407	\$19,195
Average Rate		\$3.688		\$7.473	\$11.161	\$11.349
December	101,549	\$2,791	94,188	\$7,276	\$10,067	\$11,810
Average Rate		\$2.748		\$7.725	\$10.474	\$11.630
Subtotal		\$26,329		\$68,118	\$94,447	
Average Rate		\$2.955		\$7.645	\$10.599	
Total	891,058		891,058		\$94,447	\$94,447
Average Rate					\$10.599	\$10.599
Cost Difference (Direct - EDDS)						(\$0)
( ) - Loss						

The cost ineffectiveness of shipments greater than 400 miles from the Los Angeles EDDS site warranted an additional breakeven analysis. This breakeven analysis, shown in Table 31, shows that a 4.80 percent rate reduction is necessary to breakeven for the maximized depot direct shipments excluding customers greater than 400 miles from the Los Angeles EDDS site scenario.

Table 31

Direct Cost vs. EDDS Cost  
by Month with Maximized Depot Direct Shipments  
and Customers Less than 400 Miles  
(Second Leg Rates Reduced by 4.80 Percent)

Month	EDDS in Weight	----- First Leg	EDDS out Weight	EDDS Cost Second Leg	----- Total	Direct Cost
July	1,204,826	\$48,418	1,256,366	\$92,890	\$141,308	\$128,623
Average Rate		\$4.019		\$7.394	\$11.412	\$10.676
August	1,381,560	\$46,999	1,372,231	\$99,793	\$146,792	\$144,840
Average Rate		\$3.402		\$7.272	\$10.674	\$10.484
September	1,032,623	\$36,358	1,054,221	\$72,733	\$109,091	\$108,810
Average Rate		\$3.521		\$6.899	\$10.420	\$10.537
October	1,097,004	\$40,095	1,101,883	\$71,042	\$111,137	\$113,885
Average Rate		\$3.655		\$6.447	\$10.102	\$10.381
November	1,269,735	\$44,458	1,161,842	\$76,456	\$120,914	\$128,076
Average Rate		\$3.501		\$6.581	\$10.082	\$10.087
December	932,820	\$30,671	972,025	\$58,190	\$88,861	\$93,869
Average Rate		\$3.288		\$5.986	\$9.274	\$10.063
Subtotal		\$246,999		\$471,104	\$718,103	
Average Rate		\$3.570		\$6.809	\$10.379	
Total	6,918,568		6,918,568		\$718,103	\$718,103
Average Rate					\$10.379	\$10.379
Cost Difference (Direct - EDDS)						(0)
( ) - Loss						

APPENDIX A

References

### References

1. Myers, C., Enhanced DLA Distribution System (EDDS) "Pooling," DLA-LO Report No. 7020, June 1988.
2. Von Hitritz, S. and Kleinhenz, M., Initial Transportation Cost Analysis of the Enhanced Defense Logistics Agency Distribution System (EDDS) Los Angeles Site, DLA-LO Report No. DLA-90-P90108, March 1990.

APPENDIX B

Listing of Abbreviations

### List of Abbreviations

<u>Abbreviation</u>	<u>Meaning</u>
cwt	Hundredweight
DCR	Destination Cross Reference
DDCO	Defense Depot Columbus, OH
DDMP	Defense Depot Mechanicsburg, PA
DDMT	Defense Depot Memphis, TN
DDOU	Defense Depot Ogden, UT
DDRV	Defense Depot Richmond, VA
DDTC	Defense Depot Tracy, CA
DLA	Defense Logistics Agency
DODAAC	Department of Defense Activity Address Code
EDDS	Enhanced DLA Distribution System
FY	Fiscal Year
GBL	Government Bill of Lading
GTP	Guaranteed Traffic Program
lb	pound
LTL	Less-than-truckload
MRO	Materiel Release Order
SPLC	Standard Point Location Code

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

<b>1. AGENCY USE ONLY (Leave blank)</b>		<b>2. REPORT DATE</b> October 1990	<b>3. REPORT TYPE AND DATES COVERED</b> Final	
<b>4. TITLE AND SUBTITLE</b> Los Angeles EDDS Site Transportation Cost Analysis for the Pooling Phase July - December 1989			<b>5. FUNDING NUMBERS</b>	
<b>6. AUTHOR(S)</b> LCDR Stephen R. von Hitritz, SC, USN Russell S. Elliott				
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> HQ Defense Logistics Agency Operations Research and Economic Analysis Office (DLA-LO) Cameron Station Alexandria, VA 22304-6100			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>  DLA-91-P00070	
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b>  Defense Logistics Agency Cameron Station Alexandria, VA 22304-6100			<b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>	
<b>11. SUPPLEMENTARY NOTES</b>				
<b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b>  Public Release; Unlimited Distribution			<b>12b. DISTRIBUTION CODE</b>	
<b>13. ABSTRACT (Maximum 200 words)</b>  This is an analysis of the cost effectiveness of the Los Angeles Enhanced DLA Distribution System (EDDS) site in comparison with direct shipment to the customer. Pooling is defined as the consolidation of truckload shipments from the depots into large less-than-truckload lots for transshipment to the customer. Comparison of the cost of EDDS pooling at Los Angeles with the potential cost of direct shipment to the customer showed that during the second 6 months of operations (July-December 1989), the Los Angeles EDDS site has absorbed a loss of approximately \$82,000. Analysis showed that although shipments are being consolidated at a higher rate than the first 6 months, outbound shipment rates from Los Angeles EDDS site are still too high. Recommendations were made to increase the direct shipment performance at the depots, to eliminate from the EDDS program shipments to customers greater than 400 miles from Los Angeles, and to negotiate a further reduction in the EDDS outbound pooling rates to a level that is competitive with the depot's guaranteed traffic rates.				
<b>14. SUBJECT TERMS</b> Transportation, Pooling, Cost Analysis, Shipments, Distribution			<b>15. NUMBER OF PAGES</b> 52	
			<b>16. PRICE CODE</b>	
<b>17. SECURITY CLASSIFICATION OF REPORT</b> UNCLASSIFIED	<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b> UNCLASSIFIED	<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b> UNCLASSIFIED	<b>20. LIMITATION OF ABSTRACT</b>	