AD-A162 916 WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES 1/3
PHASE I VOLUME 2 METHODOLOGY(U) LOGISTICS STUDIES
OFFICE (ARMY) FORT LEE VA P E GROVER AUG 85

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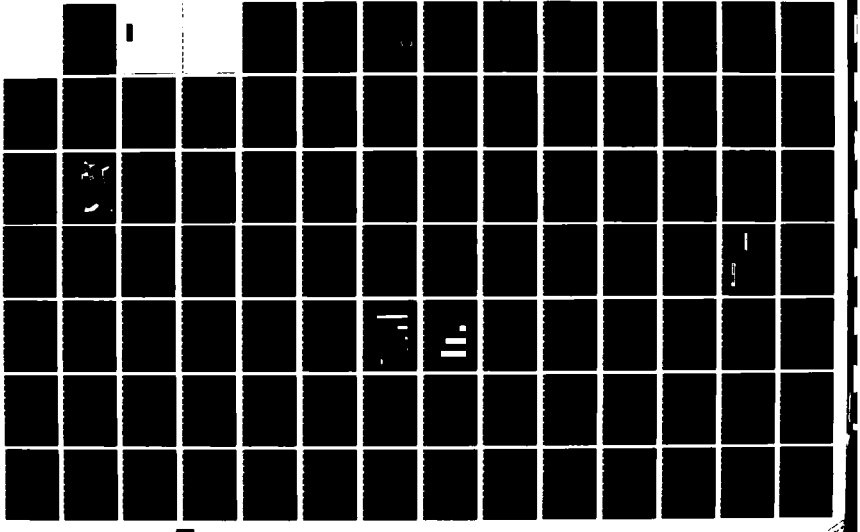

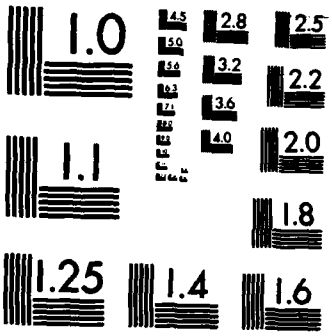

REPORT DOCUMENTATION PAGE

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1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A162 916 / 3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Wholesale Stock Positioning and Distribution Policies, Phase I	5. TYPE OF REPORT & PERIOD COVERED Final Technical Report
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Paul E. Grover	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Logistics Studies Office, US Army Materiel Systems Analysis Activity, Fort Lee, VA 23801-6046	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Materiel Command, ATTN: AMCSM-POT, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001	12. REPORT DATE August 1985
	13. NUMBER OF PAGES 232
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

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18. SUPPLEMENTARY NOTES

The views, opinions, and/or findings contained in this report are those of the author and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documentation.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Supply, Transportation, Depot Operations, Cost Analysis, Stock Positioning, Inventory Control, Stock Control, Economic Analysis, ~~Distribution~~, Physical Distribution, Second Destination Transportation, First Destination Transportation.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

A cost/benefit type analysis was performed on the CONUS physical distribution system for Army Class IX items to evaluate the impact of expanding the number of depots in which stocks are positioned. By positioning stock closer to the eventual customer, savings in second destination transportation cost and time were evaluated. However, those savings were offset by increased nonrecurring cost (start up costs) and recurring costs such as first destination transportation costs and supply depot operating costs. As the number of stock positioning points increases, total supply cost increases significantly. Therefore,

the existing distribution network is considered best at this time. However, because of less-than-perfect stock positioning, there is a considerable volume of shipments crossing geographical depot service boundaries which, if reduced, could significantly reduce total supply cost and time. Keywords:

WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES
PHASE I, VOLUME 2, METHODOLOGY

LOGISTICS STUDIES OFFICE
PROJECT NUMBER 053

TECHNICAL REPORT
AUGUST 1985

PAUL E. GROVER

LOGISTICS STUDIES OFFICE
US ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY
FORT LEE, VIRGINIA 23801-6046

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WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES
PHASE I, VOLUME 2

Chapter I. INTRODUCTION

This volume contains detailed descriptions of methodology, calculations, intermediary results and discussions that were omitted from the Main Report in the interest of brevity. Each chapter contains documentation of a cost element or effectiveness element. Extensive use is made of tables and figures to illustrate, step-by-step, the procedures followed. Because of the many tables and figures used, it was decided that the report would be more readable if the tables and figures were consolidated at the end of each chapter. Appendices are used for data that is common to several chapters or is sufficiently voluminous to discourage all but the most conscientious reader. This volume is not intended to be a stand-alone document and its use beyond the context as a supplement to Volume 1 is discouraged.

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Chapter II. FIRST DESTINATION TRANSPORTATION COST

I. Introduction.

A. For purposes of this report, First Destination Transportation (FDT) is defined as the the movement of the Class IX item from the manufacturer's plant to the supply depot. Army policy is similar to DLA policy which in DLAM 4145.10 [11] states "It (transportation concept) involved basically a long haul in and short haul out in overall depot distribution missions wherein distance from depot to customer is given more consideration than distance from procurement source to depot for depot stock replenishment purposes." Thus, from a cost consideration, FDT is intentionally non-optimal in an effort to keep Second Destination Transportation time for delivery to a minimum.

B. Efforts to analyze FDT cost are hampered by data problems.

1. Budgeting and funding for FDT for Class IX depends on how the contract is written.

a. Free on Board (FOB) Destination contracts. When FOB Destination is specified for transportation, the contractor arranges for and pays for transportation to the depot. The cost of transportation is included in the unit price of the item and is invisible to the government. This is the preferred and dominant means of funding FDT for Class IX.

b. FOB Origin contracts. When there is uncertainty in destinations or for other reasons advantageous to the government, the contract can specify FOB origin. Under these circumstances, the government (NICP) arranges and pays for transportation to the depot. These costs are visible; budget and actual cost data are available. However, FOB origin is the exception rather than the rule.

2. It is often difficult to determine the location of the FDT source for Class IX items.

a. Automated procurement data files contain location data on contracts over $25,000 from data elements taken from the DD Form 350, Individual Procurement Action Report. However, many Class IX procurements are for less than $25,000 and thus are not part of the automated file.

b. Use of geographic procurement distributions such as Figure II-1 [12] may be misleading for Class IX because:

(1) These dollar distributions can be dominated by large contracts for major items such as the Abrams tank.

(2) These distributions contain ammunition and service contracts which can further distort the distribution from the real Class IX distribution.

C. General Concepts. Despite the limitations discussed in the preceding paragraph, FDT within the Army can roughly be characterized as a flow of materiel from the industrial Midwest to the three existing AODs as shown in Table II-1. Table II-1 is fairly representative of the Army pattern because TACOM [13] accounts for about 89.5% of the Army managed Class IX weight and nearly 68% of the FDT cost (see Appendix B). As additional supply depots are added to the distribution network, the following effects should be observed.

a. The average FDT distances shipped should generally be less.

b. The average weight per shipment will be decreased.

c. The shipment modes may shift to less economical modes as the weight per shipment decreases.

d. The total number of shipments will increase.

II. Methodology.

A. Methodology A. A sample of thirty procurement actions was selected and FDT cost was estimated by NICP traffic management personnel for each alternative

distribution network. The allocation of quantity shipped to each depot destination was based on demand patterns formulated from the Logistics Intelligence File. Percentage changes caused by altering the network were applied to an estimate of total FDT cost to estimate the overall effect on the population.

B. Methodology B. A cost estimating relationship was developed based on MTMC Freight Information System data for truckload shipments destined to the existing AODs. For less-than-truckload shipments, a cost estimating relationship developed for second destination transportation cost was used to estimate shipping cost as a function of weight and distance shipped. These relationships were applied to each alternative for four hypothetical scenarios to observe the effect on FDT cost. Percentage changes for these hypothetical cases were computed and applied to an estimate of total FDT cost for the items in the scope of study.

III. Sources of Data.

A. Methodology A. Each of the six NICPs was tasked to estimate FDT costs for five representative procurements. A questionnaire shown in Appendix A was used to insure uniformity of response. The "quantity shipped" entries were computed based on Table 1, Appendix A, page 110. This table was developed from LIF data (Appendix B) by reassigning lines per Appendix C boundaries and computing the fractional changes to the overall depot volume. Table II-2 contains some of the key data provided by the NICP specialists.

B. Methodology B. A sample of 4303 Government Bills of Lading (GBL) for truckload shipments from 589 different sources destined to the three existing AODs was taken. This data was provided by MTMC from their Freight Information System per a request shown in Appendix A. A regression analysis of this data yielded an equation that estimates shipping cost as a function of weight

and distance shown in Table II-3. The less-than-truckload relationship in Table II-3 was developed for Second Destination Transportation cost and is documented in Chapter III, para IIE3. Four hypothetical scenarios were arbitrarily developed and these equations were used to develop estimates for each alternative, using Table 1, Appendix A, page 110, to reallocate weight and AR 55-60 for distances.

IV. Analysis.

A. Methodology A. Results of the sample questionnaires for the 30 procurements are tabulated in Table II-4 and II-5. Since it is known that TACOM generates 89.5% of the Class IX weight, an a-priori weighted average based on weights given in Table B-4, Appendix B is used to estimate the change in FDT cost which increases by 11.7% as the number of supply depots increases to 8 as shown in Figure II-2.

B. Methodology B. Four scenarios were selected. The first and most likely scenario was a high volume producer located in Columbus, Ohio, shipping truckload shipments to the AODs. The second scenario was for a similar producer on the east coast (New York City). The last two scenarios chosen were a west coast (Los Angeles) and a Midwest producer (Detroit) shipping less-than-truckload amounts to the AODs. Detailed calculations for each scenario are shown in Appendix G. Cost calculations are based on formulae in Table II-3. Results, summarized in Figure II-2, indicate a much more severe impact on FDT cost associated with increased fragmentation of the shipments than predicted by Methodology A.

C. Data shown in Table II-2 has a sample mean percentage of 1.86% and a sample standard deviation 2.195%. A 90% confidence interval on the true population mean for the FDT percentage is between 1.18% and 2.54%. However,

since the percentage varies considerably from NICP to NICP, an estimate of each NICP percentage is needed. Table II-6 applies the sample NICP means to the LIF extended values to yield an estimate for FDT cost of $13.6M (CY 84) for Alternative 1. This value applies to Class IX stocks destined for CONUS customers shipped from the three AODs. The FY 85 value is $14.0M.

D. Using the most conservative methodology (Methodology A), Table II-7 projects the effect of expanded stock positioning on FDT cost. This table is developed by applying the percentage changes shown in Table II-4 and II-5 to the baseline FDT cost in Table II-6. As the number of depots increases to eight, FDT increases by 11.7% or $1.6 million per year. Methodology B predicts a substantially greater increase in cost.

V. Validation. To verify that the analysis of FDT cost is reasonable, an independent source was established to compare with the results of the analysis for Alternative 1. An attempt to validate the FDT percentages for each NICP shown in Table II-6 is shown in Table II-8. Despite individual NICP variances between sources that are significant, the average rates are close. Individual NICP differences could be caused by the combining of all transportation costs in the CSGLD-1111 report, thus blurring the comparison. Also, the difference could be caused by the high degree of uncertainty in the sample rates caused by the small sample size. Nonetheless, Table II-8 casts considerable doubt about the accuracy of the FDT rates used in the CCSS, except for CECOM and TACOM. The fact that these rates are applied to FOB destination contracts also causes further concern.

TABLE II-1. Source of TACOM Procurements for Army Stock Fund and Procurement Secondary Items - FY 84 and FY 85 (Partial)

Rank	State/Country	$M Dollar Value	% of Total	Cum%
1	Ohio	282	31	31
2	Michigan	154	17	48
3	Indiana	125	14	62
4	Canada	63	7	69
5	New York	35	4	73
6	Illinois	31	3	76
7	California	25	3	79
8	Pennsylvania	20	2	81
9	Missouri	15	2	83
10	Arkansas	14	2	85
11	Arizona	12	1	86
12	Minnesota	11	1	87
13	Wisconsin	11	1	88
14	Virginia	9	1	89
15	North Carolina	8	1	90
16	Florida	7	1	90
17	Texas	7	1	91
18	Massachusetts	7	1	91
19	Connecticut	7	1	92
20	Tennessee	6	1	93
	Others	63	7	7
		912		100

TABLE II-2. FDT Sample Data - Alt 1

Command	Nomenclature	State Where Produced	$K Contract Value	$ FDT Est	%
AMCCOM	Equilibrator	FL	35	1043	2.9
	Grip, Pistol	SC	20	1259	6.4
	Holster, Pistol	NY	246	2822	1.1
	Clutch Assy	CT	155	421	.3
	Network, Comdrs	NY	47	469	1.0
AVSCOM	Windshield Panel	TX	505	11875	2.4
	Collar, Suppressor	TX	11	23	.2
	Window Panel	AZ	139	856	.6
	Pump, Air	OH	745	1217	.2
	Indicator, Altitude	IL	1537	2710	.2
CECOM	Mast Assy	SC	38	592	1.6
	Plate Assy Control	CT	58	159	.3
	Telephone Circuit	NJ	166	855	.5
	Gasket	CA	13	723	5.4
	Freq Transmitter	NJ	25	14	.1
MICOM	Indicator, Coola	CA	143	135	.1
	Squelch Amplifier	CA	77	132	.2
	Encoder, Optical	TX	22	141	.6
	Eye Cup Inflatable	AL	35	291	.8
	Battery Assy	MT	797	4491	.6
TACOM	Battery, Storage	IN	252	9261	3.7
	Rack, Assy	MI	102	8681	8.5
	Curtain, Vehicular	AZ	99	2936	3.0
	Tires, Pneumatic	IL	266	11441	4.3
	Steering Gear	CA	844	4116	.5
TROSCOM	Filter Element	NY	240	6706	2.8
	Parts Kit, Carburetor	TX	2240	6223	.3
	Compass, Magnetic	MA	2588	11208	.4
	Filter Element	MN	83	4364	5.3
	Voltmeter	CA	139	2036	1.5
TOTAL			11665	97200	
AVG			389	3240	1.9

TABLE II-3. Cost Estimating Relationships for Estimating First Destination Cost as a Function of Weight and Distance (CY 84$)

Mode	#GBLs	#GBLOCs	Equation	R^2
Truckload	4303	589	$Y = 120.57 + .009597(WT) + .7427(MILES)$	.80
Less Truckld	3755	764	$Y = .433\ WT^{.541} \cdot MILES^{.328}$	.73-.90[1]

[1]Equation is a composite of three equations whose coefficients of determination ranged from .73 to .90. (See Table III-9).

Y = Cost per shipment in dollars
WT = Weight per shipment in lbs
MILES = Distance in miles between source and destination.

TABLE II-4. FDT Relative Change in Sample FDT Cost Compared to Alternative 1 - Alternatives 2-4, Methodology A

Command	FDT $ ALT 1	FDT $ ALT 2	ALT 2 % Change	FDT $ ALT 3	ALT 3 % Change	FDT $ ALT 4	% Change
AMCCOM	6013	6081	1.1	6437	7.0	6614	10.0
AVSCOM	16681	17267	3.5	17408	4.4	17623	5.6
CECOM	2344	2393	2.1	2486	6.1	2534	8.1
MICOM	5189	5642	8.7	5880	13.3	6225	20.0
TACOM	36436	37345	2.5	38516	5.7	39258	7.7
TROSCOM	30537	31958	4.7	34047	11.5	35114	15.0
TOTAL	97200	100686		104774		107368	
SIMPLE AVG			3.8		8.0		11.1
$WTD AVG			3.6		7.8		10.5
A PRIORI WTD AVG BY WT			2.6		5.9		8.0

TABLE II-5. FDT Relative Change in Sample - FDT Cost Compared to Alternative 1 - Alternatives 5 and 6, Methodology A

Command	FDT $ ALT 1	FDT $ ALT 5	ALT 5 % Change	FDT $ ALT 6	ALT 6 % Change
AMCCOM	6013	6692	11.3	6868	14.2
AVSCOM	16681	17555	5.4	17699	6.1
CECOM	2344	2586	10.3	2752	17.4
MICOM	5189	6530	25.8	6802	31.1
TACOM	36436	39490	8.4	40558	11.3
TROSCOM	30537	35198	15.3	36488	19.5
TOTAL	97200	108321		111167	
SIMPLE AVG			12.8		16.6
$ WTD AVG			11.4		14.4
A PRIORI WTD AVG BY WT			8.7		11.7

TABLE II-6. Baseline Estimate of FDT Cost, CONUS, Class IX, CY 84

Command	Sample FDT %	CONUS Class IX Extended Value $M[1]	FDT Estimate
AMCCOM	1.2	94	1.1
AVSCOM	.6	/[2]	/[2]
CECOM	.8	83	.7
MICOM	.5	151	.7
TACOM	2.3	400	9.2
TROSCOM	.6	314	1.9
		1042	13.6

[1]Source: LIF.

[2]Included in TROSCOM; AVSCOM and TROSCOM were a single NICP in CY 84.

TABLE II-7. Summary of Annual FDT Cost (FY 85 $M)

Alt No	Baseline FDT $	Meth A % Change	FDT Cost Estimate	Difference From Alt 1
1	14.0	-	14.0	0
1A	14.0	-	14.0	0
2	14.0	+2.6	14.4	.4
3	14.0	+5.9	14.8	.8
4	14.0	+8.0	15.1	1.1
5	14.0	+8.7	15.2	1.2
6	14.0	+11.7	15.6	1.6

TABLE II-8. Validation of Sample FDT Rates

Command	FDT CCSS Rate[1]	FY 84-85 Transportation Surcharges $M[2]	FY 84-85 Actuals $M[2]	Revised FDT Rate[3]	Sample Rate
AMCCOM	1.4	23.14	13.00	.8	1.2
AVSCOM	1.6	9.35[4]	3.80[4]	.7	.6
CECOM	1.0	8.09	10.00	1.2	.8
MICOM	1.4	5.97	2.32	.5	.5
TACOM	1.9	59.11	42.50	1.4	2.3
TROSCOM	1.6	8.74	4.68	.9	.6
			AVG	.9	1.0

[1]Commodity Command Standard System, Vol 1, CCSSOI-18-700-101 FDT Rates for Army Stock Fund

[2]Source: CSGLD-1111 Reports, Pricing Analysis, Army Stock Fund Budget - includes First and Second Destination; all depots, OCONUS + CONUS

[3]Equals Column 2 X $\frac{\text{Col 4}}{\text{Col 3}}$

[4]FY 85 only

NOTE: Column 3 is the amount accrued by assessing the FDT and SDT surcharge percentages[1] to the unit price of stock fund items. Column 4 is the actual transportation billings against the Column 3 account. Thus, it appears that the stock fund is accruing money in the transportation area because the surcharge factors are excessive. On the other hand, there are other stock fund adjustments, such as for inflation, where the stock fund consistently loses money.

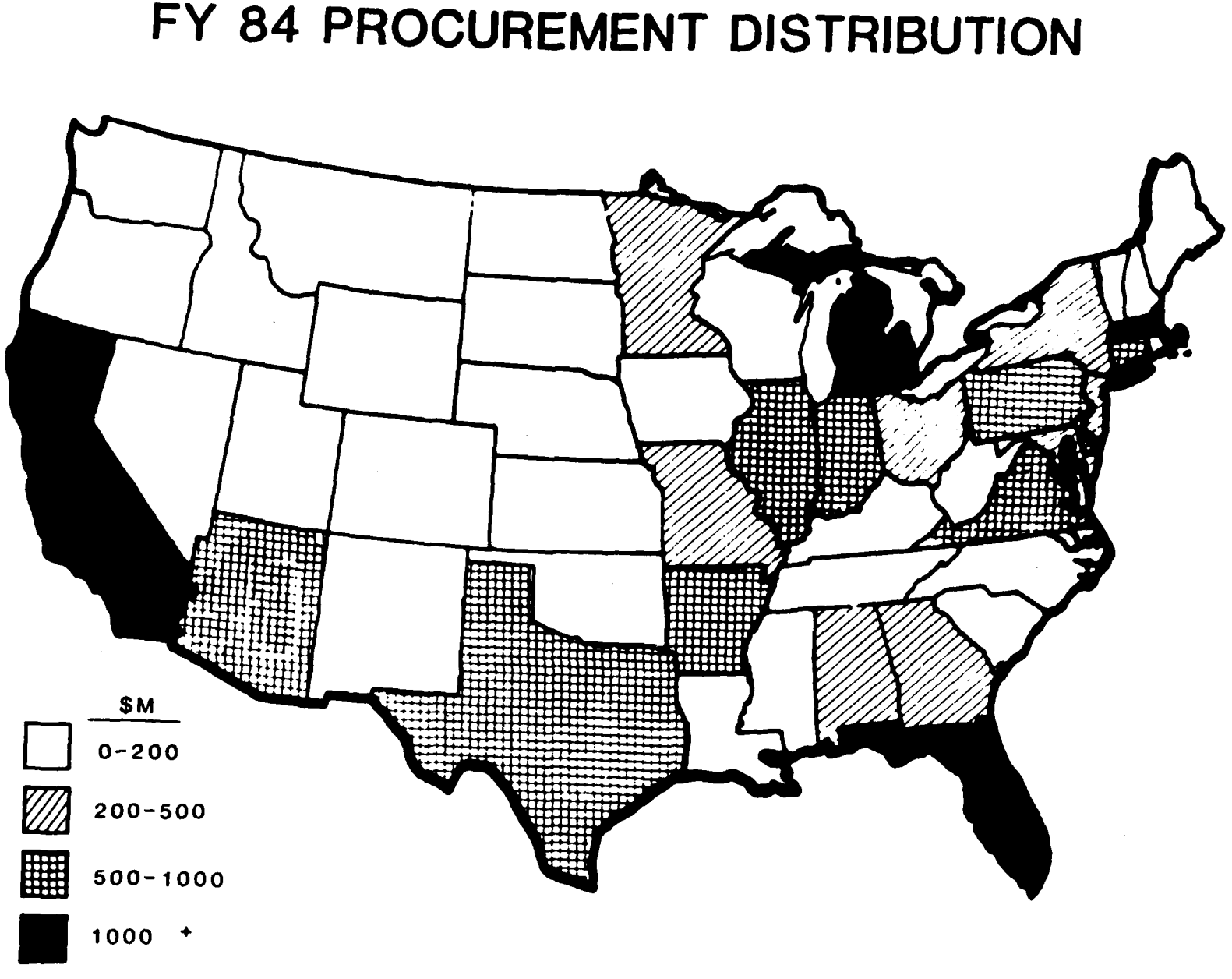

Figure II-1. Distribution of Army Contracts by State, FY 84.

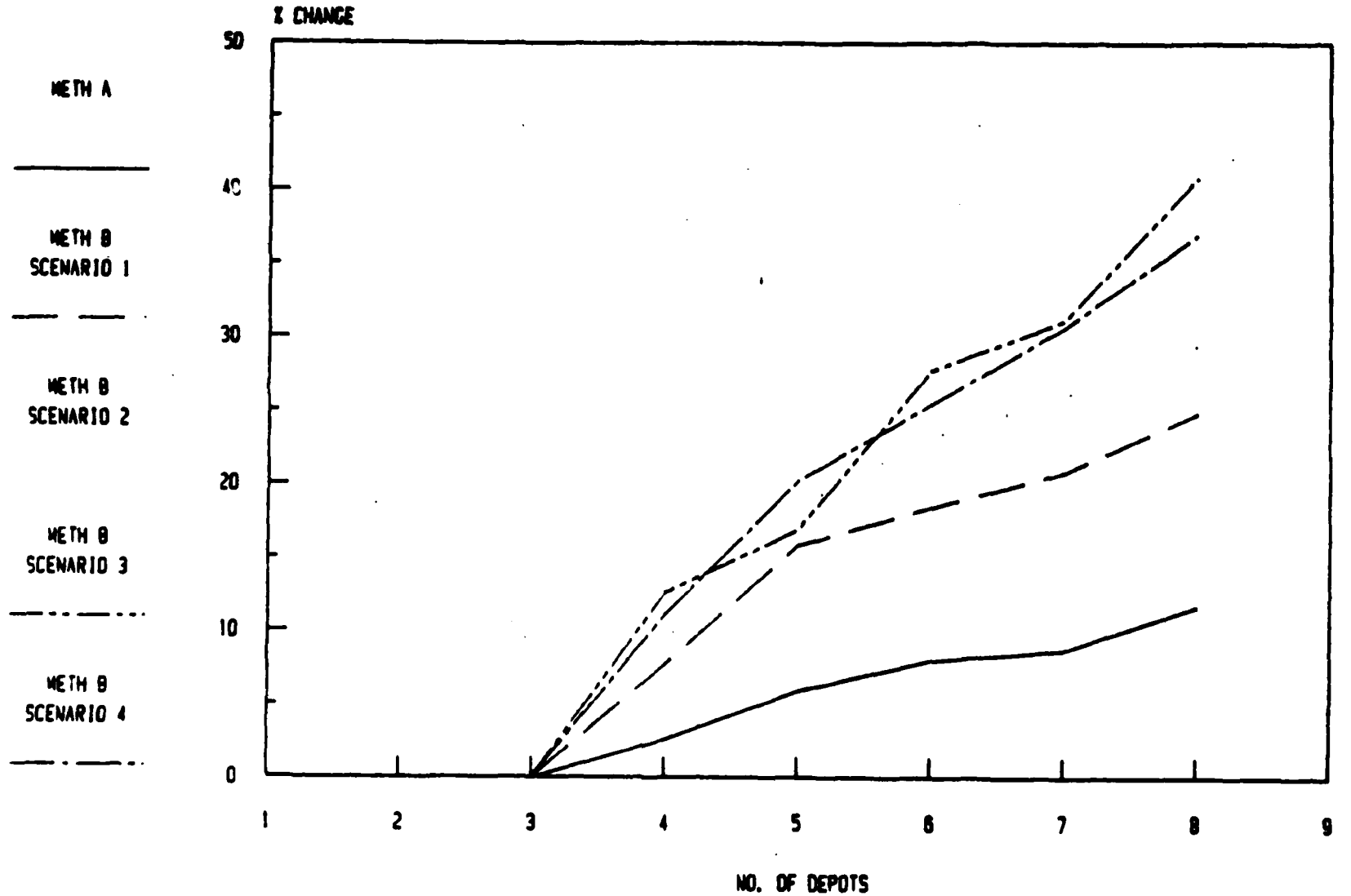

Figure II-2. FDT Sensitivity to Stock Positioning

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Chapter III. SECOND DESTINATION TRANSPORTATION COST

I. Introduction.

A. For purposes of this study, second destination transportation (SDT) cost is defined as the cost of transportation from the supply depot to the requisitioning activity. This transportation has several subactivities as follows:

1. In-house activity at the depot. For each shipment or issue, there is a cost associated with managing the transportation system. A transportation officer at each depot administers this function, performing a multitude of duties to insure swift, effective, and efficient transportation services for incoming and outbound materiel. In addition to the administrative costs, depot personnel preserve, package, and pack materiel for shipment, mark and label shipping units, handle packages awaiting shipment, and load the delivery vehicle. These costs, both administrative and direct labor, are considered as depot operating costs and are addressed in Chapter IV.

2. Direct shipping charges. Since almost all transportation from Army depots is done by commercial carriers, the contractual cost of transportation services is billed to the government and accounted by the US Army Finance and Accounting Center. Common examples would be Government Bill of Lading (GBL) charges for truckload and less-than-truckload motor freight and air deliveries, guaranteed traffic billings, United Parcel Service billings, etc. This chapter will deal exclusively with these costs.

3. Customer receipt costs. Upon arrival at the requisitioning installation, there are costs associated with receiving, storing, and further distributing the materiel. These costs should not be impacted by stock positioning alternatives at the depot level and are treated as a "wash" cost.

B. Funding for second destination transportation costs has historically been a problem for the analyst [14]. For the items considered in the scope of this study, CONUS Class IX, one must determine whether the Class IX item is funded from the Army Stock Fund (ASF) or whether it is a procurement funded secondary item (PA secondary). For ASF items, second destination transportation costs are funded from an OMA account that is resourced through a surcharge mechanism applied to the unit price of the item. When the customer pays for the item, a portion of the expense is SDT, computed as a percentage of unit price which varies depending on the NICP. For PA secondary items, annual budget requests are processed through the Planning Programming and Budget System for second destination transportation costs. However, these funds are managed and controlled by the NICP as part of a combined SDT budget. The visibility of the SDT for PA secondary items becomes obscured in the process.

II. Methodology.

A. General concept. The direct shipping charge from a depot to a CONUS customer is modeled as a function of mode of transportation and distance between source and destination. These charges are estimated by cost models developed from CY 84 data obtained from the MTMC Freight Information System and other sources. Applying these estimated charges to the materiel flow patterns derived from the Logistics Intelligence File (LIF) data for CY 84 for each alternative yields an estimate of total SDT cost for CONUS, Class IX items.

B. Modes of transportation. The LIF classifies transportation mode using a one character code as shown in Table III-1. Many of these codes pertain to OCONUS shipments; others are rarely used for Army Class IX shipments. To simplify the analysis, it was decided to group transportation modes into four

major classifications based on cost similarities, frequency of use and consistency with previous studies [8]. These four groupings accounted for all but 91 lines out of 1.3 million lines (most of the 91 were coded 6, D, K, L, or 2).

1. Truckload - LIF codes A and 9 were combined as truckload shipments (very few lines were coded 9, Local Delivery). In the MTMC Freight Information System, data having a mode of shipment code of motor, van and a weight of over 10,000 lbs was considered to be a truckload shipment. Truckload shipments form the dominant mode of SDT transportation as shown in Appendix B. For cost estimating purposes, distinction was made between truckload shipments depending on the destination as follows:

a. Guaranteed traffic - Some installations and depots have a high recurring demand for items from a particular depot. To take advantage of this situation, DESCOM and the depots arrange for agreements with commercial carriers for fixed schedules and fixed prices for shipments between the depot and the high demand customer. The depot guarantees at least one shipment each week at a certain time and the carrier guarantees service at a fixed price regardless of the actual load within certain restrictions concerning commodity types, weight maximums, cube considerations and other factors. Guaranteed traffic patterns used in this analysis are shown in Table III-2.

b. Non-guaranteed traffic - For any source/destination pair not shown in Table III-2, truckload shipments were considered nonguaranteed traffic. These include stop-overs (a single truckload is dedicated to multiple destinations at a guaranteed schedule and rate) and low demand, isolated customers who occasionally need enough materiel to meet the criteria for a GBL truckload.

2. Less-than-truckload - Since trucking rates for smaller loads are higher than rates for full loads, a separate category for light loads is necessary.

All lines in the LIF coded mode B and MTMC Freight Information System lines coded motor, van and less than 10,000 lbs are categorized as less-than-truckload.

3. Small package - For small, light weight shipments to low-demand customers and some shipments to high demand customers, small package delivery services are cost effective means to meet UMMIPS time standards. LIF codes G, J, and 5 corresponding to Surface Parcel Post, Surface Small Package Carrier, and United Parcel Service were combined for modeling simplicity and labeled "Small Package."

4. Air - Generally, when time is critical, it may be necessary to ship by air, despite the added expense. LIF codes H, *, Q, R, and T corresponding respectively to Air Parcel Post, Air Small Package Carrier, Commercial Air Freight, Air Express and Air Freight Forwarder were combined as "Air" shipments. MTMC lines coded Air Freight Forwarder predominated in the Freight Information System and were used to develop a cost model for air shipments.

C. Approach. For each mode of transportation, a cost estimating relationship was developed to express SDT cost as a function of other known variables including distance between source and destination. For truckload, less-than-truckload, and air shipments the relationship was derived using regression analysis on MTMC Freight Information Systems data and guaranteed traffic data supplied by HQ DESCOM. For small package shipments actual UPS rates were used. These cost estimating relationships were applied to LIF shipment data (lines and tons) for the applicable sources and destinations based on geographical allocations shown in Appendix C.

D. Sources of Data.

1. Logistics Intelligence File data - Hard copy and magnetic tape data was provided by the Logistics Control Activity in response to a request

contained in Appendix A. A sample of the hard copy report is provided in Table III-3. Unit weight, unit cube, and unit price fields were extracted from the Army Master Data File. A total of 1.44 million lines (records) shipped was recorded in the LIF for CY 84 of which 1.31 million were shipped from the three AODs. A descriptive analysis of this data is contained in Appendix B.

2. Military Traffic Management Command Freight Information System data - Cost of GBL transactions were obtained in response to a data request shown in Appendix A. A sample page of a nine-volume report provided by MTMC containing approximately 200,000 records is provided in Table III-4. For the eight Army depots specified, the CY 84 data for inbound and outbound transportation cost was also dominated by data from the three AODs.

3. DESCOM data - HQ DESCOM provided a listing and rates for guaranteed traffic from the three AODs for truck and air shipments. Data used in this analysis is contained in Table III-2.

4. Distances between source and destination - AR 55-60, Official Table of Distances, 1 January 1979, was used to determine mileages. In some cases when the source or destination was not recorded in AR 55-60, the nearest city or installation was substituted. For LIF data, where shipments were aggregated by state, the state capital was chosen to be the assumed destination with a few necessary exceptions.

5. UPS data - Considerable information on 1985 rates, FY 84 billings, schedules and comparisons with USPS were provided by the UPS Federal Sales Representative. Of primary importance to this part of the analysis was a complete set of UPS Ground Service Zone Charts for the eight depots considered (example shown in Table III-5) and an accompanying rate chart (Table III-6).

E. Analysis.

1. General. A VISICALC* program was set up to calculate SDT cost for each alternative and mode using a straightforward, deterministic model of the general form:

$$\text{EQ III-1} \qquad \text{Annual SDT Cost}_i = \sum_{j=1}^{4} \sum_{k=1}^{8} \sum_{l=1}^{78} C_{jkl} \cdot X_{ijkl}$$

where i = alternative number, $i = 1,2,3...6$

j = mode of transportation, j = 1(truckload, 2(less-than-truckload), 3(small package), 4 (air)

k = depot number, $k = 1,2,3...8$

l = destination number, l = 1(Maine), 2(NH/VER)... 78(SAAD)

C_{jkl} = Unit shipping cost which is a function of source/destination distance for mode j from depot k to customer l

X_{ijkl} = Units of shipments per year for mode j from depot k to customer l under alternative i

2. Truckload. The unit of measure selected to quantify SDT truckload cost in EQ III-1 is the number of truckloads per year (X_{i1kl} is the number of truckloads per year from depot K to customer 1). To estimate X, the annual weight in short tons from the LIF between a given depot and destination pair is divided by the average weight (short tons) found in Table III-2 for guaranteed traffic pairs or 10 short tons for other pairs.

a. Guaranteed traffic destinations. Based on the data in Table III-2, a regression analysis yielded a well-correlated (R^2=.96) linear equation $C_{1kl} = 161.566 + .81777d_{kl}$ where C_{1kl} is the cost per truckload (CY 84$)

*VISICALC is a trademark of Personal Software, Inc.

for guaranteed traffic destination 1 from depot k (K=4,5,6,7) and d_{k1} is the distance in miles between depot k and guaranteed traffic destination 1. Further details on this regression analysis can be found in Figure III-1. Actual guaranteed traffic rates in Table III-2 were used for the pairs in the table. The model equation is used for guaranteed traffic rate prodictions for other depots to guaranteed traffic destination under alternatives 2 through 6.

b. Non-guaranteed traffic destinations. A cursory view of the MTMC data revealed some significantly different cost patterns between the three AODs. Therefore, it was decided that a separate cost model was required for each depot. In each case, a sampling procedure was followed to select MTMC Freight Information System records because of software limitations of the regression package used and time limitations caused by the manual process of determining distances in AR 55-60. The sampling algorithm selected every fifth truckload record when the GBLOC destination code was unspecified and every record for specified GBLOC destinations whereby the distance was readily indentifiable in AR 55-60. For specified GBLOC destinations, all GBLs were incorporated as a single data point by computing the average cost for truckload shipments during CY 84 between the AOD and the destination. Results of this analysis are reported as follows.

(1) New Cumberland (NCAD). A regression analysis based on 561 GBLs considering 50 different destinations, yielded a reasonably correlated (R^2=.83) linear equation, $C_{11} = 302.204 + .617769d_{11}$. C_{11} is the cost (CY 84$) per truckload from NCAD to destination 1 and d_{11} is the distance between NCAD and destination 1.

(2) Red River (RRAD). Using the same procedures in the preceding paragraph, a regression analysis based on 273 GBLs from 48 distinct destinations

yielded a fair/poorly correlated (R^2=.62) linear model of C_{121} = 195.172 + .796629d_{21}.

(3) Sharpe (SHAD). Results using similar procedures to RRAD and NCAD models were unsuccessful because of poor correlation. As a result, different model forms were investigated. Using data from 43 truckload GBLs to 17 distinct destinations, the following model (R^2=.69) was selected:

$$\frac{C_{131}}{\overline{W_{13}}} = 1.90469 + .00322388\ d_{31}$$

where C_{131} is the cost per pound (cents/lb) for truckload shipments from SHAD to destination 1 and d_{31} is the distance between SHAD and destination 1. To convert this dependent variable to a cost per truckload, the resultant predictions were multiplied by the average weight of SHAD truckload shipments from the sample (23499.2 lbs).

(4) Other depots. Although the MTMC data contained GBL shipments from the other depots, it was not used because the data probably reflected costs of materiel other than Class IX. To predict truckload shipments from other depots to non-guaranteed traffic customers, the average intercept and slope terms for the NCAD and RRAD models were assumed. The model used is C_{1k1} = 248.7 + .707d_{k1} for K = 4,5,6,7,8.

c. Predictive cost models used for truckload shipments are summarized in Table III-7.

d. Applying the predictive models to the EQ III-1 for each alternative yields results shown in Appendix E. Table III-8 summarizes Appendix E results with some minor adjustments.

3. Less-than-truckload. The unit of measure selected to quantify less-than-truckload SDT is the number of lines shipped (see EQ III-1). The cost per LIF line shipped was found to be a function, primarily, of the weight of the line and, secondarily, of the distance between source and destination. The cost per line shipped was determined by use of non-linear multiple regression analysis on MTMC data such as shown in Table III-4.

a. New Cumberland Army Depot - A sample of 1705 GBLs representing 357 different destinations was taken and analyzed. Analysis indicated that weight per GBL was the dominant cost driver, but that high correlation could only be achieved by adding a second variable to the regression formulation, namely distance. Linear models failed to provide high correlation, leading to the use of the following model:

$$C_{2kl} = .134\ WT_{kl}^{.508}\ d_{kl}^{.246}$$

where C_{2kl} = cost per line CY 84$ for less-than-truckload shipments between depot k and destination l.

WT_{kl} = average weight per less-than-truckload line in lbs between depot k and destination l.

d_{kl} = distance in miles between depot k and destination l.

(1) R^2 for this model is .86.

(2) The actual regression equation developed of the form $Y = AX_1^{B_1} X_2^{B_1}$ had a value for the A coefficient of 1.050. This value was reduced to .134 because the data represented GBL shipments rather than LIF lines shipped. The average weight in the GBL sample was 1910.07 lbs. The average weight for less-than-truck load LIF lines was 243.68 lbs. Therefore, the average GBL contains 7.84 LIF lines. By dividing the GBL coefficient

(i.e., 1.050) by 7.84 one is equally apportioning the total GBL cost to each of the 7.84 lines in the GBL.

(3) Weight per line data was obtained from the LIF.

b. Red River Army Depot and Sharpe Army Depot - Following the same methodology as described for NCAD, the cost (per line) estimating relationships for RRAD and SHAD were developed. Results are shown in Table III-9.

c. Other Depots - Rather than use MTMC data which would have had led to small sample sizes and be contaminated by non-Class IX items, it was decided that an average of the coefficients developed for the three AODs would be used for the other five depots as shown in Table III-9.

d. Applying the predictive models to EQ III-1 for each alternative yields results shown in Appendix E. Table III-10 summarizes Appendix E results, with some minor adjustments as described in Table III-8.

4. Small Package. A review of the LIF data detailed in Appendix B and verified by the DARCOM Freight Traffic Report, RCS DRCMM-306 for period ending 30 June 1984, indicated that almost 75% of the AOD small package shipments were done by UPS. Most of the remainder is done by United States Parcel Service (Parcel Post). A comparison of UPS rates with USPS rates obtained from UPS shows that generally UPS has slightly lower rates (nominally 5-10% less) for shipments up to around 15 lbs for zones 2, 3, and 4. For zones 5, 6, 7, and 8 UPS has a greater cost advantage. However, the relatively small difference between UPS and USPS rates coupled with the dominance of UPS shipments led to the following assumption for small package shipments; the cost of small package shipments were estimated as though all shipments were UPS.

a. The unit of measure selected for application to EQ III-1 is the number of small package lines shipped. The cost per line is a function

of the line weight and the UPS Ground Service Zone exemplified in Table III-5. The rates shown in Table III-6 are independent of source.

b. Zone numbers between depots and destinations were manually determined by zip code lookup using the USPS zip code directory. Weight per line data was derived from the LIF.

c. Results of applying EQ III-1 are contained in Appendix E for each alternative and are summarized in Table III-11.

5. Air. The unit of shipment measurement used in EQ III-1 is weight. This choice is based on the assumption that the cost of air shipments is not affected by the distance between shipping points. This assumption can be justified by several observations. First, many air freight companies charge the same rates regardless of distance for up to 70 lb packages (i.e., UPS, Federal Express). And, secondly, the vast majority of air shipments are less than 70 lbs. The average weight per line shipped in the LIF was 14.1 for CY 84. Finally, attempts to correlate air shipment cost with distance yielded a statistically insignificant relationship (R^2 = .02).

a. In making the assumption specified above, the cost differential between alternatives for air shipments will consequently be zero. It will make no difference in cost to change the source of shipment since the weights will always be the same. Therefore, a minimal effort to quantify this cost was attempted. A sample of 135 GBLs from SHAD to 49 separate destinations yielded the following equation with an R^2 = .95

$$C_{4kl} = 1.853 + 1.09101\ WT_{kl}$$

where C_{4kl} is the cost per shipment for air transportation between depot k and destination l in CY 84$.

WT_{kl} is the average weight per shipment between depot k and destination l in lbs.

b. Applying the above formula to EQ III-1 for all depots (assuming SHAD rates also apply at other depots) results in detailed SDT estimates shown in Appendix E and summarized in Table III-12.

6. Summary by Mode. Tables III-8, 10, 11, and 12 are summarized in Table III-13.

F. Validation.

1. Percentages were computed and compared with data in the DARCOM Freight Traffic Report, RCS-DRCMM-306 for Alternative One to validate results. Comparison is shown in Table III-14. The differences in mode distribution can be partially explained by the inclusion of OCONUS shipments in the 306 report data. Since these shipments (about 40% of the total) tend to leave the AOD via Truckload, this can account for the higher 306 report percentage dollars for truckload. The difference in Air $ percentage differences is more perplexing. It can partially be explained by the model assumption of using SHAD rates to RRAD and NCAD. The 306 report shows that NCAD and RRAD cost per lb is much lower than SHAD's. Thus, the air cost may be overestimated. Since this overestimate applies equally to all alternatives, no corrective action was deemed required for this phase of the analysis.

2. Cost per lb. To further validate model results, an additional comparison was made for Alternative 1 model results against the cost per lb for each mode of transportation. Results shown in Table III-15 indicate that transportation rates do vary from depot to depot (verifying the need to develop separate models for each depot) and that on balance, the model results are reasonable from a cost per lb viewpoint. Air shipments may be overestimated, conversely small package shipments may be underestimated due to the UPS assumption.

3. Validation of Total SDT. Is the $9 million estimate for CONUS Class IX Army items to Army customers in the "right ballpark"? This is a critical issue since the Grace Commission has indicated that the Army can save $20M by positioning stock in other services depots [3]. Obviously, either the Grace Commission estimate is in error or the study results are far too low (or both). To look at this, it is necessary to do a top down analysis of the budgeted Army dollars to test the reasonableness of the $9 million estimate.

a. Total Class IX SDT budget FY 84. Given that the total ASF budget is $1,668 million for FY 84. Given also that the AMC second destination transportation budget for FY 84 was $30 M. The total SDT for AMC is the sum of ASF SDT plus $30 M. This generally includes all classes of supply. To extract Class IX from the total is the next step.

b. All ASF can be considered Class IX. ASF SDT is funded by a surcharge applied to the unit price. Current surcharges are shown in Table III-16. Nominally, the SDT surcharge is around 2.5% but this varies from NICP to NICP. However, a review of the transportation accounts found in the CSGLD-1111 Reports for FY 84 and FY 85 shows a negative 36% variance in FY 84. The transportation account accrued 36% more via the surcharge than was actually spent. This also happened in FY 85. Assuming the variance applies equally to FDT and SDT, an SDT rate of 1.6% would be more appropriate. The estimate of ASF SDT then is $1,668 M X .016 = $26.7 M for FY 84.

c. Given that PA secondary items account for 3.8% of the total lines shipped (PA secondary + ASF) per the Distribution Effectiveness report. Assuming average transportation costs are the same for PA secondary items as for ASF items. The estimate of the total SDT attributed to PA secondary items is $1.1 M. Therefore, the total cost of Class IX SDT in the Army is $27.8

million for FY 84. To identify the portion that is CONUS, Army customers, the following deductions are made:

(1) Foreign Military Sales [15] - 4.4% of total.

(2) OCONUS [15] - 40.5% of total.

(3) Other Services [16] - 8.4% of total.

d. Excluding the three categories above, the CONUS Army Class IX SDT is estimated for FY 84 to be $13.0 M. From the LIF, 29.6% of the CONUS weight was shipped by non-AOD depots. Thus, AOD shipments should be 70.4% of 13 M or $9.2 M. Therefore, the estimated model prediction for Alternative 1 of $9.0 M is reasonably close to the actual figure for FY 84.

4. SDT percentage of unit value. Since SDT is financed through a surcharge on unit price, a comparison was made of the model generated surcharge based on the $9 M estimate of SDT with current surcharges. The total extended value of the LIF data that applies to the $9 M transportation cost is $1041 M, yielding an actual SDT rate of .86%. The actual ASF rate reported in para F3b is 1.6%. However, by factoring in the small number of high value PA secondary items, the overall Class IX rate drops to 1.0%.

5. Validation summary. The distribution of modes, the rates and the overall cost of SDT was validated by comparing model results with other sources. It is concluded that the estimates for SDT are at least "in the right order of magnitude" for the items in the scope of this study.

G. Uncertainty Analysis. There are several sources of uncertainty associated with SDT cost estimation. Numerous assumptions were made, cost estimating relationships were developed based on sample data, correlation with past data ranged from fair to excellent depending on the subset of SDT analyzed and the LIF data itself may be suspect. In addition, computational errors may

have inadvertently crept into the estimates since approximately 17,000 calculations were required to execute EQ III-1 plus several thousand calculations were made to develop and apply cost estimating relationships. However, because of the validation exercise in para III-F, the order of magnitude of the estimates are reasonably assured.

III. Discussion.

A. The results shown in Table III-13 do not agree in magnitude and principle with other similar studies [1,2,3], which show greater magnitude of SDT and greater effect (cost reduction) associated with closer positioning.

1. Magnitude - The relatively low magnitude of $9 M/year for SDT reported can be explained by the scope limitations documented in Volume I. Other studies have included other supply classes in addition to Class IX. Also, other studies have included OCONUS shipments in the analysis.

a. Other classes of supply. Army depots ship a considerable volume (weight, not lines) of Class V, ammo, and Class VII, major items in addition to Class IX. The positioning of Classes V and VII is constrained by the need for special storage facilities, test equipment, transportation, and other factors. For example, major items are normally positioned at the repair depot, because repair is the major source of supply and because of the high cost of transporting major items. It is usually less expensive to ship directly from the repair depot to the customer than to ship from repair depot to storage depot to customer. Thus, an analysis that contains non-Class IX stocks will tend to overestimate the weight, volume, and lines that can reasonably be expected to be repositioned.

b. OCONUS shipments - The Army positions and consolidates shipments overseas at two Container Consolidation Points (CCP). New Cumberland

Army Depot is the CCP for the Atlantic region and Sharpe Army Depot covers the Pacific region. It is difficult to conceive a means of improving the CCP concept from a transportation point of view, unless the CCP was positioned closer to the port. Since NCAD and SHAD are the closest Army depots to the major ports, no improvement could be made by repositioning with the Army depot structure.

2. Sensitivity to distance considerations - The reduction in SDT associated with adding more depots to the distribution network shown in Table III-13 is relatively flat. The cost of SDT shown is only slightly reduced as stocks are positioned closer to customers. This differs considerably with the WIDS study which claimed a "conservative" estimate of a 45% reduction in transportation cost. There are some significant common shortcomings in the methodologies of these studies [1,2] that explain the differences in the outcomes as follows:

a. Failure to consider the effect of small package and air shipments. As indicated in Table III-13, these shipments are not an insignificant part of the SDT picture, yet the modes are often ignored because the weight of material shipped is usually insignificant. However, the high cost per pound of transporting via these modes, as shown in Figure III-2, results in considerable expenditure of funds. These modes also happen to have a relatively flat distance relationship to transportation cost, shown in Figure III-3.

b. Inappropriate use of MTMC rates. Previous methodologies [1] computed SDT cost for truck shipments by computing ton-mile flow for different distribution networks and then translating the ton-miles to dollars by use of a MTMC published rate of $/s-ton/mile. The use of this rate implies that SDT cost is directly proportional to weight and distance.

(1) Does doubling the weight of a shipment double its shipping cost? If not, then SDT is not directly proportional to weight. For guaranteed traffic, the cost per truckload is fixed regardless of the weight of the shipment. For less than truckload shipments, regression analyses indicate that SDT cost is not directly proportional to weight but is non-linearly related (Table III-9). For example, quadrupling the weight of a less-than-truckload shipment will approximately double the shipping cost.

(2) Does doubling the distance travelled double the shipping cost? If not, then SDT is not directly proportional to distance. The actual cost of motor shipments (versus price) is made up of many components such as fuel, maintenance, depreciation, labor, insurance, etc. Some of these components are affected by mileage, some are not. Another viewpoint is to consider a shipment as three sequential steps: loading, moving, and unloading. Only the moving step has costs that approximate proportionally to distance. The loading and unloading time and cost is unrelated to distance between source and destination. Hence, a linear model such as Cost = Fixed Cost + Variable Cost X Distance is appealing from a logical point of view. A quick look at Figure III-1 verifies the linear but not proportional relationship between cost and distance for guaranteed traffic.

B. Increasing the number of Army depots in the Army distribution network does not significantly reduce Second Destination Transportation costs. The following factors explain the reasons why SDT cost is "flat" in Table III-13.

1. Many of the Army's largest installations are already located closest to the existing AODs. Adding more depots, especially beyond ANAD, does not significantly alter distribution flow patterns within CONUS. See, also, discussion in Chapter VII, paragraph IIIB2.

2. The relationship between shorter distances and lower transportation costs is not as sensitive as some believe.

3. Out-of-Area shipments consume a great deal of the transportation dollars. Adding more depots will not solve this problem, better stock positioning policies could significantly reduce SDT expenditures.

Table III-1. Mode of Shipment Codes: LIF

CODE	MODE
A	Motor, truckload
B	Motor, less truckload
C	Van (unpacked, uncrated, personal and/or Gov.)
D	Driveway, truckaway or towaway
E	Busline
F	MAC (Mil Airlift Command)
G	Surface, parcel post
H	Air, parcel post
I	Gov. truck & common service
J	REA express
K	Rail, carload
L	Rail, less carload
M	Freight forwarder
N	LOGAIR
O	Organic Military Air
P	Through Bill of Lading
Q	Air Freight (Commercial)
R	Air Express
S	Air Charter
T	Air Freight Forwarder
U	QUICKTRANS (Navy)
V	Sea-van service
W	Water, river, lake (coastal-commercial)
X	Sealift Express Service
Y	Intratheater airlift system
Z	Military Sea Transport Service (controlled/contract arranged space)
2	Gov watercraft, barge/lighter
3	Roll on/off service
4	ARFCOS (Armed Forces Courier Service)
5	United Parcel Service
6	MOM (Mil Ordinary Mail)
7	Weapons System Pouch Service
8	PIPELINE
9	Local Delivery (Incl deliveries between air or water terminals, etc)

TABLE III-2. Guaranteed Traffic Information - Truck Shipments (FY 85)

Source	Destination	Cost Per Load($)	Avg Wt Per Load[1]	Distance (miles)	Frequency (per week)
NCAD	Bragg	397	11.3	430	3
	SHAD	2450	13.1	2739	2
	ANAD	712	10.0	773	2
	LEAD	165	12.3	47	2
	Bayonne	290	8.5	168	ar[2]
	TOAD	275	11.0	127	ar
	Mech'bg	100		7	ar
RRAD	ANAD/McCln	565	14.7	530	
	Carson	1127	15.0	849	
	Benning	668	13.0	635	
	Stewart	865	14.4	872	
	Polk	350	15.1	210	
	Knox	540	14.4	648	
	NCAD	1181	14.4	1208	
	Riley	530	14.0	533	
	SHAD	1845	14.2	1790	
	Hood	452	10	326	
	Hood	552	15	326	
	Hood	672	20	326	
SHAD	Pendleton	500		415	1
	McClelland	168		55	
	Oakland	220		67	
	TEAD	500	12.9	692	
	TEAD	754	12.9	692	1
	TEAD	843	12.9	692	
	Stockton	100		5	
	Irwin	436	12.3	380	3
	Travis	195		57	
	Lewis	800	10.5	758	3
	NCAD	2188		2739	3
	Ord	300	6.6	141	3

[1]1984 MTMC FINS in short tons

[2]as required

Table III-3. Sample Page from Logistics Intelligence File Report

DEPOT NAME: NAS CUMBERLAND AL
LSU PROJECT 353 REPORT WEIGHT, CUBE & VALUE ANALYSIS
BASED ON CONUS DEPOT SHIPMENTS DURING CY 84
SUMMARY STRATIFICATION BY DEPOT AND INSTALLATION

INSTALLATION	MODE OF TRANS	NUMBER OF RECORDS	EXTENDED WEIGHT POUNDS	EXTENDED CUBIC FEET	EXTENDED VALUE DOLLARS
FL FRAGG	AIR - SML PKG CARRIER	45	638.50	30.659	10,757.66
FL FRAGG	AIR EXPRESS	401	2,344.05	122.863	64,656.17
FL FRAGG	AIR FREIGHT (CUMM)	5	450.67	52.608	4,613.40
FL FRAGG	AIR, PARCEL POST	1	3.00	.193	1,565.00
FL FRAGG	LOCAL DELIVERY	362	20,528.18	2,106.169	171,760.61
FL FRAGG	MOTOR, LESS TRUCKLOAD	256	12,911.21	979.661	107,209.62
FL FRAGG	MOTOR, TRUCKLOAD	7,736	792,237.22	60,556.499	4,685,412.58
FL FRAGG	SURF-SML PKG CARRIER	1,732	7,912.56	590.680	474,216.61
FL FRAGG	SURFACE, PARCEL POST	5	101.28	4.326	1,090.74
FL FRAGG		10,573	837,126.67	64,243.658	5,521,301.39
FL CAMPBELL	AIR - SML PKG CARRIER	77	512.90	28.339	149,914.65
FL CAMPBELL	AIR EXPRESS	565	3,763.65	235.261	983,239.65
FL CAMPBELL	AIR FREIGHT (CUMM)	244	13,504.64	1,050.152	2,610,297.14
FL CAMPBELL	AIR FREIGHT FORWARDER	1	.63	.463	2,543.00
FL CAMPBELL	AIR, PARCEL POST	2	1,138.00	96.598	162,411.00
FL CAMPBELL	LOCAL DELIVERY	350	18,556.01	1,071.039	658,414.69
FL CAMPBELL	MOTOR, LESS TRUCKLOAD	139	3,597.98	155.118	204,243.75
FL CAMPBELL	MOTOR, TRUCKLOAD	5,573	347,583.52	29,394.770	16,181,743.73
FL CAMPBELL	SURF-SML PKG CARRIER	193	1,471.25	120.560	254,395.96
FL CAMPBELL	SURFACE, PARCEL POST	2	.16	.006	246.00
FL CAMPBELL		7,256	382,528.70	32,152.706	21,207,249.17
FL CARLSN	AIR - SML PKG CARRIER	228	1,712.41	127.740	72,582.28
FL CARLSN	AIR EXPRESS	2,972	21,203.69	922.695	582,166.63
FL CARLSN	AIR FREIGHT (CUMM)	586	43,175.55	3,047.223	643,673.63
FL CARLSN	AIR FREIGHT FORWARDER	4	720.72	23.924	3,432.52
FL CARLSN	AIR, PARCEL POST	5	16.72	.628	13,222.07
FL CARLSN	LOCAL DELIVERY	100	26,389.61	762.018	67,505.81
FL CARLSN	MOTOR, LESS TRUCKLOAD	64	17,677.54	1,367.745	43,569.74
FL CARLSN	MOTOR, TRUCKLOAD	2,591	565,658.38	46,521.284	6,118,512.56
FL CARLSN	SURF-SML PKG CARRIER	2,870	22,414.26	1,118.285	599,560.18
FL CARLSN	SURFACE, PARCEL POST	2	10.90	2.614	45.97
FL CARLSN		9,366	1,097,719.93	55,894.156	8,544,291.39
FL DEVENS	AIR - SML PKG CARRIER	139	649.46	32.805	58,804.26
FL DEVENS	AIR EXPRESS	2,250	15,031.71	697.609	634,644.19
FL DEVENS	AIR FREIGHT (CUMM)	31	4,115.62	304.903	7,521.05
FL DEVENS	AIR, PARCEL POST	7	21.41	1.757	38,830.62
FL DEVENS	LOCAL DELIVERY	102	2,543.63	70.407	13,754.42
FL DEVENS	MOTOR, LESS TRUCKLOAD	575	58,266.77	4,955.675	105,204.38
FL DEVENS	MOTOR, TRUCKLOAD	970	340,518.77	14,561.911	1,195,534.67
FL DEVENS	SURF-SML PKG CARRIER	4,204	25,020.42	1,258.275	341,564.67
FL DEVENS	SURFACE, PARCEL POST	6	42.89	2.551	4,773.09
FL DEVENS		8,284	448,216.94	19,085.893	2,420,655.15
FL EGLIN	AIR - SML PKG CARRIER	68	444.36		

Table III-4. Example of MTMC Freight Information Systems Report

LSC PROJECT 053 REPORT DPSR # IN-5-5-017 PAGE NO. 376
JAN 84 - DEC 84

ORIG GBLOC	DEST GBLOC	--ORIG--- ST CITY	--DEST--- ST CITY	MTHD	WEIGHT	CHARGES
HBAQ		TX REDRIV	MS TUPELO	AV	73	32.91
		TX REDRIV	MS TUPELO	AV	261	32.91
		TX REDRIV	MS TUPELO	AV	30	32.91
		TX REDRIV	MS TUPELO	AV	19	32.91
		TX REDRIV	MS TUPELO	AV	534	39.36
		TX REDRIV	MS TUPELO	AV	74	26.68
		TX REDRIV	MS TUPELO	AV	324	16.98
		TX REDRIV	MS TUPELO	AV	6	26.68
		TX REDRIV	MS TUPELO	AV	46	26.68
		TX REDRIV	MS TUPELO	AV	500	36.85
		TX REDRIV	MS TUPELO	AV	117	27.09
		TX REDRIV	MS TUPELO	AV	56	27.09
		TX REDRIV	MS TUPELO	AV	5	27.09
		TX REDRIV	MS TUPELO	AV	300	27.09
		TX REDRIV	MS TUPELO	AV	112	27.09
		TX REDRIV	MS TUPELO	AV	51	27.09
		TX REDRIV	MS TUPELO	AV	70	27.72
		TX REDRIV	MS TUPELO	AV	107	27.09
		TX REDRIV	MS TUPELO	AV	62	27.72
		TX REDRIV	MS TUPELO	AV	31	27.72
		TX REDRIV	MS TUPELO	AV	136	27.72
		TX REDRIV	MS TUPELO	AV	66	15.96
		TX REDRIV	MS TUPELO	AV	53	27.72
		TX REDRIV	MS TUPELO	AV	33	17.64
		TX REDRIV	MS TYLERT	AV	68	34.85
		TX REDRIV	MS TYLERT	AV	29	26.26
		TX REDRIV	MS UNION	AV	65	35.08
		TX REDRIV	MS UNK	AV	110	28.01
		TX REDRIV	MS VICKSB	AV	35	31.50
		TX REDRIV	MS VICKSB	AV	12	31.32
		TX REDRIV	MS VICKSB	AV	70	31.50
		TX REDRIV	MS VICKSB	AV	25	31.50
		TX REDRIV	MS VICKSB	AV	1,892	118.80
		TX REDRIV	MS VICKSB	AV	1,622	114.35
		TX REDRIV	MS VICKSB	AV	784	59.27
		TX REDRIV	MS VICKSB	AV	8	31.50
		TX REDRIV	MS VICKSB	AV	495	37.80
		TX REDRIV	MS VICKSB	AV	818	63.00
		TX REDRIV	MS VICKSB	AV	68	31.77
		TX REDRIV	MS VICKSB	AV	3	33.03
		TX REDRIV	MS VICKSB	AV	87	33.03
		TX REDRIV	MS VICKSB	AV	68	33.03
		TX REDRIV	MS VICKSB	AV	36	14.88
		TX REDRIV	MS VICKSB	AV	8	23.38
		TX REDRIV	MS VICKSB	AV	700	45.22
		TX REDRIV	MS VICKSB	AV	260	23.38
		TX REDRIV	MS VICKSB	AV	240	23.38
		TX REDRIV	MS VICKSB	AV	55	28.87

Table III-5. Zone Chart for NCAD and LEAD

GROUND SERVICE

ups ZONE CHART

For Shippers with ZIP Codes 170 01 to 172 99

Service to 48 Continental United States

To determine zone, take first three digits of ZIP Code to which parcel is addressed and refer to chart below.

ZIP CODE PREFIXES	UPS ZONE	ZIP CODE PREFIXES	UPS ZONE	ZIP CODE PREFIXES	UPS ZONE	ZIP CODE PREFIXES	UPS ZONE
010-018	3	166-199	2	421-436	4	769	7
019	4			437-447	3	770-779	6
020-024	3	200-227	2	448-456	4	780-785	7
025-026	4	228-241	3	457	3	786-787	6
027-029	3	242	4	458-497	4	788	7
030-033	4	243-253	3	498-499	5	789-792	6
034	3	254	2			793-794	7
035	4	255-257	4	500-508	5	795-796	6
036	3	258-264	3	510-511	6	797-799	7
037-050	4	265	2	512-528	5		
051-053	3	266	3	530-534	4	800-831	7
054	4	267-268	2	535-564	5	832-844	8
055	3	270	3	565	6	845	7
056	4	271	4	566	5	846-864	8
057	3	272-274	3	567-587	6	865-884	7
058-059	4	275-277	4	588-595	7	890-899	8
060-068	3	278-279	3	596-599	8		
070-088	2	280-299	4			900-961	8
				600-609	4	970-986	8
100-105	2	300-309	4	610-617	5	988-994	8
106	3	310	5	618-619	4		
107-116	2	311	4	620-667	5		
119-126	3	312	5	668-699	6		
127	2	313-314	4				
128	3	315-339	5	700-703	6		
129	4	342-369	5	704	5		
130-136	3	370-374	4	705-711	6		
137-139	2	375	5	712	5		
140-147	3	376-379	4	713-714	6		
148-149	2	380-384	5	716-717	5		
150-153	3	385	4	718	6		
154-160	2	386-387	5	719-729	5		
161	3			730-748	6		
162	2	400-418	4	749	5		
163-165	3	420	5	750-768	6		

See separate charts for UPS Next Day Air (where available), 2nd Day Air and Service to Canada. Air service is provided to all points in Hawaii.

Table III-6. UPS Rates Effective 1 Jan 85
Cost Per Package

GROUND SERVICE

WEIGHT NOT TO EXCEED	GROUND ZONES						
	2	3	4	5	6	7	8
1 lb.	$1 23	$1 32	$1 46	$1 52	$1 59	$1 67	$1 74
2 "	1 24	1 34	1 63	1 73	1 87	2 01	2 16
3 "	1 32	1 48	1 80	1 95	2 15	2 36	2 57
4 "	1 40	1 61	1 97	2 16	2 43	2 70	2 99
5 "	1 49	1 76	2 13	2 37	2 70	3 05	3 40
6 "	1 57	1 89	2 30	2 59	2 98	3 39	3 82
7 "	1 65	2 02	2 47	2 80	3 26	3 74	4 24
8 "	1 73	2 14	2 64	3 02	3 54	4 08	4 65
9 "	1 82	2 27	2 81	3 23	3 82	4 43	5 07
10 "	1 90	2 39	2 97	3 44	4 09	4 77	5 48
11 "	1 98	2 52	3 14	3 66	4 37	5 12	5 90
12 "	2 06	2 65	3 31	3 87	4 65	5 46	6 32
13 "	2 15	2 77	3 48	4 09	4 93	5 81	6 73
14 "	2 23	2 90	3 65	4 30	5 21	6 15	7 15
15 "	2 31	3 02	3 81	4 51	5 48	6 50	7 56

TABLE III-7. Summary of Truckload Cost Estimating Relationships

Depot	Destination[1]	Equation	R^2
NCAD	Guaranteed traffic	Actual cost	
NCAD	Non-Guaranteed	$C_{111} = 302.204 + .617769d_{11}$	.83
RRAD	Guaranteed traffic	Actual cost	
RRAD	Non-Guaranteed	$C_{121} = 195.172 + .796629d_{21}$	.62
SHAD	Guaranteed traffic	Actual cost	
SHAD	Non-Guaranteed	$C_{131} = 447.58 + .7576d_{31}$	.69
Others	Guaranteed traffic	$C_{1k1} = 161.566 + .81777d_{k1}$	.96
Others	Non-Guaranteed	$C_{1k1} = 248.7 + .707d_{k1}$	N/A

C_{1k1} is the cost per truckload from depot k to destination 1.

d_{k1} is the distance between depot k and destination 1.

[1] Table III-2 specifies guaranteed traffic destinations.

TABLE III-8. Summary of Truckload SDT Analysis

Alternative	Appendix E Cost $K	Inflation[1] Adjustment	AMDF[2] Adj	LIF[3] Adjustment	Truckload $85K
1	2782	1.014	1.029	1.057	3068
1A	1875	1.014	1.029	1.057	2068
2	2604	1.014	1.029	1.057	2872
3	2519	1.014	1.029	1.057	2778
4	2411	1.014	1.029	1.057	2659
5	2370	1.014	1.029	1.057	2614
6	2370	1.014	1.029	1.057	2614

[1]Non-guaranteed truckload data (51% of truckloads) must be escalated from CY 84 to FY 85 (9 months).
OMA rate for FY 84 to FY 85 is 1.037 . Factor is1+[.51 X 9/12 X .037] = 1.014

[2]2.9% of the LIF data records had zero unit weight and cube entries from the AMDF

[3]5.7% of the LIF AOD shipments were destined to "other" than the 78 identified destinations.

TABLE III-9. Cost Estimating Relationships for Less-Than-Truckload Shipments. C is Cost per LIF Line (CY 84$)

Depot	Number of GBLOCs[1]	Number of GBLs	R^2	Equation	$C = AWT^{B_1} d^{B_2}$	
				A	B_1	B_2
NCAD	347	1705	.86	.134	.508	.246
RRAD	208	966	.73	.044	.516	.383
SHAD	199	1084	.90	.029	.599	.356
Other				.055	.541	.328

[1] GBLOC is the destination identification number.

TABLE III-10. Summary of Less-Than-Truckload SDT Analysis

Alternative	Appendix E Cost $K	Inflation Adj[1]	AMDF Adj	LIF Adj	FY 85 $K Total SDT LT Truckload
1	2378	1.028	1.029	1.057	2659
1A	2034	1.028	1.029	1.057	2274
2	2296	1.028	1.029	1.057	2567
3	2279	1.028	1.029	1.057	2548
4	2212	1.028	1.029	1.057	2473
5	2200	1.028	1.029	1.057	2460
6	2200	1.028	1.029	1.057	2460

[1] 9/12 of 1.037

TABLE III-11. Summary of Small Package SDT Analysis

Alternative	Appendix E Cost $K	Inflation Adjustment	AMDF Adj	LIF Adj	FY 85 $ Total SDT Small Package
1	749	1.000	1.029	1.057	815
1A	620	1.000	1.029	1.057	674
2	728	1.000	1.029	1.057	792
3	722	1.000	1.029	1.057	785
4	710	1.000	1.029	1.057	772
5	709	1.000	1.029	1.057	771
6	709	1.000	1.029	1.057	771

TABLE III-12. Summary of Air SDT Analysis

Alternative	Appendix E Cost $K	Inflation Adjustment	AMDF Adj	LIF Adj	FY 85 $K Total SDT Air
1	2172	1.028	1.029	1.057	2429
1A	2172	1.028	1.029	1.057	2429
2	2172	1.028	1.029	1.057	2429
3	2172	1.028	1.029	1.057	2429
4	2172	1.028	1.029	1.057	2429
5	2172	1.028	1.029	1.057	2429
6	2172	1.028	1.029	1.057	2429

TABLE III-13. Summary of Annual SDT Cost - FY 85 $M. CONUS - Class IX

Alternative	Truckload	Modes Less Than Truckload	Small Package	Air	Total
1	3.07	2.66	.82	2.43	9.0
1A	2.07	2.27	.67	2.43	7.5
2	2.87	2.57	.79	2.43	8.7
3	2.78	2.55	.79	2.43	8.5
4	2.66	2.47	.77	2.43	8.3
5	2.61	2.46	.77	2.43	8.3
6	2.61	2.46	.77	2.43	8.3

TABLE III-14. Validation of Mode Distribution - % of $

	Truckload	Less Than Truckload	Small Package	Air	Total
Model Results	34	30	9	27	100
306 Report Percentage	45	29	7	19	100

TABLE III-15. Validation of Cost Per Pound

	MODE			
	Truckload	Less Than Truckload	Small Package	Air
Model Results (Appendix E)	.035	.118	.405	1.223
306 Report:				
NCAD	.030	.103	.143	.61
RRAD	.038	.107	.454	1.13
SHAD	.033	.122	.723	1.54
Simple Avg	.034	.111	.440	1.093

TABLE III-16. Army Stock Fund Transportation Data FY 84 and FY 85

Command	% SDT Surcharge[1]	% Transport Surcharge[2]	FY 84 Surcharge $M[2]	FY 84 Actuals $M[2]	% Variance	FY 85 Surcharge $M[2]	FY 85 Actuals $M[2]	% Variance
AMCCOM	2.0	3.4	10.54	5.0	-53	12.60	8.0	-37
AVSCOM	1.8	3.4				9.35	3.8	-59
CECOM	1.3	2.7	3.99	4.0	+ 0	4.10	6.00	+46
MICOM	2.5	3.9	2.92	1.04	-64	3.05	1.28	-58
TACOM	3.0	4.9	29.10	20.3	-30	30.01	22.2	-26
TROSCOM	1.8	3.4	4.07	1.86	-54	4.67	2.82	-40
TOTAL			50.62	32.2		63.78	44.10	
AVG					-36			-31

[1]From Commodity Command Standard System, Vol 1, CCSSOI-18-700-101.

[2]From CSGLD-1111 Report, Pricing Analysis Army Stock Fund - Includes FOT and SDT, all depots, CONUS and OCONUS.

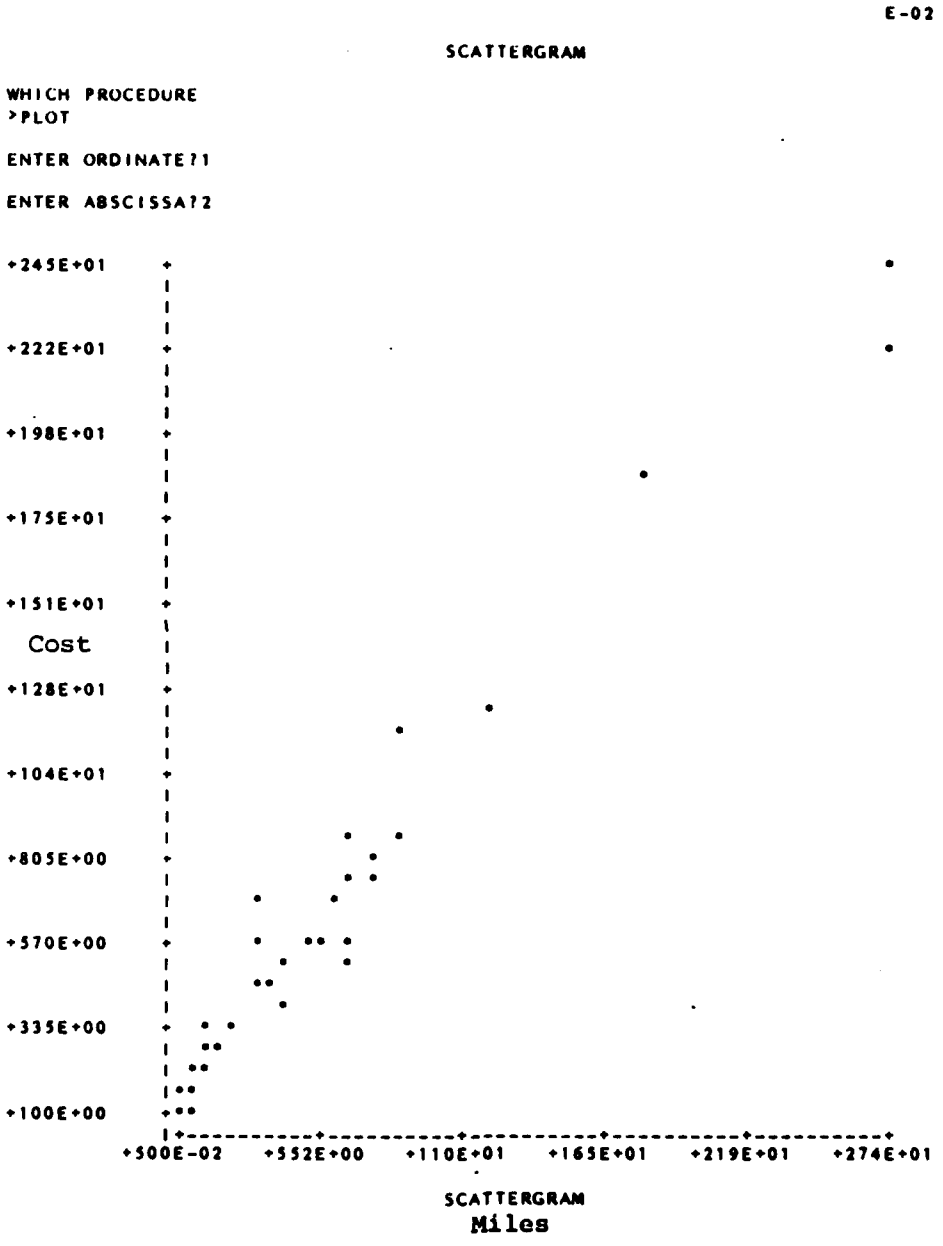

Figure III-1. Relationship Between Cost Per Shipment (FY 85$) and Distance in Miles for Guaranteed Truckload Shipments.

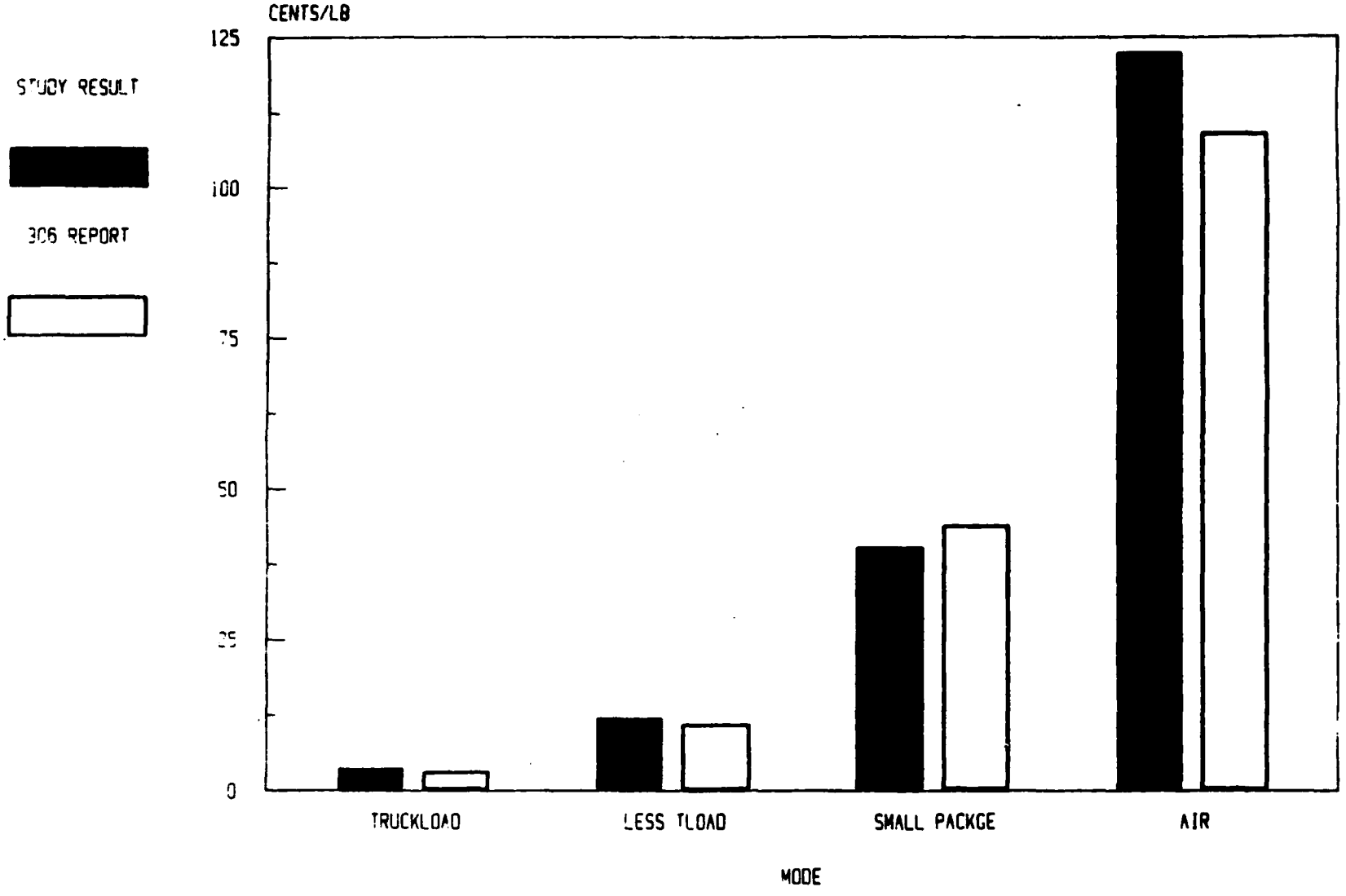

Figure III-2. Average Transportation Cost Per Pound

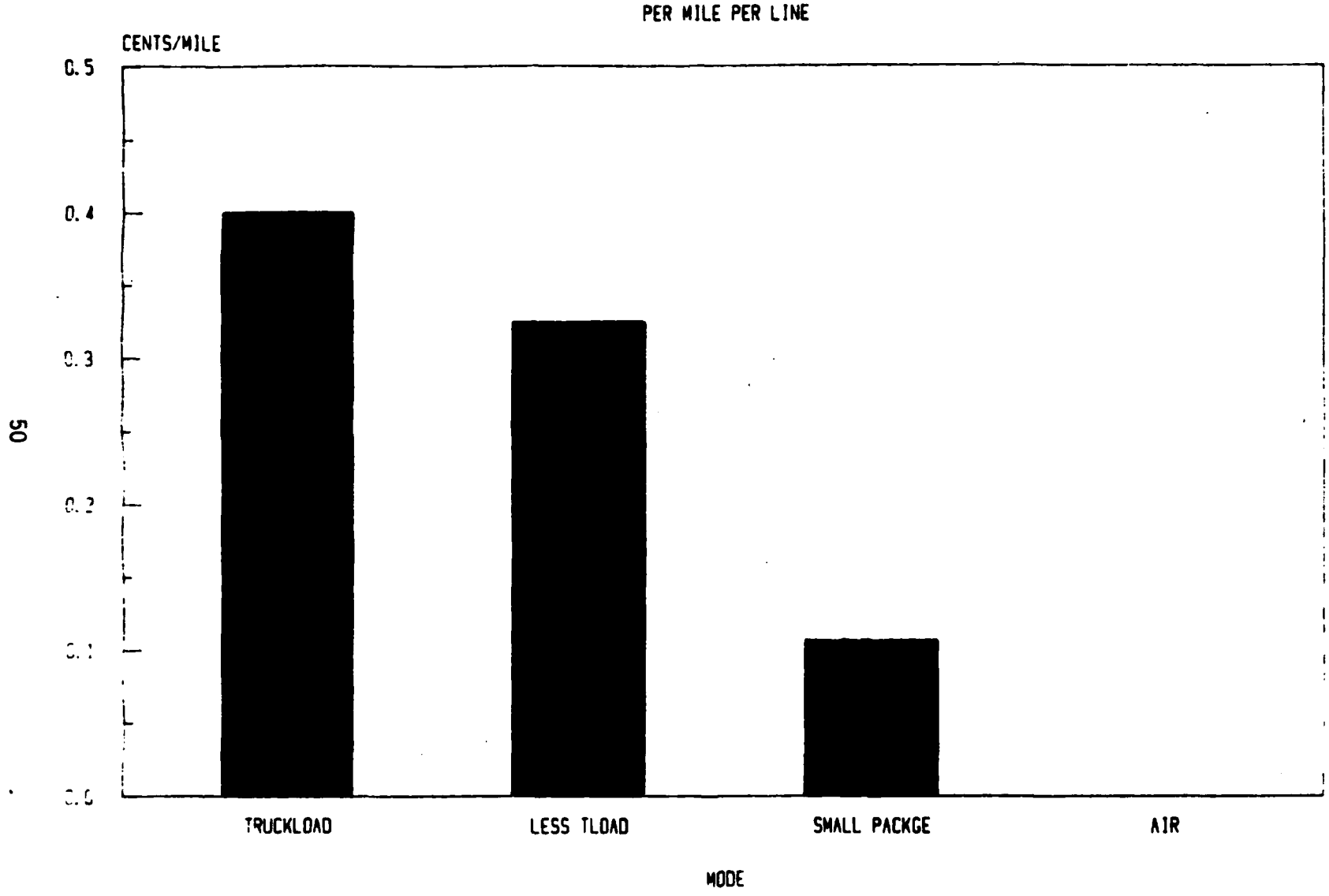

Figure III-3. Average Marginal Transportation Cost

Chapter IV. DEPOT OPERATING COSTS (SUPPLY)

I. Introduction.

A. US Army Depots provide a wide range of operating services for the Army, DOD, and Foreign Military Sales customers. The two dominant functions are Supply and Maintenance Operations. Supply and Maintenance are organizationally distinct and separate financial reports are available. Both missions are resourced through the Army Industrial Fund (AIF) whereby the customer (usually the AMC commodity command) is charged for the work performed. Supply functions are normally charged on a fixed price basis. A fixed charge for each issue and receipt is determined based on standards and AIF adjustments to balance gains or losses from the previous fiscal year.

B. The primary source of supply operating costs within Army depots and depot activities is the Depot Operating Cost and Performance Report (AMC Depots), RCS, AMCSM-305. This quarterly report, commonly referred to as the "305 report," is published by HQ DESCOM based on input from 17 Army depots and depot activities. The format of the report is based on Army Management Structure (AMS) codes in accordance with AR 37-100-XX for the Operating and Maintenance, Army (OMA) appropriation program element 721111, Supply Depot Operations.

II. Methodology.

A. General description. Whereas costs for Alternative 1, status quo, are readily available from the 305 report, the impact of reallocating lines based on the other stock positioning alternatives requires a predictive cost model. This model must be sensitive to differential operating costs at various depots and the changes that would occur at a given depot as its workload changes. A simple non-linear regression model was developed based on actual historical

costs to predict an average hourly rate for direct labor and overhead as a function of workload expressed in lines shipped per year. The number of lines shipped for each depot under each alternative was developed based on proximity to demand as determined from Logistics Intelligence File (LIF) data. Assuming that the actual average direct labor content (manhours) per line shipped (Class IX) does not vary from depot to depot, a standard labor content per line was derived from the 305 report. A simple VISICALC$_{tm}$[1] program was designed to generate a cost estimate for each alternative by the following equation:

$$\text{CONUS Army Class IX Supply Depot} = \sum_{j=1}^{8} \text{Rate}_{ij} \text{ X Std X Lines Shipped}_{ij}$$

i = Alternative number $\qquad i = 1, 2, 3 \ldots 6$

j = Depot identification number $\qquad j = 1, 2, 3 \ldots 8$

Rate_{ij} = Hourly rate for depot j under alternative i

Std = Manhours per lined shipped, Class IX

$\text{Lines Shipped}_{ij}$ = Army CONUS Class IX lines shipped at depot_j under alternative i.

B. Underlying principal of this methodology is a hypothesis that large supply depots are inherently more efficient than small supply depots. This premise is theoretically expressed in numerous economics texts as the principle of Economy of Scale [17,18]. A cursory glance at the fixed rates shown in Table IV-1 indicate that the principal exists within Army depots and depot activities. The larger depots (NCAD, RRAD, and SHAD) tend to have much lower than average rates whereas the smallest activities (FWDA, UMDA, and SVDA) have much higher than average rates. To quantify the relationship between hourly

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[1]VISICALC is a trademark of Personal Software, Inc.

rate and workload, regression analysis was used and the student-t and F-tests were used on the regression results to test this hypothesis.

C. Sources of Data -

1. Hourly rates. Early attempts to develop separate rates and functions for receipt, issue and storing functions were abandoned because of poor correlation. Thus, it was decided to use a single composite rate for all depot supply functions. Initial attempts relied on AIF rates shown in Table IV-1. However, because of end-of-year adjustments and the resulting erratic changes from year to year within the same depot, it was decided to use another source. Ultimately, the hourly rate data selected was based on actual cost from the 305 report for each depot as follows:

a. Although data from FY 81-FY 84 was available, only data from FY 83-FY 84 was used because of a major change in accounting philosophy which took place at the end of FY 82. There was a noticeable discontinuity in man-hours and hourly rate at this time caused by a redefinition of "direct labor."

b. Navajo Depot Activity was excluded from the analysis because of its dearth of "other supply" mission and because its indirect costs are absorbed by Tooele Army Depot.

c. Actual hourly rates shown in Table IV-2 were determined by dividing the total funded cost by the total direct civilian manhours as follows:

(1) Total funded cost was computed with two necessary adjustments.

(a) Leave. Paid leave (page 1, line 6, column N) was added to the total funded cost for all customers (page 1, line 2, column N) because leave manhours and costs are not included in PE 721111 yet it is a real cost of depot operations.

(b) Containerization Consolidation Point (CCP) Ops. NCAD and SHAD have considerable costs associated with OCONUS shipments that appear on page 11, line 10, column N, all customers, labelled "CCP Operns OS." Since these costs are outside the scope of the study (see Vol 1, III.A.3.) and because there is a significant accounting difference between NCAD and SHAD, this cost was subtracted from the total funded cost.

(c) All costs used were converted to FY 85 constant dollars by using the OMA compound index developed by OSD [21]. FY 83 rates were multiplied by 1.0764 and FY 84 rates were multiplied by 1.0370.

(2) Total civilian manhours. For each depot the total civilian manhours was computed by subtracting CCP manhours from the total manhours per logic in para II.C.1.c(1)(b) above. Mathematically, for all customers, page 11, line 10, column H was subtracted from page 1, line 2, column H.

2. Workload indicators.

a. Weight. Short tons shipped data is available from the 305 report. Poor correlation with hourly rates resulted in abandoning this measure.

b. Lines shipped. Total lines shipped from the 305 report was used to measure workload. This is the sum of ammo lines and other supply lines, since the hourly rates include the cost and hours of ammo as well as other supplies. Ammo was included because some of the smaller activities and depots have a significant ammo function, which if excluded would present a false picture of the overall workload of the activity. Lines shipped for each depot in the data base for the predictive model are shown in Table IV-2.

D. Analysis.

1. Hourly rates ($Rate_{ij}$).

a. Data in Table IV-2 was analyzed to find the "best" relationship between the hourly rate and lines shipped. Numerous linear and nonlinear models were investigated. In addition, separate analyses were run by excluding certain unusual depots and by excluding all depot activities. Fine tuning the data base provided no tangible improvements in correlation and thus the entire data base was used.

b. A non-linear model of the form of a power function was selected because of superior correlation. This model is generated by a logarithmic transformation of the data in Table IV-2 prior to the regression analysis. Statistical results of the analysis are provided in Table IV-3. The t-ratio and the F-value are highly significant, indicating that the data supports the hypothesis that large depots are more efficient than small depots.

c. The resulting model, $Rate_{ij} = 302 \times Lines\ Shipped_{ij}^{-.17392}$ $/Hr, is shown graphically in Figure IV-1. This model is programmed into the VISICALC model of the para IIA equation shown in Tables IV-4 through IV-10. Values shown for "LABOR RATE" and "NEW RATE" are derived from the predictive model. Note that these rates are based on total lines shipped (including DLA items and OCONUS), not simply on CONUS lines (the last two columns of the Table).

2. Manhour standard (std).

a. Knowledgeable experts at HQ DESCOM indicated that the time to process an item at a depot varies considerably depending on the nature of the item. The time to process a like item will not vary considerably from depot to depot. It was estimated that processing times should be $\pm$ 10% for the same item at different locations.

b. Recognizing that different depots store and handle a different mix of items, the standard hours for Class IX, Army items could best be estimated

by concentrating analysis at the existing AODs. By subtracting 305 report ammo lines and manhours from the total lines and manhours at each depot, the average manhours per line ranged from .89 to 15.83 in FY 84. However, at the three AODs, the range was only 1.318 manhours/line to 1.812 manhours/line. An average for the three AODs was 1.529 manhours/line shipped. This value was assumed to be a representative for a Class IX Army item regardless of stock positioning point. This standard is for all Supply Depot Operating costs to include receipt, shipping, care of material in storage, unit and set assembly, depot technical assistance, inventory, rewarehousing, care of supplies in storage, inspection, traffic management and miscellaneous support functions.

c. The manhour standard of 1.529 manhours/line shipped was used in Tables IV-4 through IV-10 to compute the column "MANHOURS" by dividing the LINES columns by 1.529.

3. Lines shipped (Lines Shipped$_{jj}$).

a. The lines shipped CONUS, Class IX to Army customers in Table IV-4 under the heading of "CURRENT LINES CONUS" was determined from actual LIF data gathered during CY 84 (see Appendix B).

b. The lines shipped under the heading of "PROPOSED LINES SHIPPED" in Tables IV-5 through IV-10 are found by geographically reallocating demand based on the boundaries shown in Figures C-1 through C-6, Appendix C.

4. Summary. This approach indicates that depot operating costs will increase as more depots are added to the distribution network. The primary cause of this increased cost is because the new depots are smaller and hence less efficient than the existing depots from which workload will be taken. Summarizing Tables IV-4 through IV-10, the total cost and cost differentials from the baseline are shown for each alternative in Table IV-11.

E. Model Validation. To ensure that the predictive model used in this analysis was reasonably accurate, the model was used to predict first quarter FY 85 rates at the sixteen Army depots and depot activities. These predictions were compared to actuals and the differences noted. Results are shown in Table IV-12. It is concluded that the model has high accuracy with moderate precision.

F. Sensitivity Analysis.

1. The assumption that the standard manhours/line shipped for a like item is the same from depot to depot can be questioned. This is particularly true if one depot is more highly automated than another. The Army has a program, called AOD Modernization, which, if implemented, will significantly upgrade NCAD, RRAD, and SHAD. An automated warehousing concept will improve efficiency, reduce cost and increase capability. It is estimated that under modernization, workload that is currently being done on three shifts and weekends can be reduced to a single shift.

2. According to an economic analysis done for SHAD [10] annual operating costs under AOD Mod will be reduced by 34.1%. Assuming the percentage reduction will also apply at RRAD and NCAD, the VISICALC model was recomputed by factoring a 34.1% reduction in the manhour standard for the existing AODs. The results are shown in Tables IV-13 through IV-19 and summarized in Table IV-20. The increased cost differential above and beyond that predicted in Table IV-11 can be explained by the fact that work is not only reallocated from large to small depots (Economy of Scale effect) but also from modernized to un-modernized facilities.

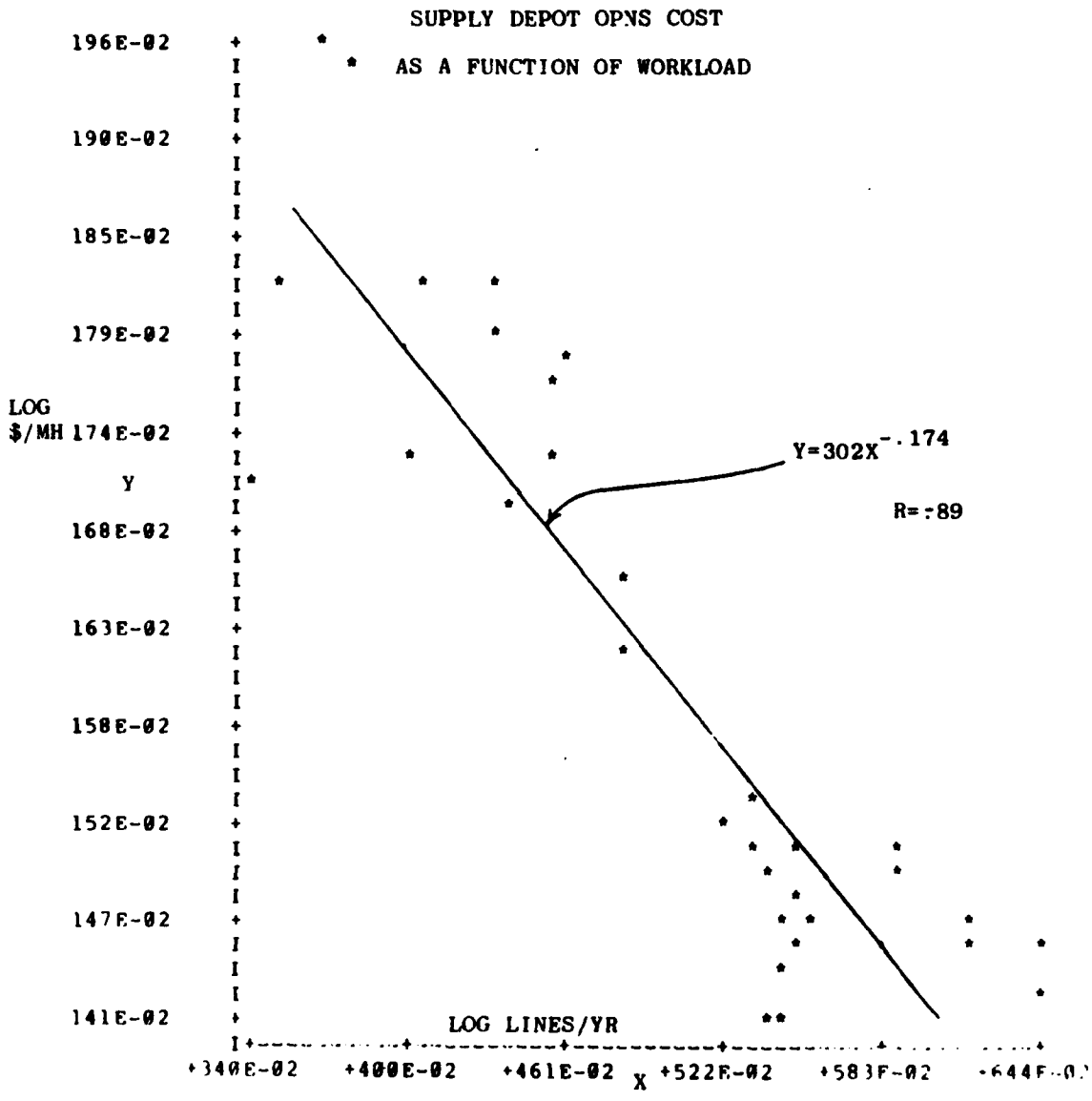

Figure IV-1. Supply Depot Opns Cost as a Function of Workload

CATEGORY: Resources
UPDATED: Annually
SOURCE: Comptroller, AIF Branch
POC: -SOR

TABLE IV-1. S U P P L Y F I X E D R A T E S
B Y D E P O T

DEPOT	FY81	FY82	FY83	FY84	FY85
ANAD	22.29	29.77	27.46	25.55	28.31
LBDA	27.53	34.99	36.37	32.01	42.92
CCAD	10.51	22.93	26.65	25.07	29.17
LEAD	26.43	25.34	28.62	26.68	31.52
SVDA	55.37	38.83	55.78	45.65	54.07
NCAD	21.74	22.40	23.53	22.99	30.33
RRAD	22.44	23.24	24.37	23.22	34.83
SAAD	21.16	19.27	20.92	20.83	27.20
SEAD	42.95	47.66	60.23	37.62	60.10
SHAD	25.16	23.94	27.09	25.33	33.89
SIAD	53.00	57.08	70.58	50.20	63.12
TOAD	19.83	19.91	23.00	20.21	23.56
TEAD	30.28	21.81	27.59	29.57	30.93
FWDA	83.45	94.01	68.47	69.76	85.84
PUDA	37.38	31.41	40.15	36.87	43.10
UMDA	102.42	82.46	103.92	57.75	77.21

TABLE IV-2. Actual Hourly Supply Rates (FY 85 $/HR) and Lines Shipped by Depot

	FY 83		FY 84	
DEPOT	HOURLY RATE	LINES SHIPPED	HOURLY RATE	LINES SHIPPED
ANAD	32.6042	228643	31.7322	238754
LBDA	42.0765	71883	45.7421	69250
CCAD	28.7399	321157	29.8449	358176
LEAD	30.5805	310066	32.4477	302176
SVDA	67.0274	10894	53.5299	10568
NCAD	26.3826	2.68989E+06	28.2064	2.72676E+06
RRAD	28.277	1.47394E+06	29.2019	1.51846E+06
SAAD	27.2329	286322	29.1086	293528
SEAD	59.4819	39348	58.6009	38205
SHAD	30.9788	724637	32.4685	758967
SIAD	62.8187	22960	65.5799	22364
TOAD	26.0812	249897	25.925	245601
TEAD	33.3684	170650	34.7188	217356
FWDA	66.5646	3082	51.1034	2493
PUDA	52.4422	35132	49.7034	26182
UMDA	90.1916	4988	86.5169	5759

TABLE IV-3. Regression Statistics for Predictive Cost Model of the Form $Y = AX^B$

STATISTICS	VALUE	COMMENT
Coefficient A	302	$/HR
Coefficient B	-.173924	
Coefficient of Determination (R^2)	.791	Ratio of $\frac{\text{Explained Variation}}{\text{Total Variation}}$
Coefficient of Correlation (R)	-.889	
Degrees of Freedom	30	Equals data points minus 2
Std Error of Estimate	.0754	Logarithmic value ($/HR)
t-ratio for coefficient B	-10.6539	Significant at $\alpha < .01$[1]
F value	113.512	Significant at $\alpha < .01$[2]

1 α or Type I error represents the probability that the coefficient is actually equal to zero. A zero coefficient would indicate that depot workload has no influence on hourly rate.

2 α Represents the probability that $R^2 = 0$. If $R^2 = 0$, there is no statistical relationship between the variables.

TABLE IV-4. Supply Depot Operating Costs for Alternative One for CONUS, Class IX Army Stock (FY 85 $)

ALT NO. ONE
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	287699	22.95	6601339	439892	287699	22.95	6601339	0	2726762	2726762
RRAD	682458	446343	25.40	1.134E7	682458	446343	25.40	1.134E7	0	1518464	1518464
SHAD	190039	124290	28.66	3562298	190039	124290	28.66	3562298	0	758967	758967
ANAD	12695	8303	35.05	290990.	12695	8303	35.05	290990.	0	238754	238754
LBDA	12875	8421	43.47	366000.	12875	8421	43.47	366000.	0	69250	69250
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	6459	4224	35.62	150488.	0	217356	217356
TOTAL	1375233	899433		2.299E7	1375233	899433		2.299E7	0	5858452	5858452

PARAM	B	1.529
PARAM	C	302
PARAM	D	-.17392

TABLE IV-5. Supply Depot Operating Costs for Alternative One-A for CONUS, Class IX Army Stock (FY 85 $)

ALT NO. ONE-A IDEAL CASE
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	287699	22.95	6601339	322594	210984	23.12	4878243	-1.72E6	2726762	2609464
RRAD	682458	446343	25.40	1.134E7	798862	522474	25.08	1.310E7	1764648	1518464	1634868
SHAD	190039	124290	28.66	3562298	190933	124874	28.66	3578324	16025.4	758967	759861
ANAD	12695	8303	35.05	290990.	12695	8303	35.05	290990.	0	238754	238754
LBDA	12875	8421	43.47	366000.	12875	8421	43.47	366000.	0	69250	69250
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	6459	4224	35.62	150488.	0	217356	217356
TOTAL	1375233	899433		2.299E7	1375233	899433		2.305E7	57578.7	5858452	5858452

PARAM	A	1
PARAM	B	1.529
PARAM	C	302
PARAM	D	-.17392

TABLE IV-6. Supply Depot Operating Costs for Alternative Two for CONUS, Class IX Army Stock (FY 85 $)

ALT NO. TWO
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	287699	22.95	6601339	432519	282877	22.96	6493751	-107587	2726762	2719389
RRAD	682458	446343	25.40	1.134E7	445988	291686	26.16	7631584	-3.71E6	1518464	1281994
SHAD	190039	124290	28.66	3562298	190039	124290	28.66	3562298	0	758967	758967
ANAD	12695	8303	35.05	290990.	256538	167782	31.01	5202827	4911837	238754	482597
LBDA	12875	8421	43.47	366000.	12875	8421	43.47	366000.	0	69250	69250
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	6459	4224	35.62	150488.	0	217356	217356
TOTAL	1375233	899433		2.299E7	1375233	899433		2.409E7	1096676	5858452	5858452

PARAM A 1
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-7. Supply Depot Operating Costs for Alternative Three for CONUS, Class IX Army Stock (FY 85 $)

ALT NO. THREE
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	287699	22.95	6601339	432519	282877	22.96	6493751	-107587	2726762	2719389
RRAD	682458	446343	25.40	1.134E7	395060	258378	26.35	6807951	-4.53E6	1518464	1231066
SHAD	190039	124290	28.66	3562298	166336	108787	28.82	3135237	-427061	758967	735264
ANAD	12695	8303	35.05	290990.	256538	167782	31.01	5202827	4911837	238754	482597
LBDA	12875	8421	43.47	366000.	12875	8421	43.47	366000.	0	69250	69250
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	81090	53035	33.84	1794770	1644282	217356	291987
TOTAL	1375233	899433		2.299E7	1375233	899433		2.448E7	1490265	5858452	5858452

PARAM A 1
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-8. Supply Depot Operating Costs for Alternative Four for CONUS, Class IX Army Stock (FY 85 $)

ALT NO. FOUR
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	287699	22.95	6601339	369687	241784	23.05	5573017	-1.03E6	2726762	2656557
RRAD	682458	446343	25.40	1.134E7	416792	272591	26.27	7160626	-4.18E6	1518464	1252798
SHAD	190039	124290	28.66	3562298	166336	108787	28.82	3135237	-427061	758967	735264
ANAD	12695	8303	35.05	290990.	180588	118109	31.95	3773208	3482219	238754	406647
LBDA	12875	8421	43.47	366000.	129925	84974	36.59	3109393	2743393	69250	186300
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	81090	53035	33.84	1794770	1644282	217356	291987
TOTAL	1375233	899433		2.299E7	1375233	899433		2.523E7	2235979	5858452	5858452

PARAM A 1
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-9. Supply Depot Operating Costs for Alternative Five for CONUS, Class IX Army Stock (FY 85 $)

ALT NO. FIVE
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	287699	22.95	6601339	369687	241784	23.05	5573017	-1.03E6	2726762	2656557
RRAD	682458	446343	25.40	1.134E7	361698	236559	26.48	6262889	-5.08E6	1518464	1197704
SHAD	190039	124290	28.66	3562298	166336	108787	28.82	3135237	-427061	758967	735264
ANAD	12695	8303	35.05	290990.	180588	118109	31.95	3773208	3482219	238754	406647
LBDA	12875	8421	43.47	366000.	129925	84974	36.59	3109393	2743393	69250	186300
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	106475	69637	38.84	2704829	2689578	26182	132204
TEAD	6459	4224	35.62	150488.	30162	19727	34.99	690207.	539718.	217356	241059
TOTAL	1375233	899433		2.299E7	1375233	899433		2.592E7	2923256	5858452	5858452

PARAM A 1
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-10. Supply Depot Operating Costs for Alternative Six for CONUS, Class IX Army Stock (FY 85 $)

ALT NO. SIX
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	287699	22.95	6601339	282118	184511	23.18	4277783	-2.32E6	2726762	2568988
RRAD	682458	446343	25.40	1.134E7	361698	236559	26.48	6262889	-5.08E6	1518464	1197704
SHAD	190039	124290	28.66	3562298	166336	108787	28.82	3135237	-427061	758967	735264
ANAD	12695	8303	35.05	290990.	180588	118109	31.95	3773208	3482219	238754	406647
LBDA	12875	8421	43.47	366000.	129925	84974	36.59	3109393	2743393	69250	186300
LEAD	30362	19857	33.63	667799.	117931	77129	32.18	2481714	1813915	302717	390286
PUDA	453	296	51.48	15251.1	106475	69637	38.84	2704829	2689578	26182	132204
TEAD	6459	4224	35.62	150488.	30162	19727	34.99	690207.	539718.	217356	241059
TOTAL	1375233	899433		2.299E7	1375233	899433		2.644E7	3441938	5858452	5858452

PARAM A 1
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-11. Summary of Depot Operating Costs - FY $ 85 K

ALT #	ANNUAL OPERATING COST	INCREASED COST RELATIVE TO ALT 1
1	22990	0
1A	23050	60
2	24090	1100
3	24480	1490
4	25230	2240
5	25920	2930
6	26440	3450

TABLE IV-12. Model Validation - First Qtr FY 85 $Y = 302 X^{-.1739}$

DEPOT	LINES	ANNUAL LINES	PREDICTED RATE	ACTUAL RATE	DIFFERENCE	ABSOLUTE DIFFERENCE
* ANAD	55218	220872	35.52	31.72	3.80	3.80
* LBDA	17706	70824	43.29	42.55	.74	.74
CCAD	100139	400556	32.03	32.02	.01	.01
* LEAD	95973	383892	32.27	30.67	1.60	1.60
SVDA	2332	9328	61.60	53.43	8.17	8.17
* NCAD	635539	2542156	23.23	30.27	-7.04	7.04
* RRAD	362623	1450492	25.61	29.54	-3.93	3.93
SAAD	61947	247788	34.82	29.76	5.06	5.06
SEAD	8023	32092	49.69	64.68	-14.99	14.99
* SHAD	178877	715508	28.96	34.01	-5.05	5.05
SIAD	4368	17472	55.23	65.90	-10.67	10.67
TOAD	57896	231584	35.23	25.47	9.76	9.76
* TEAD	52555	210220	35.83	33.66	2.17	2.17
FWDA	285	1140	88.78	69.00	19.78	19.78
* PUDA	5682	22728	52.76	45.69	7.07	7.07
UMDA	1358	5432	67.67	81.55	-17.88	17.88
	AVG $/HR		43.91	43.75	+.16	7.35
	% Diff				3%	16.8%
	* AVG $/HR		34.68	34.76	-.08	3.93
	% Diff				-.2%	11.3%

* Indicates depot is a candidate for increased stock positioning.

TABLE IV-13. Supply Depot Operating Costs for Alternative One, Assuming AOD Modernization Conditions.

ALT NO. ONE WITH AOD MOD
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	189697	22.95	4352659	439892	189697	22.95	4352659	0	2726762	2726762
RRAD	682458	294301	25.40	7476587	682458	294301	25.40	7476587	0	1518464	1518464
SHAD	190039	81952	28.66	2348837	190039	81952	28.66	2348837	0	758967	758967
ANAD	12695	8303	35.05	290990.	12695	8303	35.05	290990.	0	238754	238754
LBDA	12875	8421	43.47	366000.	12875	8421	43.47	366000.	0	69250	69250
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	6459	4224	35.62	150488.	0	217356	217356
TOTAL	1375233	607051		1.567E7	1375233	607051		1.567E7	0	5858452	5858452

PARAM A .65936
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-14. Supply Depot Operating Costs for Alternative One-A, Assuming AOD Modernization Conditions.

ALT NO. ONE-A WITH AOD MOD
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	189697	22.95	4352659	322594	139114	23.12	3216519	-1.14E6	2726762	2609464
RRAD	682458	294301	25.40	7476587	798862	344498	25.08	8640126	1163539	1518464	1634868
SHAD	190039	81952	28.66	2348837	190933	82337	28.66	2359404	10566.5	758967	759861
ANAD	12695	8303	35.05	290990.	12695	8303	35.05	290990.	0	238754	238754
LBDA	12875	8421	43.47	366000.	12875	8421	43.47	366000.	0	69250	69250
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	6459	4224	35.62	150488.	0	217356	217356
TOTAL	1375233	607051		1.567E7	1375233	607051		1.571E7	37965.1	5858452	5858452

PARAM A .65936
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-15. Supply Depot Operating Costs for Alternative Two, Assuming AOD Modernization Conditions.

ALT NO. TWO WITH AOD MOD
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	189697	22.95	4352659	432519	186518	22.96	4281720	-70939.	2726762	2719389
RRAD	682458	294301	25.40	7476587	445988	192326	26.16	5031961	-2.44E6	1518464	1281994
SHAD	190039	81952	28.66	2348837	190039	81952	28.66	2348837	0	758967	758967
ANAD	12695	8303	35.05	290990.	256538	167782	31.01	5202827	4911837	238754	482597
LBDA	12875	8421	43.47	366000.	12875	8421	43.47	366000.	0	69250	69250
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	6459	4224	35.62	150488.	0	217356	217356
TOTAL	1375233	607051		1.567E7	1375233	661376		1.806E7	2396273	5858452	5858452

PARAM A .65936
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-16. Supply Depot Operating Costs for Alternative Three, Assuming AOD Modernization Conditions.

ALT NO. THREE WITH AOD MOD
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	189697	22.95	4352659	432519	186518	22.96	4281720	-70939.	2726762	2719389
RRAD	682458	294301	25.40	7476587	395060	170364	26.35	4488891	-2.99E6	1518464	1231066
SHAD	190039	81952	28.66	2348837	166336	71730	28.82	2067250	-281587	758967	735264
ANAD	12695	8303	35.05	290990.	256538	167782	31.01	5202827	4911837	238754	482597
LBDA	12875	8421	43.47	366000.	12875	8421	43.47	366000.	0	69250	69250
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	51.48	15251.1	0	26182	26182
TEAD	6459	4224	35.62	150488.	81090	53035	33.84	1794770	1644282	217356	291987
TOTAL	1375233	607051		1.567E7	1375233	678002		1.888E7	3215897	5858452	5858452

PARAM A .65936
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-17. Supply Depot Operating Costs for Alternative Four, Assuming AOD Modernization Conditions.

ALT NO. FOUR WITH AOD MOD
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	189697	22.95	4352659	369687	159422	23.05	3674624	-678034	2726762	2656557
RRAD	682458	294301	25.40	7476587	416792	179736	26.48	4758505	-2.72E6	1518464	1252798
SHAD	190039	81952	28.66	2348837	166336	71730	28.82	2067250	-281587	758967	735264
ANAD	12695	8303	35.05	290990.	180588	118109	31.95	3773208	3482219	238754	406647
LBDA	12875	8421	43.47	366000.	129925	84974	36.59	3109393	2743393	69250	186300
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	453	296	38.84	11507.7	-3743.3	26182	26182
TEAD	6459	4224	35.62	150488.	81090	53035	34.99	1855608	1705120	217356	291987
TOTAL	1375233	607051		1.567E7	1375233	687159		1.992E7	4249286	5858452	5858452

PARAM A .65936
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-18. Supply Depot Operating Costs for Alternative Five, Assuming AOD Modernization Conditions.

ALT NO. FIVE WITH AOD MOD
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	189697	22.95	4352659	369687	159422	23.05	3674624	-678034	2726762	2656557
RRAD	682458	294301	25.40	7476587	361698	155977	26.48	4129498	-3.35E6	1518464	1197704
SHAD	190039	81952	28.66	2348837	166336	71730	28.82	2067250	-281587	758967	735264
ANAD	12695	8303	35.05	290990.	180588	118109	31.95	3773208	3482219	238754	406647
LBDA	12875	8421	43.47	366000.	129925	84974	36.59	3109393	2743393	69250	186300
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	667799.	0	302717	302717
PUDA	453	296	51.48	15251.1	106475	69637	38.84	2704829	2689578	26182	132204
TEAD	6459	4224	35.62	150488.	30162	19727	34.99	690207.	539718.	217356	241059
TOTAL	1375233	607051		1.567E7	1375233	699433		2.082E7	5148198	5858452	5858452

PARAM A .65936
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-19. Supply Depot Operating Costs for Alternative Six, Assuming AOD Modernization Conditions.

ALT NO. SIX WITH AOD MOD
COST PER YEAR FY85 $

DEPOT	CURRENT LINES CONUS	MAN HOURS	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT LINES
NCAD	439892	189697	22.95	4352659	282118	121659	23.18	2820599	-1.53E6	2726762	2568988
RRAD	682458	294301	25.40	7476587	361698	155977	26.48	4129498	-3.35E6	1518464	1197704
SHAD	190039	81952	28.66	2348837	166336	71730	28.82	2067250	-281587	758967	735264
ANAD	12695	8303	35.05	290990.	180588	118109	31.95	3773208	3482219	238754	406647
LBDA	12875	8421	43.47	366000.	129925	84974	36.59	3109393	2743393	69250	186300
LEAD	30362	19857	33.63	667799.	117931	77129	32.18	2481714	1813915	302717	390286
PUDA	453	296	51.48	15251.1	106475	69637	38.84	2704829	2689578	26182	132204
TEAD	6459	4224	35.62	150488.	30162	19727	34.99	690207.	539718.	217356	241059
TOTAL	1375233	607051		1.567E7	1375233	718942		2.178E7	6108088	5858452	5858452

PARAM A .65936
PARAM B 1.529
PARAM C 302
PARAM D -.17392

TABLE IV-20. Summary of Depot Operating Costs - FY $ 85 K Under AOD Mod Considerations.

ALT #	ANNUAL OPERATING COST	INCREASED COST RELATIVE TO ALT 1
1	15670	0
1A	15710	40
2	18060	2390
3	18880	3210
4	19920	4250
5	20820	5150
6	21780	6110

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Chapter V. RECURRING COSTS

I. Introduction.

A. Within the Army, the wholesale supply system is a complex, interrelated system of people, organizations, information, facilities, and materiel. A small change in one aspect of the system may result in unintended and undesirable side effects or ripple effects in other areas.

B. Stock positioning decisions and structural changes to the physical distribution system were judged to have potential impact on several organizations within the Army Materiel Command. The purpose of this chapter is to quantify this impact on all affected organizations within AMC above depot level. The recurring impact at depot level is evaluated in Chapter IV.

II. Methodology.

A. A questionnaire was designed to elicit cost estimates from each potential organization as shown in Appendix A. This questionnaire was sent, along with a description of the proposed changes described in the Study Plan shown in Appendix D.

1. Potential organizations affected are listed in Table V-1.

2. Each organization was given about two months to respond.

B. Survey results were not scrutinized, challenged or analyzed because of insufficient time and expertise to do so.

III. Results.

A. All organizations responded to the request for data. ALMSA, AVSCOM, CECOM, and LSSA indicated that there would be no recurring effect on their operations. HQ DESCOM responded but their comments indicated that the impact was at the depot level, not at the headquarters. Since this is considered in Chapter IV, DESCOM response was omitted to avoid double counting this cost.

B. A summary of the results is provided in Table V-2.

IV. Discussion.

A. Uncertainty. Because of the subjectivity involved in making estimates of this nature and because of the way the questionnaire is structured, these costs are only "guesstimates" with order of magnitude accuracy at best.

B. Comments. Those NICPs that claimed an impact attributed the increase in cost to:

1. TROSCOM - Increased paperwork and search review time for inter-depot transfers, adjustments, packaging, workload forecasting, changes to operating procedures/programs, budget procurement, and typing.

2. AMCCOM - Additional personnel, no reasons provided.

3. MICOM - Additional personnel, increased paperwork.

4. TACOM - Additional personnel for item accounting, ROD processing, and code "L" stock areas.

TABLE V-1. AMC Organizations Surveyed

ACRONYM	ORGANIZATIONS
ALMSA	US AMC Automated Logistics Management Systems Activity
AMCCOM	Armament, Munitions and Chemical Command
AVSCOM	Aviation Systems Command
CECOM	Communications-Electronics Command
DESCOM	Depot Systems Command
LSSA	US AMC Logistic Systems Support Activity
MICOM	Missile Command
TACOM	Tank-Automotive Command
TROSCOM	Troop Support Command

TABLE V-2. Results of Survey. Recurring Costs Above AOD (FY 85 $ K)

	INCREASE IN RECURRING MANAGEMENT COST (FY 85 $ K) ORGANIZATION								
ALT #	AMCCOM	AVSCOM	CECOM	MICOM	TACOM	TROSCOM	ALMSA	LSSA	TOTAL
1									
1A									
2	50			50	50	100			250
3	50			50	300	150			550
4	50			50	300	150			550
5	50			50	300	400			800
6	50			50	300	400			800

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Chapter VI. NONRECURRING COST

I. Introduction.

Change in a large, complex bureaucracy occurs slowly. One of the reasons for slow gradual change is that sudden, major changes usually result in significant one-time application of resources to implement the change. This chapter deals with these one-time, nonrecurring costs throughout the Army Materiel Command associated with positioning stocks in alternative depot configurations.

II. Methodology.

A. A questionnaire was designed to elicit cost estimates from each potentially affected organization as shown in Appendix A. This questionnaire was sent along with a description of the proposed changes described in the Study Plan shown in Appendix D.

1. Potentially affected organizations are listed in Table V-1.

2. Each organization was given about two months to respond.

B. Survey results were accepted as provided without challenge.

III. Results.

All organizations responded to the request for data. AMCCOM, CECOM, MICOM, and LSSA indicated that the changeover could be accomplished within their organization without resource impact. A summary of the results is provided in Table VI-1.

IV. Discussion.

A. Uncertainty. Because of the subjectivity involved in making estimates of this nature and the way the questionnaire is structured, these costs are "guesstimates" with order of magnitude accuracy, at best.

B. Comments.

1. The estimates made by HQ DESCOM personnel dominate this cost category. Nonrecurring requirements were indicated for ADP hardware and software, ADP personnel, and facilities. The major need is caused by the additional Standard Depot System modules that would be required for non-AODs to function as an AOD. Non-AODs currently do not run all SDS modules. Each existing non-AOD would require additional disk space and terminals to support the increase in workload as well as additional ADP personnel support for software installation. In addition to ADP costs, each non-AOD would require funds for rewarehousing and other storage space management functions.

2. ALMSA - Certain files and applications of the Commodity Command Standard System would require software modifications if the distribution network is modified.

3. AVSCOM - Software changes to bridging and command unique programs would be required. Also, internal system change requests must be developed and internal policies and procedures revised.

4. TACOM - Unspecified software changes would be required.

5. TROSCOM - Additional equipment associated with the workload increase specified in Chapter V, para IVB1.

Table VI-1. Nonrecurring Cost Summary $ K FY 85

ALT #	ORGANIZATION									
	AMCCOM	AVSCOM	CECOM	TACOM	MICOM	TROSCOM	ALMSA	LSSA	DESCOM	TOTAL
1										
1A										
2		100		50			100		650	900
3		100		50		50	100		1350	1650
4		100		50		50	100		1800	2100
5		100		50		50	100		2200	2500
6		100		50		50	100		3050	3350

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Chapter VII. ORDER-SHIP-TIME

I. Introduction.

A. A logical premise is that if stocks are positioned closer to a customer, that customer will receive its requisitions in less time. Since the average order-ship-time runs about 17 days [19] to have the item in-theater for a Priority Group 3 requisition, significant time savings might seem possible. However, of this time, it takes about 8 days to submit the requisition to the NICP. The NICP takes about 2 days to transmit the action to the depot. The depot requires almost 4 days to process the Materiel Release Order (MRO) and then the materiel waits almost 2 days in "Transportation Hold" awaiting shipment. Based on discussions with numerous experts, these portions of the pipeline are considered to be relatively unaffected by stock positioning policies.

B. The only major impact on order-ship-time that is customer-to-depot distance related, is the transit time from the moment the materiel leaves the depot until it arrives at the next destination. It is assumed that the other pipeline segments will not be affected by the location of stock. Although MILSTEP reports show some differences between depots concerning the MRO receipt to date available time and transportation hold times, the variability is not great (the sum of these times ranged from 5.0 - 5.8 days at the AODs for Priority Group 3, immediate issues in Oct 83 [19]). In addition, transportation hold time is primarily driven by customer demand. Very high demand customers will have more frequent dedicated traffic schedules and thus less hold time, regardless of which depot is designated as the primary source.

II. Methodology.

A. General Concept. The transportation time from depot to customer will depend primarily on two factors--namely, mode of transportation and distance.

1. Mode of Transportation. Four dominant classifications of mode, discussed in Chapter III, are truckload, less-than-truckload, small package, and air. Air shipments are easily the most responsive in terms of time, but are limited to strict "air eligible" criteria because of cost considerations. Small package shipments are also fairly responsive, not because of transportation speed, but because of less "hold time." Truckload shipments usually require "hold time" but because the truck normally goes directly to the customer, the transportation time is fairly low except when the distance is great. Less-than-truckload shipments also require significant hold time and move slower than truckload shipments because of intermediate stops and additional handling along the way.

2. Distance. Generally, the greater the distance between source and destination, the longer the transit time, for any mode of transportation.

3. Other factors. There are many factors that influence responsiveness of transportation systems. Proximity to urban areas, terrain, climate, accessibility to interstate highways, union rules, season, etc., can influence the transit time. It is assumed that these factors are of minor importance and will affect all alternatives equally.

B. Approach. For each mode of transportation, a separate analysis yielded a relationship between transit time and distance. These relationships were used to compute the transit time between each depot and customer pair and a weighted average time was computed based on LIF shipments data for CY 84.

C. Source of Data.

1. Truckload and Less-than-Truckload. The Department of Defense Materiel Distribution Study (DODMDS) [8], performed an intensive analysis of transit times. Based on data taken from the Intransit Data Files from the MILSTEP DOD Central Data Collection Point, approximately 2.3 million records were taken from a twelve month period during FY 75-76. From these records, relationships were generated using regression analysis to quantify transit time as a function of distance for various modes. Since the degree of correlation between transit time and distance was extremely high for these two modes and because speed limits and conditions are viewed to be still comparable, it is assumed that the relationships are still valid today.

2. Air. The DODMDS [8] study reported that the correlation between time and distance for air shipments was extremely low. This could be expected because, with air movements, the majority of the elapsed time is consumed on the ground getting the package to and from the airports. The distance between airports can only account for time differences of a few hours rather than the usual measure of days. Therefore, it was assumed that air shipment time is constant and independent of distance between source and destination. The value of 1 day was assumed. The difference between alternatives is not dependent upon the value selected.

3. Small Package. The DODMDS [8] study results for small package shipments were not used because of poor correlation (R^2 = .68) and because of changing conditions in the small package transportation industry since the 1975-1976 time frame. Since the LIF data indicated that United Postal Service shipments accounted for 75% of the Army CONUS Class IV small package deliveries, UPS transit time data was obtained from their Federal Sales representative.

Specifically, for each depot under consideration, a publication entitled "UPS Scheduled Delivery Days from (City)" dated June 1984 was obtained, an example of which is provided in Figure VII-1. From this data, a relationship between a surrogate for distance (Ground Service Zone) and transit time was developed. UPS Ground Service Zones are based on the first three digits of ZIP codes and are published by UPS in a publication called "UPS Ground Service Zone Chart," an example of which may be seen in Table III-5. It is assumed that the transit time for UPS is valid for the remaining 25% of the small package shipments (Parcel Post and Surface Small Package Carriers).

D. Analysis.

1. Relationships. To estimate the transit time between each depot-customer pair, the relationships provided in Table VII-2 were used. For truckload and less-than-truckload modes the intercept of the linear relationship approximately represents the hold time. The reciprocal of the slope represents the number of miles/day in transit. A truckload shipment will move 495 miles per day versus 370 miles per day for less-than-truckload shipments. Table VII-1 provides backup information for the development of the UPS relationship. In no case was the UPS relationship in error of more than one day and it is approximately equally likely to overestimate as to underestimate.

2. Using the relationships in Table VII-2 and the LIF data, a weighted average time was calculated using the following formula:

$$\text{Transportation Time}_i = \frac{\sum_j \sum_k \sum_l T_{jkl} \cdot L_{ijkl}}{\sum_j \sum_k \sum_l L_{ijkl}}$$

where

AD-A162 916 WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES 2/3
PHASE I VOLUME 2 METHODOLOGY(U) LOGISTICS STUDIES
OFFICE (ARMY) FORT LEE VA P E GROVER AUG 85

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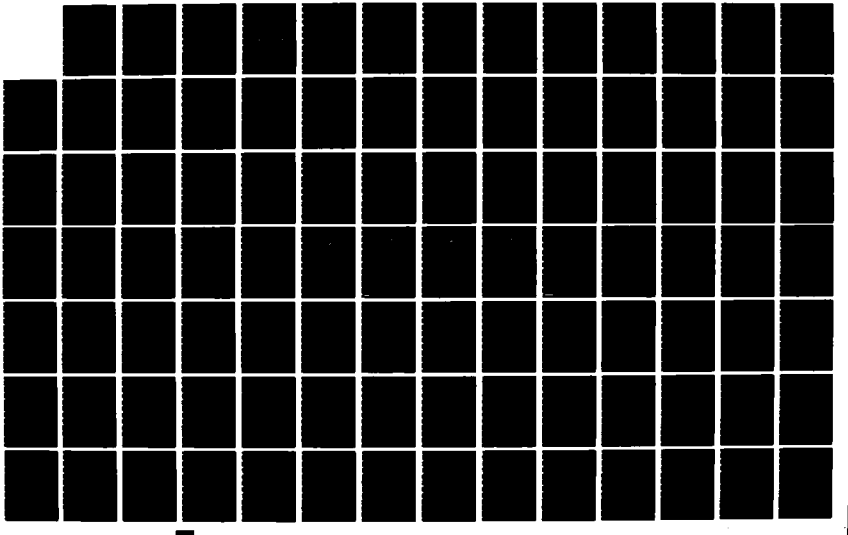

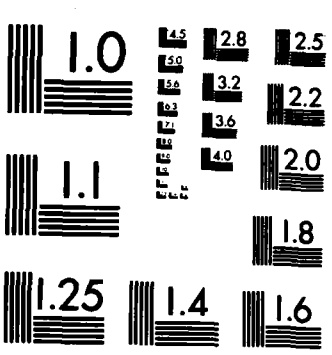

T_{jkl} = Transit time for mode j from depot k to destination l

L_{ijkl} = Lines shipped by mode j from depot k to desination l for alternative i

i = alternative index i = 1,2,3...6

j = mode of transportation i = 1 (truckload), 2 (less than truckload), 3 (small package), 4 (air)

k = depot index k = 1,2...8

l = destination l = 1 (Maine), 2 (NH/VER)...78(SAAD)

III. Results.

A. Using a VISICALC model to execute the formula in para IID2 above, the results for each alternative and mode are provided in Appendix F. These runs are summarized in Table VII-3.

B. Discussion.

1. By not including hold time in the calculation for air and small package shipments, the weighted average transportation time values provided in Appendix F are hard to interpret. However, the differential time between an alternative and the current alternative is a meaningful measure of time savings. Adding hold time to small package and air shipments or subtracting hold time from truck and less-than-truck, will not change the differential time.

2. Increasing the number of stock positioning points will increase responsiveness to requisitions, but only marginally. At most, a third of a day improvement is forecast by increasing the number of positioning points from 3 to 8. The reasons for this rather low decrease in response time are:

a. Major segments of the pipeline are not affected by where the stock is positioned.

b. Increasing stock positioning points will probably not reduce out-of-area shipments. Out-of-area shipments tend to heavily influence the

average transit time (see Alternative 1A in Table VII-3). The model replicates this effect equally for all alternatives except 1A.

c. Major concentrations of demand are already close to the existing 3 AODs. Forts Hood, Lewis, Irwin, Ord, Polk, Meade, Bliss, Sill, Bragg, and Corpus Christi Army Depot would experience no real change in their response time because of their locations relative to NCAD, RRAD, and SHAD. These 10 locations account for 36% of the CONUS demand. Also, there are many smaller installations that remain closest to the existing three AODs in all cases.

d. Some major installations would notice an improved response time. These include Forts Campbell, Carson, Benning, Stewart, Knox, Rucker, and Anniston Army Depot. However, these installations only account for 23% of CONUS demand. The significant improvement for these customers is weighed down in computing a weighted average by the greater number of installations that experience little or no change.

3. If quicker response to requisitions is a driving force for stock positioning decisions, there is greater potential for time reduction associated with improving stock positioning policies within the existing network, Alternative 1A, than by expanding the network. Since the items in the scope of this study had a distribution effectiveness in CY 84 of 78% by lines and 74% by weight, considerable time savings (not to mention cost savings) could be achieved by improving distribution effectiveness. Further study can address specific policy changes that may achieve this desirable objective.

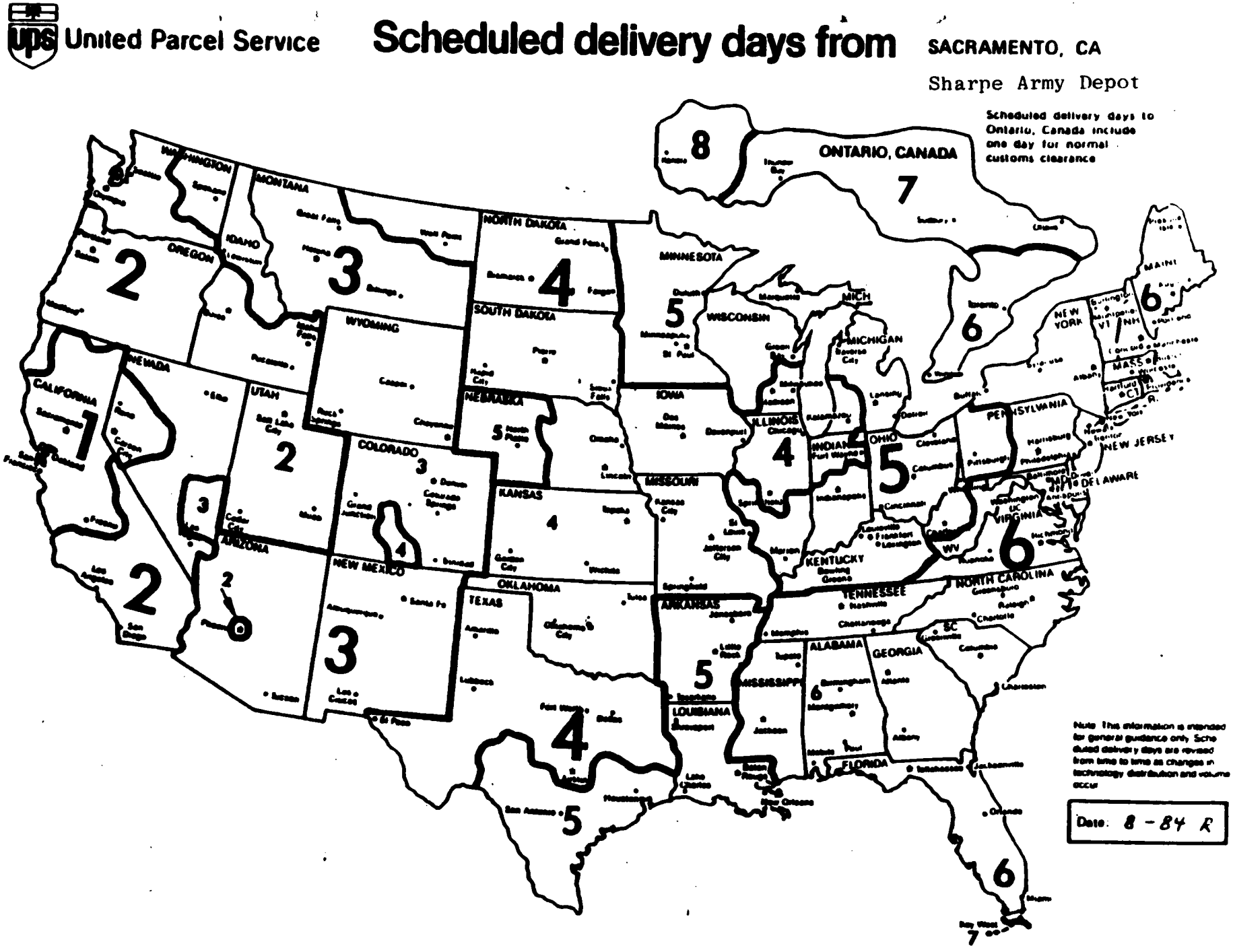
United Parcel Service
Scheduled delivery days from SACRAMENTO, CA
Sharpe Army Depot
Scheduled delivery days to Ontario, Canada include one day for normal customs clearance
ONTARIO, CANADA
WASHINGTON
MONTANA
NORTH DAKOTA
MINNESOTA
OREGON
IDAHO
WYOMING
SOUTH DAKOTA
WISCONSIN
MICHIGAN
NEVADA
UTAH
COLORADO
NEBRASKA
IOWA
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
NEW YORK
MAINE
VT
NH
MASS
CT
RI
NEW JERSEY
MD
DELAWARE
CALIFORNIA
ARIZONA
NEW MEXICO
KANSAS
MISSOURI
KENTUCKY
WV
VIRGINIA
TENNESSEE
NORTH CAROLINA
SC
OKLAHOMA
TEXAS
ARKANSAS
MISSISSIPPI
ALABAMA
GEORGIA
LOUISIANA
FLORIDA
Note: This information is intended for general guidance only. Scheduled delivery days are revised from time to time as changes in technology, distribution and volume occur.
Date: 8-84 R

Figure VII-1

TABLE VII-1. Analysis of UPS Transit Time (Days) as a Function of UPS Zone

MODE DESTINATION	UPS NCAD LINES	ALT. NO UPS ZONE	ACTUAL TRANSIT TIME	ZONE MINUS TWO	ONE ACTUAL MINUS PRED	ABS DIFF	RRAD LINES	UPS ZONE	ACTUAL TRANSIT TIME	ZONE MINUS TWO	ACTUAL MINUS PRED	ABS DIFF	SHAD LINES	UPS ZONE	ACTUAL TRANSIT TIME	ZONE MINUS TWO	ACTUAL MINUS PRED	ABS DIFF
MAINE	942	4	2	2	0	0	128	7	4	5	-1	1	75	8	6	6	0	0
NH/VER	1287	4	2	2	0	0	182	6	4	4	0	0	98	8	6	6	0	0
MASS	1316	3	2	1	1	1	352	6	4	4	0	0	180	8	6	6	0	0
CONN/RI	2135	3	1	1	0	0	341	6	4	4	0	0	144	8	6	6	0	0
NEW YOR	5391	3	2	1	1	1	1232	6	4	4	0	0	456	8	6	6	0	0
PENN	4416	2	1	0	1	1	578	6	4	4	0	0	199	8	6	6	0	0
NJ/DEL	3854	2	1	0	1	1	599	6	4	4	0	0	250	8	6	6	0	0
MD/DC	1711	2	1	0	1	1	291	6	3	4	-1	1	95	8	6	6	0	0
VA/W.VA	2330	3	1	1	0	0	519	5	3	3	0	0	216	8	6	6	0	0
N. CARO	2257	3	2	1	1	1	615	5	3	3	0	0	166	8	6	6	0	0
S. CARO	1974	4	2	2	0	0	424	5	3	3	0	0	163	8	6	6	0	0
OHIO	1501	4	2	2	0	0	461	5	3	3	0	0	187	8	5	6	-1	1
MICH	1133	4	2	2	0	0	265	5	3	3	0	0	121	8	5	6	-1	1
INDIANA	2968	4	2	2	0	0	460	5	2	3	-1	1	214	8	5	6	-1	1
ILL.	1512	5	3	3	0	0	458	4	2	2	0	0	190	7	4	5	-1	1
WISC	1891	5	3	3	0	0	475	5	3	3	0	0	158	7	5	5	0	0
MINN	2115	5	3	3	0	0	403	5	3	3	0	0	200	7	5	5	0	0
IOWA	1584	5	3	3	0	0	287	4	2	2	0	0	118	7	4	5	-1	1
BRAGG	1943	4	2	2	0	0	4027	5	3	3	0	0	1726	8	6	6	0	0
DEVENS	4210	3	2	1	1	1	516	6	4	4	0	0	210	8	6	6	0	0
DRUM	2681	3	2	1	1	1	301	6	4	4	0	0	177	8	6	6	0	0
MCCOY	3052	5	3	3	0	0	552	5	3	3	0	0	254	7	5	5	0	0
MEADE	9164	2	1	0	1	1	1231	6	3	4	-1	1	611	8	6	6	0	0
SHERIDN	2375	4	3	2	1	1	396	5	2	3	-1	1	163	7	4	5	-1	1
BELVOIR	2090	2	1	0	1	1	270	6	3	4	-1	1	132	8	6	6	0	0
DIX	4154	2	1	0	1	1	580	6	4	4	0	0	214	8	6	6	0	0
EUSTIS	121	3	1	1	0	0	543	6	3	4	-1	1	159	8	6	6	0	0
JACKSON	2105	4	2	2	0	0	426	5	3	3	0	0	114	8	6	6	0	0
LEE	2056	3	1	1	0	0	292	5	3	3	0	0	115	8	6	6	0	0
TOAD	2565	2	1	0	1	1	294	6	4	4	0	0	288	8	6	6	0	0
LEAD	76	2	1	0	1	1	1403	6	4	4	0	0	804	8	6	6	0	0
SUBTOT	76909						18901						8197					
FLORIDA	403	5	3	3	0	0	2282	5	3	3	0	0	224	8	6	6	0	0
GEORGIA	666	4	3	2	1	1	4606	4	2	2	0	0	259	8	6	6	0	0
ALABAMA	668	5	3	3	0	0	3602	4	2	2	0	0	258	8	6	6	0	0
MISS	1065	5	4	3	1	1	6535	3	2	1	1	1	303	7	6	5	1	1
TENN	446	4	3	2	1	1	2013	4	2	2	0	0	111	8	6	6	0	0
KENT	422	4	2	2	0	0	2189	5	2	3	-1	1	108	8	5	6	-1	1
MISSOUR	302	5	3	3	0	0	2272	3	2	1	1	1	129	7	4	5	-1	1
ARKANS	353	5	4	3	1	1	1787	2	1	0	1	1	114	7	5	5	0	0
LOUISNA	469	6	4	4	0	0	2916	3	2	1	1	1	159	7	5	5	0	0
TEXAS	651	6	5	4	1	1	3045	3	2	1	1	1	260	7	4	5	-1	1
OKLA	1162	6	4	4	0	0	1260	3	2	1	1	1	368	6	4	4	0	0
KANSAS	596	5	4	3	1	1	2532	4	2	2	0	0	160	6	4	4	0	0
NEB/DAK	272	6	5	4	1	1	1777	5	3	3	0	0	75	6	4	4	0	0
COL/WYO	453	7	5	5	0	0	1855	5	3	3	0	0	130	5	3	3	0	0

NEW MEX		7	5	5	0	0	931	5	2	3	-1	1	120	5	3	3	0	0
CAMPBLL	195	4	2	2	0	0	658	4	2	2	0	0	1043	8	5	6	-1	1
CARSON	2802	7	4	5	-1	1	754	5	2	3	-1	1	2345	5	3	3	0	0
HOOD	163	6	4	4	0	0	372	3	2	1	1	1	2391	7	4	5	-1	1
POLK	2357	6	4	4	0	0	2688	3	2	1	1	1	775	7	5	5	0	0
RILEY	3696	6	4	4	0	0	2078	4	2	2	0	0	1184	6	4	4	0	0
SAM HOU	263	7	5	5	0	0	1552	3	2	1	1	1	112	7	5	5	0	0
STEWART	2833	4	3	2	1	1	2736	5	3	3	0	0	1144	8	6	6	0	0
BENNING	1762	5	3	3	0	0	323	4	2	2	0	0	502	8	6	6	0	0
BLISS	3161	7	5	5	0	0	224	4	2	2	0	0	879	5	4	3	1	1
GORDON	995	4	3	2	1	1	3571	5	3	3	0	0	217	8	6	6	0	0
KNOX	2717	4	2	2	0	0	841	5	2	3	-1	1	875	8	5	6	-1	1
L. WOOD	774	5	3	3	0	0	3948	3	2	1	1	1	243	7	4	5	-1	1
MCCLELN	288	5	3	3	0	0	721	4	2	2	0	0	98	8	6	6	0	0
RUCKER	709	5	3	3	0	0	708	4	2	2	0	0	325	8	6	6	0	0
SILL	999	6	4	4	0	0	347	3	2	1	1	1	303	6	4	4	0	0
CCAD	1853	7	5	5	0	0	46	3	2	1	1	1	1307	7	5	5	0	0
ANAD	204	5	3	3	0	0	39	4	2	2	0	0	855	8	6	6	0	0
RRAD	60	6	4	4	0	0	7	2	1	0	1	1	680	7	4	5	-1	1
SUBTOT	33759						61215						18056					
MNT/IDA	562	8	5	6	-1	1	623	6	4	4	0	0	4944	5	3	3	0	0
UTAH/NV	284	8	5	6	-1	1	313	6	4	4	0	0	2613	4	2	2	0	0
ARIZONA	167	8	5	6	-1	1	232	6	3	4	-1	1	1856	4	3	2	1	1
CALIF	805	8	6	6	0	0	1122	7	5	5	0	0	6193	3	1	1	0	0
OREGON	319	8	5	6	-1	1	314	7	4	5	-1	1	2897	4	2	2	0	0
WASHNTN	259	8	5	6	-1	1	312	7	4	5	-1	1	2228	4	2	2	0	0
IRWIN	937	8	6	6	0	0	1523	7	4	5	-1	1	14	3	2	1	1	1
LEWIS	3011	8	5	6	-1	1	213	7	4	5	-1	1	1880	4	2	2	0	0
ORD	1610	8	6	6	0	0	246	7	5	5	0	0	2641	2	1	0	1	1
PRSIDIO	157	8	6	6	0	0	174	7	5	5	0	0	2292	2	1	0	1	1
HUACHUC	355	8	5	6	-1	1	476	5	3	3	0	0	3459	5	3	3	0	0
SAAD	661	8	6	6	0	0	406	7	5	5	0	0	2069	2	1	0	1	1
TEAD	367	8	5	6	-1	1	365	6	3	4	-1	1	71	4	2	2	0	0
SUBTOT	9494			SUM		32	6319			SUM		30	33157			SUM		21
				COUNT		77				COUNT		77				COUNT		77
TOTAL	120162			AVG		.41558	86435			AVG		.38961	59410			AVG		.27273
																CUM SUM		83
																CUM CNT		231
																CUM AVG		.35931

TABLE VII-2. Time Estimating Relationships - Time in Days

Mode	Equation	R^2	Source	Comment
Truckload	$T_{1kl} = 3.43 + .0020Zd_{kl}$	.81	DODMDS	Includes Hold Time
Lt Truckload	$T_{2kl} = 5.34 + .0027d_{kl}$	.94	DODMDS	Includes Hold Time
Small Package	T_{3kl} = UPS $Zone_{kl}$ - 2	High	UPS	Transit Time Only
Air	T_{4kl} = Constant	Low	Assumption	Transit Time = 1 day

T_{jkl} = Transportation time (days) for mode j, from depot k to destination l.

d_{kl} = Distance between depot k and destination l in miles.

UPS $Zone_{kl}$ = UPS ground service zone number from depot k to destination l.

TABLE VII-3. Reduction in Transit Time Relative to Alternative 1 (Days)

ALT	MODE				LINE WTD AVG
	TRUCK LOAD	LESS THAN TRUCK LOAD	SMALL PACKAGE	AIR	
1	-	-	-	-	-
1A	.17	.87	1.65	0	.52
2	.13	.17	.19	0	.13
3	.25	.21	.24	0	.22
4	.30	.28	.34	0	.28
5	.38	.30	.37	0	.33
6	.38	.30	.37	0	.33
Lines	735249	96280	266007	125950	1223486

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17. Samuelson, Paul A., Economics, McGraw-Hill, 1980, Eleventh Edition.

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19. Military Supply Transportation Evaluation Procedure (MILSTEP), Format 1A, Diagnostic Parts II & III, 31 October 1983.

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21. Letter, AMCRM-ER, 18 January 1985, subject: Inflation Guidance.

APPENDIX A

REQUESTS FOR DATA

DATA CALL FOR LSO 053

General Description: Summary printout of CONUS demand by extracting requisition data from the LIF.

Exclude the following transactions:

1. OCONUS
2. Non-Class IX requisitions
3. Items managed by services other than Army
4. Requisitions that are cancelled or rejected
5. Non-stocked NSNs (DSS shipments only)
6. Requisitions that -
   a. Have no NSN
   b. Have NSNs with FSC
      (1) 1100 series
      (2) 1670 and 1680 series
      (3) 5420 series
      (4) 6350 series
      (5) 1300 series - and managed by AMCCOM or MICOM
      (6) 8100 series - and managed by AMCCOM or MICOM

Time Frame: Minimum 1 year. Specify in submission the exact time period over which data is accumulated. It is desired that time period be as recent and as long as possible consistent with data quality.

Data Elements:

1. Geographical Codes - For all requisitions consigned to CONUS installations, use FORSCOM, TRADOC, and MISC codes ref 1a, page IX-4 (less 94-96) and page IX-5. For requisitions to National Guard and other consignees, accumulate data by state codes (less 02 and 15) contained in LCA Pam 725-1, Nov 1980, page IX-3. Do not overlap codes; i.e., count a requisition going to Fort Carson as a Colorado requisition.

2. Requisitions - Count of all requisitions in LIF after excluding per above. Accumulate by geographic code.

3. Weight - Multiply requisition quantity by the unit of issue weight and accumulate by geographic code.

4. Cube - Multiply requisition quantity by the unit of issue cube and accumulate by geographic code.

5. Dollar value - Multiply requisition quantity by the unit of issue price and accumulate by geographic code.

Example of Printout:

Geographical Code		Description	Number of Requisitions	Weight	Cube	Dollar Value
Installations	12	Ft Belvoir	--	--	--	--
	13	Ft Benning	--	--	--	--
	:					
	:					
	ZX	Corpus Christi	--	--	--	--
States	01	Alabama	--	--	--	--
	03	Arizona	--	--	--	--
	:					
	:					
	56	Wyoming	--	--	--	--
Total			--	--	--	--

DATA CALL FOR LSO 053

General Description: Detailed printout of the CONUS flow (# of transactions) of Class IX stocks from depots to second destination.

Exclude: Same as Encl 1.

Time Frame: Same as Encl 1.

Data Elements:

1. Depot Code - For each Army supply depot provide a breakout of requisition data by customer geographical code. For depot code use the codes in LCA Pam 725-1, Nov 1980, page X-2. For requisitions supplied from other sources such as direct delivery from manufacturer, accumulate data under code "other."

2. Customer Geographic Codes - Same as Encl 1.

3. Weight - Same as Encl 1.

4. Cube - Same as Encl 1.

5. Mode - Count the *number of requisitions* that are transported via the various modes of transportation shown in LCA Pam 725-1, Nov 1980, page X-5. Provide as many modes that can be printed on standard output in the following sequence and priority - A,B,5,Q,I,R,G,K,T. The last column shall be "other" to accumulate data not captured in previous columns.

Example of Printout:

DEPOT CODE _____

_____ Depot

GEOGRAPHICAL CODE	DESCR	NO. OF REQNS	WEIGHT	CUBE	MODE A	MODE B	MODE 5	. . .	MODE OTHER
12	Belvoir	--	--	--	--	--	--		--
13	Benning	--	--	--	--	--	--		--
•									
•									
•									
•									
ZX									
01									
03									
•									
•									
•									
•									
52	Wyoming	--	--	--	--	--	--		--
TOTAL		--	--	--	--	--	--		--

DATA CALL FOR LSO 053

General Description: Detailed printout of the CONUS flow (weight) of Class IX stocks from depots to second destination.

Exclude: Same as Encl 2.

Time Frame: Same as Encl 2.

Data Elements:

1. Same as Encl 2.

2. Same as Encl 2.

3. Same as Encl 2.

4. Same as Encl 2.

5. Mode - Accumulate the weight that is transported via the various modes of transportation specified in Encl 2.

DATA CALL FOR LSO PROJECT 053

General Description: Magnetic tape(s) with raw data supporting Enclosures 1-3 plus additional data that may be needed in the future.

Exclusions: Same as Encl 1.

Time Frame: Same as Encl 1.

Data Elements: For each requisition -

1. NSN
2. Document Number
3. Supplementary Address
4. Quantity
5. Unit Weight
6. Unit Cube
7. Unit Price
8. Depot Code
9. Geographic Code of Consignee
10. DODACC of Consignee
11. Mode of Shipment Code
12. Source of Supply Code

Tape Specifications:

1. 9 Track 1600 BPI
2. Standard IBM Labels
3. EBCDIC Preferred
4. Request all parameters needed to read tape be provided along with a copy of the program used to write the tape.
5. Hard copy printout of first 100 records.

DEPARTMENT OF THE ARMY
U.S. ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY
LOGISTICS STUDIES OFFICE
FORT LEE, VIRGINIA 23801

REPLY TO ATTENTION OF
AMXSY-LLSO

25 February 1985

SUBJECT: Data Call for LSO Project 053

Military Traffic Management Command
ATTN: MT-INFQ
Washington, DC 20315

1. References:

a. Meeting, 19 Feb 85, Mr. Lamm, MTMC, and Mr. Grover, LSO.

b. AR 55-355.

2. Request two special inquiries be made to your financial system to capture GBL charges made from Jan 84-Dec 84 with data elements shown in the sample inquiry provided as Enclosure 1.

3. Request the format of the reports be modified as shown on Enclosure 2.

4. Since LSO Project 053 is concerned with transportation of Class IX items only, limit commodity group (CG) codes to S, 9, P, E, 3, I, D, 4, and X.

5. Printout A: Limit inquiry to the following origins and destinations:

a. Origins - GBLOC codes

FGAQ	Anniston Army Depot
LEAQ	Sharpe Army Depot
KIAQ	Pueblo Army Depot Activity
FAAQ	Lexington-Blue Grass Depot Activity
DMAQ	Letterkenny Army Depot
DNAQ	New Cumberland Army Depot
HBAQ	Red River Army Depot
KBAQ	Tooele Army Depot
KCAQ	Tooele Army Depot. South Area

b. Destinations - GBLOC codes

All codes beginning with F, K, H, L, A, B, C, J, G, E, D, and IOOI. Exclude codes beginning with M and N.

AMXSY-LLSO 25 February 1985
SUBJECT: Data Call for LSO Project 053

6. Printout B: Provide a similar printout as para 5 with the following origins and destinations.

a. Origins - same as para 5b. All codes beginning with F, K, H, L, A, B, C, J, G, E, D, and I00I.

b. Destinations - same as para 5a. FGAQ, LEAQ, KIAQ, FAAQ, DMAQ, DNAQ, HBAQ, KBAQ, KCAQ.

7. Requested delivery date of a hard copy printout is 15 March 1985. Point of contact for this action is Mr. Paul Grover, AV 687-3269.

8. AMSAA - Providing Leaders the Decisive Edge.

FOR THE DIRECTOR:

(signed)

2 Encl
as

ROBERT J. BELL
LTC, ADA
Acting Manager
Logistics Studies Office

CF:
AMCSM-PST (Toner) w/o encl

PART I

1. Background: The Logistics Studies Office is performing an analysis of the Army Materiel Command distribution system. The object of the study is to determine the effect of expanded stock positioning within the existing Army depot system. The study will focus on the cost/savings of positioning stock closer to the customer by expanding the number of supply locations from the current three to some higher number.

2. Purpose: This part of the questionnaire is intended to identify recurring and nonrecurring costs which would be incurred within your agency should a decision be made to expand the number of supply locations. Separate questionnaires are being distributed to ALMSA, LSSA, each MSC, and DESCOM. Therefore, the questionnaire is intended to identify only those costs which would be incurred by your activity. For example, changing the number of supply locations may result in a need to modify a bridging program to the CCSS. Or perhaps, changing the number of supply locations increases or decreases the item manager's workload.

3. Instructions: The questions involving dollar values require answers in Fiscal Year 1985 dollars. Respondents are requested to record their responses by marking the appropriate answer block. If the first or last block of Questions 3-7 is checked, provide the estimated cost difference in para e. For this questionnaire the following definitions will apply:

a. Nonrecurring costs - one time costs associated with a specific action or alternative.

b. Recurring costs - Annual costs associated with a specific action or alternative.

c. Hardware costs - The materiel costs associated with the acquisition or modification of machines and equipment.

d. Software costs - The materiel costs associated with the production of computer programs, tech manuals, and other procedural or policy publications.

e. Personnel costs - Human resource costs associated with overtime, base pay, benefits, travel, hiring of new personnel, and the use of contract labor.

f. Facility costs - Costs associated with the acquisition, expansion, or modification of real property.

QUESTIONNAIRE

1. A change in the number of AODs would have:

   a. No cost impact |___|

   b. Some cost impact |___| [check one]

   c. A significant cost impact |___|

2. The following categories of our costs will be affected by an increase in AODs:

   a. Hardware |___| Yes |___| No [check one]

   b. Software |___| Yes |___| No [check one]

   c. Personnel |___| Yes |___| No [check one]

   d. Facilities |___| Yes |___| No [check one]

3. An increase in AODs by 1 each from 3 each to 4 each would change our costs by:

   a. Hardware

	Reduce Cost	None	Increase Cost $ 0-99,999	$ 100,000-499,999	$ 500,000-999,999	$1M or More
Nonrecurring	|___|	|___|	|___|	|___|	|___|	|___|
Recurring	|___|	|___|	|___|	|___|	|___|	|___|

   b. Software

Nonrecurring	|___|	|___|	|___|	|___|	|___|	|___|
Recurring	|___|	|___|	|___|	|___|	|___|	|___|

   c. Personnel

Nonrecurring	|___|	|___|	|___|	|___|	|___|	|___|
Recurring	|___|	|___|	|___|	|___|	|___|	|___|

   d. Facilities

Nonrecurring	|___|	|___|	|___|	|___|	|___|	|___|
Recurring	|___|	|___|	|___|	|___|	|___|	|___|

   e. Comments:

4. An increase in AODs by 2 each from 3 each to 5 each would change our costs by:

a. Hardware

	Reduce Cost	None	Increase Cost $ 0-99,999	$ 100,000-499,999	$ 500,000-999,999	$1M or More
Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

b. Software

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

c. Personnel

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

d. Facilities

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

e. Comments:

5. An increase in AODs by 3 each from 3 each to 6 each would change our costs by:

a. Hardware

	Reduce Cost	None	Increase Cost $ 0-99,999	$ 100,000-499,999	$ 500,000-999,999	$1M or More
Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

b. Software

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

c. Personnel

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

d. Facilities

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

e. Comments:

6. An increase in AODs by 4 each from 3 each to 7 each would change our costs by:

a. Hardware

	Reduce Cost	None	Increase Cost $ 0-99,999	$ 100,000-499,999	$ 500,000-999,999	$1M or More
Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

b. Software

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

c. Personnel

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

d. Facilities

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

e. Comments:

7. An increase in AODs by 5 each from 3 each to 8 each would change our costs by:

a. Hardware

	Reduce Cost	None	Increase Cost $ 0-99,999	$ 100,000-499,999	$ 500,000-999,999	$1M or More
Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

b. Software

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

c. Personnel

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

d. Facilities

Nonrecurring	☐	☐	☐	☐	☐	☐
Recurring	☐	☐	☐	☐	☐	☐

e. Comments:

8. The leadtimes to complete our actions involved with an expansion of AODs are as follows:

	0-6 mos	7-12 mos	12-24 mos	25 mos or more
a. Expansion to 4 AODs	☐	☐	☐	☐
b. Expansion to 5 AODs	☐	☐	☐	☐
c. Expansion to 6 AODs	☐	☐	☐	☐
d. Expansion to 7 AODs	☐	☐	☐	☐
e. Expansion to 8 AODs	☐	☐	☐	☐

9. The pacing or limiting resource in commpleting the necessary actions sooner is:

a. Hardware availability [ ]
b. Software availability [ ]
c. Personnel availability [ ]
d. Facility availability [ ]

[check one]

NAME	GRADE	TITLE	AUTOVON NUMBER

MSC QUESTIONNAIRE

PART II

1. Background. The Logistics Studies Office is conducting a study of the Army Materiel Command distribution system. Specifically, this office is investigating the impact of expanded stock positioning from the current three Area Oriented Depots (AODs) to up to eight stock positioning points.

2. Purpose. The purpose of this part of the questionnaire is to quantify the impact of expanded stock positioning on first destination transportation (FDT) cost. Since this cost is "hidden" into the unit price, request the MSC, Traffic Management, estimate transportation costs from the manufacturer to the various supply depots for certain items.

3. Instructions.

a. General. All costs provided should be at current (FY 85) prices. The costing methodology should be sensitive to distance shipped, the size (weight or volume) of the shipment, mode of shipment, and regional rates. Any assumptions made should be explicitly stated. Maintain a backup file containing data and calculations.

b. Sample selection. Select five items that your command manages and identify one representative procurement for each item using the following criteria (Five blank copies of the questionnaire are attached. See Encl 1 to Encl 2.)

(1) The item must be a Class IX item and should be "representative" of the items managed by your command, from a transportation viewpoint.

(2) The source (contractor) should be located in a typical or representative place for the type of secondary items managed by your command.

(3) Destination must be New Cumberland Army Depot, Red River Army Depot, and Sharpe Army Depot only. Exclude any procurement for which some quantity is shipped elsewhere. Also exclude any procurement which is destined to only one or two of these identified depots.

c. Costing methodology. Maximum flexibility is allowed, consistent with the ability to provide data in the format shown. The use of gross factors and across-the-board rates such as $ x /ton/mile or $ y /ton or Z% of unit cost is prohibited. Rather it is desired that individualized rates be obtained from transporters that serve the contractor. Use Table 1 to determine the quantities shipped for questions 3 through 8. Mode of transportation should be specified such as truckload, less-than-truckload, UPS, Parcel Post, air freight, etc.

TABLE 1

QUESTION #	QUANTITY SHIPPED TO NCAD	RRAD	SHAD	ANAD	TEAD	LBDA	PUDA	LEAD	TOTAL
3	A	B	C	X	X	X	X	X	A+B+C
4	.992A	.747B	C	.008A+ .253B	X	X	X	X	A+B+C
5	.992A	.648B	.944C	.008A+ .253B	.099B+ .056C	X	X	X	A+B+C
6	.954A	.648B	.944C	.008A+ .178B	.099B+ .056C	.038A+ .075B	X	X	A+B+C
7	.954A	.648B	.944C	.008A+ .178B	.056C	.038A+ .075B	.099B	X	A+B+C
8	.890A	.648B	.944C-	.008A+ .178B	.056C	.038A+ .075B	.099B	.064A	A+B+C

A - Data

B - Data

C - Data

NCAD - New Cumberland
RRAD - Red River
SHAD - Sharpe
ANAD - Anniston
TEAD - Tooele
LBDA - Lexington Bluegrass
PUDA - Pueblo
LEAD - Letterkenny

EXAMPLE: A procurement of 1000 widgets. For question 4, the quantity shipped to Anniston (ANAD) is .008 x 500 + .253 x 300 = 79.9 = 80

QUESTION #	QUANTITY SHIPPED TO NCAD	RRAD	SHAD	ANAD	TEAD	LBDA	PUDA	LEAD	TOTAL
3	500	300	200	X	X	X	X	X	1000
4	496	224	200	80	X	X	X	X	1000
5	496	194	189	80	41	X	X	X	1000
6	477	194	189	57	41	42	X	X	1000
7	477	194	189	57	11	42	30	X	1000
8	445	194	189	57	11	42	30	32	1000

MSC QUESTIONNAIRE

PART II

1. MSC _____

2. NSN data

   a. NSN # |_____|

   b. Nomenclature |_____|

   c. Unit of Issue |_____|

   d. Unit Price |_____|

   e. Unit Weight |_____|

   f. Unit Cube |_____|

   g. Contract # (PIIN/CLIN) |_____|

   h. Contractor Name |_____|

   i. Contractor Location City |_____| State |_____|

   j. Contract Value (FY 85 $) |_____|

3. First Destination Transportation Cost for three supply points.

Depot	Qty Shipped	Mode of Transportation	FDT Cost
NCAD			
RRAD			
SHAD			
TOTAL			

4. First Destination Transportation Cost for four supply points.

Depot	Qty Shipped	Mode of Transportation	FDT Cost
NCAD			
RRAD			
SHAD			
ANAD			
TOTAL			

5. First Destination Transportation Cost for five supply points.

Depot	Qty Shipped	Mode of Transportation	FDT Cost
NCAD			
RRAD			
SHAD			
ANAD			
TEAD			
TOTAL			

6. First Destination Transportation Cost for six supply points.

Depot	Qty Shipped	Mode of Transportation	FDT Cost
NCAD			
RRAD			
SHAD			
ANAD			
TEAD			
LBDA			
TOTAL			

7. First Destination Transportation Cost for seven supply points.

Depot	Qty Shipped	Mode of Transportation	FDT Cost
NCAD			
RRAD			
SHAD			
ANAD			
TEAP			
LBDA			
PUDA			
TOTAL			

8. First Destination Transportation Cost for eight supply points.

Depot	Qty Shipped	Mode of Transportation	FDT Cost
NCAD			
RRAD			
SHAD			
ANAD			
TEAD			
LBDA			
PUDA			
LEAD			
TOTAL			

9. Briefly describe the methodology used to estimate FDT cost. Include data sources, assumptions made, and sample calculations.

APPENDIX B

LOGISTICS INTELLIGENCE FILE ANALYSIS

Introduction

This appendix provides a descriptive analysis of data provided by the Logistics Control Activity, Presidio of San Francisco, taken from the CY 84 Logistics Intelligence File (LIF) and the Army Master Data File. A copy of the request for data and specifications is provided in Appendix A. This data source is the foundation of this study. Study findings are valid and credible only if the LIF data is likewise. Therefore, the purpose of this appendix is to describe in detail this primary data source. This will enable the reviewer to critically judge the quality and completeness of this important part of the overall study. In addition, the data presented will educate the reader about the CONUS distribution of Class IX items in the Army, providing insights that may not be available from other reports.

Demand Distribution

The distribution of demand is the critical issue in stock positioning. Table B-1 shows the distribution of shipments during CY 84 to Army CONUS customers for Class IX items. It is apparent from this table that a few large Army installations account for the predominance of demand. Table B-2 lists the top twenty demand areas in decreasing rank. Figure B-1 portrays the geographical distribution of shipments. The "Logistics Crescent" concept reported in the WIDS Study [2] appears to be valid for the Army. Army demand is concentrated in a crescent of locations running along the western, southern, and eastern borders of the US.

Sources of Supply (Depots)

The existing AODs are the primary source of Class IX items distributed within CONUS. Table B-3 provides data on lines, weight, cube, and dollar value of items shipped from Army depots. RRAD is the leading supplier for CONUS customers, followed generally by NCAD and SHAD.

Commodity Groupings

Items managed by the Tank Automotive Command (TACOM) were by far the dominant commodity group, accounting for 48.5% of the lines shipped and 89.5% of the total weight shipped. Table B-4 summarizes the distribution of items by commodity group.

Transportation Modes

For shipments from an AOD (91% of all lines shipped), the mode of transportation was analyzed. Truckload shipments, the most economical mode, predominated. Air and small package lines shipped, although significant in numbers of lines, did not account for significant tonnage because the average weight per line shipped was very small. Table B-5 summarizes the distribution of shipment modes from the three AODs to known identifiable destinations.

Out-of-Area Shipments

An out-of-area shipment is defined for purposes of this study as any shipment that crosses the geographical boundaries established in Appendix C-1. There are many reasons for out-of-area shipments, but the more common reasons are that the responsible AOD is out-of-stock or has insufficient stock to satisfy the entire requisition. HQ DESCOM and HQ AMC closely monitor a statistic called "distribution effectiveness," the percentage of lines shipped within the AODs assigned area. A goal of 85% distribution effectiveness has been established and that goal is generally met as reported in the MILSTEP-based Distribution Effectiveness Report [20]. However, before the statistic is calculated, 11 exclusions are made to reduce the population to which the 85% goal applies. In reality, total distribution effectiveness is lower than 85% because these exclusions generally apply to lines which tend to have low distribution effectiveness. For example, in the 3d quarter of FY 84, the distribution effectiveness

reported 86.2% but total effectiveness disregarding exclusions could be as low as 76.1%.

The distribution effectiveness of the CY 84 LIF data base was computed to be 78% by line count and 73.5% by weight. Conversely 22% of the LIF lines and 26.5% of the LIF weight was "out-of-area." Further scrutiny of the out-of-area shipments lead to the following observations:

- Out-of-area shipments tend to be accomplished by less economical modes of transportation (see Table B-6).
- NCAD was the source of most out-of-area shipments. More than half of all such shipments came from NCAD into RRAD's area (see Table B-7).
- Distribution effectiveness is not equally balanced between the AODs. The LIF distribution effectiveness for CY 84 for NCAD was 61%[1]; RRAD - 93%; SHAD - 74%.

Known Problems with LIF Data

Weight, cube, and unit price data supplied by LCA came from the notoriously suspect Army Master Data File. Since unit prices were not used to a great degree in this analysis, price inaccuracies are not critical. However, since all of the Second Destination Transportation (SDT) cost estimates are based in part on weight data, unit weights are important. Unfortunately, many NSNs in the AMDF do not have cataloged weight and cube data. Review of the tapes supplied revealed that 2.9% of the lines, particularly for newer NSNs, had zero weight and zero cube. Assuming that these NSNs have not yet been cataloged

[1]One possible explanation for the low distribution effectiveness for NCAD during this time period is the effect of the AOD modernization program. During CY 84 NCAD stocks were consciously drawn down to clear buildings for demolition by interdepot transfers and attrition. Another possible explanation is the possibility that safety stocks are not equitably distributed between AODs because of higher priority for OCONUS customers.

and that in aggregate have average weight and cube, an after-the-fact adjustment was made to SDT cost estimates.

Unspecified destinations. 6% of the LIF data was reported to destination "others," presumably because of an unspecified geographic or installation code in the LIF. Inadvertently, some of these "other" destination lines were caused by failure to break out shipments to National Guard/Reserve units in West Virginia (2105 lines) and Nebraska (2691 lines). After the fact adjustments to cost estimates were made to account for these transactions.

Unspecified sources. 25,240 lines (1.7%) in the LIF file had depot codes other than the 12 specified in LCA Pam 725-1. Some of these lines could have come from some of the Army depots not coded in the LIF such as Sierra, Umatilla, Savannah, Fort Wingate, or Navajo. Others may have been shipped from other services' depots. Also, many may have actually come from one of the twelve depots but were miscoded. No adjustments could be made because of the uncertainty of the causes of designating the source as "other."

Obvious gliche. Three entries in the LIF report strained credibility to the point where an adjustment was necessary. This adjustment was not used in other sections of the report since it concerns shipments from "others" depot. From "other" to Alabama, there were 4542 lines shipped which weighed a total of 313,885 tons or 69 tons per line. The three entries in question are for Air Freight Commercial (205 lines @ 20525 tons), Truckload (2671 lines @ 86952 tons) and Surface Small Package Carrier (736 lines @ 204,352 tons!!!) Cube data was similarly out of proportion. Manual adjustments were made to Table B-1.

TABLE B-1. LSO PROJECT 053 REPORT WEIGHT, CUBE & VALUE ANALYSIS BASED ON CONUS DEPOT SHIPMENTS DURING CY 84 SUMMARY STRATIFICATION BY INSTALLATION

INSTALLATION	NUMBER OF RECORDS	EXTENDED WEIGHT POUNDS	EXTENDED CUBIC FEET	EXTENDED VALUE DOLLARS
FT. BRAGG	14,599	1,185,701.86	81,540.673	8,728,654.36
FT. CAMPBELL	42,744	2,077,170.82	141,883.149	101,416,512.56
FT. CARSON	66,555	7,310,183.35	296,340.166	63,922,182.03
FT. DEVENS	11,042	691,460.51	31,168.722	5,456,143.48
FT. DRUM	6,657	357,180.22	19,818.564	2,511,614.36
FT. HOOD	21,004	1,104,522.89	68,961.524	14,159,624.48
FT. IRWIN	22,213	7,895,180.85	273,383.593	43,616,594.30
FT. LEWIS	59,656	5,154,945.82	275,250.091	65,966,699.93
FT. MCCOY	8,774	494,706.95	20,470.521	2,258,263.21
FT. MCPHERSON	986	93,790.40	5,049.998	505,616.69
FT. MEADE	21,254	892,147.45	45,460.356	7,043,922.55
FT. ORD	33,740	2,884,913.11	165,009.370	37,291,421.25
FT. POLK	47,373	6,615,358.41	244,787.913	51,851,583.57
FT. RILEY	65,826	6,005,422.76	240,832.662	55,270,582.40
FT. SAM HOUSTON	4,269	288,911.49	18,424.439	3,156,167.19
FT. SHERIDAN	6,617	372,731.18	24,541.773	3,671,099.26
FT. STEWART	63,050	6,204,380.62	240,268.528	45,969,232.44
FT. 1ST. SPT BRAGG	54,096	2,079,601.15	134,838.308	69,741,995.30
FT. 13 CUSCOM HOOD	114,930	15,443,471.19	556,517.560	187,894,745.62
HOMESTEAD AFB	5	53.18	3.624	469.04
PRESIDIO OF SF	3,924	227,642.15	13,717.977	1,203,287.15
CARLISLE BKS	37	1,336.58	113.398	2,652.74
FT. BELVOIR	5,952	498,288.53	34,336.503	2,211,305.51
FT. BEN HARRISON	4,086	94,271.04	7,586.430	445,661.05
FT. BENNING	32,017	4,155,479.02	168,788.698	30,364,459.89
FT. BLISS	45,696	5,498,442.32	237,777.601	90,171,065.48
FT. DIX	10,811	795,916.29	46,607.722	7,052,361.48
FT. EUSTIS	7,514	571,589.62	33,582.567	23,376,347.95
FT. GORDON	9,578	421,106.68	27,361.436	8,239,778.46
FT. JACKSON	5,191	429,248.34	26,151.385	2,682,289.46
FT. KNOX	61,560	7,714,599.77	261,825.739	73,933,633.26
FT. LEAVENWORTH	189	26,958.22	3,103.060	56,835.75
FT. LEE	5,179	552,725.91	29,651.376	2,132,221.01
FT. LEONARD WOOD	9,647	1,098,605.07	51,962.761	5,126,669.73
FT. MCCLELLAN	5,125	423,349.62	25,861.269	1,857,073.76
FT. MONROE	235	2,173.67	214.488	56,189.12
FT. RUCKER	18,536	1,070,539.45	93,879.663	98,994,488.17
FT. SILL	16,450	1,781,392.32	73,666.472	26,697,971.44
ALC FT. HUACHUCA	5,718	330,207.40	17,383.795	3,748,549.72
ALC FT. RITCHIE	44	3,471.54	358.494	27,183.55
ANNISTON AD	38,914	6,560,139.29	219,696.239	52,839,947.27
ATLANTA AD	5	1,500.11	399.015	7,116.57
CORPUS CHRISTIE AL	44,392	698,975.25	93,825.718	95,622,719.13
FT. HUACHUCA	1,573	86,332.73	3,966.507	746,508.28
INSCOM AHS	12	369.38	40.772	4,696.97
INSCOM VHFS	349	6,408.93	333.959	44,774.21
LETTERKENNY AD	18,022	807,429.72	39,002.012	11,689,235.38
LEXINGTON-BG AD	196	10,146.71	1,292.041	118,211.29

DSS PROJECT DSS REPORT WEIGHT, CUBE & VALUE ANALYSIS
BASED ON CONUS DEPOT SHIPMENTS DURING CY 84
SUMMARY STRATIFICATION BY INSTALLATION

INSTALLATION	NUMBER OF RECORDS	EXTENDED WEIGHT POUNDS	EXTENDED CUBIC FEET	EXTENDED VALUE DOLLARS
NEW CUMBERLAND AL	250	19,460.09	1,378.638	384,466.42
PEBBLO AL	501	54,964.33	5,515.528	911,455.06
RED RIVER AD	8,366	2,180,958.40	56,660.161	13,173,636.92
ROCK ISLAND AL	2,980	300,071.24	15,674.929	11,210,273.41
SACRAMENTO AD	5,417	295,758.60	18,365.280	6,954,706.73
SAVANNAH AD	27	11,334.58	967.362	15,736.85
SENECA AL	527	90,605.72	8,956.319	884,294.43
SHARPE AL	112	28,035.14	1,720.236	1,654,403.13
SIERRA AL	375	38,919.65	3,461.973	534,604.50
TOBYHANNA AD	8,321	331,229.19	31,599.541	7,065,073.52
TOOLE AD	8,739	1,556,948.07	52,949.853	8,484,309.80
UMATILLA AD	176	18,802.90	1,354.794	69,130.76
USA MILITARY ACAD	1,112	98,881.24	6,260.651	389,439.36
ALABAMA	17,818	2,488,095.90 *	170,415.27 *	20,513,960.46
ARIZONA	4,833	507,512.79	33,515.068	9,931,490.59
ARKANSAS	5,438	518,045.71	24,574.387	4,124,261.49
CALIFORNIA	17,808	2,229,903.24	108,971.106	24,319,084.45
COLORADO	3,074	235,917.76	11,146.919	2,676,507.28
CONNECTICUT	4,613	398,666.36	30,306.933	8,039,089.83
DELAWARE	2,356	88,602.85	6,838.596	1,210,656.16
DIST COLUMBIA	602	78,595.33	5,111.074	158,750.78
FLORIDA	6,873	519,392.32	34,048.427	6,798,663.48
GEORGIA	13,582	1,684,533.44	70,355.558	15,506,363.35
IDAHO	6,346	1,080,416.07	33,251.986	7,316,680.17
ILLINOIS	5,421	680,449.36	25,715.779	4,601,655.69
INDIANA	3,637	402,293.43	23,112.580	3,113,004.45
IOWA	4,320	267,191.65	19,124.052	1,415,861.44
KANSAS	5,686	533,521.19	28,865.334	7,764,709.27
KENTUCKY	4,965	320,657.89	22,841.037	2,769,308.28
LOUISIANA	11,125	1,175,181.29	69,153.179	6,006,296.34
MAINE	2,930	147,604.31	10,170.439	1,749,202.11
MARYLAND	4,316	282,961.39	17,385.319	3,618,879.00
MASSACHUSETTS	7,929	496,139.81	24,882.923	5,323,623.70
MICHIGAN	4,714	732,622.97	41,953.371	4,212,723.70
MINNESOTA	7,367	863,546.99	42,653.026	5,388,952.09
MISSISSIPPI	14,752	1,615,120.52	92,261.613	25,523,012.43
MISSOURI	5,831	696,540.42	42,982.886	14,664,655.07
MONTANA	3,113	217,930.54	12,871.594	3,790,023.10
N. CAROLINA	8,250	703,144.03	32,934.924	9,849,653.15
N. DAKOTA	1,536	128,381.07	7,716.161	545,406.66
NEVADA	2,205	267,376.79	9,720.729	1,907,130.67
NEW HAMPSHIRE	1,443	87,255.03	5,516.401	448,124.12
NEW JERSEY	13,404	914,700.69	72,825.775	24,310,625.51
NEW MEXICO	2,596	319,944.74	11,482.578	2,271,697.65
NEW YORK	16,765	1,434,819.96	63,235.769	10,904,984.34
OHIO	6,644	658,956.14	30,548.654	6,703,965.05
OKLAHOMA	17,046	1,508,723.45	81,925.528	22,489,380.37
OREGON	6,461	400,356.12	20,934.361	3,791,196.97

* For 5178 DSS records, the avg weight was 13296 lbs and the avg cube was 9.56 cu ft.
Assumes non-DSS has same avg weight and cube

LSD PROJECT 053 REPORT WEIGHT, CUBE & VALUE ANALYSIS
BASED ON CONUS DEPOT SHIPMENTS DURING CY 84
SUMMARY STRATIFICATION BY INSTALLATION

INSTALLATION	NUMBER OF RECORDS	EXTENDED WEIGHT POUNDS	EXTENDED CUBIC FEET	EXTENDED VALUE DOLLARS
PENNSYLVANIA	10,523	761,759.88	43,527.181	10,635,615.33
RHODE ISLAND	2,444	120,859.94	4,770.076	1,430,360.39
S. CAROLINA	6,636	510,524.57	34,589.813	3,486,578.43
S. DAKOTA	2,360	252,720.33	13,387.478	1,373,754.75
TENNESSEE	6,326	548,047.64	27,772.538	5,406,283.11
TEXAS	10,659	984,190.30	53,325.962	17,719,995.59
UTAH	3,054	270,609.25	16,192.766	3,707,640.39
VERMONT	2,451	230,423.92	11,337.079	1,627,385.75
VIRGINIA	7,315	963,998.52	33,645.964	5,326,752.75
WASHINGTON	4,613	668,836.47	26,441.079	4,542,169.99
WISCONSIN	7,313	708,791.03	29,374.765	4,078,275.01
WYOMING	1,463	83,011.58	3,968.908	1,104,336.20
OTHERS	86,794	18,382,954.42	677,211.066	160,816,649.90
	1,443,245	155,206,078.34	6,931,253.345	1913,767,909.38

TABLE B-2. List of Top 20 High Demand Army Installations - Class IX, CY 84

Rank	Installation/State	No. of Lines Received	% of Total	Cum %
1	Ft Hood, TX	135,934	9.4	9.4
2	Ft Bragg, NC	68,695	4.8	14.2
3	Ft Riley, KS	65,826	4.6	18.8
4	Ft Stewart, GA	63,050	4.4	23.2
5	Ft Knox, KY	61,560	4.3	27.5
6	Ft Carson, CO	60,555	4.2	31.7
7	Ft Lewis, WA	59,658	4.1	35.8
8	Ft Polk, LA	47,373	3.3	39.2
9	Ft Bliss, TX	45,696	3.2	42.4
10	Corpus Christi AD, TX	44,392	3.1	45.5
11	Ft Campbell, KY	42,744	3.0	48.5
12	ANAD, AL	38,914	2.7	51.2
13	Ft Ord, CA	33,740	2.3	53.5
14	Ft Benning, GA	32,017	2.2	55.7
15	Ft Irwin, CA	22,213	1.5	57.2
16	Ft Meade, MD	21,254	1.5	58.7
17	Ft Rucker, AL	18,536	1.3	60.0
18	LEAD, PA	18,022	1.2	61.2
19	Alabama *	17,818	1.2	62.4
20	California *	17,808	1.2	63.6

* Reserve/National Guard units.

TABLE B-3. Sources of Supply - CONUS Class IX Items to Army Customers - CY 84

Depot	# Lines	% Lines	Weight S-Tons	% Weight	Cube Ft^3x1000	% Cube	Dollar Value $M	% Value
RRAD	682,458	47.3	29304	37.8	2,553	36.8	537	28.1
NCAD	439,892	30.5	17182	22.1	1831	26.4	382	20.0
SHAD	190,039	13.2	8154	10.5	845	12.2	123	6.4
LEAD	30,362	2.1	1921	2.5	165	2.4	41	2.1
TOAD	18,657	1.3	673	.9	35	.5	27	1.4
LBDA	12,875	.9	536	.7	37	.5	12	.6
ANAD	12,695	.9	7515	9.7	515	7.4	282	14.7
SAAD	12,070	.8	287	.4	22	.3	39	2.0
CCAD	10,175	.7	597	.8	128	1.8	229	12.0
TEAD	6,459	.4	3791	4.9	252	3.6	37	1.9
SEAD	1,870	.1	47	.1	7	.1	1	.1
PUDA	453	.0	36	.0	8	.1	5	.3
OTHER	25,240	1.7	7536	9.7	533	7.7	197	10.3
TOTAL	1,443,245	99.9	77604		6931		1912	

TABLE B-4. Distribution of Commodity Groupings - CONUS, Class IX, CY 84

Command	Commodity	% Lines	% Weight	% Cube	% Dollars
AMCCOM	Armament, Munitions, Chemical	18.5	2.7	4.2	9.0
CECOM	Electronics	11.9	3.1	2.1	8.0
MICOM	Missiles	3.3	.5	1.4	14.5
TACOM	Tank Automotive	48.5	89.5	81.8	38.4
TSARCOM	Troop Support Aviation	17.8	4.3	10.5	30.1
OTHER	?	.1	0	0	.1

TABLE B-5. Distribution of Shipment Mode for NCAD, RRAD, and SHAD; CONUS, Class IX Army Customers, CY 84

Mode	LINES Number	%	WEIGHT (Tons)	%	Avg Wt/Line (lbs)
Truckload	749,587	60.6	40,497	77.8	108
Less Than Truckload	96,280	7.8	9,767	18.8	203
Small Package	266,007	21.5	924	1.8	7
Air	125,950	10.2	888	1.7	14
TOTAL	1,237,824		52,076		

TABLE B-6. Distribution Effectiveness by Mode of Transportation and Source

MODE	DISTR EFF
TRUCKLOAD	90%
LT TRUCKLOAD	71%
SMALL PACKAGE	63%
AIR	47%
OVERALL	78%

DEPOT	DISTR EFF
NCAD	61%
RRAD	93%
SHAD	74%
OVERALL	78%

TABLE B-7. Out-of-Area Shipment Distribution - CONUS Customers

Source Depot	Area Shipped Into	Lines Shipped	Tons Shipped
NCAD	RRAD	145948	7578
	SHAD	25750	1034
RRAD	NCAD	30195	1033
	SHAD	19428	1477
SHAD	NCAD	13843	458
	RRAD	35295	1978
TOTAL OUT-OF-AREA		270459	13558
TOTAL SHIPMENTS		1226791	51213
PERCENT		22%	26.5%

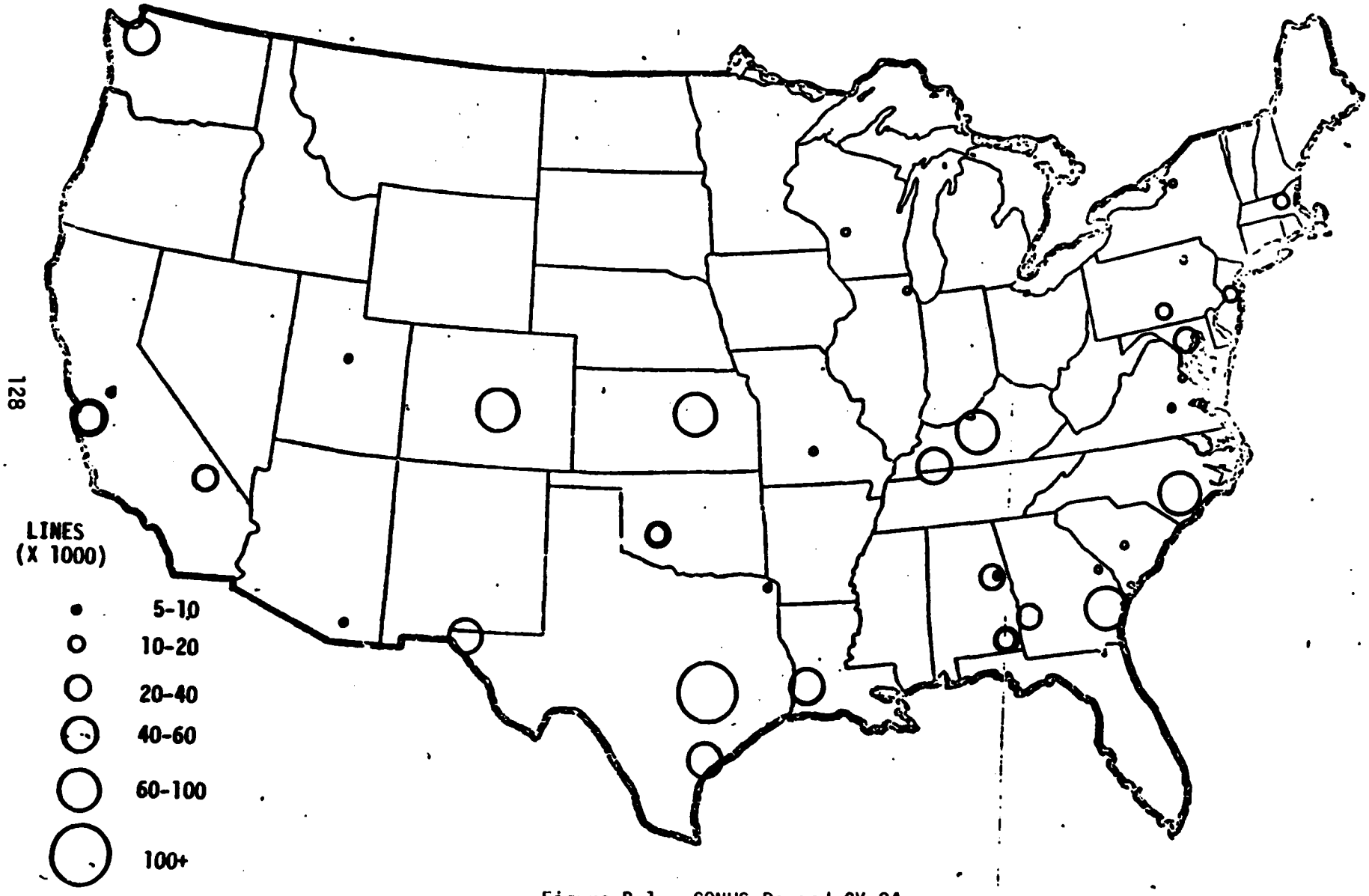

Figure B-1. CONUS Demand CY 84

APPENDIX C

ALTERNATIVES

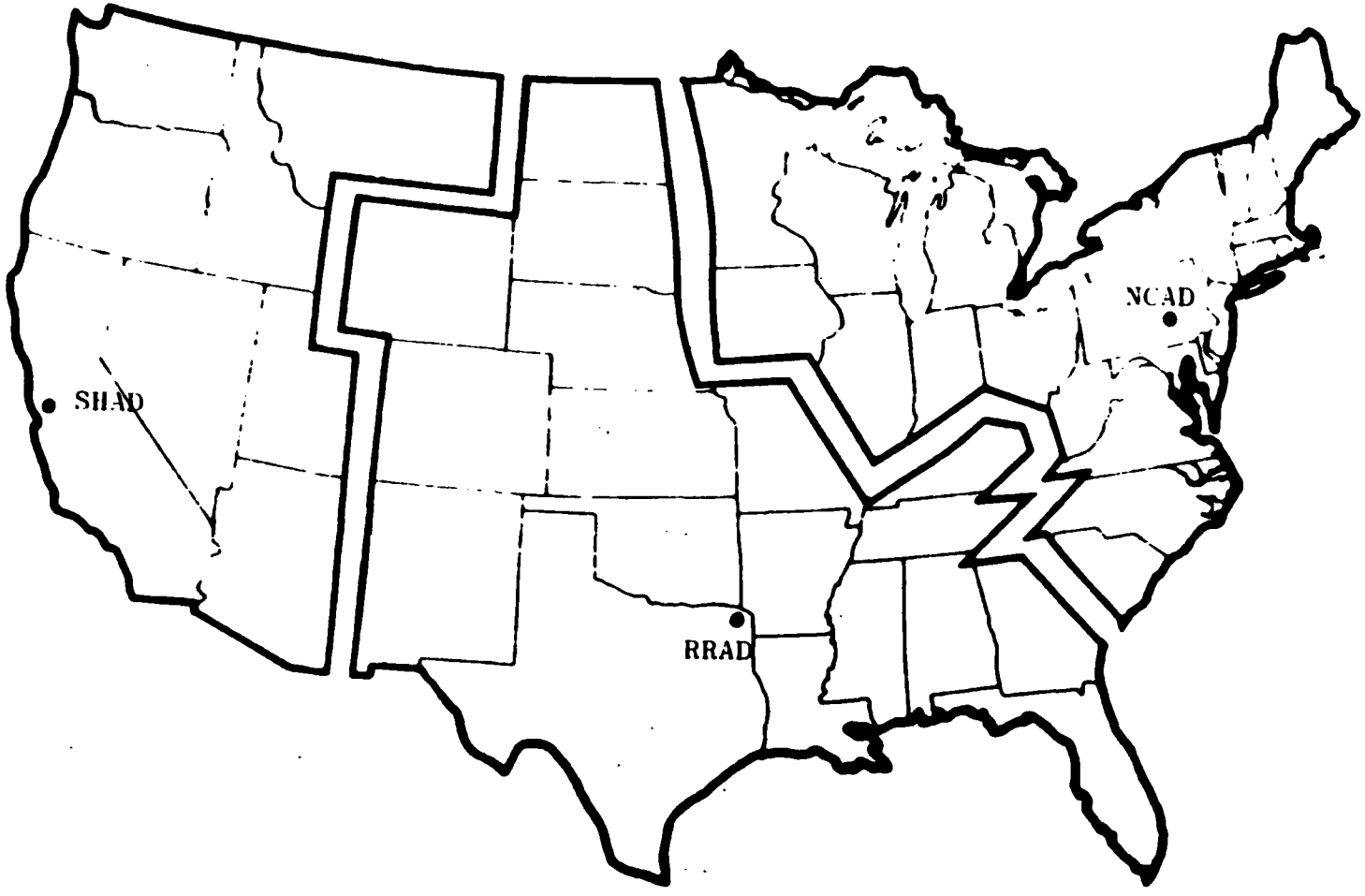

Figure C-1. Alternatives 1 and 1A

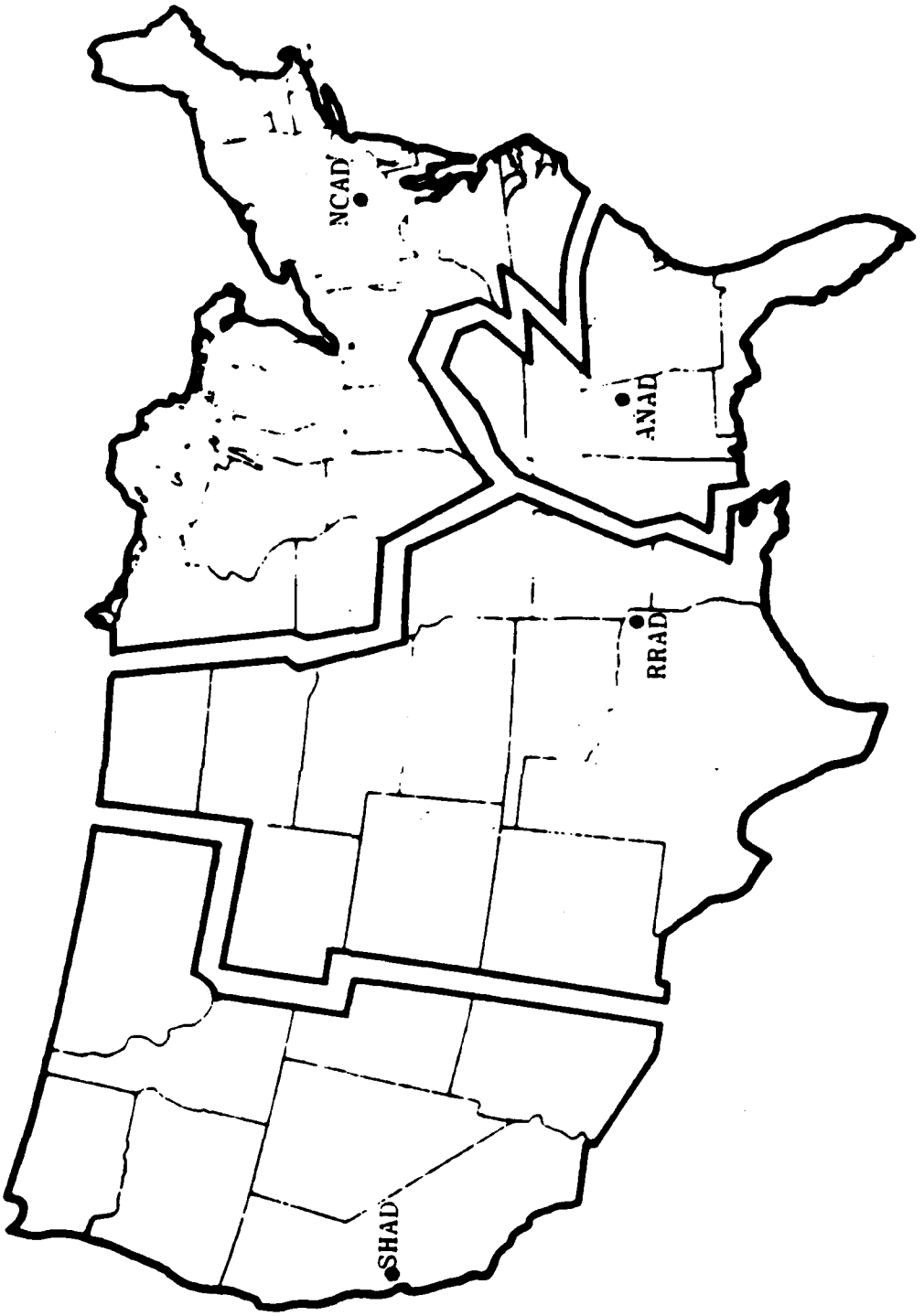

Figure C-2. Alternative 2

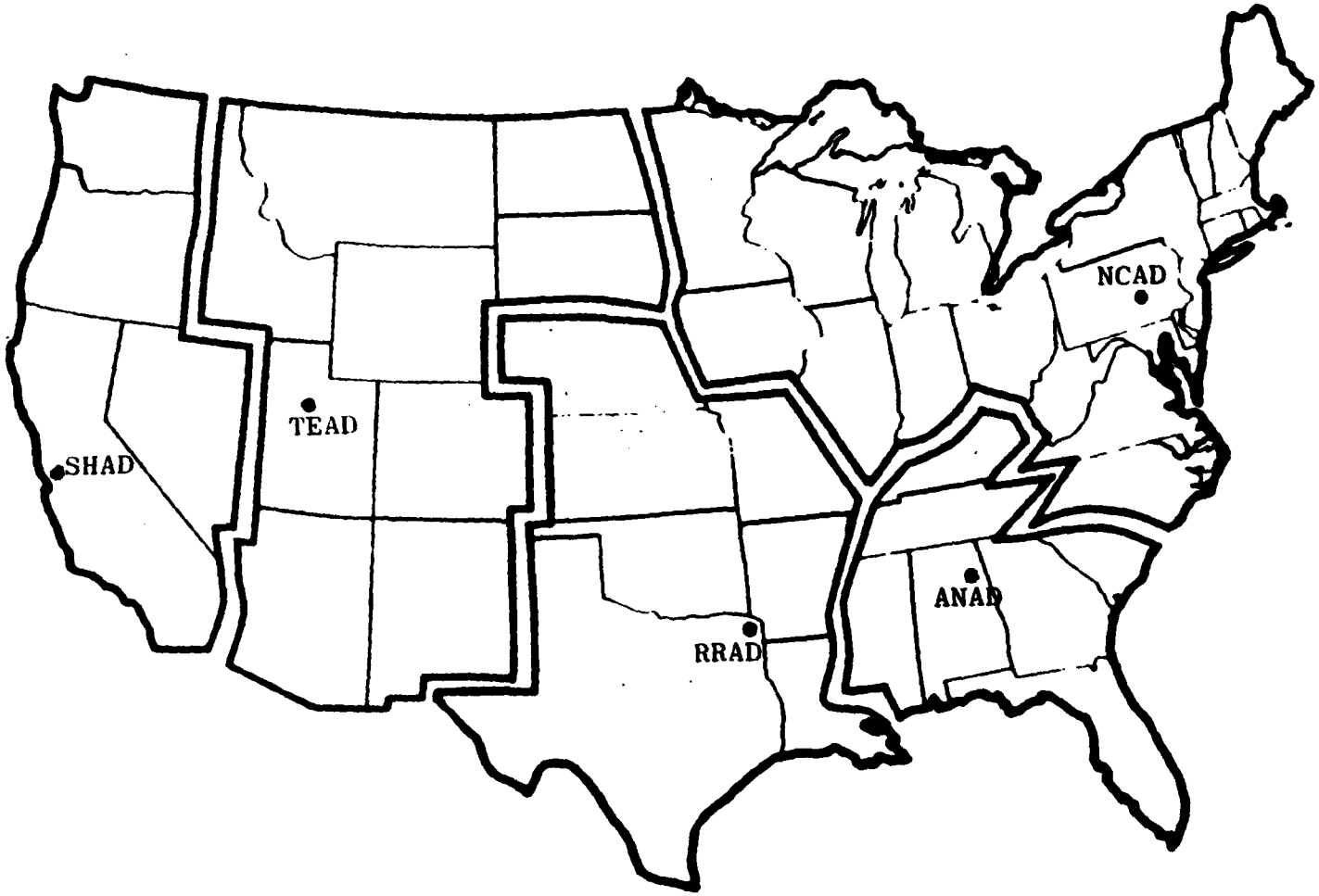

Figure C-3. Alternative 3

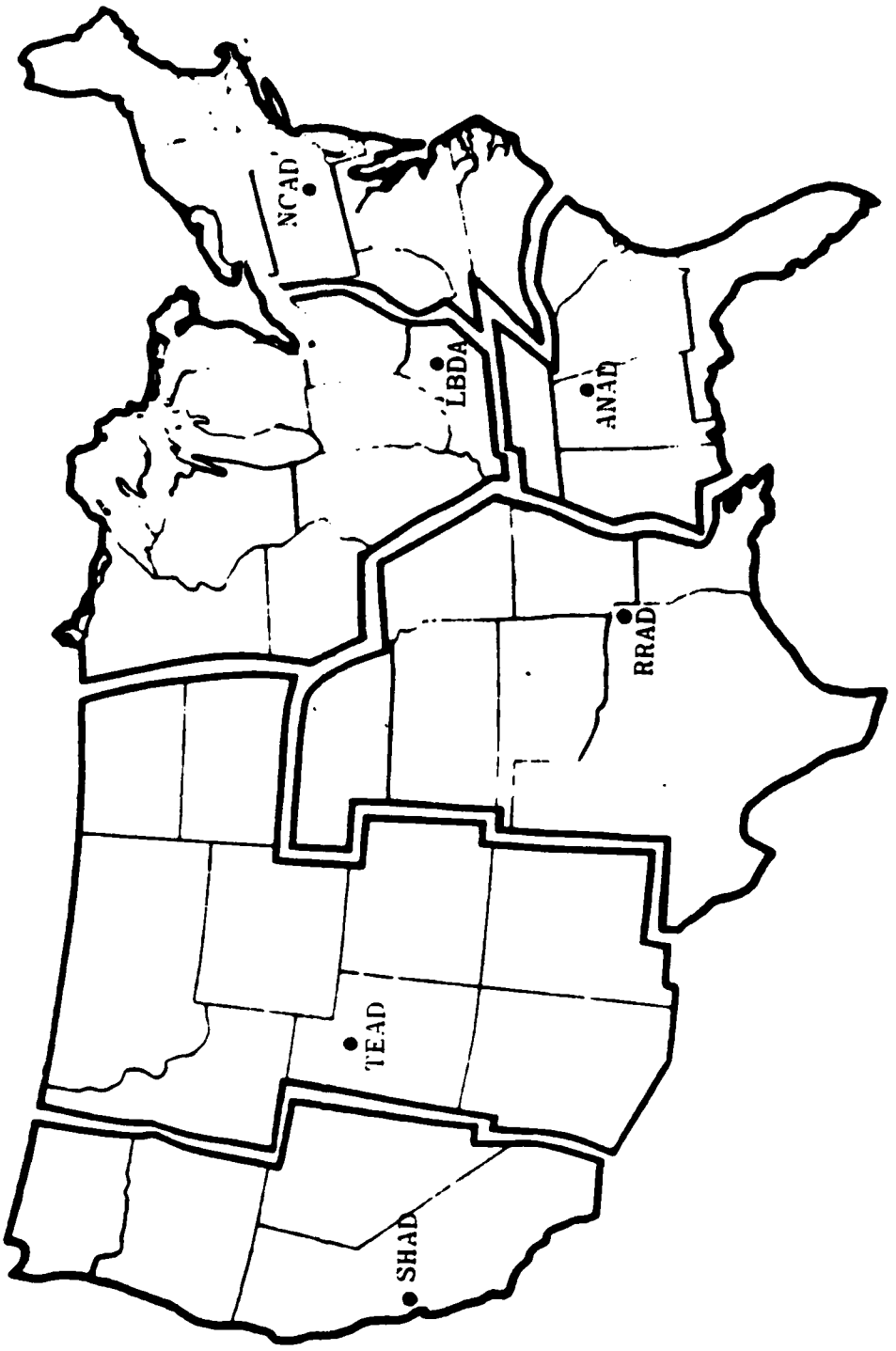

Figure C-4. Alternative 4

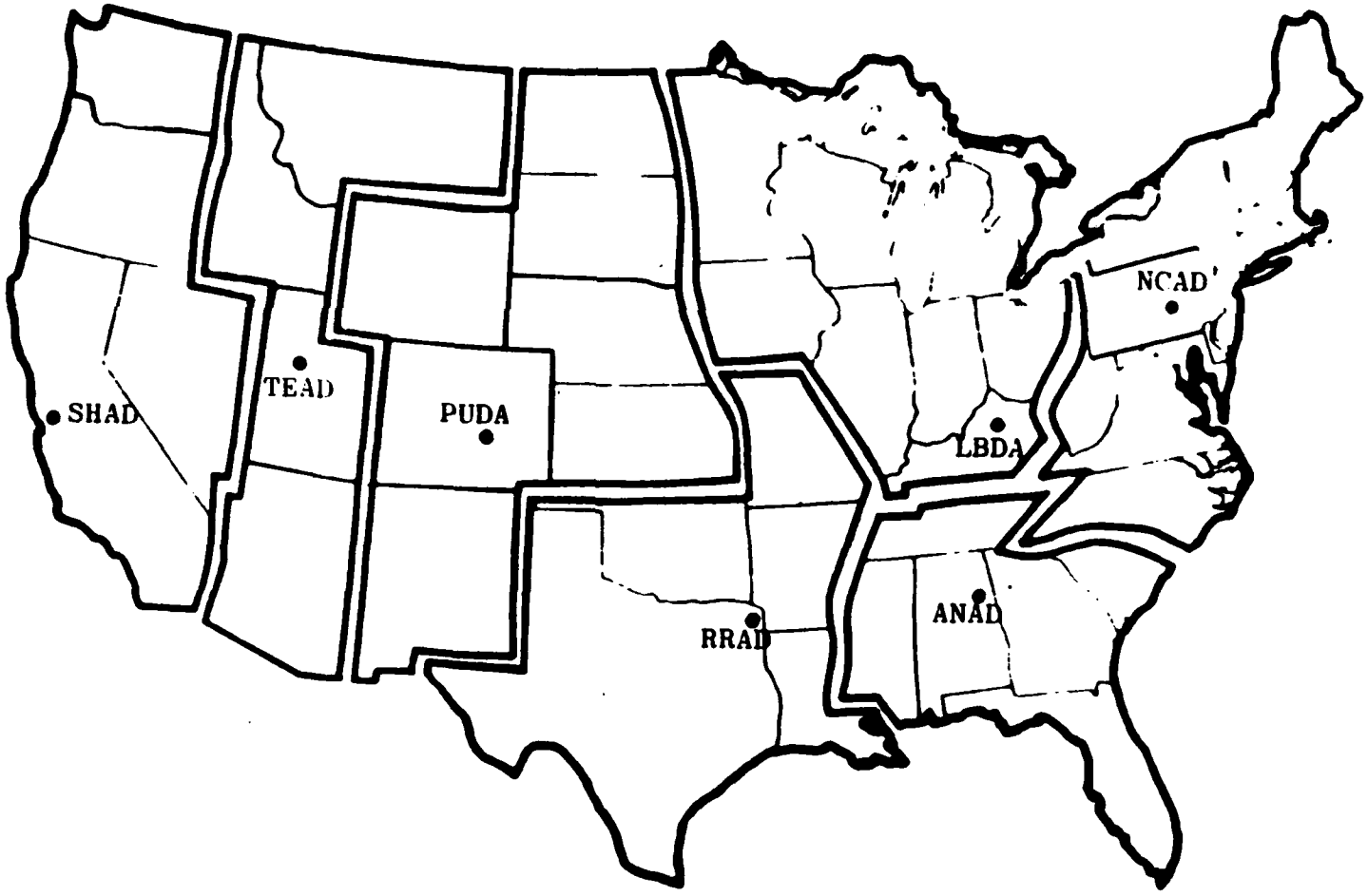

Figure C-5. Alternative 5

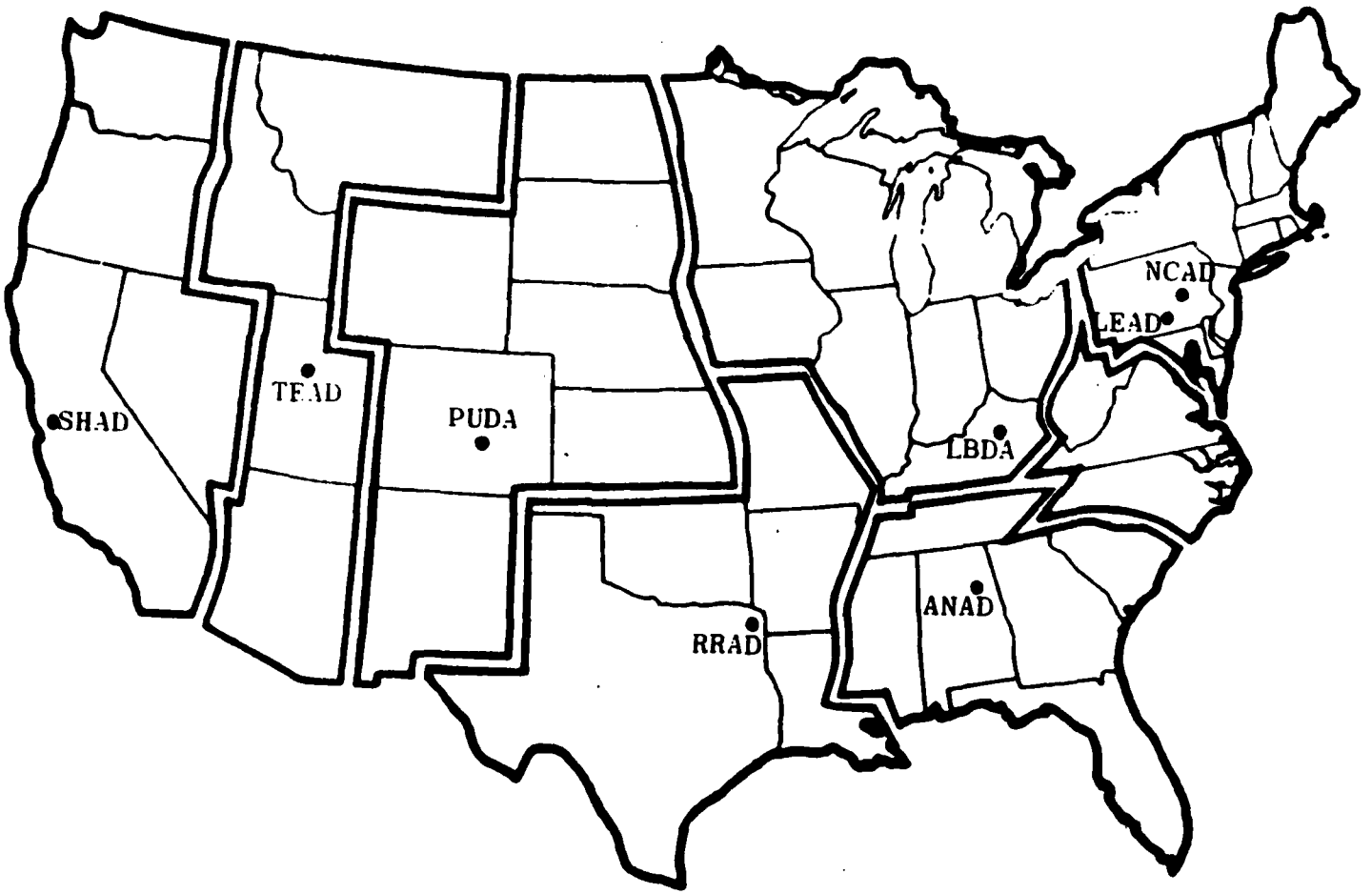

Figure C-6. Alternative 6

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APPENDIX D

STUDY PLAN

13 November 1984

PROPOSED STUDY PLAN

TITLE: LSO Project 053: Wholesale Stock Positioning and Distribution Policies

1. REFERENCE.

a. Message, DRCSM-PST, HQ DARCOM, 11 April 1984, subject: Study of Wholesale Stock Positioning and Distribution Policies.

b. Proposed Study Plan, 22 June 1984, LSO Project 053: Wholesale Stock Positioning and Distribution Policies.

c. Letter, DRCSM-PST, HQ DARCOM, 26 July 1984, subject: Wholesale Stock Positioning and Distribution Policies.

2. PURPOSE. Provide assistance to AMC in determining the effect of past, present, and anticipated future proposals to modify the wholesale physical distribution system.

3. STUDY SPONSOR.

a. US Army Materiel Command (AMC)
ATTN: AMCSM-PST
5001 Eisenhower Avenue
Alexandria, VA 22333

b. Study Sponsor Representative: Mr. Frank Toner
AV 284-8800

4. STUDY AGENCY.

a. US Army Materiel Systems Analysis Activity
Logistics Studies Office (AMXSY-LLSO)
Fort Lee, VA 23801-6046

b. Representative: Mr. Paul E. Grover
AV 687-2302

5. TERMS OF REFERENCE.

a. Background.

(1) Since 1970, OASD (MRA&L) has supported initiatives to standardize all, or part, of the Defense Logistics Agency (DLA) and the services' logistics systems into a single operating entity. In 1980, OASD (MRA&L) tasked the DOD Logistics Systems Analysis Office (LSAO) to conduct a long range (5 years) study

program to evaluate DOD materiel distribution system policies. A product of this program was a study titled, "Wholesale Interservice Depot Support (WIDS)," dated July 1982. It proposed that savings can be realized in second destination transportation costs if services would position their stocks at depots closer to the customers without regard to depot ownership. Although the services agreed with the general concept of WIDS since they presently do position stock in other services' depots where it is beneficial to both parties, they rebutted the WIDS study due to perceived shortcomings in the computations and methodology. Subsequently, the WIDS proposal reappeared as part of the Grace Commission recommendations.

(2) Following the Vietnam conflict, the Army stock positioning philosophy changed from decentralized storage in many depots to the more centralized Area Oriented Depot (AOD) concept. A study done by this office in April 1973 based on FY 72 demand data recommended a four depot AOD structure. The WIDS analysis, also concluding that a four region system is needed DOD-wide, noted that the Army has a high concentration of demand in the Southeast but no nearby supply depots. Given the Army's changing demand patterns over time and the controversy of claimed improvements in transportation costs, an independent analysis of stock positioning policies has been initiated by the sponsor.

b. Objective. Determine the impact of expanded stock positioning on the Army wholesale logistics system.

c. Scope. This study will encompass the Army's present depot system. Depots included will be New Cumberland Army Depot, Red River Army Depot, Sharpe Army Depot, Anniston Army Depot, Lexington Bluegrass Depot Activity, Pueblo Depot Activity, Tooele Army Depot, and Letterkenny Army Depot.

d. Limits.

(1) This study will examine only Class IX Army secondary items.

(2) Items that are currently not stored at the three existing AODs for general distribution are excluded.

e. Time Frame. This study will be conducted in the current time frame under peacetime conditions.

f. Assumption. Overseas shipments will continue to pass through the present container consolidation points.

g. Essential Elements of Analysis (EEA).

(1) To determine the total cost of the physical distribution system associated with different levels of wholesale stock positioning. Beginning with the current level of three AODs, additional depots will be added to the distribution system to determine the total cost which is the sum of:

(a) First Destination Transportation (FDT) cost - Transportation charges incident to shipping from the source of production or repair to the AOD.

(b) Second Destination Transportation (SDT) cost - Transportation charges incident to shipping from the AOD to the customer.

(c) Depot Operating Costs - Costs associated with the receipt, storage, and issuing functions of the AOD.

(d) Nonrecurring Costs - One time costs associated with each distribution alternative to include facilities, equipment, ADP system changes, inventory costs, and other costs.

(e) Recurring Management Costs - Annual costs associated with managing each distribution alternative at Depot Systems Command (DESCOM), each National Inventory Control Point (NICP), and the ADP system design agencies.

(2) To determine the wholesale logistics supply effectiveness associated with each distribution alternative. Effectiveness measures to be determined are:

(a) Order Ship Time - The time period from the date the requisition is initiated by the customer until the date the item is received by the customer.

(b) Distribution Effectiveness - The percentage of time that a customer receives an item from the proper depot (closest AOD).

(3) To evaluate the stock positioning methodology currently employed and to develop and analyze alternative methods.

h. Models. Analysis will be performed in two phases, addressing the problem from two viewpoints. Phase I will be a short "macro" level analysis which will provide approximate estimates of costs and effectiveness by looking at the total stocks and their movement within Continental United States (CONUS). Phase I will provide order of magnitude costs and savings and will support the decision to apply more analytical resources for the next phase. Phase II will be a detailed model development which will address the impact of stock positioning on selected

items. A simulation of selected items will be developed and executed to provide a more complete and accurate evaluation of the EEA.

(1) Phase I.

(a) Phase I will address EEA provided in para 5g(1) and 5g(2)(a) only.

(b) Based on CONUS demand patterns, the workload of each supply depot for each alternative will be quantified. Transportation costs will be estimated by applying aggregate shipping rates based on distance and weight or cube. Other cost estimates will be obtained via questionnaire or parametric analysis from existing data. Order ship time estimates will be developed based on data from previous studies.

(c) Data requirements:

1. Data Call 1 - To Logistics Control Activity. To obtain data on sources of demand for the population, special logistics intelligence file reports will be obtained to provide geographical distribution of demand. In addition, a magnetic tape of CONUS transactions will be obtained containing National Stock Number (NSN), document number, supplementary address, weight, cube, point of shipment, and mode of shipment.

2. Data Call 2 - To Military Traffic Management Command. Current transportation rates and factors will be needed for each mode of transportation included in the model.

3. Data Call 3 - To HQ AMC. Budget data will be obtained on Class IX Procurement (stock fund), supply depot operations, SDT and FDT if available.

4. Data Call 4 - To DESCOM. Financial data on SDT and operations such as the 305 report and 55-9 report.

5. Questionnaire 1 - To system design agencies. The nonrecurring and recurring resource implications associated with each option pertaining to changes to the CCSS and Standard Depot System will be elicited.

6. Questionnaire 2 - To DESCOM. The nonrecurring costs associated with upgrading the status of the existing non-AODs to AOD status will be elicited.

7. Questionnaire 3 - To each NICP. The nonrecurring and recurring resource implications associated with each option will be elicited. In addition, each NICP will select several "typical" NSNs and perform a cost analysis on a representative

procurement of the FDT costs, varying the number and locations of destinations.

(d) Because of time restrictions and manual calculations anticipated, not all combinations of supply depots will be analyzed. Starting from the existing three AODs, a single fourth depot will be added by judging which of the remaining five best matches the geographical demand distribution from Data Call 1. Likewise, a single combination will be chosen and analyzed for 5, 6, and 7 depot alternatives.

(2) Phase II - Simulation Model. Data for EEA para 5g(1)(d) and (e), nonrecurring costs and recurring management costs, will be obtained via questionnaire from NICP, DESCOM elements, and system design agencies (from Phase I). Remaining EEA will be determined through the use of a simulation model to be developed that will enable the analyst to vary the number and location of supply depots as follows:

(a) General Description. A distribution network will be developed to include nodes for customers (demand), NICPs, supply depots, and producers. For a representative sample of National Stock Number (NSN) items, a stochastic simulation using Simulation Language for Alternative Modeling (SLAM) will be run to assess EEA. SLAM, a state-of-the-art simulation language developed by Pritsker & Associates, Inc., will be used in conjunction with user written code to maximize sample size and minimize computer run time.

(b) Major Processes to be Modeled. Two processes judged to be relevant but of relatively insignificant consequence are the denial process and the interdepot transfer of stocks to correct stock imbalances. The following processes will be modeled:

1. Demand process - For each NSN, demand will be modeled as requisitions and Foreign Military Sales (FMS) transactions. Overseas demands and FMS demands will be consolidated as a single node per theater. CONUS demands will be modeled based on the Demand Return and Disposal File (DRD). Demand distribution of the sample will be matched against a special Logistics Intelligence File report to insure that sample CONUS demand is representative of overall CONUS demand.

2. Material Release Order (MRO) process - When the requisition is sent to the NICP, a decision must be made concerning which supply depot should satisfy the demand. This process will be modeled to simulate the automated Commodity Command Standard System (CCSS) per CCSSOI 18-725-100.

3. Shipping process - When the supply depot receives the MRO, a transportation officer must decide upon the means of

transporting the line from the depot to the customer (SDT). The model will analyze the factors that influence mode of transportation and select the appropriate mode.

4. Replenishment process - When depot stocks for a given NSN fall below the reorder point, new stocks must be obtained. The model will replenish stocks per the logic contained in CCSSDI 18-710-102.

a. Consumables - When the reorder point is reached, a procurement action will be initiated and the receiving depots will be allocated their share of the buy. After an appropriate delay associated with lead times, stocks will be shipped from the producer to the depots (FDT).

b. Reparables - Reparables that are washed out will be replenished as consumables per the above paragraph. Repaired items will be sent from the maintenance depot to the supply depot after the appropriate lead time. The return process will not be modeled since the cost of transporting returns is not affected by the number and locations of supply depots.

(c) Sampling plan - For the model to be valid, the sample of NSNs modeled must be sufficient and representative of the total Army secondary item supply items processed by AODs. Although the exact limits of the sample size cannot be determined at this time, hardware and software constraints will limit the sample size. At this time, it is projected that computer run time will limit the sample size. An upper limit of 6000 NSNs per run is planned, with a lower limit of 1000 NSNs required for validity. Upon selecting a sample, a verification/validation procedure will be used to insure that the sample is representative. Comparisons on weight, cube, unit price, commodity type, geographical distribution of demand and production, transportation modes, and other NSN attributes must be made against known population attributes. Since some of the sample attributes cannot be determined before running the model, it may be necessary to revise the sample iteratively to obtain representation. Two strata of samples will be taken and run independently through the model.

1. High demand items - A sample will be selected from the top 1000 items in each NICP's order of merit listing (see para 5h(2)(e)1). This sample will tend to exaggerate cost differences between distribution alternatives and should present an upper limit on savings associated with the best alternative.

2. Low demand items - A sample will be selected from a median range of 1000 items in each NICP order of merit listing. This sample will highlight stock positioning policy problems associated with slow moving items and will tend to present a lower limit on associated savings for the best option.

(d) Model execution - The model will begin with an analysis of the existing three AOD structure for low and high demand samples. This will represent the baseline alternative. Additional depots will be added to the structure according to the Keuhn-Hamburger heuristic in an effort to find the combination that minimizes total cost.

(e) Data requirements - In addition to the Phase I data four separate data calls and one separate questionnaire will be needed to obtain the necessary data. In addition, it is probable that a supplemental data call will be needed at the later stages of the study to police up unforeseen data requirements.

1. Data Call 5 - To each NICP, sort through the NSN Master Data Record (NSNMDR) by RANK-CMD (in Sector 13) and identify the top 1000 NSNs and the middle 1000 NSNs. The purpose is to provide data from which a sample will be selected. For each NSN, provide:

a. NSNMDR Header.

b. NSNMDR Sector 5/001.

c. NSNMDR Sector 10/001.

d. NSNMDR Sector 16/001, 16/004, and 16/005.

e. NSNMDR Sector 8/001 and 8/002.

f. NSNMDR Sector 13/001, 13/002, and 13/006.

g. NSNMDR Sector 15/001.

h. Complete DRD file.

2. Data Call 6 - To DESCOM. To obtain additional data on operating cost and SDT, TDY and data requests will be necessary to HQ DESCOM and selected depots.

a. Second Destination Transportation Data - HQ DESCOM, New Cumberland Army Depot.

b. Operating Cost Data - DESCOM comptroller.

3. Data Call 7 - To Defense Logistics Service Center. To obtain the cross reference file that relates the Contractor ID number to names and addresses of contractors. This information is needed to match the data in para 5h(2)(e)1 c to known population data to insure sample representation in terms of geographical distribution of production sources and to locate procuders for contracts less than $25,000.

4. Data Call 8 - To Logistics Systems Support Activity. Access to the HQMIS is needed to identify the "Principal Place of Performance" on the DD Form 350 file. This information is needed because the contractor's address may not be the actual place of production. Unfortunately this system only applies to contracts that exceed $25,000.

5. Data Call 9 - Supplemental Data Call. Since not all possible data requirements can be identified at the beginning of this study, a supplemental data call to an unspecified source for unspecified data is considered prudent for planning purposes.

6. Questionnaire 4 - To each contractor for NSNs sampled (see para 5h(2)(c)) a voluntary questionnaire will be sent to obtain information on production source, FDT, and the impact of the number of receiving depots on shipping costs. WARNING: Obtaining data from Defense contractors is restricted by "Paperwork Reduction" policies. Although this step will provide a better quality product, the study can be done without this questionnaire.

6. SUPPORT AND RESOURCE REQUIREMENTS.

a. The study sponsor will:

(1) Appoint a Study Advisory Group (SAG), under the provisions of AR 5-5 (Army Studies and Analysis), to provide advice and assistance to the study agency and to other participants providing input to the study.

(2) Provide guidance, conduct in-process reviews, perform approval functions and request the release of data and/or provide coordination with major subordinate commands, HQ AMC directorates and higher headquarters as necessary.

(a) The study sponsor will staff and monitor all data calls on the critical path (Data Calls #5 and #9, and Questionnaire #4). Data Call #5 tasking at the General Officer level is desirable to meet study milestones.

(b) The study sponsor will staff and monitor any other data calls upon request of the study agency.

b. The Commandant, US Army Logistics Management Center, will provide all data processing requirements, including the SLAM model for study agency use.

c. The study agency will develop models, specify data requirements, obtain data except as noted in 6a(2), participate in in-process reviews, prepare final briefings and reports. Resources to complete this study, to be provided by the study agency, are estimated in Enclosure 1.

7. ADMINISTRATION.

a. Study Title. Wholesale Stock Position and Distribution Policies.

b. Study Schedule. If this plan is approved by the study sponsor and the Chief, Logistics and Readiness Division, AMXSY-L, the study will begin on 1 January 1985. Phase I can be completed by 30 July 1985. The entire project (Phase II) can be completed by August 1986. Because of the long term nature of this study, the effort is highly susceptible to interruption by higher priority, quick reaction studies that demand study agency resources. Further details are provided in Enclosure 2.

c. Control Procedures. Project control will be exercised through the Study Advisory Group at the In-Process Reviews scheduled in Enclosure 3. Informal communication between the SAG members, study sponsor, and study agency is encouraged.

d. Study Format or Outline. Deliverable reports will conform to LSO Note 3.6 dated 10 September 1980, subject: Report Organization and Format. Computer code and model documentation will be included as an appendix to the final report or published as a separate volume.

e. Action Documents. None.

8. STUDY MILESTONE CHART. Enclosure 3 shows the milestones for critical path activities only. Other tasks will be accomplished while awaiting data.

3 Encl
as

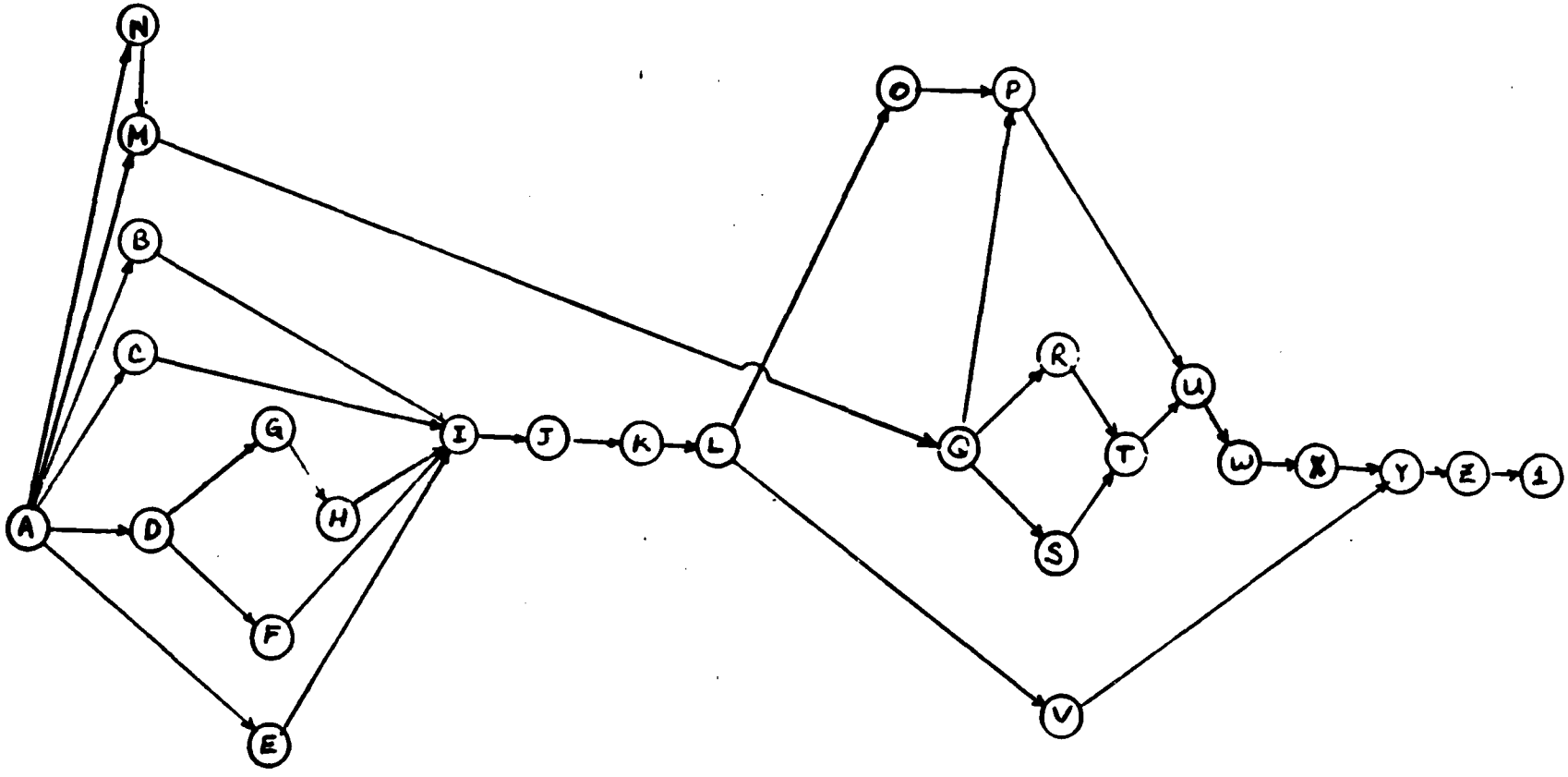
PROJECT COST

The research capability and personnel of the Logistics Studies Office will be used exclusively to conduct the study. Resources to complete the study are estimated to be as follows:

a.	Total professional man-months:	39.0
b.	Costs:	
(1)	Direct project related labor	$113,200
(2)	Supervision and project management	19,600
(3)	Travel	9,800
(4)	General and administrative overhead	32,700
	Total	175,300 (FY 83)
	Inflation Factor (OMA)	X 1.113
	TOTAL COST	$195,100

Enclosure 2

PERT CHART



PHASE I

PHASE II

PHASE I AND II - PARALLEL
PERT CHART LEGEND
IN-HOUSE EFFORT

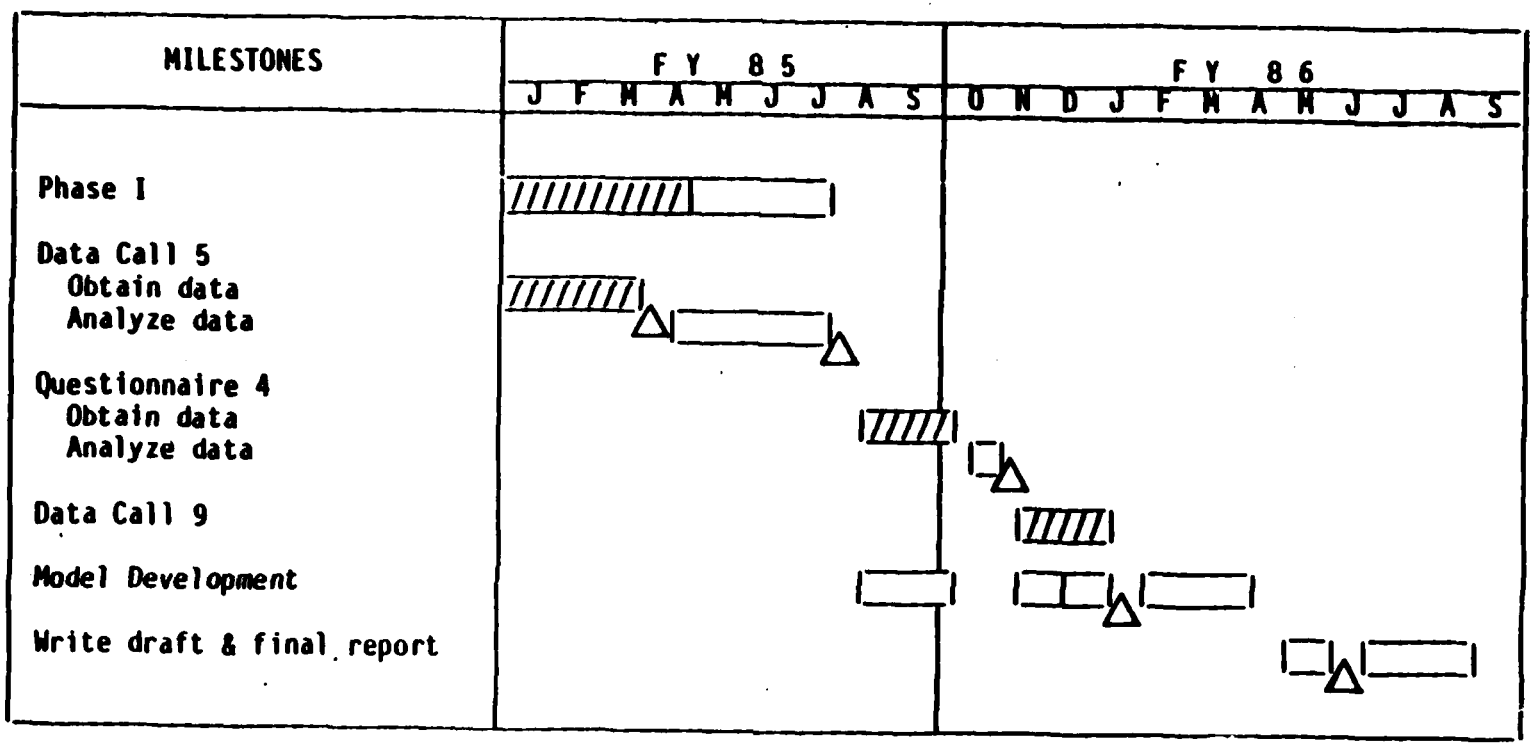
TASK	DESCRIPTION	TIME (WEEKS)	LSO MAN WEEKS
AB	Questionnaire 1	8	1
AC	Data Call 3	8	1
AD	Data Call 1	5*	2
AE	Data Call 4	2	2
DG	Questionnaire 2	12*	4
DF	Questionnaire 3	12	4
GH	Data Call 2	1*	1
BI	Data Analysis	1	1
CI	Data Analysis	1	1
EI	Data Analysis	4*	4
FI	Data Analysis	1	1
EI	Data Analysis	1	1
IJ	Data Synthesis	1*	1
JK	Write Report	2*	2
KL	Brief Phase I	1*	1
	SUBTOTAL	26*	27
LO	Construct Skeleton Model	8	8
AN	Data Call 7	5	1
AM	Data Call 5	12*	4
LV	Data Call 6	8	8
NM	Data Analysis	4	4
MQ	Data Analysis	16	32
OP	Model Evolution 1	4	4
QP	Data Input	2	2
QR	Questionnaire 4	8*	2
QS	Data Call 8	4	4
RT	Data Analysis	2*	2
ST	Data Analysis	1	1
PU	Model Evolution 2	4	4
TU	Data Input	1*	1
UW	Final Model Development	4*	8
WX	Run Model	4*	8
XY	Sensitivity Analysis	2*	4
VY	Data Syntheses	1	1
YZ	Write Draft Report	4*	8
Z1	Briefing and Final Report	8*	4
Not shown	Data Call 9	8*	4
ALLOWANCES	Leave	4*	8
	Training & Seminars	2*	4
	Annual Review	2*	2
	In-Process Reviews	4*	8
			163

*Critical Path 81 weeks

Enclosure 3

STUDY MILESTONE CHART

TITLE: LSO 053, Wholesale Stock Positioning and Distribution Policies (In-House Effort)



△ Reviews

APPENDIX E

SECOND DESTINATION TRANSPORTATION COST MODEL CALCULATIONS

ALT. NO ONE
MODE TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	9	0	6	1	0	0	3					561	1751	3218
NH/VER	5	12	1	816									418	1625	3040
MASS	2874	147	17	9349	2	0	0	0					381	1589	3084
CONN/RI	8	10	1	589	1	0	0	0					313	1521	3022
NEW YORK	3283	302	36	17120	6	0	0	18	3	11	1	2426	287	1483	2917
PENN	235	27	3	1163	73	2	0	321	31	1	0	202	100	1208	2739
NJ/DEL	960	74	9	3359	1	0	0	2					133	1291	2867
MD/DC	37	1	0	39			0	0					104	1173	2795
VA/W.VA	32	116	14	6583	3	5	0	489	3	7	1	1422	288	997	2688
N. CARO	2305	174	21	10970	7	16	2	1736					272	1014	2743
S. CARO	1041	113	13	8743	1	2	0	143					574	858	2622
OHIO	61	28	3	7640	5	35	1	3114					374	877	2610
MICH	1182	161	19	11364	15	31	3	3337	3	1	0	278	479	1025	2374
INDIANA	17	0	0	6			0	0	1	0	0	3	552	731	2238
ILL.	1615	190	22	17175	7	1	0	58	1	1	0	123	748	645	2059
WISC	15	36	4	3331	9	20	2	1941	2	0	0	2	793	892	2073
MINN	17	26	3	2939	8	19	2	1856					1058	920	1932
IOWA	610	75	9	7931			0	0					958	683	2742
BRAGG	46392	1140	101	39974	56	16	2	1695	8	11	1	2404	430	1020	2768
DEVENS	970	178	20	10713	1	18	2	2782	1	0	0	2	371	1579	3067
DRUM	1310	110	13	6587			0	0	1	0	0	31	331	1415	2824
MCCOY	599	32	4	3255	2	0	0	1	2	18	2	3839	903	952	1997
MEADE	3805	94	11	3971	4	0	0	9	3	8	1	1772	89	1283	2798
SHERIDN	6	0	0	7			0	0	1	1	0	111	672	831	1790
BELVOIR	1652	139	16	6217			0	0					125	1162	2793
DIX	1340	147	17	6693	2	0	0	6	1	0	0	4	134	1327	2861
EUSTIS	4622	164	19	9861	2	0	0	6					267	1158	2895
JACKSON	682	102	12	7923	6	11	1	1008					574	863	2627
LEE	411	92	11	4928	2	2	0	176					261	1111	2849
POAD	35	16	1	395			0	0	1	0	0	13	127	1335	2811
LEAD	13467	293	34	3943	46	14	1	1671	8	7	1	1408	47	1167	2712
FLORIDA	1	0	0	9	13	24	3	1983					936	733	2507
GEORGIA	83	53	6	4696	804	231	26	17202	1	3	0	926	714	641	2401
ALABAMA	4	2	0	237	2361	171	19	13293					871	561	2327
MISS	329	111	13	12393	345	94	10	4372	1	0	0	6	1038	388	2082
TENN	3	0	0	1	48	7	1	430	1	0	0	8	711	497	2226
KENT	10	1	0	89	220	3	0	246					561	715	2389
MISSOUR	2	9	1	941	126	45	5	2348					927	374	1847
ARKANS	190	29	3	3226	124	32	3	1894					1049	159	1984
LOUISNA	76	20	2	2436	1324	63	7	3010					1201	323	2111
TEXAS	3	1	1	804	411	98	10	4932	1	1	0	106	1583	353	1691
OKLA	719	77	9	10118	9330	425	45	19092					1388	288	1563
KANSAS	36	4	0	464	282	19	2	1182					1109	490	1743
NEB/DAK	1	0	0	0	7	2	0	214					1344	1010	1528
COL/WYO	8	3	0	441	564	8	1	788	1	0	0	0	1614	960	1170
NEW MEX	1	0	0	7	87	52	6	4445					1839	766	1074
CAMPBLL	5963	179	21	16298	29332	603	64	38089	5	0	0	49	757	505	2242
CARSON	2691	496	59	77126	42669	1984	127	145382	29	111	9	13284	1639	849	1258
HOOD	20990	1058	125	153394	99585	5790	602	222735	50	186	16	27230	1521	326	1682
POLK	2272	295	35	38067	31721	1781	118	41320	9	23	2	3858	1276	210	1978
RILEY	1271	170	44	44965	47191	1150	123	88144	32	170	14	24888	1174	533	1688
SAM HOU	3	0	0	20	13	9	1	497					1642	467	1660
STEWART	3144	482	55	41256	42437	1874	138	112851					733	872	2648
BENNING	1390	155	42	34185	23074	1315	101	67634	50	116	10	22529	828	639	2433
BLISS	1663	231	27	41591	31464	1340	162	118672	13	56	3	3952	1975	887	1109
GORDON	2	0	0	18	13	6	1	539					649	782	2556
KNOX	6159	1616	126	81077	40976	1045	114	81618	13	84	7	15813	603	648	2343
L. WOOD	351	69	8	7168	584	110	12	6550	2	0	0	2	934	462	1933
MCCLELN					2885	133	9	5142					773	562	2321
RUCKER	3	0	0	9	11162	260	28	19100	1	0	0	0	948	626	2408
SILL	789	132	16	18086	10299	353	37	16711	2	0	0	30	1184	317	1546
CCAD	2021	23	3	3599	36171	266	28	17374	13	0	0	67	1679	530	1805
ANAD	6693	668	66	47063	28457	2143	146	82628	13	28	2	5342	773	556	2321
RRAD	4089	636	75	78826	10	1	0	18	6	0	0	19	1208	0	1790
WNT/IDA					14	87	9	14110	24	110	11	11967	2210	1695	537
UTAH/NV					3	7	1	1145	9	12	1	795	2305	1577	441
ARIZONA					1	5	0	1	15	63	5	5233	2100	1182	693
CALIF	47	60	7	11928	8	13	1	2306	1437	193	16	9846	2689	1843	200
OREGON	2	6	1	1469					14	17	1	1266	2769	2146	583
WASHNTN	34	8	1	1856	3	40	4	8367	12	24	2	2135	2712	2218	773
IRWIN	1534	516	61	114696	174	374	40	24320	13735	1316	107	46797	2553	1480	380
LEWIS	2081	273	32	63571	4715	293	31	61151	39956	1217	116	92865	2696	2231	118
ORD	32	15	2	3668	2414	123	13	21241	19641	691	105	31603	2880	1811	141
PRSIDIO									74	8	1	336	2785	1856	81
HUACHUC	10	0	0	27	6	11	1	1210	2	0	0	15	2222	1086	879
SAAD	5	1	0	215			0	0	1	0	0	0	2689	1841	52
TEAD	587	96	11	17973	6	1	0	96	5818	443	34	25833	2073	1389	692
TOTAL	158399	11261	1275	1146770	302064	23697	1840	1277199	80983	4940	471	360026			

TOTAL COST 2781995

TOTAL LINES 741446

TOTAL WEIGHT 39898

ALT. NO ONE IDEAL PERFECT STOCK POSITIONING
MODE TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	TOTAL T/LOADS	TOTAL COST	MILEAGE NCAD	
MAINE	3	0	0	1	0	0			0	0	8	543	
NH/VER	5	12	1			0			0	1	816	418	
MASS	2074	147	17	2	0	0			0	17	9349	381	
CONN/RI	8	10	1	1	0	0			0	1	589	313	
NEW YORK	3283	302	36	6	0	0	3	11	1	37	17735	287	
PENN	255	27	3	73	2	0	31	1	0	4	1287	100	
NJ/DEL	946	74	9	1	0	0			0	9	3360	133	
MD/DC	27	1	0			0			0	0	59	104	
VA/W.VA	32	116	14	3	1	1	3	7	1	15	7231	288	
N. CARO	2305	174	21	7	16	2			0	23	12001	372	
S. CARO	1041	113	13	1	2	0			0	13	8863	574	
OHIO	41	26	3	3	33	4			0	7	3720	374	
MICH	1182	161	19	15	31	4	3	1	0	23	13685	679	
INDIANA	17	0	0			0	1	0	0	0	5	552	
ILL.	1615	190	22	7	1	0	1	1	0	23	17310	748	
WISC	15	36	4	9	28	2	2	6	0	7	5251	793	
MINN	17	26	3	8	19	2			0	5	5078	1058	
IOWA	610	75	9			0			0	9	7931	958	
BRAGG	46392	1140	101	54	16	1	8	11	1	103	40921	630	
DEVENS	970	170	20	1	18	2	1	0	0	22	11852	371	
DRUM	1310	110	13			0	1	0	0	13	6595	331	
MCCOY	599	32	4	2	0	0	2	15	2	6	5109	903	
MEADE	3885	94	11	4	0	0	5	8	1	12	4317	89	
SHERIDN	6	0	0			0	1	1	0	0	68	672	
BELVOIR	1652	139	16			0			0	16	6217	125	
DIX	1348	147	17	2	0	0	1	0	0	17	6696	134	
EUSTIS	4622	164	19	2	0	0			0	19	9864	267	
JACKSON	682	102	12	6	11	1			0	13	8762	574	
LEE	411	92	11	2	2	0			0	11	5883	241	
TOAD	55	16	1			0	1	0	0	1	397	127	
LEAD	13467	295	24	46	14	1	8	7	1	26	4222	47	
	RRAD	RRAD	RRAD	RRAD	RRAD	RRAD	RRAD	RRAD	RRAD				
FLORIDA	1	0	0	13	24	3			0	3	499		733
GEORGIA	83	53	6	884	231	24	1	5	1	31	5957		641
ALABAMA	4	2	0	2341	171	18			0	18	3367		541
MISS	329	111	12	343	94	10	1	0	0	22	4228		308
TENN	3	0	0	40	7	1	1	0	0	1	143		497
KENT	10	1	0	220	3	0			0	0	87		715
MISSOUR	2	9	1	126	45	5			0	6	4458		374
ARKANS	190	29	3	124	32	3			0	6	4540		159
LOUISNA	76	20	2	1524	63	7			0	9	5458		325
TEXAS	3	5	1	411	98	10	1	1	0	11	4843		353
OKLA	719	77	8	9330	425	45			0	53	31411		288
KANSAS	36	4	0	282	19	2			0	2	1865		490
NEB/DAK	1	0	0	7	2	0			0	0	106		1010
COL/WYO	8	3	0	564	8	1	1	0	0	1	359		980
NEW MEX	1	0	0	87	52	6			0	6	2508		766
CAMPBLL	5963	179	19	29332	603	64	5	0	0	83	39393		505
CARSON	2691	496	33	42669	1904	127	29	111	7	168	188988		849
HOOD	20990	1058	74	99585	5790	402	50	186	13	489	269854		326
POLK	2272	295	20	31721	1781	118	9	23	2	139	48703		210
RILEY	3271	370	26	47192	1750	125	33	170	12	163	86551		533
SAM HOU	3	0	0	13	9	1			0	1	571		447
STEWART	3144	462	32	42437	1874	130			0	163	140674		872
BENNING	1398	353	27	23074	1315	101	58	116	9	137	91840		635
BLISS	1663	231	24	31464	1340	109	13	36	4	138	62355		807
GORDON	2	0	0	13	6	1				1	193		782
KNOX	8339	1016	70	40976	1645	114	13	84	6	190	102797		648
L. WOOD	351	69	7	584	110	9	2	0	0	16	8960		462
MCCLELN			0	2883	133	9				9	8098		562
RUCKER	3	0	0	11362	360	21	1	0	0	21	14901		626
SILL	789	132	14	10299	353	37	2	0	0	51	43001		317
CCAD	2021	23	2	36171	266	28	13	0	0	31	25024		530
ANAD	6893	660	45	28457	2143	146	13	28	2	193	109176		556
RRAD	4089	636	67	10	1	0	6	0	0	67	37892		0
WNT/IDA				14	87	7	24	130	11	18	19932		837
UTAH/NV				3	7	1	9	12	1	2	1293		441
ARIZONA				1	0	0	15	63	5	5	5233		693
CALIF	47	60	5	8	13	1	1437	193	16	23	13573		200
OREGON	2	6	1			0	14	17	1	2	1733		583
WASHNTN	34	8	1	3	40	3	12	24	2	6	6381		773
IRWIN	1554	516	42	174	374	31	13735	1316	107	180	78447		388
LEWIS	2081	273	26	4715	293	28	39956	1217	116	170	136094		758
ORD	32	15	2	2414	123	19	19641	691	105	126	37904		141
PRSIDIO			0			0	14	8	1	1	336		81
HUACHUC	10	0	0	6	11	1	2	0	0	1	1050		877
SAAD	5	1	0			0	1	0	0	0	16		53
TEAD	507	98	7	6	1	0	5810	443	34	42			692
TOTAL	158399	11261	1006	502064	23697	1790	88983	4940	461	3260	1874717		

ALT. NO TWO
MODE TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	0	0	6	1	0	0	3					543	1751	3218
NH/VER	5	12	1	816									418	1625	3040
MASS	2074	147	17	9349	2	0	0	0					381	1589	3084
CONN/RI	8	10	1	589	1	0	0	0					313	1521	3022
NEW YORK	3283	302	36	17120	6	0	0	18	3	11	1	2426	287	1483	2917
PENN	255	27	3	1165	73	2	0	231	31	1	0	282	100	1288	2739
NJ/DEL	946	74	9	3359	1	0	0	2					133	1291	2867
MD/DC	27	1	0	59			0	0					184	1173	2795
VA/W.VA	32	116	14	6583	3	5	0	489	3	7	1	1422	288	997	2688
N. CARO	2303	174	21	10978	7	16	2	1736					372	1014	2743
OHIO	41	26	3	1648	5	33	3	3114					374	877	2610
MICH	1182	161	19	11364	15	31	3	3337	3	1	0	278	479	1025	2374
INDIANA	17	0	0	4			0	0	1	0	0	3	552	731	2238
ILL.	1613	190	22	17173	7	1	0	58	1	1	0	123	748	645	2058
WISC	15	36	4	3351	9	20	2	1941	2	0	0	2	793	892	2073
MINN	17	26	3	2939	8	19	2	1836					1038	920	1932
IOWA	610	75	9	7931			0	0					958	683	2742
BRAGG	46392	1140	101	39974	54	16	2	1695	8	11	1	2404	430	1020	2768
DEVENS	970	178	20	10713	1	16	2	3782	1	0	0	2	371	1379	3067
DRUM	1310	110	13	6587			0	0	1	0	0	31	331	1415	2824
MCCOY	599	32	4	3255	2	0	0	1	2	18	2	3039	903	952	1997
MEADE	3805	94	11	3971	4	0	0	9	3	8	1	1772	89	1183	2798
SHERIDN	6	0	0	7			0	0	1	1	0	111	672	831	1790
BELVOIR	1652	139	16	6217			0	0					125	1162	2793
DIX	1340	147	17	6693	2	0	0	6	1	0	0	4	134	1327	2867
EUSTIS	4622	164	19	9861	2	0	0	6					267	1158	2895
LEE	411	92	11	4920	2	2	0	176					241	1111	2840
TOAD	55	16	1	395			0	0	1	0	0	13	127	1335	2811
LEAD	13467	293	24	3943	46	14	1	1671	8	7	1	1408	67	1167	2712

					ANAD LINES	ANAD WEIGHT	ANAD T/LOADS	ANAD COST						ANAD MILEAGE	
FLORIDA	1	0	0	9	13	24	2	1125					936	389	2307
GEORGIA	83	53	6	4698	804	231	23	7219	1	5	0	926	714	91	2401
S. CARO	1	2	0	135	1041	113	11	5271					574	388	2622
ALABAMA	4	2	0	227	2341	171	17	5688					871	113	2327
MISS	329	111	13	12393	345	94	9	4347	1	0	0	6	1038	383	2062
TENN	3	0	0	1	48	7	1	275	1	0	0	8	711	214	2226
KENT	10	1	0	89	220	3	0	184					541	410	2389
JACKSON	6	11	1	854	682	102	10	4794					574	313	2627
CAMPBLL	5963	179	21	16298	29332	603	60	26479	5	0	0	49	757	269	2242
STEWART	3144	462	55	41256	42437	1674	136	63254					733	334	2648
BENNING	1390	355	42	34165	23074	1315	101	33775	50	116	10	22529	828	148	2433
GORDON	2	0	0	18	13	6	1	257					649	232	2556
KNOX	8339	1016	120	81077	40978	1645	114	57824	13	84	7	15813	603	385	2343
MCCLELN					2885	133	13	3373					773	6	2321
RUCKER	5	0	0	9	11362	268	28	10143	1	0	0	0	948	199	2408
ANAD	6893	660	66	47063	28457	2143	146	36371	13	28	2	5342	773	0	2321

					RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST						RRAD MILEAGE	
MISSOUR	2	9	1	941	126	45	5	2348					927	374	1847
ARKANS	190	29	3	3226	124	32	3	1094					1049	159	1984
LOUISNA	76	20	2	2436	1524	63	7	3010					1201	325	2111
TEXAS	3	5	1	804	411	98	10	4932	1	1	0	106	1563	353	1691
OKLA	719	77	9	10118	9330	425	45	19092					1300	288	1563
KANSAS	36	4	0	464	282	19	2	1182					1109	490	1743
NEB/DAK	1	0	0	0	7	2	0	214					1344	1010	1528
COL/WYO	8	3	0	441	564	8	1	780	1	0	0	0	1614	960	1170
NEW MEX	1	0	0	7	87	52	6	4445					1839	766	1074
CARSON	2691	496	59	77126	42669	1904	127	143282	29	111	9	13284	1639	849	1258
HOOD	20990	1058	125	155394	99585	5790	402	222135	50	186	16	27230	1521	326	1682
POLK	2272	295	35	38047	31721	1781	118	41320	9	23	2	3850	1276	210	1978
RILEY	3271	370	44	44963	47192	1750	125	66144	32	170	14	24880	1174	533	1680
SAM HOU	3	0	0	20	13	9	1	497					1642	447	1660
BLISS	1663	231	27	41591	31464	1340	142	118672	13	36	3	3952	1975	807	1109
L. WOOD	351	69	8	7160	584	110	12	6550	2	0	0	2	934	462	1933
SILL	789	132	16	18084	10299	353	37	16711	2	0	0	30	1384	317	1546
CCAD	2021	23	3	3599	36171	266	28	17374	13	0	0	67	1679	530	1805
RRAD	4089	636	75	78824	10	1	0	18	6	0	0	19	1208	0	1790
MNT/IDA					14	87	9	14130	24	130	11	11987	2210	1695	837
UTAH/NV					3	7	1	1145	9	12	1	795	2305	1572	441
ARIZONA					1	0	0	1	15	63	5	5233	2300	1182	693
CALIF	47	60	7	13928	8	13	1	2306	1437	193	16	9846	2689	1843	200
OREGON	2	6	1	1469			0	0	14	17	1	1266	2769	2146	583
WASHNTN	34	8	1	1856	1	40	4	8367	12	24	2	2133	2712	2218	773
IRWIN	1554	516	61	114696	174	374	40	54320	13735	1316	107	46797	2553	1480	380
LEWIS	2081	273	32	63571	4715	293	31	61151	39956	1217	116	92865	2696	2231	758
ORD	32	15	2	3668	2414	123	13	21241	19641	691	105	31605	2880	1811	141
PRSIDIO			0	0			0	0	14	8	1	336	2785	1856	81
HUACHUC	10	0	0	27	6	11	1	1210	2	0	0	15	2222	1086	877
SAAD	5	1	0	215			0	0	1	0	0	0	2689	1843	52
TEAD	587	96	11	17973	6	1	0	96	5810	443	34	25833	2073	1389	692
TOTAL	156683	11060	1251	1129114	503788	23899	1857	1115197	38983	4940	471	360026			

TOTAL COST 2604337

TOTAL LINES 741446

TOTAL WEIGHT 39899

ALT. NO THREE
MODE TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	0	0	6	1	0	0	3					543	1751	3218
NH/VER	5	12	1	816									418	1625	3040
MASS	2874	147	17	9349	2	0	0	0					381	1589	3084
CONN/RI	8	18	1	589	1	0	0	0					313	1521	3022
NEW YORK	3283	302	36	17128	6	0	0	18	3	11	1	2426	287	1483	2917
PENN	255	27	3	1385	73	2	0	231	31	1	0	202	188	1288	2739
NJ/DEL	946	74	9	3359	1	0	0	-2					133	1291	2867
MD/DC	27	1	0	59			0	0					184	1173	2795
VA/W.VA	32	116	14	6583	3	5	0	489	5	7	1	1422	288	997	2688
N. CARO	2303	174	21	10970	7	16	2	1736					372	1014	2743
OHIO	41	26	3	1648	5	33	3	3114					374	877	2610
MICH	1182	161	19	11364	15	31	3	3357	3	1	0	278	479	1025	2374
INDIANA	17	4	0	4			0	0	-1	0	0	3	552	731	2238
ILL.	1615	190	22	17175	7	1	0	58	1	1	0	123	748	645	2058
WISC	15	36	4	3331	9	20	2	1941	2	0	0	2	793	892	2073
MINN	17	26	3	2939	8	19	2	1836					1018	920	1952
IOWA	610	73	9	7931			0	0					958	683	2742
BRAGG	46392	1140	101	39974	54	16	2	1695	8	11	1	2404	430	1020	2768
DEVENS	970	178	20	19713	1	18	2	2782	1	0	0	2	371	1579	3067
DRUM	1310	110	13	6587			0	0	1	0	0	31	331	1415	3024
MCCOY	599	32	4	3255	2	0	0	1	2	18	2	3039	983	952	1997
MEADE	3803	94	11	3971	4	0	0	9	3	8	1	1772	89	1183	2798
SHERIDN	6	0	0	7			0	0	1	1	0	111	672	831	1790
BELVOIR	1652	139	16	6217			0	0					125	1162	2793
DIX	1340	147	17	6693	2	0	0	6	1	0	0	4	134	1327	2867
EUSTIS	4622	184	19	9061	2	0	0	6					267	1158	2895
LEE	411	92	11	4928	2	2	0	176					241	1111	2840
TOAD	93	16	1	395			0	0	1	0	0	13	127	1335	2811
LEAD	13467	293	24	3943	46	14	1	1671	8	7	1	1488	47	1167	2712

DESTINATION	ANAD LINES	ANAD WEIGHT	ANAD T/LOADS	ANAD COST	ANAD MILEAGE
FLORIDA	13	24	2	1125	936	389	2587
GEORGIA	83	55	6	4696	804	231	23	7219	1	5	0	926	714	91	2601
S. CARO	1	2	0	155	1041	113	11	3271					574	308	2622
ALABAMA	4	2	0	227	2341	171	17	5688					871	113	2327
MISS	329	111	13	12393	345	94	9	4347	1	0	0	6	1038	301	2882
TENN	3	0	0	1	40	7	1	275	1	0	0	8	711	214	2226
KENT	10	1	0	89	220	3	0	164					541	410	2389
JACKSON	6	11	1	854	682	182	18	4796					574	313	2627
CAMPBELL	5963	179	21	16298	29332	603	60	26475	5	0	0	49	757	269	2242
STEWART	3144	462	55	41256	42437	1874	130	63254					733	334	2648
BENNING	1390	355	42	34165	23074	1315	101	35775	50	116	10	22329	828	148	2433
GORDON	2	0	0	18	13	6	1	257					649	232	2556
KNOX	8339	1016	120	81077	40978	1643	114	57824	13	84	7	15813	683	365	2343
MCCLELN					2885	133	13	3373					773	6	2321
RUCKER	3	0	0	9	11362	288	26	10143	1	0	0	0	948	199	2408
ANAD	6893	660	66	47063	28457	2143	146	36371	13	28	2	5142	773	0	2321

DESTINATION	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	RRAD MILEAGE
MISSOUR	2	9	1	941	126	45	5	2348					927	374	1847
ARKANS	198	29	3	3226	124	32	3	1094					1049	159	1904
LOUISNA	76	20	2	2436	1524	63	7	3010					1201	325	2111
TEXAS	3	1	1	804	411	98	10	4933	1	1	0	106	1363	353	1691
OKLA	719	77	9	10118	9330	425	45	19092					1308	288	1563
KANSAS	36	4	0	466	282	19	2	1182					1189	490	1743
NEB/OAK	1	0	0	0	2	1	0	106					1364	1018	1528
HOOD	20990	1058	125	155394	99585	5790	482	222135	50	186	16	27230	1521	326	1682
POLK	2272	295	35	38047	31721	1781	118	41320	9	23	2	3850	1276	210	1978
RILEY	3271	370	44	44963	47192	1750	125	66144	32	170	14	24880	1174	533	1680
SAM HOU	3	0	0	20	13	9	1	497					1642	447	1660
BLISS	1663	231	27	41591	31466	1348	142	118672	13	36	3	3952	1975	807	1109
L. WOOD	351	69	8	7160	584	110	12	6350	2	0	0	2	934	462	1933
SILL	789	132	16	18084	10299	353	37	16711	2	0	0	30	1384	317	1546
CCAD	2021	23	3	3599	36171	266	28	17376	13	0	0	67	1679	530	1805
RRAD	4089	636	75	78824	10	1	0	18	6	0	0	19	1208	0	1790

DESTINATION	TEAD LINES	TEAD WEIGHT	TEAD T/LOADS	TEAD COST	TEAD MILEAGE
COL/WYO	8	3	0	441	384	8	1	482	1	0	0	0	1614	533	1170
NEW MEX	1	0	0	7	87	32	5	3399					1839	623	1074
CARSON	2691	496	59	77126	42669	1904	127	81674	29	111	9	13284	1639	588	1258
OAK					5	1	0	89						914	

DESTINATION	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	TEAD LINES	TEAD WEIGHT	TEAD T/LOADS	TEAD COST		RRAD MILEAGE	TEAD MILEAGE
MNT/IDA	14	87	9	14130	24	130	13	7332	2210	1695	446
UTAH/NV	3	7	1	1145	9	12	1	328	2305	1572	37
ARIZONA	1	0	0	1	15	63	6	4598	2300	1182	677
HUACHUC	6	11	1	1210	2	0	0	13	2222	1086	861
TEAD	6	1	0	96	5810	443	34	8521	2073	1389	0

DESTINATION	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST		SHAD MILEAGE
CALIF	1437	193	16	9846	2689	1843	200
OREGON	14	17	1	1266	2769	2146	583
WASHNTN	12	24	2	2135	2712	2218	773
IRWIN	13735	1316	107	46797	2553	1480	380
LEWIS	39956	1217	116	92865	2696	2231	758
ORD	19641	691	105	31605	2880	1811	141
PRSIDIO	14	5	1	336	2785	1856	81
SAAD	1	0	0	0	2689	1843	52

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST
TOTAL	156683	11060	1251	1129114	583780	23899	1856	1052426	80983	4940	474	336976

TOTAL COST 2518516
TOTAL LINES 741446
TOTAL WEIGHT 39899

ALT. NO FOUR
MODE TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	0	0	6	1	0	0	3					543	1751	3218
NH/VER	5	12	1	816									418	1625	3040
MASS	2074	147	17	9349	2	0	0	0					381	1589	3084
CONN/RI	8	10	1	589	1	0	0	0					313	1521	3022
NEW YORK	3383	302	36	17120	6	0	0	18	3	11	1	2426	287	1483	2917
PENN	255	27	3	1165	73	2	0	231	31	1	0	202	100	1208	2739
NJ/DEL	946	74	9	3359	1	0	0	2					133	1291	2867
MD/DC	27	1	0	59			0	0					104	1173	2795
VA/W.VA	32	116	14	6583	3	5	0	489	3	7	1	1422	288	997	2688
N. CARO	2305	174	21	10970	7	16	2	1736					372	1014	2743
BRAGG	46392	1140	101	39976	34	16	2	1695	8	11	1	2404	430	1020	2768
OEVENS	970	170	20	10713	1	18	2	2782	1	0	0	2	371	1579	3067
DRUM	1310	110	13	6587			0	0	1	0	0	31	331	1415	2824
MEADE	3805	94	11	3971	4	0	0	9	3	8	1	1772	89	1183	2798
BELVOIR	1652	139	16	6217			0	0					125	1162	2793
DIX	1340	147	17	6693	2	0	0	6	1	0	0	4	134	1327	2867
EUSTIS	4622	184	19	9061	2	0	0	6					267	1158	2895
LEE	411	92	11	4920	2	2	0	176					241	1111	2840
TOAD	55	16	1	395			0	0	1	0	0	13	127	1335	2811
LEAD	13467	293	24	3943	46	14	1	1671	8	7	1	1408	47	1167	2712

	LBDA LINES	LBDA WEIGHT	LBDA T/LOADS	LBDA COST									LBDA MILEAGE		
OHIO	41	26	3	1015	5	33	3	3114					288	877	2410
MICH	1182	161	16	8243	15	31	3	3357	3	1	0	278	374	1025	2374
INDIANA	17	0	0	2			0	0	1	0	0	3	192	731	2238
ILL.	1615	190	19	9574	7	1	0	58	1	1	0	123	361	645	2050
WISC	15	36	4	2202	9	20	2	1941	2	0	0	2	519	892	2073
MINN	17	26	3	2088	8	19	2	1856					786	920	1932
IOWA	610	79	8	5376			0	0					662	683	2741
MCCOY	599	32	3	2264	2	0	0	1	2	18	2	3039	649	952	1997
SHERIDN	6	0	0	4					1	1	0	111	598	831	1790
KENT	220	3	0	83	18	1	0	76					48	715	2389
CAMPBLL	29332	603	60	24645	5963	179	18	10695	5	0	0	49	231	585	2242
KNOX	40976	1645	114	28041	8339	1816	107	57978	13	84	7	15813	103	648	2343

	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	AMAD LINES	AMAD WEIGHT	AMAD T/LOADS	AMAD COST					NCAD MILEAGE	AMAD MILEAGE	
FLORIDA	1	0	0	9	13	24	2	1125					936	309	2507
GEORGIA	83	53	6	4696	804	231	23	7219	1	5	0	926	714	91	2401
S. CARO	1	2	0	155	1041	113	11	5271					574	388	2622
ALABAMA	4	2	0	227	2341	171	17	5608					871	113	2327
MISS	329	111	13	12393	345	94	9	4347	1	0	0	6	1038	303	2082
TENN	1	0	0	1	48	7	1	375	1	0	0	8	711	214	2226
JACKSON	6	11	1	854	682	102	10	4794					574	313	2627
STEWART	3144	462	55	41256	42437	1874	130	56713					733	334	2648
BENNING	1390	355	42	34165	23074	1315	101	28612	50	116	10	22529	828	148	2433
GORDON	2	0	0	18	13	6	1	257					649	232	2556
MCCLELN					2885	133	13	2279					773	6	2321
RUCKER	3	0	0	9	11162	268	26	10145	1	0	0	0	948	199	2408
ANAD	6893	660	66	47063	28457	2143	146	23628	13	28	2	5142	773	0	2321

					RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST						RRAD MILEAGE	
MISSOUR	2	9	1	941	126	45	5	2348					927	376	1847
ARKANS	190	29	3	3226	124	32	3	1094					1049	159	1904
LOUISNA	76	20	2	2436	1524	63	7	3010					1201	325	2111
TEXAS	3	1	1	804	411	98	10	4932	1	1	0	106	1563	353	1691
OKLA	719	77	9	10118	9330	425	45	19092					1300	288	1563
KANSAS	36	4	0	464	282	19	2	1182					1109	490	1743
NEB/OAK	1	0	0	0	2	1	0	106					1344	1010	1528
HOOD	20990	1058	125	155394	99585	5790	402	222135	50	186	16	27230	1521	326	1682
POLK	2272	295	35	38047	31721	1781	118	41320	9	23	2	3850	1276	210	1978
RILEY	3271	370	44	44963	47192	1750	125	66144	32	170	14	24880	1174	533	1680
SAM HOU	3	0	0	20	13	9	1	497					1642	447	1660
BLISS	1663	231	27	41591	31464	1340	142	118672	13	36	3	3952	1975	807	1109
L. WOOD	351	69	8	7160	584	110	12	6550	2	0	0	2	934	462	1933
SILL	789	132	16	18084	10299	353	37	16711	2	0	0	30	1384	317	1546
CCAD	2021	23	3	3599	36171	266	28	17374	13	0	0	67	1679	530	1805
RRAD	4089	636	75	78824	10	1	0	18	6	0	0	19	1208	0	1790

					TEAD LINES	TEAD WEIGHT	TEAD T/LOADS	TEAD COST						TEAD MILEAGE	
COL/WYO	8	3	0	441	564	8	1	482	1	0	0	0	1614	535	1170
NEW MEX	1	0	0	7	87	32	5	3399					1839	623	1074
CARSON	2691	496	59	77128	42669	1904	127	81674	29	111	9	13284	1639	588	1258
OAK					5	1	0	89						914	

					RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	TEAD LINES	TEAD WEIGHT	TEAD T/LOADS	TEAD COST		RRAD MILEAGE	TEAD MILEAGE
MNT/IDA					14	87	9	14138	24	138	13	7332	2210	1695	446
UTAH/NV					3	7	1	1145	9	12	1	328	2305	1572	37
ARIZONA					1	0	0	1	15	63	6	4598	2300	1182	677
HUACHUC	10	0	0	27	6	11	1	1210	2	0	0	13	2222	1086	861
TEAD	507	96	11	17973	6	1	0	96	3810	443	34	5535	2073	1389	0

									SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST			SHAD MILEAGE
CALIF	47	60	7	13928	8	13	1	2306	1437	193	16	9846	2689	1843	288
OREGON	2	6	1	1469			0	0	14	17	1	1266	2769	2146	583
WASHNTN	34	8	1	1856	3	48	4	8367	12	24	2	2135	2712	2218	773
IRWIN	1554	516	61	114696	174	374	48	54320	13735	1316	107	46797	2553	1480	388
LEWIS	2081	273	32	61371	4715	293	31	61151	39956	1217	116	92865	2698	2231	758
ORD	32	15	2	3668	2414	123	13	21241	19641	691	105	31601	2880	1811	141
PRSIDIO									14	8	1	336	2785	1856	81
SAAD	5	1	0	215			0	0	1	0	0	0	2689	1843	52

											TOTAL	COST	2410823		
TOTAL	212899	12114	1274	1067720	447564	22844	1807	1009113	80983	4940	474	333991			

ALT. NO FIVE AND SIX MODE TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	0	0	6	1	0	0	3					543	1751	3218
NH/VER	5	12	1	816									418	1625	3040
MASS	2074	147	17	9349	3	0	0	0					381	1589	3084
CONN/RI	6	10	1	589	1	0	0	0					313	1521	3022
NEW YORK	3283	302	36	17120	6	0	0	18	3	11	1	2436	287	1483	2917
PENN	255	27	3	1163	73	2	0	231	31	1	0	282	180	1268	2739
NJ/DEL	946	74	9	3359	1	0	0	2					133	1291	2867
MD/DC	27	1	0	59			0	0					184	1173	2795
VA/W.VA	32	116	14	6583	3	5	0	489	3	7	1	1422	288	997	2688
N. CARO	2385	174	21	10970	7	16	2	1736					272	1614	2743
BRAGG	46392	1148	101	39974	54	16	2	1695	8	11	1	2404	438	1020	2768
DEVENS	970	170	20	10713	1	18	2	2782	1	0	0	2	371	1579	3067
DRUM	1310	110	13	6587			0	0	1	0	0	31	331	1415	2824
MEADE	3805	94	11	3971	4	0	0	9	3	8	1	1772	89	1183	2798
BELVOIR	1652	139	16	6217			0	0					125	1162	2793
DIX	1340	147	17	6693	2	0	0	6	1	0	0	4	136	1327	2867
EUSTIS	4622	164	19	9861	2	0	0	6					267	1158	2895
LEE	411	92	11	4920	2	2	0	176					241	1111	2840
TOAD	55	18	1	295			0	0	1	0	0	13	127	1335	2811
LEAD	13467	293	24	3943	46	14	1	1671	8	7	1	1408	47	1167	2712

	LBDA LINES	LBDA WEIGHT	LBDA T/LOADS	LBDA COST									LBDA MILEAGE		
OHIO	41	26	3	1015	5	33	3	3114					200	877	2410
MICH	1182	161	16	8243	15	31	3	3357	3	1	0	278	374	1025	2374
INDIANA	17	0	0	2			0	0	1	0	0	3	192	751	2238
ILL.	1615	190	19	9574	7	1	0	38	1	1	0	123	361	645	2050
WISC	15	36	4	2202	9	20	2	1941	2	0	0	2	519	892	2073
MINN	17	26	3	2088	8	19	2	1856					784	928	1932
IOWA	610	75	8	5578			0	0					662	683	2742
MCCOY	599	32	3	2264	2	0	0	1	2	18	2	3039	649	952	1997
SHERIDN	6	0	0	4					1	1	0	111	398	831	1790
KENT	220	3	0	83	10	1	0	76					40	715	2389
CAMPBLL	29332	603	60	24845	5963	179	18	10605	5	0	0	49	331	585	2242
KNOX	40976	1645	114	28041	8339	1016	107	57978	13	84	7	13813	103	648	2343

	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	ANAD LINES	ANAD WEIGHT	ANAD T/LOADS	ANAD COST					NCAD MILEAGE	ANAD MILEAGE	
FLORIDA	1	0	0	9	13	24	2	1125					936	389	2587
GEORGIA	83	53	6	4696	804	231	25	7219	1	3	0	926	714	91	2481
S. CARO	1	2	0	155	1841	113	11	5271					574	308	2622
ALABAMA	4	2	0	227	2341	171	17	5688					871	113	2327
MISS	329	111	13	12393	345	94	9	4347	1	0	0	6	1038	383	2082
TENN	3	0	0	1	40	7	1	275	1	0	0	8	711	214	2226
JACKSON	6	11	1	854	682	102	10	4796					574	313	2627
STEWART	3144	462	55	41256	42437	1874	130	56713					733	334	2648
BENNING	1390	355	42	34165	23074	1315	101	28612	50	116	10	22529	828	148	2433
GORDON	2	0	0	18	13	6	1	257					649	232	2556
MCCLELN					2885	133	13	2220					773	6	2321
RUCKER	3	0	0	9	11362	268	26	10143	1	0	0	0	948	199	2498
ANAD	6893	660	66	47063	28457	2143	146	23628	13	28	2	5342	773	0	2321

					RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST						RRAD MILEAGE	
MISSOUR	- 2	9	1	941	126	45	5	2348					927	374	1847
ARKANS	190	29	3	3226	124	32	3	1094					1049	159	1984
LOUISNA	76	20	2	2436	1524	63	7	3810					1201	325	2111
TEXAS	3	5	1	804	411	98	10	4932	1	1	0	106	1563	351	1691
OKLA	719	77	9	10118	9330	425	45	19092					1300	288	1563
HOUD	20990	1058	125	155394	99585	5790	402	222135	50	186	16	27230	1521	326	1682
POLK	2272	295	35	38047	31721	1781	118	41320	9	23	2	3850	1276	210	1978
SAM HOU	3	0	0	20	13	9	1	497					1642	447	1660
BLISS	1663	231	27	41591	31464	1340	142	118672	13	36	3	3952	1975	807	1109
L. WOOD	351	69	8	7160	584	110	12	6330	2	0	0	2	934	462	1933
SILL	789	132	16	18084	10299	353	37	16711	2	0	0	30	1384	317	1546
CCAD	2021	23	3	3599	36171	266	28	17374	13	0	0	67	1679	530	1805
RRAD	4089	636	75	78824	10	1	0	18	6	0	0	19	1208	0	1790

					PUDA LINES	PUDA WEIGHT	PUDA T/LOADS	PUDA COST						PUDA MILEAGE	
COL/WYO	8	3	0	441	564	8	1	260	1	0	0	0	1614	126	1170
NEW MEX	1	0	0	7	87	12	1	2255					1839	259	1074
CARSON	2691	496	59	77126	42669	1904	127	34854	29	111	9	13284	1639	36	1258
NEB/DAK	1	0	0	0	7	2	0	144					1364	669	1528
KANSAS	16	4	0	464	282	19	2	1220					1109	551	1743
RILEY	3271	370	44	44963	47192	1750	125	74095	32	170	14	26880	1174	488	1680

					RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	TEAD LINES	TEAD WEIGHT	TEAD T/LOADS	TEAD COST		RRAD MILEAGE	TEAD MILEAGE
MNT/IDA					14	87	9	14138	24	130	13	7332	2210	1695	446
UTAH/NV					3	7	1	1149	9	12	1	328	2385	1572	37
ARIZONA					1	0	0	1	15	61	6	4598	2388	1182	677
HUACHUC	10	0	0	27	6	11	1	1210	2	0	0	13	2222	1086	861
TEAD	587	96	11	17973	6	1	0	96	5810	443	34	5535	2073	1389	0

									SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST			SHAD MILEAGE
CALIF	47	68	7	13928	8	13	1	2386	1437	193	16	9846	2689	1843	288
OREGON	2	6	1	1469			0	0	14	17	1	1266	2769	2146	583
WASHNTN	34	8	1	1856	3	40	4	8367	72	24	2	2135	2712	2218	773
IRWIN	1554	516	61	114696	174	374	40	54326	13735	1316	107	48797	2353	1480	380
LEWIS	2081	273	32	63571	4715	293	31	61151	39956	1217	116	92865	2696	2231	738
ORD	32	15	2	3668	2414	123	13	21241	19641	691	105	31605	2888	1811	141
PRSIDIO									14	8	1	336	2785	1856	81
SAAD	5	1	0	215			0	0	1	0	0	0	2689	1843	52
TOTAL	212899	12114	1274	1867720	447564	22844	1807	968665	80983	4948	474	333991			

TOTAL COST 2370376

TOTAL LINES 741446

TOTAL WEIGHT 39898

ALT. NO ONE MODE LESS THAN TRUCKLD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	454	42	11529	43	2	1011	19	2	777	543	1751	3218
NH/VER	708	89	19733	69	7	2276	39	6	2451	418	1625	3646
MASS	194	13	3980	156	12	4476	46	3	1398	381	1589	3084
CONN/RI	1133	161	31321	97	18	3153	49	7	2483	313	1521	3022
NEW YORK	1460	126	30656	445	37	13803	147	19	6878	287	1483	2917
PENN	2818	219	42383	356	35	10907	82	7	2832	148	1286	2739
NJ/DEL	1115	86	18349	174	17	5239	58	7	2398	133	1291	2867
MD/DC	1101	114	19747	138	14	4139	45	5	1909	184	1175	2795
VA/W.VA	1982	156	39692	197	40	7824	57	20	4694	288	997	2688
N. CARO	265	9	3652	189	41	7650	52	16	4014	372	1614	2743
S. CARO	411	13	6335	176	42	7195	56	14	3677	574	858	2622
OHIO	1452	138	34131	217	38	7631	49	15	3599	374	877	2410
MICH	128	13	3374	161	31	6266	52	10	2882	479	1025	2374
INDIANA	1188	134	33578	152	31	5379	58	11	3155	552	751	2238
ILL.	37	3	1212	165	45	6502	45	10	2569	748	645	2050
WISC	1782	133	43910	263	33	7807	59	5	1971	793	892	2073
MINN	323	48	12413	230	38	7875	83	17	4489	1058	920	1932
IOWA	156	7	3052	69	10	1957	51	4	1686	958	685	2743
BRAGG	388	8	4264	1463	74	28692	534	65	23556	430	1020	2768
DEVENS	575	28	9641	151	19	5550	66	7	2870	371	1379	3067
DRUM	143	6	2197	148	18	3695	37	4	1438	331	1415	2824
MCCOY	1816	98	39756	125	14	3637	59	24	4780	982	952	1997
MEADE	1955	178	31409	268	20	6765	115	10	4238	89	1183	2798
SHERIDN	842	106	26381	97	21	3760	58	6	1879	672	831	1790
BELVOIR	3	0	29	75	11	2663	36	4	1399	125	1162	2793
DIX	1068	103	19824	227	27	7681	76	7	2987	134	1327	2867
EUSTIS	92	9	1991	95	21	4188	63	8	2868	267	1138	2895
JACKSON	150	4	2048	119	29	4891	36	4	1452	574	863	2627
LEE	427	76	12402	114	13	3383	35	4	1387	241	1111	2840
TOAD	1461	37	13488	38	7	2023	43	2	1222	127	1335	2811
LEAD	347	1	744	495	21	9425	153	12	5166	47	1167	2712
FLORIDA	335	46	12260	1853	133	38396	79	13	3922	936	735	2587
GEORGIA	561	60	16135	3525	272	72192	118	41	9014	714	641	2681
ALABAMA	804	119	25342	2307	232	49501	131	25	7226	871	561	2327
MISS	335	48	12354	2855	233	44328	105	22	5773	1038	308	2082
TENN	299	31	8600	2033	137	33215	64	5	1953	711	497	2226
KENT	162	21	4869	882	102	23115	34	6	1765	541	715	2589
MISSOUR	150	39	9102	973	128	21349	44	9	2383	927	374	1847
ARKANS	190	29	7294	1314	119	18278	41	5	1517	1049	159	1984
LOUISNA	390	72	17146	2921	241	47606	98	17	4954	1201	325	2111
TEXAS	447	54	16954	3070	174	42619	93	8	2899	1363	333	1691
OKLA	186	32	8102	951	100	16822	125	16	4667	1300	288	1563
KANSAS	245	44	10376	1292	118	26007	59	8	2433	1109	498	1743
NEB/DAK	137	51	8798	632	78	19650	48	9	2261	1344	1010	1528
COL/WYO	103	20	5054	989	90	25739	34	11	2831	1614	960	1178
NEW MEX	133	8	3697	368	52	13509	27	26	2949	1839	766	1074
CAMPBLL	139	2	1491	63	3	899	295	27	10326	757	505	2242
CARSON	64	9	2620	94	11	2630	678	135	38459	1639	849	1258
HOOD	152	2	1698	100	2	721	864	106	32316	1521	326	1682
POLK	184	16	5665	983	40	8992	357	61	17202	1276	210	1978
RILEY	75	11	2978	420	28	7472	471	82	21675	1174	333	1680
SAM HOU	77	15	3693	878	74	14487	21	2	701	1642	447	1660
STEWART	195	22	5961	660	21	9701	345	68	20874	715	872	2648
BENNING	7	1	184	32	1	447	239	35	11209	828	633	2433
BLISS	2	0	48	17	2	410	240	71	13098	1975	807	1109
GORDON	225	20	5845	1241	90	26512	97	4	1874	649	782	2556
KNOX	588	28	10964	199	15	4087	271	30	14522	603	646	2343
L. WOOD	122	7	2865	1525	175	33754	123	13	4465	934	462	1933
MCCLELN	151	25	5612	232	10	3315	36	2	1046	773	562	2321
RUCKER	345	49	12488	220	7	2911	134	17	5732	948	626	2408
SILL	23	7	1328	57	10	1381	143	30	7140	1384	317	1546
CCAD	2	0	15	9	0	141	374	16	7596	1679	530	1805
ANAD	336	4	3325	33	0	198	412	78	22348	773	556	2321
RRAD	83	2	1152	1	0	0	489	50	15613	1208	0	1790
MNT/IDA	161	24	7397	129	32	6965	933	139	30484	2210	1695	837
UTAH/NV	119	28	6891	95	17	4269	616	89	19793	2303	1572	441
ARIZONA	62	20	4253	189	20	5721	617	99	19646	2300	1182	693
CALIF	431	74	22250	446	111	24999	2304	265	23961	2689	1843	52
OREGON	132	24	7093	78	7	2760	956	78	18881	2769	2146	583
WASHNTN	78	17	4297	82	24	5328	1068	132	30394	2712	2218	773
IRWIN	4	0	113	1194	123	39073	70	10	1864	2553	1680	380
LEWIS	27	4	1310	33	5	1588	228	17	4783	2696	2231	758
ORD	891	116	40619	77	10	3139	1160	81	12804	2880	1811	141
PRSIDIO	81	16	4598	39	8	2036	458	45	5846	2785	1856	81
HUACHUC	135	12	4856	98	20	4055	982	70	20980	2222	1886	877
SAAD	116	11	4406	18	2	712	379	65	9081	2689	1843	52
TEAD	2	0	63	382	43	12794	9	1	167	2873	1389	693
TOTAL	35154	3414	865508	42435	3864	921535	18691	2498	591143			

TOTAL COST 2378206

TOTAL LINES 96280

TOTAL WEIGHT 9767

ALT. NO ONE - IDEAL
MODE LESS THAN TRUCKLOAD

DESTINATION	TOTAL LINES	WEIGHT S-TONS	NCAD LINES	NCAD WEIGHT	NCAD LINES	NCAD WEIGHT	NCAD LINES	NCAD WEIGHT	TOTAL LINES	TOTAL WEIGHT	NCAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	2530	74	434	42	42	2	19	2	515	46	12843	543	1751	3218
NH/VER	3894	162	708	69	89	7	39	8	816	104	22902	418	1625	3040
MASS	7929	248	194	13	154	12	46	3	394	28	8064	381	1589	3084
CONN/RI	7057	260	1133	161	97	10	49	7	1279	178	34961	313	1521	3022
NEW YORK	18364	811	1468	126	445	37	147	19	2032	182	45670	287	1483	2917
PENN	10813	391	2818	219	336	35	82	7	3236	252	49881	166	1206	2739
NJ/DEL	13768	501	1113	86	174	17	58	7	1347	110	22802	133	1291	2867
MD/DC	4962	181	1181	114	138	14	45	5	1284	133	23068	104	1173	2795
VA/W.VA	7881	486	1982	156	197	40	57	20	2236	215	49658	288	997	2686
N. CARO	8258	332	283	9	189	41	52	16	506	66	13939	372	1014	2743
S. CARO	6666	255	411	15	176	42	56	14	643	70	18039	574	858	2622
OHIO	6644	329	1452	138	217	38	49	15	1718	191	43753	374	877	2610
MICH	4714	366	128	13	181	31	52	10	361	54	11068	479	1025	2374
INDIANA	7723	248	1188	134	152	31	56	11	1395	176	41792	532	731	2238
ILL.	8478	496	37	5	165	45	45	10	247	60	11110	748	645	2050
WISC	7315	356	1702	135	283	33	59	5	2024	173	54263	793	892	2073
MINN	7387	432	323	48	230	30	83	17	636	96	26472	1038	920	1932
IOWA	4320	134	156	7	69	10	51	4	276	20	7125	958	683	2742
BRAGG	68693	1633	386	6	1463	74	334	65	2383	146	46471	430	1020	2768
DEVENS	11042	346	575	28	151	19	66	7	792	54	15727	371	1379	3067
DRUM	6857	179	143	6	145	10	37	4	325	19	5852	331	1415	2824
MCCOY	8774	247	1816	98	135	14	39	24	2090	136	49304	903	952	1997
MEADE	21254	446	1953	176	268	20	115	18	2338	206	37159	89	1183	2798
SHERIDN	6817	186	842	106	97	21	50	6	989	133	32089	672	831	1790
BELVOIR	5952	249	3	0	75	11	36	4	114	14	2371	125	1162	2793
DIX	10811	328	1068	105	227	27	76	7	1363	140	25911	134	1327	2867
EUSTIS	7514	288	92	9	95	21	63	8	250	37	6829	267	1158	2895
JACKSON	5191	213	158	4	119	29	36	4	309	36	8948	274	863	2627
LEE	5179	275	427	76	114	13	35	4	576	93	15964	241	1111	2840
TOAB	6321	166	1461	37	38	7	43	2	1582	47	15698	127	1335	2811
LEAD	18022	484	347	1	495	21	153	12	995	34	8378	47	1187	2712
SUBTOT	322594	11110	25888	2153	6726	760	2350	337				412.452	1144.48	2656.23
			RRAD	RRAD	RRAD	RRAD	RRAD	RRAD	RRAD	RRAD	RRAD			
FLORIDA	6873	260	353	46	1835	133	79	12	2287	191	51311	936	733	2587
GEORGIA	14573	892	341	60	3525	273	110	41	4176	374	92127	714	641	2401
ALABAMA	17818	1229	684	119	2587	222	131	25	3642	366	73300	871	541	2327
MISS	14792	888	325	48	2835	225	105	22	3265	293	54636	1038	388	2082
TENN	6320	274	299	31	2033	137	64	5	2396	173	42946	711	497	2226
KENT	5161	165	162	23	882	102	34	6	1078	128	28733	541	715	2389
MISSOUR	5831	348	150	39	973	128	44	9	1167	197	29874	927	374	1847
ARKANS	5438	259	190	29	1514	119	41	5	1745	152	22248	1049	159	1904
LOUISNA	11125	588	390	72	2921	241	98	17	3409	330	60398	1201	325	2111
TEXAS	10859	492	447	54	3078	174	93	8	3610	237	54028	1563	353	1691
OKLA	17648	753	188	32	951	100	125	16	1262	149	23643	1300	288	1583
KANSAS	6077	280	245	44	1292	116	59	8	1596	170	34785	1109	498	1743
NEB/DAK	3896	191	137	31	632	78	48	9	817	138	29801	1344	1010	1528
COL/WYO	3038	186	103	29	989	98	36	11	1126	122	32029	1614	960	1170
NEW MEX	2596	160	133	8	568	52	27	26	728	86	19803	1839	766	1074
CAMPBLL	42744	1039	139	2	63	3	295	27	497	32	8493	757	505	2242
CARSON	60555	3655	64	9	94	11	678	133	836	153	29875	1639	849	1258
HOOD	133934	8274	152	2	100	2	864	106	1116	109	19922	1521	328	1682
POLK	47373	3308	184	16	903	40	357	61	1444	117	19741	1276	210	1978
RILEY	65826	3803	75	11	439	28	471	82	986	122	23726	1174	533	1680
SAM HOU	4267	144	77	15	676	74	21	2	774	91	17084	1642	447	1660
STEWART	63858	3102	195	22	660	21	345	68	1200	112	30403	733	872	2648
BENNING	30217	2078	7	1	32	1	239	35	278	36	7426	828	635	2433
BLISS	45696	2749	2	0	17	2	240	71	259	73	11271	1973	807	1109
GORDON	9578	214	223	20	1241	90	57	4	1523	114	33117	649	782	2556
KNOX	61560	3857	588	28	199	15	271	30	1058	93	23262	603	648	2343
L. WOOD	9647	549	122	7	1525	175	123	13	1770	196	38430	934	462	1933
MCCLELN	5125	212	151	25	232	10	36	2	419	37	8740	773	562	2321
RUCKER	18536	535	345	49	220	7	134	17	699	73	16539	948	626	2408
SILL	16450	891	23	7	57	10	143	30	223	47	5854	1384	317	1546
CCAD	44392	348	2	0	9	0	374	16	385	16	5392	1679	530	1805
ANAD	38914	3280	336	4	33	0	412	78	781	82	17763	773	556	2321
RRAD	8366	1090	83	2	1	0	409	30	493	32	0	1208	0	1790
SUBTOT	841675	45213	7035	914	32849	2680	6561	1078				1128.88	540.212	1947.76
			SHAD	SHAD	SHAD	SHAD	SHAD	SHAD	SHAD	SHAD	SHAD			
MNT/IDA	9459	649	161	24	129	32	933	139	1223	195	41605	2210	1695	837
UTAH/NV	5259	279	119	38	95	17	616	89	830	134	22664	2305	1572	441
ARIZONA	5438	254	62	20	189	20	617	99	868	138	27616	2300	1182	693
CALIF	18295	1147	431	74	446	111	2304	265	3181	450	37453	2689	1843	52
OREGON	6837	210	132	24	78	7	938	78	1166	102	24294	2769	2146	583
WASHNTN	4813	334	78	17	82	24	1068	132	1220	173	37615	2712	2218	773
IRWIN	22213	3948	4	0	1194	123	78	10	1268	133	25378	2553	1480	380
LEWIS	39658	2577	27	4	33	5	228	17	288	27	6812	2696	2231	758
ORD	33740	1442	891	116	77	10	1160	81	2128	208	28617	2880	1811	141
PRSIDIO	3924	114	81	18	39	8	458	45	578	69	7226	2785	1856	81
HUACHUC	7291	165	135	12	98	26	982	78	1215	103	28717	2222	1086	877
SAAD	5417	148	116	11	18	2	379	65	513	78	6307	2689	1843	52
YEAD	8789	778	2	0	382	43	9	1	393	44	10106	2073	1389	692
SUBTOT	190933	12046	2231	347	2860	424	9788	1083				2529.46	1719.38	489.231
												1356.93	1133.69	1697.74
TOTAL	1355202	68369	35154	3414	42435	3864	18691	2498	TOTAL COST		2034438	AR55-60	AR55-60	
									TOTAL LINES		96280			
									TOTAL WEIGHT		9767			

ALT. NO TWO LESS THAN TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	454	42	11529	42	2	1011	19	2	777	543	1751	3218
NH/VER	708	89	19753	69	7	2276	39	8	2451	418	1625	3040
MASS	194	13	3900	154	12	4476	46	3	1398	381	1589	3084
CONN/RI	1133	101	31321	97	10	3153	49	7	2403	313	1521	3022
NEW YORK	1460	126	38656	445	37	13003	147	19	6876	287	1483	2917
PENN	2815	219	62383	358	33	10307	82	7	2832	100	1208	2739
NJ/DEL	1115	86	18349	174	17	5239	58	7	2598	133	1291	2867
MD/DC	1101	114	19747	138	16	4139	45	5	1909	104	1173	2795
VA/W.VA	1982	156	39692	197	40	7824	57	20	4694	268	997	2688
N. CARO	265	9	5652	189	41	7858	52	16	4814	372	1014	2743
OHIO	1452	138	34131	217	38	7831	49	15	3599	374	877	2618
MICH	128	13	3374	161	31	6266	52	10	2882	479	1025	2574
INDIANA	1188	134	33578	153	31	5379	58	11	3153	592	731	2238
ILL.	37	5	1212	165	43	6502	45	10	2569	748	645	2056
WISC	1702	135	43910	263	33	7807	59	5	1971	793	892	2073
MINN	325	48	12413	230	30	7075	83	17	4489	1058	920	1932
IOWA	136	7	3052	69	10	1957	31	4	1686	958	683	2742
BRAGG	388	8	4264	1463	74	28692	334	65	23556	430	1020	2768
DEVENS	575	28	9641	151	19	5330	68	7	2870	371	1579	3067
DRUM	143	6	2197	145	10	3695	37	4	1436	331	1415	2824
MCCOY	1816	98	39734	125	14	3657	39	24	4789	903	952	1997
MEADE	1955	176	31409	268	29	6765	115	10	4238	89	1183	2798
SHERIDN	842	106	26381	97	21	3760	50	6	1879	672	831	1790
BELVOIR	3	0	29	75	11	2663	36	4	1399	125	1162	2793
DIX	1060	105	19826	227	27	7681	76	7	2987	134	1327	2867
EUSTIS	92	9	1991	95	21	4188	63	8	2868	267	1138	2895
LEE	427	76	12402	114	13	3385	35	4	1507	241	1111	2849
TOAD	1461	37	13488	58	7	2023	43	2	1222	127	1333	2811
LEAD	347	1	744	495	21	9425	153	12	5166	47	1167	2712

	ANAD LINES	ANAD WEIGHT	ANAD COST						ANAD MILEAGE	
FLORIDA	353	46	12260	1855	135	38614	79	12	3922	936	309	2307
GEORGIA	541	60	16135	3525	273	39861	110	41	9014	714	91	2401
S. CARO	178	42	7349	411	15	4814	56	14	5677	574	308	2622
ALABAMA	604	119	25342	2307	222	31485	131	25	7226	871	113	2327
MISS	328	48	12334	2855	223	48093	105	22	5771	1038	303	2082
TENN	299	31	8000	2053	137	28270	64	5	1955	711	214	2226
KENT	162	21	4869	882	102	20235	34	6	1765	541	416	2389
JACKSON	119	29	5022	150	4	1429	36	4	1452	574	313	2627
CAMPBLL	139	2	1491	63	3	766	295	27	10326	757	289	2242
STEWART	195	32	5981	860	21	7136	345	68	20074	733	334	2648
BENNING	7	1	184	32	1	285	239	35	11209	828	148	2433
GORDON	225	28	5845	1241	98	18409	37	4	1876	649	232	2536
KNOX	588	28	10964	199	15	3526	271	50	14522	603	363	2343
MCCLELN	151	25	5612	232	10	777	56	2	1066	773	6	2321
RUCKER	345	49	12488	220	7	2034	134	17	5732	948	199	2488
ANAD	336	4	3325	33	0	0	412	76	22348	773	0	2321

	RRAD LINES	RRAD WEIGHT	RRAD COST						RRAD MILEAGE	
MISSOUR	156	59	9102	973	128	21349	44	9	2363	937	374	1847
ARKANS	190	29	7294	1514	119	18278	41	5	1517	1049	159	1984
LOUISNA	390	72	17146	2921	241	47886	98	17	4934	1201	325	2111
TEXAS	447	54	16954	3070	174	42819	93	8	2899	1563	353	1691
OKLA	186	32	8102	951	100	16822	125	16	4667	1300	288	1563
KANSAS	245	44	10376	1292	118	26807	59	8	2435	1109	490	1743
NEB/BAK	137	51	8798	632	78	19850	48	9	2261	1344	1010	1528
COL/WYO	103	20	5056	989	90	25739	34	11	2831	1614	960	1170
NEW MEX	133	8	3697	568	52	13309	27	26	2949	1839	766	1074
CARSON	64	9	2820	94	11	2830	678	135	38459	1639	849	1258
HOOD	152	2	1698	100	2	721	864	106	32218	1521	326	1682
POLK	184	16	5863	903	48	8992	357	61	17202	1276	210	1978
RILEY	75	11	2976	420	28	7472	471	82	21675	1174	333	1680
SAM HOU	77	15	3692	676	74	14407	21	2	701	1642	447	1660
BLISS	2	0	48	17	2	410	240	71	13098	1973	807	1109
L. WOOD	122	7	2865	1525	175	33754	123	13	4465	934	462	1933
SILL	23	7	1328	57	10	1381	143	30	7140	1384	317	1546
CCAD	2	0	13	9	0	141	174	16	7596	1675	510	1803
KRAD	83	2	1152	1	0	0	409	50	13613	1208	0	1790
MNT/IDA	161	24	7397	129	32	6965	933	139	30484	2210	1695	837
UTAH/NV	119	28	6891	95	17	4269	616	89	15753	2305	1372	441
ARIZONA	62	20	4233	189	20	3721	617	99	19646	2300	1182	693
CALIF	431	74	22250	446	111	24999	2304	265	23961	2689	1843	52
OREGON	132	24	7093	78	7	2760	956	70	18001	2769	2146	583
WASHNTN	70	17	4297	82	24	3328	1068	132	30394	2712	2218	773
IRWIN	4	0	115	1194	125	39873	70	10	1684	2353	1480	380
LEWIS	27	4	1310	33	5	1580	228	17	4783	2696	2231	758
ORD	891	116	40619	77	10	3139	1166	81	12804	2880	1811	141
PRSIDIO	81	16	4598	39	8	2036	458	45	5946	2785	1856	81
HUACHUC	135	12	4856	98	20	4055	982	78	20988	2222	1086	877
SAAD	116	11	4486	18	2	712	379	63	9001	2689	1843	52
TEAD	2	0	65	382	43	12794	9	1	167	2975	1389	692
TOTAL	34888	3466	869298	42701	3812	835837	18691	2490	591143			

TOTAL COST 2296098

TOTAL LINES 96280

TOTAL WEIGHT 9768

ALT. NO THREE LESS THAN TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	454	42	11529	42	2	1011	19	2	777	543	1751	3218
NH/VER	708	89	19753	69	7	2276	39	8	2451	418	1625	3040
MASS	194	13	3900	154	12	4476	46	3	1398	381	1589	3084
CONN/RI	1133	161	31321	97	10	3153	49	7	2483	313	1521	3022
NEW YORK	1468	126	38656	445	37	13083	147	19	6878	287	1483	2917
PENN	2818	210	42383	356	35	10587	82	7	2832	100	1208	2739
NJ/DEL	1115	86	18349	174	17	5239	58	7	2598	133	1291	2867
MD/DC	1101	114	19747	138	14	4139	45	5	1909	104	1173	2795
VA/W.VA	1982	136	39692	197	40	7824	57	20	4694	288	997	2688
N. CARO	263	9	3652	189	41	7858	52	16	4014	372	1014	2743
OHIO	1452	138	34131	217	38	7631	49	15	3599	374	877	2610
MICH	128	13	3374	161	31	6266	32	10	2882	479	1025	2374
INDIANA	1188	134	33578	152	31	5379	58	11	3133	552	731	2238
ILL.	37	3	1212	165	45	6302	45	10	2569	748	645	2058
WISC	1702	135	43910	263	33	7807	59	5	1971	793	892	2073
MINN	325	48	12413	230	30	7075	83	17	4489	1058	928	1932
IOWA	136	7	3052	69	10	1957	51	4	1886	958	683	2742
BRAGG	388	8	4264	1463	74	28692	534	65	23556	430	1020	2768
DEVENS	575	28	9641	151	19	5330	66	7	2870	371	1579	3067
DRUM	143	6	2197	145	10	3895	37	4	1438	331	1415	2824
MCCOY	1816	98	39754	125	14	3637	59	24	4789	903	952	1997
MEADE	1955	176	31409	268	20	6765	115	10	4238	89	1183	2798
SHERIDN	842	106	26381	97	21	3760	50	6	1879	672	831	1790
BELVOIR	3	0	29	73	11	2663	36	4	1399	135	1162	2793
DIX	1060	105	19824	227	27	7681	76	7	2987	134	1327	2867
EUSTIS	92	9	1991	95	21	4188	65	8	2868	267	1138	2895
LEE	427	76	12402	114	13	3585	35	4	1587	241	1111	2840
TOAD	1461	37	13488	58	7	2023	43	2	1322	127	1335	2811
LEAD	347	1	744	495	21	9425	133	12	5166	47	1167	2712

				ANAD LINES	ANAD WEIGHT	ANAD COST					ANAD MILEAGE	
FLORIDA	353	46	12260	1855	133	30014	79	12	3922	936	309	2307
GEORGIA	541	66	16135	3523	273	39861	110	41	9014	716	91	2481
S. CARO	176	42	7349	411	13	4614	56	14	3677	574	308	2622
ALABAMA	604	119	25342	2307	222	31483	131	25	7226	871	113	2327
MISS	325	48	12554	2855	223	40093	105	22	5773	1038	303	2082
TENN	299	31	8600	2033	137	28278	64	5	1953	791	214	2226
KENT	162	21	4869	882	102	20235	34	6	1765	541	410	2389
JACKSON	119	29	5022	156	4	1429	36	4	1452	574	313	2627
CAMPBLL	139	2	1491	63	3	766	295	27	10326	757	269	2242
STEWART	195	22	5961	660	21	7136	345	68	20074	733	334	2648
BENNING	7	1	184	32	1	285	239	35	11209	828	148	2433
GORDON	225	20	5845	1241	90	18409	57	4	1874	649	232	2356
KNOX	588	28	10964	199	15	3526	271	58	14523	603	365	2343
MCCLELN	151	25	5612	232	10	777	36	2	1846	773	6	2321
RUCKER	345	49	12488	220	7	2054	134	17	5732	948	199	2408
ANAD	336	4	3325	33	0	0	412	78	22348	773	0	2321

				RRAD LINES	RRAD WEIGHT	RRAD COST					RRAD MILEAGE	
MISSOUR	150	59	9102	973	128	21349	44	9	2363	927	374	1847
ARKANS	190	29	7294	1314	119	18278	47	5	1317	1049	158	1904
LOUISNA	390	72	17146	2921	241	47606	98	17	4954	1201	325	2111
TEXAS	447	54	16954	3070	174	42619	93	8	2899	1563	353	1691
OKLA	186	32	8102	951	100	16822	125	16	4667	1300	288	1563
KANSAS	245	44	10376	1292	118	26007	59	8	2435	1109	490	1743
NEB/DAK	137	51	8798	211	26	6336	48	9	2261	1344	1010	1528
HOOD	152	2	1698	108	2	721	864	106	32218	1521	326	1682
POLK	184	16	5665	983	40	8992	357	61	17202	1276	210	1978
RILEY	75	11	2976	420	28	7472	471	82	21675	1174	533	1680
SAM HOU	77	15	3692	676	74	14407	21	2	701	1642	447	1660
BLISS	2	0	48	17	2	410	240	71	13098	1975	807	1109
L. WOOD	122	7	2865	1525	175	33754	123	13	4465	934	462	1933
SILL	23	7	1328	57	10	1381	143	30	7140	1384	317	1546
CCAD	2	0	13	9	0	141	374	16	7596	1679	530	1805
RRAD	83	2	1152	1	0	0	409	50	15613	1208	0	1790

				TEAD LINES	TEAD WEIGHT	TEAD COST					TEAD MILEAGE	
COL/WYO	103	20	5054	989	90	21857	34	11	2031	1614	535	1170
NEW MEX	133	8	3697	568	52	13146	27	26	2949	1839	623	1074
CARSON	64	9	2620	94	11	2429	678	135	30459	1639	588	1258
DAK				421	52	13060					914	

				RRAD LINES	RRAD WEIGHT	RRAD COST	TEAD LINES	TEAD WEIGHT	TEAD COST		RRAD MILEAGE	TEAD MILEAGE
MNT/IDA	161	24	7397	129	32	6965	933	139	23318	2210	1695	446
UTAH/NV	119	28	6891	95	17	4269	616	89	7276	2305	1572	37
ARIZONA	62	20	4253	189	20	5721	617	99	19931	2300	1102	677
HUACHUC	135	12	4856	98	20	4053	982	70	22193	2222	1086	861
TEAD	2	0	63	382	43	12794	9	1	0	2073	1389	0

							SHAD LINES	SHAD WEIGHT	SHAD COST			SHAD MILEAGE
CALIF	431	74	22250	446	111	24999	2304	265	23961	2689	1843	52
OREGON	132	24	7093	78	7	2760	956	70	18001	2769	2146	583
WASHNTN	70	17	4297	82	24	5328	1068	132	30394	2712	2218	773
IRWIN	4	0	113	1194	123	39073	70	10	1664	2353	1480	380
LEWIS	27	4	1310	33	5	1580	228	17	4783	2696	2231	738
ORD	891	116	40819	77	10	3139	1160	81	12804	2889	1811	141
PRSIDIO	81	16	4598	39	8	2036	458	45	5046	2785	1836	81
SAAD	116	11	4406	18	2	712	379	65	5001	2689	1843	52

TOTAL	34888	3466	869298	42701	3812	831156	18691	2498	578838

TOTAL COST 2279285

TOTAL LINES 96280

TOTAL WEIGHT 9768

ALT. NO FOUR LESS THAN TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	436	42	11329	42	2	1011	19	2	777	543	1751	3218
NH/VER	708	69	19753	69	7	2270	30	6	2451	416	1625	3040
MASS	194	13	3900	154	12	4476	46	3	1398	381	1589	3084
CONN/RI	1133	161	31321	97	10	3133	49	7	2483	313	1521	3022
NEW YORK	1460	126	30636	445	37	13003	147	19	6878	287	1483	2917
PENN	2818	210	42383	336	35	10307	83	7	2832	100	1288	2739
NJ/DEL	1115	86	18349	174	17	5239	58	7	2398	133	1297	2867
MD/DC	1101	114	19747	138	14	4139	45	5	1909	104	1173	2795
VA/W.VA	1982	156	39692	197	40	7824	57	20	4884	266	997	2688
N. CARO	283	9	3652	189	41	7890	52	16	4014	372	1014	2743
BRAGG	588	8	4264	1463	74	28692	536	65	35556	438	1020	2768
DEVENS	275	28	9641	151	19	5530	60	7	2870	371	1579	3067
DRUM	143	6	2197	145	10	3691	37	4	1438	351	1415	2824
MEADE	1935	176	31409	268	20	6765	113	10	4236	89	1183	2798
BELVOIR	3	0	29	75	11	2863	30	4	1399	125	1163	2795
DIX	1060	185	19826	227	27	7681	76	7	2987	134	1327	2867
EUSTIS	92	9	1991	95	21	4188	65	8	2868	287	1158	2895
LEE	427	76	13402	114	13	3585	33	4	1567	241	1111	2840
TOAD	1481	37	13488	58	7	2023	43	2	1232	127	1335	2811
LEAD	347	1	744	495	31	9435	193	12	5166	47	1167	2712

	LBDA LINES	LBDA WEIGHT	LBDA COST							LBDA MILEAGE		
OHIO	1432	138	23710	217	38	7851	49	15	3599	208	877	2610
MICH	120	13	2718	161	31	6266	52	10	2582	374	1025	2374
INDIANA	1188	134	21854	152	31	5579	58	11	3153	192	731	2238
ILL.	37	5	871	165	43	6502	43	10	2569	361	643	2030
WISC	1702	133	34659	263	33	7807	59	5	1971	519	892	2073
MINN	325	48	10608	230	38	7075	83	17	4489	784	920	1932
IOWA	138	7	2623	69	10	1957	51	4	1686	662	683	2742
MCCOY	1816	98	32101	125	14	3637	59	24	4789	649	932	1997
SHERIDN	842	106	20869	97	21	3760	56	6	1879	398	831	1790
KENT	882	102	9461	162	31	5647	34	6	1765	48	418	2389
CAMPBLL	43	3	743	139	2	656	295	27	10326	251	269	2242
KNOX	199	15	2309	388	28	7551	271	36	14522	183	365	2343

	NCAD LINES	NCAD WEIGHT	NCAD COST	AMAD LINES	AMAD WEIGHT	AMAD COST				NCAD MILEAGE	AMAD MILEAGE	
FLORIDA	353	46	12260	1655	133	38014	79	12	3922	936	309	2587
GEORGIA	541	60	16133	3525	272	59861	110	41	9014	714	91	2481
S. CARO	176	42	7349	411	13	4614	56	14	3677	574	308	2022
ALABAMA	684	119	25342	2307	222	51483	131	25	7226	671	115	2527
MISS	323	48	12354	2855	223	48093	105	22	5773	1058	305	2082
TENN	299	31	8600	2033	137	28278	64	5	1953	711	214	2226
JACKSON	119	29	5022	158	4	1429	36	4	1452	574	313	2627
STEWART	195	22	5961	666	21	7136	243	68	20874	733	334	2648
BENNING	7	1	184	32	1	285	239	35	11209	828	146	2433
GORDON	225	28	5845	1241	90	18409	57	4	1874	649	232	2556
MCCLELN	151	25	5612	232	10	777	36	2	1046	773	6	2521
RUCKER	345	49	12488	220	7	2054	134	17	5732	968	199	2408
ANAD	336	4	3329	33	0	0	412	78	22348	773	0	2321

				RRAD LINES	RRAD WEIGHT	RRAD COST					RRAD MILEAGE	
MISSOUR	150	59	9102	975	128	21349	44	9	2363	927	374	1847
ARKANS-	190	29	7294	1514	119	16278	41	5	1517	1049	139	1904
LOUISNA	390	72	17146	2921	241	47686	98	17	4954	1201	325	2111
TEXAS	447	54	18954	3070	174	42819	93	8	2899	1365	353	1691
OKLA	186	32	8102	951	100	16822	125	16	4867	1300	288	1583
KANSAS	249	44	10376	1292	118	26007	59	8	2435	1109	490	1743
MEB/OAK	137	51	8798	211	28	6336	48	9	2261	1344	1010	1528
HOOD	132	2	1698	100	2	721	864	106	32218	1521	326	1682
POLK	184	16	3663	903	40	8992	337	61	17202	1276	210	1978
RILEY	75	11	2978	420	28	7472	471	62	21675	1174	533	1680
SAM HOU	77	15	3692	676	74	14407	21	2	701	1642	447	1660
BLISS	2	0	48	17	2	410	240	71	13098	1975	807	1109
L. WOOD	122	7	2883	1525	175	33734	123	13	4465	934	462	1933
SILL	23	7	1538	57	10	1381	143	30	7140	1384	317	1546
CCAD	2	0	13	9	0	141	374	16	7596	1479	530	1805
RRAD	83	2	1152	1	0	0	409	50	15613	1208	0	1790

				TEAD LINES	TEAD WEIGHT	TEAD COST					TEAD MILEAGE	
COL/WYO	103	20	5054	989	90	21837	34	11	2031	1614	535	1170
NEW MEX	133	8	3697	568	52	13148	27	26	2949	1839	623	1074
CARSON	64	9	2620	94	11	2429	678	135	30459	1639	588	1258
OAK				421	52	13060					914	

				RRAD LINES	RRAD WEIGHT	RRAD COST	TEAD LINES	TEAD WEIGHT	TEAD COST		RRAD MILEAGE	TEAD MILEAGE
MNT/IDA	161	24	7397	129	32	6965	933	139	25318	2218	1695	446
UTAH/NV	119	28	6891	95	17	4269	616	89	7276	2305	1972	37
ARIZONA	62	20	4253	189	20	5721	617	99	19951	2300	1182	677
HUACHUC	135	12	4856	98	20	4855	982	70	22195	2222	1666	861
TEAD	2	0	61	382	45	12794	9	1	0	2073	1389	0

							SHAD LINES	SHAD WEIGHT	SHAD COST			SHAD MILEAGE
CALIF	431	74	23250	446	111	24999	2304	265	23961	2689	1843	32
OREGON	132	24	7093	78	7	2760	956	70	18881	2769	2146	583
WASHNTN	70	17	4207	82	24	5528	1968	132	30396	2712	2218	773
IRWIN	6	0	113	1194	123	39073	78	10	1664	2553	1488	380
LEWIS	27	4	1316	33	3	1388	228	17	4763	2696	2231	758
ORD	891	116	40619	77	10	3139	1160	81	12804	2888	1811	141
PRESDIO	81	16	4398	39	8	3836	458	45	5846	2785	1856	81
SAAD	116	11	4606	18	2	712	379	65	5981	2689	1843	52
TOTAL	55143	5939	814681	42446	3745	818665	18691	3490	578839			

TOTAL COST 2212176

TOTAL LINES 96280

TOTAL WEIGHT 9768

ALT. NO FIVE AND SIX LESS THAN TRUCKLOAD

DESTINATION	NCAD LINES	NCAD WEIGHT	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	454	42	11529	42	2	1011	19	2	777	543	1751	3218
NH/VER	788	89	19753	69	7	2276	39	8	2451	418	1625	3040
MASS	194	13	3980	154	12	4478	46	3	1398	381	1589	3084
CONN/RI	1133	161	31321	97	10	3153	49	7	2483	313	1521	3022
NEW YORK	1460	126	30656	445	37	13003	147	19	6878	287	1483	2917
PENN	2818	210	42383	356	33	10307	82	7	2832	100	1208	2739
NJ/DEL	1115	86	18349	174	17	5239	58	7	2598	133	1291	2867
MD/DC	1101	114	19747	138	14	4139	45	5	1909	104	1173	2795
VA/W.VA	1982	156	39692	197	40	7824	57	20	4694	288	997	2688
N. CARO	265	9	3652	189	41	7850	52	16	4014	372	1014	2743
BRAGG	388	8	4264	1463	74	28693	534	65	23556	438	1020	2768
DEVENS	575	28	9641	151	19	5550	66	7	2870	371	1579	3067
DRUM	143	6	2197	145	16	3695	37	6	1438	351	1415	2824
MEADE	1955	176	31409	268	20	6765	115	10	4238	89	1183	2798
BELVOIR	3	0	29	75	11	2063	36	4	1399	123	1162	2793
DIX	1060	103	19824	227	27	7681	76	7	2987	134	1327	2867
EUSTIS	92	9	1991	95	21	4186	63	8	2868	267	1158	2895
LEE	427	76	12402	114	13	3585	35	4	1587	241	1111	2840
TOAD	1461	37	13488	58	7	2023	45	2	1222	127	1335	2811
LEAD	347	1	744	495	21	9425	153	12	5166	47	1167	2712

	LBDA LINES	LBDA WEIGHT	LBDA COST							LBDA MILEAGE		
OHIO	1452	138	23710	217	38	7631	49	15	3599	200	877	2410
MICH	128	13	2718	181	31	6266	52	10	2882	374	1025	2374
INDIANA	1188	134	21934	152	31	5379	58	11	3155	192	731	2238
ILL.	37	3	871	165	45	6502	45	10	2569	361	645	2050
WISC	1702	133	34459	263	33	7807	59	5	1971	519	892	2073
MINN	325	46	10668	230	30	7075	83	17	4489	784	920	1932
IOWA	156	7	2425	69	10	1957	51	4	1686	662	683	2742
MCCOY	1816	98	32103	125	14	3637	59	24	4789	649	952	1997
SHERIDN	842	106	20069	97	21	5760	50	6	1879	398	831	1790
KENT	882	102	9461	162	21	3647	34	6	1765	48	418	2389
CAMPBLL	63	3	743	139	2	856	295	27	10526	231	269	2242
KNOX	199	13	2389	588	28	7351	271	30	14522	103	365	2543

	NCAD LINES	NCAD WEIGHT	NCAD COST	AMAD LINES	AMAD WEIGHT	AMAD COST				NCAD MILEAGE	AMAD MILEAGE	
FLORIDA	353	46	12266	1855	133	30014	79	12	3922	936	389	2507
GEORGIA	541	60	16133	3525	273	39861	110	41	9014	714	91	2401
S. CARO	176	42	7349	411	15	4614	56	14	3677	574	308	2622
ALABAMA	604	119	25342	2307	222	31483	131	25	7228	871	113	2327
MISS	325	48	12394	2855	223	48093	105	22	5773	1038	303	2082
TENN	299	31	8600	2033	137	28278	64	5	1953	711	214	2226
JACKSON	119	29	5022	150	4	1429	36	4	1452	574	313	2627
STEWART	195	22	5961	660	21	7136	345	68	20074	733	334	2648
BENNING	7	1	184	32	1	285	239	35	11209	828	148	2653
GORDON	225	20	5845	1241	90	18409	57	6	1874	649	232	2556
MCCLELN	151	23	5612	232	10	777	36	2	1046	773	6	2321
RUCKER	345	49	12488	220	7	2034	134	17	5732	948	199	2488
AMAD	336	4	3325	11	0	0	452	78	32348	773	0	2321

				RRAD LINES	RRAD WEIGHT	RRAD COST					RRAD MILEAGE	
MISSOUR	150	39	9102	973	128	21349	44	9	2363	927	374	1847
ARKANS	190	29	7294	1514	119	18278	41	5	1517	1049	159	1904
LOUISNA	390	72	17146	2921	241	47606	98	17	4954	1201	325	2111
TEXAS	447	54	16954	3070	174	42619	93	8	2899	1363	353	1691
OKLA	186	32	8102	951	190	16822	125	16	4667	1300	288	1563
HOOD	152	2	1698	100	2	721	864	106	32218	1521	326	1682
POLK	184	16	5665	903	40	8992	357	61	17202	1276	210	1978
SAM HOU	77	13	3692	676	74	14407	21	2	701	1642	447	1660
BLISS	2	0	48	17	2	410	240	71	13098	1975	807	1109
L. WOOD	122	7	2865	1525	175	33754	123	13	4465	934	462	1933
SILL	23	7	1328	57	10	1381	143	30	7140	1384	317	1546
CCAD	2	0	13	9	0	141	374	16	7596	1679	530	1805
RRAD	83	2	1152	1	0	0	409	50	15613	1208	0	1790

				PUDA LINES	PUDA WEIGHT	PUDA COST					PUDA MILEAGE	
COL/WYO	103	20	5054	989	90	13602	34	11	2031	1614	126	1170
NEW MEX	133	8	3697	168	52	9857	27	26	2949	1839	259	1074
CARSON	64	9	2628	94	11	972	678	135	30459	1639	36	1258
KANSAS	245	44	10378	1292	118	28852	59	8	2435	1109	531	1743
NEB/OAK	137	51	8798	632	78	17691	48	9	2261	1344	669	1528
RILEY	75	11	2976	420	28	7655	471	82	21675	1174	488	1680

				RRAD LINES	RRAD WEIGHT	RRAD COST	TEAD LINES	TEAD WEIGHT	TEAD COST		RRAD MILEAGE	TEAD MILEAGE
MNT/IDA	161	24	7397	129	32	6965	933	139	25318	2210	1695	446
UTAH/NV	119	28	6891	95	17	4269	616	89	7276	2305	1572	37
ARIZONA	62	20	4255	189	20	3721	617	99	19931	2300	1182	677
HUACHUC	135	12	4856	98	20	4055	982	70	22193	2222	1086	861
TEAD	2	0	63	382	43	12794	9	1	0	2073	1389	0

							SHAD LINES	SHAD WEIGHT	SHAD COST			SHAD MILEAGE
CALIF	431	74	22250	446	111	24999	2304	265	23961	2689	1843	52
OREGON	133	24	7093	78	7	2760	956	70	18001	2769	2146	583
WASHNTN	70	17	4297	62	24	5328	1068	132	30394	2712	2218	773
IRWIN	4	0	113	1194	123	39073	70	10	1664	2353	1480	380
LEWIS	27	4	1310	33	3	1380	228	17	4783	2696	2231	758
ORD	891	116	40619	77	10	5159	1160	81	12804	2880	1811	141
PRSIDIO	81	16	4398	39	8	2036	458	45	5046	2785	1856	81
SAAD	116	11	4406	18	3	712	379	65	9001	2689	1843	52
TOTAL	35143	3535	814681	42446	3743	806786	18691	2490	578830			

TOTAL COST 2200298

TOTAL LINES 96280

TOTAL WEIGHT 9768

MODE UPS ALT. NO ONE

DESTINATION	NCAD LINES	NCAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	RRAD LINES	RRAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	SHAD LINES	SHAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	TOTAL COST
MAINE	942	13958	4	2.64	2487	128	1256	7	3.74	479	75	658	4	5.07	388	3366
NH/VER	1287	12669	4	2.64	3398	182	1469	6	3.26	593	98	890	4	5.07	497	4488
MASS	1316	13359	3	2.14	2816	352	1896	6	3.26	1148	180	1393	8	5.07	913	4876
CONN/RI	2135	20978	3	2.14	4569	341	1887	6	3.26	1112	144	1324	8	5.07	730	6411
NEW YOR	5391	44085	3	2.14	11537	1232	7286	6	3.26	4016	456	3789	8	5.07	2312	17865
PENN	4416	29551	2	1.73	7640	578	2892	6	3.26	1884	199	1688	8	5.07	1009	10533
NJ/DEL	3054	27551	2	1.73	6667	599	3041	6	3.26	1953	258	1924	8	5.07	1268	9888
MD/DC	1711	11531	2	1.73	2968	291	2368	6	3.26	949	95	846	8	5.07	482	4399
VA/W.VA	2338	17259	3	2.14	4986	519	2728	5	2.8	1453	216	1956	8	5.07	1095	7535
N. CARO	2257	18184	3	2.14	4838	615	3163	5	2.8	1722	166	1238	8	5.07	842	7394
S. CARO	1974	14921	4	2.64	5211	424	2645	5	2.8	1187	163	1481	8	5.07	826	7225
OHIO	1501	11642	4	2.64	3963	461	1774	5	2.8	1291	187	1768	8	5.07	948	6202
MICH	1133	11484	4	2.64	2991	265	1853	5	2.8	742	121	1180	8	5.07	613	4347
INDIANA	2968	22168	4	2.64	7836	460	2993	5	2.8	1288	214	1687	8	5.07	1085	10209
ILL.	1512	14062	5	3.02	4566	458	2682	4	2.47	1131	190	1679	7	4.43	842	6539
WISC	1891	19086	5	3.02	5711	475	3124	5	2.8	1330	158	1691	7	4.43	700	7741
MINN	2115	18360	5	3.02	6387	483	2797	5	2.8	1128	200	2017	7	4.43	886	8402
IOWA	1584	11133	5	3.02	4784	287	1684	4	2.47	709	118	889	7	4.43	523	6015
BRAGG	1943	15448	4	2.64	5130	4027	18382	5	2.8	11276	1726	14548	8	5.07	8751	25156
DEVENS	4218	29669	3	2.14	9009	516	3967	6	3.26	1682	210	1624	8	5.07	1065	11756
DRUM	2681	19156	3	2.14	5737	301	2687	6	3.26	981	177	1748	8	5.07	897	7616
MCCOY	3852	21295	5	3.02	9217	552	3758	5	2.8	1546	254	1782	7	4.43	1125	11888
MEADE	9164	52238	2	1.73	15854	1231	8259	6	3.26	4013	611	4972	8	5.07	3098	22965
SHERIDN	2175	15959	4	2.64	5270	396	2803	5	2.8	1109	163	1695	7	4.43	722	8101
BELVOIR	2090	12865	2	1.73	3616	270	1577	6	3.26	888	132	777	8	5.07	669	5165
DIX	4154	27053	2	1.73	7186	580	3306	6	3.26	1891	214	2179	8	5.07	1085	10162
EUSTIS	121	1152	3	2.14	259	543	1895	6	3.26	1770	159	1427	8	5.07	806	2835
JACKSON	2185	16509	4	2.64	5557	426	3161	5	2.8	1193	114	1089	8	5.07	578	7328
LEE	2856	13201	3	2.14	4400	292	2627	5	2.8	818	115	1256	8	5.07	583	5800
TOAD	2565	4288	2	1.73	4437	294	13845	6	3.26	958	288	1411	8	5.07	1460	6856
LEAD	76	5928	2	1.73	131	1483	6566	6	3.26	4574	884	6228	8	5.07	4076	8782
SUBTOT	76909	564518			170142	18981	119267			56885	8197	66466			40866	267813
FLORIDA	483	4822	5	3.23	1382	2282	18588	HA	2.86	6527	224	1916	8	5.07	1136	8964
GEORGIA	666	5887	4	2.81	1871	4606	22997	4	2.3	10594	239	2262	8	5.07	1313	13778
ALABAMA	668	6490	5	3.23	2158	3602	17392	4	2.3	8285	258	2586	8	5.07	1308	11750
MISS	1065	8769	5	3.23	3440	6535	31331	HA	1.92	12547	383	2553	7	4.43	1342	17329
TENN	646	3636	4	2.81	1253	2013	10444	4	2.3	4630	111	986	8	5.07	563	6446
KENT	422	3336	4	2.81	1186	2189	13988	5	2.59	5670	188	819	8	5.07	548	7403
MISSOUR	382	2668	5	3.23	975	2272	8678	3	1.89	4294	129	838	7	4.43	571	5841
ARKANS	353	1967	5	3.23	1140	1787	9283	2	1.57	2806	116	1138	7	4.43	505	4451
LOUISNA	469	3619	6	3.82	1792	2916	15562	3	1.89	5511	159	1666	7	4.43	704	8007
TEXAS	651	5586	6	3.82	2487	3045	15589	HA	2.13	6486	268	2888	7	4.43	1152	10124
OKLA	1162	10417	6	3.82	4439	1268	8651	3	1.89	2381	368	3197	6	3.82	1406	8226
KANSAS	596	4494	5	3.23	1925	2532	12923	HA	2.5	6318	168	1269	6	3.82	611	8866
NEB/OAK	272	2025	6	3.82	1039	1777	10279	HA	3.18	5651	75	667	6	3.82	287	6976
COL/WYO	451	4533	7	4.43	2007	1855	10437	5	2.59	4804	138	1029	5	3.23	428	7231
NEW MEX			7	4.43	0	931	3711	5	2.59	2411	120	1214	5	3.23	394	2799
CAMPBELL	195	1471	6	3.82	548	658	6274	4	2.3	1513	1743	8771	8	4.87	5238	7319
[illegible]	2882	22625	7	4.43	12411	754	4829	5	[illegible]	1953	2145	14648	5	3.23	7976	21940
HOOD	163	3338	6	3.82	623	372	1288	HA	1.49	748	3391	13648	7	4.43	18542	19955
POLK	2157	17822	6	3.82	9884	2648	18399	HA	3.18	5887	775	7362	7	4.43	7431	18134
RILEY	3696	24887	6	3.82	14119	2878	18766	4	2.3	4779	1184	9218	6	3.82	4523	23421
SAM HOU	263	1824	7	4.43	1165	1552	6248	HA	1.69	2561	112	524	7	4.43	496	4222
STEWART	2833	20887	6	3.82	7961	2736	12684	5	2.59	7086	1144	9554	8	5.07	5800	20847
BENNING	1762	13118	5	3.23	5691	1423	3743	4	2.3	743	582	4557	8	5.07	2545	8979
BLISS	3161	23202	7	4.43	14003	224	2848	HA	5.15	1154	879	8889	5	3.23	2839	17996
GORDON	995	5515	4	2.81	2796	3571	14664	5	2.59	9249	217	1144	8	5.07	1160	13145
KNOX	2717	17325	4	2.81	7635	841	5284	5	2.59	2178	875	7494	8	5.07	4436	14249
L. WOOD	774	8154	5	3.23	2500	3948	26499	3	1.89	7462	243	2514	7	4.43	1076	11018
MCCLPLN	288	3181	5	3.23	930	721	4658	4	2.3	1658	98	1118	8	5.07	497	3085
RUCKER	709	6563	5	3.23	2290	788	5696	4	2.3	1628	325	1717	8	5.07	1648	5566
SILL	999	9823	6	3.82	3816	347	1918	3	1.89	656	383	2125	6	3.82	1157	5629
ZCAD	1853	3925	7	4.43	8209	46	968	HA	4.58	211	1387	7454	7	4.43	5790	14209
ANAD	284	17259	5	3.23	659	39	1885	4	2.3	90	855	6483	8	5.07	4335	5083
RRAD	68	753	6	3.82	229	7	44	HA	1.74	12	688	8932	7	4.43	3812	3254
SUBTOT	33759	274953			121604	61215	314594			138486	18056	149139			78397	338487
MNT/IDA	562	4182	8	4.65	2613	623	3155	6	3.26	2031	4944	29992	5	2.8	13843	18487
UTAH/NV	284	2329	8	4.65	1321	313	1668	6	3.26	1028	2613	26386	4	2.47	6454	8795
ARIZONA	167	1089	8	4.65	777	232	1498	6	3.26	756	1856	13697	4	2.47	4584	6117
CALIF	885	5893	8	4.65	3743	1122	7271	7	3.74	4196	6193	40928	3	2.02	12518	20449
OREGON	319	2093	8	4.65	1483	314	1814	7	3.74	1174	2897	19975	4	2.47	7156	9813
WASHNTN	259	2572	8	4.65	1204	312	2021	7	3.74	1167	2228	22226	4	2.47	5503	7874
IRWIN	937	8134	8	4.65	4357	1523	10659	7	3.74	5696	16	157	3	2.02	28	10081
LEWIS	3011	24731	8	4.65	14001	213	847	7	3.74	797	1888	9663	4	2.47	4644	19441
ORD	1618	12735	8	4.65	7487	246	1319	7	3.74	928	2641	21863	2	1.65	4358	12764
PRSIDIO	157	1536	8	4.65	730	174	931	7	3.74	651	2292	13595	2	1.65	3782	5163
HUACHUC	355	1659	8	4.65	1651	476	2172	5	2.8	1333	3459	22569	5	2.8	9685	12669
SAAD	661	1562	8	4.65	3074	496	992	7	3.74	1518	2869	8162	2	1.65	3414	8006
TEAD	367	3671	8	4.65	1707	365	2384	6	3.26	1198	71	634	4	2.47	175	3872
SUBTOT	9494	71982			44147	6319	36851			22458	33157	229759			76136	142733
TOTAL	120162	911371			335894	86435	490712			217741	59418	445364			195398	749833
														TOTAL	LINES	266007
														TOTAL	WEIGHT	1.85E6

ALT. NO ONE IDEAL

[illegible] FROM	REAL LINES	REAL WEIGHT	UPS ZONE	UPS RATE	UPS COST	[illegible] LINES	[illegible] WEIGHT	UPS ZONE	UPS RATE	UPS COST	SHAD LINES	SHAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	TOTAL COST
MAINE	1145	15804	4	2.64	4071			7	3.74	0			8	5.07	0	3023
NH/VER	1567	15078	4	2.64	4137			6	3.26	0			8	5.07	0	4137
MASS	1448	14648	3	2.14	3955			6	3.26	0			8	5.07	0	3955
CONN/RI	2628	24189	3	2.14	5607			6	3.26	0			8	5.07	0	5607
NEW YOR	7879	55160	3	2.14	15149			6	3.26	0			8	5.07	0	15149
PENN	5193	36131	2	1.73	8984			6	3.26	0			8	5.07	0	8984
NJ/DEL	4703	32516	2	1.73	8136			6	3.26	0			8	5.07	0	8136
MD/DC	2097	14745	2	1.73	3628			6	3.26	0			8	5.07	0	3628
VA/W.VA	3865	21935	3	2.14	6559			5	2.8	0			8	5.07	0	6559
N. CARO	3838	22497	3	2.14	6581			5	2.8	0			8	5.07	0	6581
S. CARO	2561	18967	4	2.64	6761			5	2.8	0			8	5.07	0	6761
OHIO	2149	15184	4	2.64	5673			5	2.8	0			8	5.07	0	5673
MICH	1519	14437	4	2.64	4810			5	2.8	0			8	5.07	0	4810
INDIANA	3642	26768	4	2.64	9615			5	2.8	0			8	5.07	0	9615
ILL.	2168	18163	5	3.02	6523			4	2.47	0			7	4.43	0	6523
WISC	2524	23821	5	3.02	7622			5	2.8	0			7	4.43	0	7622
MINN	2718	23164	5	3.02	8208			5	2.8	0			7	4.43	0	8208
IOWA	1989	13626	5	3.02	6007			4	2.47	0			7	4.43	0	6007
NWAGG	7696	48370	4	2.64	20317			5	2.8	0			8	5.07	0	20317
DAVENS	4936	31268	3	2.14	10563			6	3.26	0			8	5.07	0	10563
DRUM	3159	21591	3	2.14	6768			6	3.26	0			8	5.07	0	6768
MCCOY	3858	28787	5	3.02	11651			5	2.8	0			7	4.43	0	11651
MEADE	11006	65469	2	1.73	19040			6	3.26	0			8	5.07	0	19040
SHERIDN	2934	20417	4	2.64	7746			5	2.8	0			7	4.43	0	7746
HELVOIR	2492	15219	2	1.73	4311			6	3.26	0			8	5.07	0	4311
DIX	4948	32538	2	1.73	8560			6	3.26	0			8	5.07	0	8560
RUSTIS	823	4474	3	2.14	1761			6	3.26	0			8	5.07	0	1761
JACKSON	2645	28761	4	2.64	6983			5	2.8	0			8	5.07	0	6983
LEE	2463	16884	3	2.14	5271			5	2.8	0			8	5.07	0	5271
TOAD	3147	18744	2	1.73	5444			6	3.26	0			8	5.07	0	5444
LEAD	2283	16714	2	1.73	3950			6	3.26	0			8	5.07	0	3950
SUBTOT	104007	750251			232457	0	0			0	0	0			0	232457
FLORIDA			5	3.23	0	2909	17376	NA	2.86	8320			8	5.07	0	8320
GEORGIA			4	2.81	0	5531	31146	4	2.3	12721			8	5.07	0	12721
ALABAMA			5	3.23	0	4528	26468	4	2.3	10414			8	5.07	0	10414
MISS			5	3.23	0	7903	42653	NA	1.92	15174			7	4.43	0	15174
TENN			4	2.81	0	2570	15066	4	2.3	5911			8	5.07	0	5911
KENT			4	2.81	0	2719	17055	5	2.59	7042			8	5.07	0	7042
MISSOUR			5	3.23	0	2703	12176	3	1.89	5109			7	4.43	0	5109
ARKANS			5	3.23	0	2254	14308	2	1.57	3539			7	4.43	0	3539
LOUISNA			6	3.82	0	3544	20647	3	1.89	6698			7	4.43	0	6698
TEXAS			6	3.82	0	3956	23895	NA	2.13	8426			7	4.43	0	8426
OKLA			6	3.82	0	2798	22265	3	1.89	5273			6	3.82	0	5273
KANSAS			5	3.23	0	3288	18686	NA	2.5	8228			6	3.82	0	8228
NEB/OAK			6	3.82	0	2124	12951	NA	3.18	6754			6	3.82	0	6754
COL/WYO			7	4.43	0	2438	15999	5	2.59	6314			5	1.23	0	6314
NEW MEX			7	4.43	0	1051	6925	5	2.59	2722			5	1.23	0	2722
CAMPBELL			4	2.81	0	1896	14479	4	2.3	4361			8	5.07	0	4361
CARSON			7	4.43	0	5901	49322	5	2.59	15284			5	1.23	0	15284
HOOD			6	3.82	0	2926	26146	NA	1.99	9823			7	4.43	0	9823
POLK			6	3.82	0	5828	43563	NA	2.19	12746			7	4.43	0	12746
RILEY			6	3.82	0	4958	41883	6	2.3	16883			6	1.82	0	16883
SAM HOU			7	4.43	0	1727	8596	NA	1.65	3188			7	4.43	0	3188
STEWART			4	2.81	0	6713	42325	5	2.59	17387			8	5.07	0	17387
BENNING			5	3.23	0	2587	21418	4	2.3	5958			8	5.07	0	5958
BLISS			7	4.43	0	4264	34057	NA	5.15	21960			5	3.23	0	21960
GORDON			4	2.81	0	4783	21323	5	2.59	12388			8	5.07	0	12388
KNOX			4	2.81	0	4433	30183	5	2.59	11481			8	5.07	0	11481
C. WOOD			5	3.23	0	4965	37367	3	1.89	9384			7	4.43	0	9384
MCCLELN			5	3.23	0	1107	8969	4	2.3	2546			8	5.07	0	2546
RUCKER			5	3.23	0	1742	13976	4	2.3	4007			8	5.07	0	4007
SILL			6	3.82	0	1649	13058	3	1.89	3117			6	3.82	0	3117
CCAD			7	4.41	0	3206	17347	NA	4.58	14683			7	4.43	0	14683
AMAD			5	3.23	0	1098	24747	4	2.3	2525			8	5.07	0	2525
ARAD			6	3.82	0	747	9729	NA	1.74	1300			7	4.43	0	1300
SUBTOT	0	0			0	113030	758686			276762	0	0			0	276762
MNT/IDA			8	4.65	0			6	3.26	0	6129	37449	5	2.8	17161	17161
UTAH/NV			8	4.65	0			6	3.26	0	3218	38299	4	2.47	7929	7929
ARIZONA			8	4.65	0			6	3.26	0	2255	16284	4	2.47	5570	5570
CALIF			8	4.65	0			7	3.74	0	8120	54084	1	2.02	16402	16402
OREGON			8	4.65	0			7	3.74	0	3530	23882	4	2.47	8719	8719
WASHNTN			8	4.65	0			7	3.74	0	2799	26819	4	2.47	6914	6914
IRWIN			8	4.65	0			7	3.74	0	2474	18950	3	2.02	4997	4997
LEWIS			8	4.65	0			7	3.74	0	5104	35241	4	2.47	12607	12607
ORD			8	4.65	0			7	3.74	0	4497	35917	2	1.65	7420	7420
PRSIDIO			8	4.65	0			7	3.74	0	2623	16062	2	1.651	4328	4328
HUACHUC			8	4.65	0			5	2.8	0	4290	26488	5	2.81	12012	12012
SAAD			8	4.65	0			7	3.74	0	3136	18716	2	1.65	5174	5174
TEAD			8	4.65	0			6	3.26	0	803	6489	4	2.47	1981	1981
SUBTOT	0	0			0	0	0			0	[illegible]	[illegible]			[illegible]	[illegible]
TOTAL	104007	750251			232457	113030	758686			[illegible]	[illegible]	[illegible]				[illegible]

TOTAL LINES [illegible]
TOTAL WEIGHT [illegible]

MODE UPS ALT. NO TWO

DESTINATION	NCAD LINES	NCAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	RRAD LINES	RRAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	SHAD LINES	SHAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	TOTAL COST
MAINE	942	13950	4	2.64	2487	128	1256	7	1.74	479	75	658	8	5.07	380	3346
NH/VER	1287	12669	4	2.64	3398	182	1469	6	3.26	593	98	898	8	5.07	497	4488
MASS	1316	13359	3	2.14	2816	352	1896	6	3.26	1148	188	1393	8	5.07	913	4876
CONN/RI	2135	20978	3	2.14	4569	341	1887	6	3.26	1112	144	1324	8	5.07	730	6411
NEW YOR	5391	44005	3	2.14	11537	1232	7286	6	3.26	4016	456	3789	8	5.07	2312	17865
PENN	4416	29551	2	1.73	7640	578	2892	6	3.26	1884	199	1688	8	5.07	1009	10533
NJ/DEL	3854	27551	2	1.73	6667	599	3041	6	3.26	1953	250	1924	8	5.07	1268	9888
MD/DC	1711	11531	2	1.73	2960	291	2368	6	3.26	949	95	846	8	5.07	482	4390
VA/W.VA	2330	17259	3	2.14	4986	519	2728	5	2.8	1453	216	1956	8	5.07	1095	7535
N. CARO	2257	18184	3	2.14	4838	615	3163	5	2.8	1722	166	1230	8	5.07	842	7394
OHIO	1581	11642	4	2.64	3963	461	1774	5	2.8	1291	187	1768	8	5.07	948	6202
MICH	1133	11484	4	2.64	2991	265	1853	5	2.8	742	121	1180	8	5.07	613	4347
INDIANA	2968	22168	4	2.64	7836	468	2993	5	2.8	1288	214	1607	8	5.07	1085	10209
ILL.	1512	14062	5	3.02	4566	458	2602	4	2.47	1131	190	1679	7	4.43	842	6539
WISC	1891	19006	5	3.02	5711	475	3124	5	2.8	1330	158	1691	7	4.43	700	7741
MINN	2115	18368	5	3.02	6387	403	2787	5	2.8	1128	200	2017	7	4.43	886	8402
IOWA	1584	11133	5	3.02	4784	287	1684	4	2.47	709	118	809	7	4.43	523	6015
BRAGG	1943	15440	4	2.64	5130	4027	10382	5	2.8	11276	1726	14548	8	5.07	8751	25156
DEVENS	4218	25669	3	2.14	9009	516	3967	6	3.26	1682	218	1624	8	5.07	1065	11756
DRUM	2681	19156	3	2.14	5737	301	2687	6	3.26	981	177	1748	8	5.07	897	7616
MCCOY	3852	23255	5	3.02	9217	552	3758	5	2.8	1546	254	1782	7	4.43	1125	11888
MEADE	9164	52238	2	1.73	15854	1231	8259	6	3.26	4013	611	4972	8	5.07	3098	22965
SHERIDN	2375	15959	4	2.64	6270	396	2803	5	2.8	1109	163	1655	7	4.43	722	8101
BELVOIR	2090	12865	2	1.73	3616	270	1577	6	3.26	880	132	777	8	5.07	669	5165
DIX	4154	27053	2	1.73	7186	580	3306	6	3.26	1891	214	2179	8	5.07	1085	10162
EUSTIS	121	1152	3	2.14	259	543	1895	6	3.26	1770	159	1427	8	5.07	806	2835
LEE	2856	13201	3	2.14	4400	292	2427	5	2.8	818	115	1256	8	5.07	583	5800
TOAD	2565	4288	2	1.73	4437	294	13045	6	3.26	958	288	1411	8	5.07	1460	6856
LEAD	76	5920	2	1.73	131	1403	6566	6	3.26	4574	884	4228	8	5.07	4076	8782
SUBTOT	72838	533888			159374	18851	113459			54425	7928	63976			39461	253260
						AMAD LINES	AMAD WEIGHT									
FLORIDA	403	4822	5	3.23	1302	2282	10588	3	1.89	4313	224	1916	8	5.07	1136	6750
GEORGIA	666	5887	4	2.81	1871	4606	22997	2	1.57	7231	259	2262	8	5.07	1313	10416
S. CARO	424	2645	4	2.64	1119	1974	14921	3	1.89	3731	163	1481	8	5.07	826	5677
ALABAMA	668	6490	5	3.23	2158	3602	17392	2	1.57	5655	258	2586	8	5.07	1308	9121
MISS	1065	8769	5	3.23	3448	6535	31331	3	1.89	12351	303	2553	7	4.43	1342	17133
TENN	446	3636	4	2.81	1253	2013	10444	3	1.89	3805	111	986	8	5.07	563	5621
KENT	422	3336	4	2.81	1186	2189	13900	3	1.89	4137	108	619	8	5.07	548	5871
JACKSON	426	3163	4	2.64	1125	2105	16509	3	1.89	3978	114	1089	8	5.07	578	5681
CAMPBLL	195	1471	4	2.81	548	650	6274	3	1.89	1244	1043	6734	8	5.07	5288	7080
STEWART	2833	20887	4	2.81	7961	2736	12684	3	1.89	5171	1144	9554	8	5.07	5800	18932
BENNING	1762	13110	5	3.23	5691	323	3743	2	1.57	587	562	4557	8	5.07	2585	8744
GORDON	995	5515	4	2.81	2796	3571	14664	3	1.89	6749	217	1144	8	5.07	1100	10645
KNOX	2717	17325	4	2.81	7635	841	5284	3	1.89	1589	875	7494	8	5.07	4436	13661
MCCLELN	288	3181	5	3.23	930	721	4650	2	1.57	1132	98	1138	8	5.07	497	2559
RUCKER	709	6563	5	3.23	2290	708	5696	2	1.57	1112	325	1717	8	5.07	1648	5049
ANAD	204	17259	5	3.23	659	39	1085	2	1.57	61	855	6403	8	5.07	4335	5055
SUBTOT	14223	123259			41964	34903	192162			62767	6599	52153			33263	137994
						RRAD LINES	RRAD WEIGHT									
MISSOUR	302	2668	5	3.23	975	2272	8678	3	1.89	4294	129	838	7	4.43	571	5841
ARKANS	353	3967	5	3.23	1140	1787	9203	2	1.57	2806	114	1138	7	4.43	505	4451
LOUISNA	469	3419	6	3.82	1792	2916	15562	3	1.89	5511	159	1666	7	4.43	704	8007
TEXAS	651	5506	6	3.82	2487	3845	15509	NA	2.13	6486	268	2888	7	4.43	1152	10124
OKLA	1162	10417	6	3.82	4439	1268	8651	3	1.89	2381	368	3197	6	3.82	1406	8226
KANSAS	596	4494	5	3.23	1925	2532	12923	NA	2.5	6330	168	1269	6	3.82	611	8866
NEB/DAK	272	2025	6	3.82	1039	1777	10279	NA	3.18	5651	75	647	6	3.82	287	6976
COL/WYO	453	4533	7	4.43	2007	1855	10437	5	2.59	4804	138	1029	5	3.23	429	7231
NEW MEX			7	4.43	0	931	3711	5	2.59	2411	128	3214	5	3.23	388	2799
CARSON	2802	22425	7	4.43	12413	754	8029	5	2.59	1953	2345	18868	5	3.23	7574	21940
HOOD	163	3338	6	3.82	623	372	3288	NA	1.99	740	2191	19688	7	4.43	10592	11955
POLK	2357	17822	6	3.82	9004	2688	18399	NA	2.19	5887	775	7342	7	4.43	3433	18324
RILEY	3696	24807	6	3.82	14119	2078	10766	4	2.1	4779	1184	8238	6	3.82	4523	23421
SAM HOU	263	1824	7	4.43	1165	1552	6248	NA	1.65	2561	112	524	7	4.43	496	4222
BLISS	3161	23282	7	4.43	14003	224	2946	NA	5.15	1154	979	8009	5	3.23	2839	17996
L. WOOD	774	8154	5	3.23	2500	1948	26499	3	1.89	7462	243	2514	7	4.43	1076	11038
SILL	399	9823	6	3.82	3816	347	1918	3	1.89	656	303	2125	6	3.82	1157	5629
CCAD	1853	8925	7	4.43	9209	46	968	NA	4.58	211	1307	7454	7	4.43	5798	14209
RRAD	68	753	6	3.82	229	7	44	NA	1.74	12	680	8932	7	4.43	3012	3254
SUBTOT	20386	157502			81884	30391	173862			66089	11734	99476			46538	194511
MNT/IDA	562	4102	8	4.65	2613	623	3355	6	3.26	2031	4944	29992	5	2.8	13843	18487
UTAH/NV	284	2325	8	4.65	1321	313	1668	6	3.26	1020	2613	26306	4	2.47	6454	8795
ARIZONA	167	1089	8	4.65	777	232	1498	6	3.26	756	1856	13697	4	2.47	4584	6117
CALIF	805	5893	8	4.65	3743	1122	7271	7	3.74	4196	6193	40920	3	2.02	12510	20449
OREGON	319	2093	8	4.65	1483	314	1814	7	3.74	1174	2897	19975	4	2.47	7156	9813
WASHNTN	259	2572	8	4.65	1204	312	2021	7	3.74	1167	2228	22226	4	2.47	5503	7874
IRWIN	937	8134	8	4.65	4357	1523	10659	7	3.74	5696	14	157	3	2.02	28	10081
LEWIS	3811	24731	8	4.65	14001	213	847	7	3.74	797	1888	9663	4	2.47	4644	19441
ORD	1610	12735	8	4.65	7487	246	1319	7	3.74	920	2641	21863	2	1.65	4358	12764
PRSIDIO	157	1536	8	4.65	730	174	931	7	3.74	651	2292	13595	2	1.65	3782	5163
HUACHUC	355	1659	8	4.65	1651	476	2172	5	2.8	1333	3459	22569	5	2.8	9685	12669
SAAD	661	1562	8	4.65	3074	486	992	7	3.74	1518	2069	8162	2	1.65	3414	8006
TEAD	367	3471	8	4.65	1707	365	2304	6	3.26	1190	71	634	4	2.47	175	3072
SUBTOT	9494	71902			44147	6319	36851			22450	33157	229759			76136	142733
TOTAL	116933	885751			327369	89664	516334			285731	59410	445364			195398	728498
														TOTAL LINES		266007
														TOTAL WEIGHT		1.85E6

MODE UPS ALT. NO THREE

DESTINATION	NCAD LINES	NCAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	RRAD LINES	RRAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	SHAD LINES	SHAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	TOTAL COST
MAINE	942	13958	4	2.64	2487	128	1256	7	3.74	479	75	658	8	5.87	388	3346
NH/VKR	1287	12669	4	2.64	3398	182	1469	6	3.26	593	98	890	8	5.87	497	4488
MASS	1316	13359	3	2.14	2816	352	1896	6	3.26	1148	180	1393	8	5.87	913	4876
CONN/RI	2135	20978	3	2.14	4569	341	1887	6	3.26	1112	144	1324	8	5.87	738	6411
NEW YOR	5391	44885	3	2.14	11537	1232	7286	6	3.26	4016	456	3789	8	5.87	2312	17865
PENN	4416	29551	2	1.73	7640	578	2892	6	3.26	1884	199	1680	8	5.87	1009	10533
NJ/DEL	3854	27551	2	1.73	6667	599	3041	6	3.26	1953	258	1924	8	5.87	1268	9888
MD/DC	1711	11531	2	1.73	2960	291	2368	6	3.26	949	95	846	8	5.87	482	4390
VA/W.VA	2338	17259	3	2.14	4986	519	2720	5	2.8	1453	216	1956	8	5.87	1095	7535
N. CARO	2257	18184	3	2.14	4838	615	3163	5	2.8	1722	166	1238	8	5.87	842	7394
OHIO	1581	11642	4	2.64	3963	461	1774	5	2.8	1291	187	1768	8	5.87	948	6202
MICH	1133	11484	4	2.64	2991	265	1853	5	2.8	742	121	1180	8	5.87	613	4347
INDIANA	2968	22168	4	2.64	7836	460	2993	5	2.8	1288	214	1687	8	5.87	1085	10209
ILL.	1512	14062	5	3.02	4566	458	2682	4	2.47	1131	198	1679	7	4.43	842	6539
WISC	1891	19006	5	3.02	5711	475	3124	5	2.8	1330	158	1691	7	4.43	700	7741
MINN	2115	18360	5	3.02	6387	403	2787	5	2.8	1128	200	2017	7	4.43	886	8402
IOWA	1584	11133	5	3.02	4784	287	1684	4	2.47	709	118	809	7	4.43	523	6015
BRAGG	1943	15440	4	2.64	5130	4027	18382	5	2.8	11276	1726	14548	8	5.87	8751	25156
OEVENS	4210	25669	3	2.14	9009	516	3967	6	3.26	1682	210	1624	8	5.87	1865	11756
DRUM	2681	19156	3	2.14	5737	301	2687	6	3.26	981	177	1748	8	5.87	897	7616
MCCOY	3052	23255	5	3.02	9217	552	3758	5	2.8	1546	254	1782	7	4.43	1125	11888
MEADE	9164	52238	2	1.73	15854	1231	8259	6	3.26	4013	611	4972	8	5.87	3098	22965
SHERIDN	2375	15959	4	2.64	6270	396	2883	5	2.8	1189	163	1655	7	4.43	722	8181
BELVOIR	2890	12865	2	1.73	3616	270	1577	6	3.26	880	132	777	8	5.87	669	5165
DIX	4154	27853	2	1.73	7186	588	3306	6	3.26	1891	214	2179	8	5.87	1085	10162
EUSTIS	121	1152	3	2.14	259	543	1895	6	3.26	1778	159	1427	8	5.87	806	2835
LEE	2856	13201	3	2.14	4400	292	2427	5	2.8	818	115	1256	8	5.87	583	5888
TOAD	2565	4288	2	1.73	4437	294	13045	6	3.26	958	288	1411	8	5.87	1460	6856
LEAD	76	5920	2	1.73	131	1403	6566	6	3.26	4574	804	4228	8	5.87	4076	8782
SUBTOT	72838	533888			159374	18051	113459			54423	7928	63976			39461	253260

DESTINATION	AMAD LINES	AMAD WEIGHT														
FLORIDA	403	4822	5	3.23	1302	2282	10588	3	1.89	4313	224	1916	8	5.87	1136	6750
GEORGIA	666	5887	4	2.81	1871	4686	22997	2	1.57	7231	259	2262	8	5.87	1313	10416
S. CARO	424	2645	4	2.64	1119	1974	14921	3	1.89	3731	163	1481	8	5.87	826	5677
ALABAMA	668	6490	5	3.23	2158	3602	17392	2	1.57	5655	258	2586	8	5.87	1308	9121
MISS	1865	8769	5	3.23	3440	6535	31331	3	1.89	12351	303	2553	7	4.43	1342	17133
TENN	446	3636	4	2.81	1253	2813	10444	3	1.89	3885	111	986	8	5.87	563	5621
KENT	422	3336	4	2.81	1186	2189	13900	3	1.89	4137	100	619	8	5.87	548	5871
JACKSON	426	3163	4	2.64	1125	2105	16509	3	1.89	3978	114	1089	8	5.87	578	5681
CAMPBLL	195	1471	4	2.81	548	658	6274	3	1.89	1244	1043	6734	8	5.87	5288	7080
STEWART	2833	20887	4	2.81	7961	2736	12684	3	1.89	5171	1144	9554	8	5.87	5880	18932
BENNING	1762	13118	5	3.23	5691	323	3743	2	1.57	587	502	4557	8	5.87	2545	8744
GORDON	995	9515	4	2.81	2796	3971	14664	3	1.89	6749	217	1144	8	5.87	1100	10645
KNOX	2717	17325	4	2.81	7635	841	5284	3	1.89	1589	875	7494	8	5.87	4436	13661
MCCLELN	288	3181	5	3.23	930	721	4658	2	1.57	1132	98	1138	8	5.87	497	2559
BUCKER	709	6563	5	3.23	2290	788	5696	2	1.57	1112	325	1717	8	5.87	1648	5049
ANAD	284	17259	5	3.23	659	39	1885	2	1.57	61	895	6483	8	5.87	4335	5055
SUBTOT	14223	123259			41964	34903	192162			62767	6599	52153			33263	137994

DESTINATION	RRAD LINES	RRAD WEIGHT														
MISSOUR	302	2668	5	3.23	975	2272	8678	3	1.89	4294	129	838	7	4.43	571	5841
ARKANS	353	3967	5	3.23	1140	1787	9203	2	1.57	2806	114	1138	7	4.43	505	4451
LOUISNA	469	3419	6	3.82	1792	2916	15562	3	1.89	5511	159	1666	7	4.43	704	8007
TEXAS	651	5506	6	3.82	2487	3845	15509	NA	2.13	6486	260	2880	7	4.43	1152	10124
OKLA	1162	10417	6	3.82	4439	1260	8651	3	1.89	2381	360	3197	6	3.82	1406	8226
KANSAS	596	4494	5	3.23	1925	2532	12923	NA	2.5	6330	160	1269	6	3.82	611	8866
NEB/DAK	272	2025	6	3.82	1039	592	3426	NA	3.18	1884	75	647	6	3.82	287	3209
HOOD	163	3338	6	3.82	623	372	3288	NA	1.99	740	2391	19688	7	4.43	10592	11955
POLK	2357	17822	6	3.82	9004	2688	18399	NA	2.19	5887	775	7342	7	4.43	3433	18324
RILEY	3696	24887	6	3.82	14119	2078	10766	4	2.3	4779	1184	8230	6	3.82	4523	23421
SAM HOU	263	1824	7	4.43	1165	1552	6248	NA	1.65	2561	112	524	7	4.43	496	4222
BLISS	3161	23282	7	4.43	14003	224	2846	NA	5.15	1154	879	8009	5	3.23	2839	17996
L. WOOD	774	8354	5	3.23	2500	3948	26499	3	1.89	7462	243	2514	7	4.43	1076	11038
SILL	999	9023	6	3.82	3816	347	1910	3	1.89	656	303	2125	6	3.82	1157	5629
CCAD	1853	8925	7	4.43	8209	46	968	NA	4.58	211	1307	7454	7	4.43	5790	14209
RRAD	60	753	6	3.82	229	7	44	NA	1.74	12	680	8932	7	4.43	3012	3254
SUBTOT	17131	130544			67465	25666	144832			53153	9139	76365			38156	158774

DESTINATION	TEAD LINES	TEAD WEIGHT														
COL/WYO	453	4533	7	4.43	2007	1855	10437	4	2.3	4267	130	1029	5	3.23	420	6693
NEW MEX			7	4.43	0	931	3711	4	2.3	2141	120	3214	5	3.23	388	2529
CARSON	2802	22425	7	4.43	12413	754	8029	4	2.3	1734	2345	18868	5	3.23	7574	21721
OAK						1185	6853	5	2.59	3069						

DESTINATION	RRAD LINES	RRAD WEIGHT									TEAD LINES	TEAD WEIGHT				
MNT/IDA	562	4102	8	4.65	2613	623	3355	6	3.26	2031	4944	29992	3	2.14	10580	15224
UTAH/NV	284	2325	8	4.65	1321	313	1668	6	3.26	1020	1307	13153	2	1.73	2260	4601
ARIZONA	167	1089	8	4.65	777	232	1498	6	3.26	756	1856	13697	5	3.02	5605	7138
HUACHUC	355	1659	8	4.65	1651	476	2172	5	2.8	1333	3459	22569	6	3.54	12245	15228
TEAD	367	3471	8	4.65	1707	365	2384	6	3.26	1198	71	634	2	1.73	123	3819
SUBTOT	4990	39604			22487	6734	40027			17542	14232	103156			39195	76155

DESTINATION	SHAD LINES	SHAD WEIGHT														
CALIF	805	5893	8	4.65	3743	1122	7271	7	3.74	4196	6193	40920	3	2.82	12518	28449
OREGON	319	2093	8	4.65	1483	314	1814	7	3.74	1174	2897	19975	4	2.47	7156	9813
WASHNTN	259	2572	8	4.65	1204	312	2021	7	3.74	1167	2228	22226	4	2.47	5503	7874
NEVADA											1386	13193	2	1.65	2155	2155
IRWIN	937	8134	8	4.65	4357	1523	10659	7	3.74	5696	14	157	3	2.82	28	10081
LEWIS	3011	24731	8	4.65	14001	213	847	7	3.74	797	1880	9663	4	2.47	4644	19441
ORD	1610	12735	8	4.65	7487	246	1319	7	3.74	928	2641	21863	2	1.65	4358	12764
PRSIDIO	157	1536	8	4.65	730	174	931	7	3.74	651	2292	13595	2	1.65	3782	5163
SAAD	661	1562	8	4.65	3074	406	992	7	3.74	1518	2069	8162	2	1.65	3414	8006
SUBTOT	7759	59256			36079	4310	25854			16119	21520	149714			43549	95747
TOTAL	116933	885751			327369	89664	516334			284806	59410	445364			193624	721930
														TOTAL	LINES	266007
														TOTAL	WEIGHT	1.05E6

DESTINATION	NCAD LINES	NCAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	RRAD LINES	RRAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	SNAD LINES	SNAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	TOTAL COST
MAINE	942	13950	4	2.64	2487	120	1256	7	3.74	479	75	658	8	5.07	380	3346
NH/VER	1207	12669	4	2.64	3398	182	1469	6	3.26	593	98	890	8	5.07	497	4488
MASS	1316	13359	3	2.14	2816	352	1896	6	3.26	1148	180	1393	8	5.07	913	4876
CONN/RI	2135	20978	3	2.14	4569	341	1887	6	3.26	1112	144	1324	8	5.07	738	6411
NEW YOR	5391	44085	3	2.14	11537	1232	7286	6	3.26	4016	456	3789	8	5.07	2312	17865
PENN	4416	29551	2	1.73	7640	578	2892	6	3.26	1884	199	1688	8	5.07	1009	10533
NJ/DEL	3854	27551	2	1.73	6667	599	3041	6	3.26	1953	250	1924	8	5.07	1268	9888
MD/DC	1711	11531	2	1.73	2960	291	2360	6	3.26	949	95	846	8	5.07	482	4390
VA/W.VA	2338	17259	3	2.14	4986	519	2720	5	2.8	1453	216	1956	8	5.07	1095	7535
N. CARO	2257	18184	3	2.14	4838	615	3163	5	2.8	1722	166	1230	8	5.07	842	7394
BRAGG	1943	15448	4	2.64	5130	4027	18382	5	2.8	11276	1726	14548	8	5.07	8751	25156
DEVENS	4218	25669	3	2.14	9089	516	3967	6	3.26	1682	218	1624	8	5.07	1065	11756
DRUM	2681	19156	3	2.14	5737	381	2687	6	3.26	981	177	1748	8	5.07	897	7616
MEADE	9164	52238	2	1.73	15854	1231	8259	6	3.26	4813	611	4972	8	5.07	3098	22965
BELVOIR	2898	12865	2	1.73	3616	278	1577	6	3.26	888	132	777	8	5.07	669	5165
DIX	4154	27853	2	1.73	7186	580	3386	6	3.26	1891	214	2179	8	5.07	1085	10162
RUSTIS	121	1152	3	2.14	259	543	1895	6	3.26	1770	159	1427	8	5.07	806	2835
LEE	2856	13281	3	2.14	4480	292	2427	5	2.8	818	115	1256	8	5.07	583	5880
TOAD	2565	4288	2	1.73	4437	294	13045	6	3.26	958	288	1411	8	5.07	1460	6856
LEAD	76	5928	2	1.73	131	1403	6566	6	3.26	4574	804	4228	8	5.07	4076	8782
SUBTOT	54699	386019			107658	14294	90089			44152	6315	49868			32017	183818
	LBDA LINES	LBDA WEIGHT														
OHIO	1581	11642	2	1.73	2597	461	1774	5	2.8	1291	187	1768	8	5.07	948	4836
MICH	1133	11484	3	2.14	2425	265	1853	5	2.8	742	121	1108	8	5.07	613	3780
INDIANA	2968	22168	2	1.73	5135	468	2993	5	2.8	1288	214	1687	8	5.07	1085	7508
ILL.	1512	14062	3	2.14	3236	458	2602	4	2.47	1131	198	1679	7	4.43	842	5209
WISC	1891	19886	4	2.64	4992	475	3124	5	2.8	1330	158	1691	7	4.43	780	7022
MINN	2115	18368	5	3.82	8387	483	2787	5	2.8	1128	288	2817	7	4.43	886	8402
IOWA	1584	11133	4	2.64	4182	287	1684	4	2.47	709	118	889	7	4.43	523	5413
MCCOY	3852	23255	5	3.82	9217	552	3758	5	2.8	1546	254	1782	7	4.43	1125	11888
SHERIDN	2375	15959	3	2.14	5083	396	2863	5	2.8	1189	163	1655	7	4.43	722	6913
KENT	2189	3336	2	1.73	3787	422	13900	3	1.89	798	188	619	8	5.07	548	5132
CAMPBLL	658	1471	2	1.73	1138	195	6274	3	1.89	369	1043	6734	8	5.07	5288	6795
KNOX	841	17325	2	1.73	1455	2717	5284	3	1.89	5135	875	7494	8	5.07	4436	11026
SUBTOT	21819	169281			49633	7091	48828			16575	3631	28955			17716	83924
	NCAD LINES	NCAD WEIGHT				AHAD LINES	AHAD WEIGHT									
FLORIDA	403	4822	5	3.23	1302	2282	10588	3	1.89	4313	224	1916	8	5.07	1136	6750
GEORGIA	666	5887	4	2.81	1871	4606	22997	2	1.57	7231	259	2262	8	5.07	1313	10416
S. CARO	424	14921	4	2.64	1119	1974	2645	3	1.89	3731	163	1401	8	5.07	826	5677
ALABAMA	668	6498	5	3.23	2158	3682	17392	2	1.57	5655	258	2586	8	5.07	1308	9121
MISS	1065	8769	5	3.23	3440	6535	31331	3	1.89	12351	383	2553	7	4.43	1342	17133
TENN	446	3636	4	2.81	1253	2013	10444	3	1.89	3805	111	986	8	5.07	563	5621
JACKSON	426	16509	4	2.64	1125	2105	3163	3	1.89	3978	114	1089	8	5.07	578	5681
STEWART	2833	20887	4	2.81	7961	2736	12684	3	1.89	5171	1144	9554	8	5.07	5808	18932
BENNING	1762	13118	5	3.23	5691	323	3743	2	1.57	587	582	4557	8	5.07	2545	8744
GORDON	995	5515	4	2.81	2796	3571	14664	3	1.89	6749	217	1144	8	5.07	1100	10645
MCCLELN	288	3181	5	3.23	930	721	4658	2	1.57	1132	98	1138	8	5.07	497	2559
RUCKER	709	6563	5	3.23	2290	708	5696	2	1.57	1112	325	1717	8	5.07	1648	5049
ANAD	204	17259	5	3.23	659	39	1885	2	1.57	61	855	6403	8	5.07	4335	5055
SUBTOT	10889	126749			32595	31215	141082			55797	4573	37386			22991	111383
						RRAD LINES	RRAD WEIGHT									
MISSOUR	382	2668	5	3.23	975	2272	8678	3	1.89	4294	129	838	7	4.43	571	5841
ARKANS	353	3967	5	3.23	1140	1787	9203	2	1.57	2806	114	1138	7	4.43	505	4451
LOUISNA	469	3419	6	3.82	1792	2916	15562	3	1.89	5511	159	1666	7	4.43	704	8007
TEXAS	651	5586	6	3.82	2487	3045	15589	NA	2.13	6486	268	2888	7	4.43	1152	10124
OKLA	1162	10417	6	3.82	4439	1268	8651	3	1.89	2381	368	3197	6	3.82	1406	8226
KANSAS	596	4494	5	3.23	1925	2332	12923	NA	2.5	6338	168	1269	6	3.82	611	8866
NEB/DAK	272	2025	6	3.82	1039	592	3426	NA	3.18	1884	75	647	6	3.82	287	3209
HOOD	163	3338	6	3.82	623	372	3288	NA	1.99	740	2391	19688	7	4.43	10592	11955
POLK	2357	17822	6	3.82	9004	2688	18399	NA	2.19	5887	775	7342	7	4.43	3433	18324
RILEY	3696	24807	6	3.82	14119	2078	10766	4	2.3	4779	1184	8238	6	3.82	4523	23421
SAM HOU	263	1824	7	4.43	1165	1552	6248	NA	1.65	2561	112	524	7	4.43	496	4222
BLISS	3161	23282	7	4.43	14003	224	2846	NA	5.15	1154	879	8889	5	3.23	2839	17996
L. WOOD	774	8354	5	3.23	2500	3948	26499	3	1.89	7462	243	2514	7	4.43	1076	11038
SILL	999	9023	6	3.82	3816	347	1910	3	1.89	656	303	2125	6	3.82	1157	5629
CCAD	1853	8925	7	4.43	8209	46	968	NA	4.58	211	1307	7454	7	4.43	5790	14209
RRAD	68	753	6	3.82	229	7	44	NA	1.74	12	688	8932	7	4.43	3812	3254
SUBTOT	17131	130544			67465	25666	144832			53153	9139	76365			38156	158774
						TEAD LINES	TEAD WEIGHT									
COL/WYO	453	4533	7	4.43	2007	1855	10437	4	2.3	4267	138	1029	5	3.23	428	6693
NEW MEX			7	4.43	0	931	3711	4	2.3	2141	128	3214	5	3.23	388	2529
CARSON	2802	22425	7	4.43	12413	754	8029	4	2.3	1734	2345	18868	5	3.23	7574	21721
DAK						1185	6853	5	2.59	3869						
						RRAD LINES	RRAD WEIGHT				TEAD LINES	TEAD WEIGHT				
MNT/IDA	562	4182	8	4.65	2613	623	3355	6	3.26	2831	4944	29992	3	2.14	10588	15224
UTAH/NV	284	2325	8	4.65	1321	313	1668	6	3.26	1828	1307	13153	2	1.73	2268	4681
ARIZONA	167	1089	8	4.65	777	232	1498	6	3.26	756	1856	13697	5	3.82	5685	7138
HUACHUC	355	1659	8	4.65	1651	476	2172	5	2.8	1333	3459	22569	6	3.54	12245	15228
TEAD	367	3471	8	4.65	1707	165	2304	6	3.26	1198	71	634	2	1.73	123	3819
SUBTOT	4998	39684			22487	[illegible]	48827			17542	14232	103156			39195	76155
											SNAD LINES	SNAD WEIGHT				
CALIF	885	5893	8	4.65	3743	1122	7271	7	3.74	4196	6193	40928	3	2.82	12518	20449
OREGON	319	2093	8	4.65	1483	314	1814	7	3.74	1174	2897	19975	4	2.47	7156	9813
WASHNTN	259	2572	8	4.65	1204	312	2021	7	3.74	1167	2228	22226	4	2.47	5503	7874
NEVADA											1386	13153	2	1.65	2155	2155
IDAHO	937	8134	8	4.65	4357	1523	10659	7	3.74	5696	14	157	3	2.82	28	10081
LEWIS	3811	24731	8	4.65	14881	213	847	7	3.74	797	1888	9663	4	2.47	4644	19441
ORD	1618	12735	8	4.65	7487	246	1319	7	3.74	928	2641	21863	2	1.65	4358	12764
PRSIDIO	157	1536	8	4.65	738	174	931	7	3.74	651	2292	13595	2	1.65	3782	5163
SAAD	661	1562	8	4.65	3074	406	992	7	3.74	1518	2869	8162	2	1.65	3414	8006
SUBTOT	7759	59256			36879	4310	25854			16119	21528	149714			43549	95747
TOTAL	117287	911373		0		89318	490712			283337	59410	445364			193624	709881
														TOTAL LINES		266087
														TOTAL WEIGHT		1.85E6

MODE UPS ALT. NO FIVE AND SIX

DESTINATION	NCAD LINES	NCAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	RRAD LINES	RRAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	SHAD LINES	SHAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	TOTAL COST
MAINE	942	11958	4	2.64	2487	128	1256	7	3.74	479	75	658	8	5.07	380	3346
NH/VER	1287	12669	4	2.64	3398	182	1469	6	3.26	593	98	890	8	5.07	497	4488
MASS	1316	13359	3	2.14	2816	352	1896	6	3.26	1148	180	1393	8	5.07	913	4876
CONN/RI	2135	20978	3	2.14	4569	341	1807	6	3.26	1112	144	1324	8	5.07	730	6411
NEW YOR	5391	44085	3	2.14	11537	1232	7286	6	3.26	4016	456	3789	8	5.07	2312	17865
PENN	4416	29551	2	1.73	7640	570	2892	6	3.26	1884	199	1688	8	5.07	1009	10533
NJ/DEL	3854	27551	2	1.73	6667	599	3041	6	3.26	1953	258	1924	8	5.07	1260	9880
MD/DC	1711	11531	2	1.73	2960	291	2368	6	3.26	949	95	846	8	5.07	482	4390
VA/W.VA	2338	17259	3	2.14	4986	519	2720	5	2.8	1453	216	1956	8	5.07	1095	7535
N. CARO	2257	18104	3	2.14	4830	615	3163	5	2.8	1722	166	1230	8	5.07	842	7394
BRAGG	1943	15440	4	2.64	5130	4027	18382	5	2.8	11276	1726	14548	8	5.07	8751	25156
DEVENS	4210	25669	3	2.14	9009	516	3967	6	3.26	1682	218	1626	8	5.07	1065	11756
DRUM	2681	19156	3	2.14	5737	381	2687	6	3.26	981	177	1748	8	5.07	897	7616
MEADE	9164	52238	2	1.73	15854	1231	8259	6	3.26	4813	611	4972	8	5.07	3098	22965
BELVOIR	2090	12865	2	1.73	3616	270	1577	6	3.26	880	132	777	8	5.07	669	5165
DIX	4154	27053	2	1.73	7186	580	3386	6	3.26	1891	214	2179	8	5.07	1085	10162
EUSTIS	121	1152	3	2.14	259	543	1895	6	3.26	1776	159	1427	8	5.07	806	2835
LEE	2056	13201	3	2.14	4400	292	2427	5	2.8	818	115	1256	8	5.07	583	5800
TOAD	2565	4288	2	1.73	4437	294	13045	6	3.26	958	288	1411	8	5.07	1460	6856
LEAD	76	5928	2	1.73	131	1403	6566	6	3.26	4574	804	4228	8	5.07	4076	8782
SUBTOT	54699	386819			107658	14294	90089			44152	6315	49868			32817	183818
	LBDA LINES	LBDA WEIGHT														
OHIO	1501	11642	2	1.73	2597	461	1774	5	2.8	1291	187	1768	8	5.07	948	4836
MICH	1133	11484	3	2.14	2425	265	1853	5	2.8	742	121	1100	8	5.07	613	3780
INDIANA	2968	22168	2	1.73	5135	468	2993	5	2.8	1288	214	1607	8	5.07	1085	7508
ILL.	1512	14862	3	2.14	3236	458	2602	4	2.47	1131	190	1679	7	4.43	842	5209
WISC	1891	19006	4	2.64	4992	475	3124	5	2.8	1330	158	1691	7	4.43	700	7022
MINN	2215	18368	5	3.02	6387	483	2787	5	2.8	1128	200	2017	7	4.43	886	8402
IOWA	1584	11133	4	2.64	4182	287	1684	4	2.47	709	118	809	7	4.43	523	5413
MCCOY	3852	23255	5	3.02	9217	552	3758	5	2.8	1546	254	1702	7	4.43	1125	11888
SHERIDN	2375	15959	3	2.14	5081	396	2681	5	2.8	1109	163	1655	7	4.43	722	6913
KENT	2189	3336	2	1.73	3787	422	13900	3	1.89	798	108	619	8	5.07	548	5132
CAMPBLL	658	1671	2	1.73	1138	195	6274	3	1.89	369	1043	6734	8	5.07	5288	6795
KNOX	841	17325	2	1.73	1455	2717	5284	3	1.89	5135	875	7494	8	5.07	4436	11026
SUBTOT	21819	169201			49633	7091	48828			16575	3631	28955			17716	83924
	NCAD LINES	NCAD WEIGHT				AMAD LINES	AMAD WEIGHT									
FLORIDA	483	4822	5	3.23	1302	2282	10588	3	1.89	4313	224	1916	8	5.07	1136	6750
GEORGIA	666	5807	4	2.81	1871	4686	22997	2	1.57	7231	259	2262	8	5.07	1313	10416
S. CARO	424	14921	4	2.64	1119	1974	2645	3	1.89	3731	163	1401	8	5.07	826	5677
ALABAMA	668	6490	5	3.23	2158	3602	17392	2	1.57	5655	258	2586	8	5.07	1308	9121
MISS	1065	8769	5	3.23	3440	6535	31331	3	1.89	12351	303	2553	7	4.43	1342	17133
TENN	446	3636	4	2.81	1253	2813	10444	3	1.89	3805	111	986	8	5.07	563	5621
JACKSON	426	16509	4	2.64	1125	2105	3163	3	1.89	3978	116	1089	8	5.07	578	5681
STEWART	2833	20887	4	2.81	7961	2736	12684	3	1.89	9171	1144	9554	8	5.07	5800	18932
BENNING	1762	13118	5	3.23	5691	323	3743	2	1.57	587	502	4557	8	5.07	2565	8744
GORDON	995	5515	4	2.81	2796	3571	14664	3	1.89	6749	217	1144	8	5.07	1100	10645
MCCLELN	288	3181	5	3.23	930	721	4650	2	1.57	1132	98	1138	8	5.07	497	2559
RUCKER	709	6563	5	3.23	2290	708	5698	2	1.57	1112	325	1717	8	5.07	1648	5049
ANAD	284	17259	5	3.23	659	39	1085	2	1.57	61	855	6403	8	5.07	4335	5055
SUBTOT	10089	126749			32599	31215	141082			55797	4573	37306			22991	111383
						RRAD LINES	RRAD WEIGHT									
MISSOUR	302	2668	5	3.23	975	2272	9678	3	1.89	4294	129	830	7	4.43	571	5841
ARKANS	353	3967	5	3.23	1140	1787	9203	2	1.57	2806	114	1138	7	4.43	505	4451
LOUISNA	469	3419	6	3.82	1792	2916	19562	3	1.89	5511	159	1666	7	4.43	704	8007
TEXAS	651	5506	6	3.82	2487	3845	15509	NA	2.13	6486	260	2880	7	4.43	1152	10124
OKLA	1162	10417	6	3.82	4439	1260	6651	3	1.89	2381	368	3197	6	3.82	1406	8226
HOOD	163	1338	6	3.82	623	372	3200	NA	1.99	740	2391	19688	7	4.43	10592	11955
POLK	2357	17822	6	3.82	9004	2688	10399	NA	2.19	5887	775	7342	7	4.43	3433	18324
SAM HOU	263	1824	7	4.43	1165	1552	6248	NA	1.65	2561	112	524	7	4.43	496	4222
BLISS	3161	23282	7	4.43	14003	224	2846	NA	5.15	1154	879	8889	5	3.23	2839	17996
L. WOOD	774	8354	5	3.23	2500	3948	26499	3	1.89	7462	243	2514	7	4.43	1076	11038
SILL	999	9023	6	3.82	3816	347	1918	3	1.89	656	383	2125	6	3.82	1157	5629
CCAD	1853	8925	7	4.43	8209	46	968	NA	4.58	211	1307	7454	7	4.43	5798	14289
RRAD	68	753	6	3.82	229	7	44	NA	1.74	12	688	8932	7	4.43	3012	3254
SUBTOT	12567	99218			58382	20464	117717			40160	7720	66219			32735	123277
						PUDA LINES	PUDA WEIGHT									
COL/WYO	453	4533	7	4.43	2007	1855	10437	2	1.57	2912	138	1829	5	3.23	428	5339
NEW MEX			7	4.43	0	931	3711	3	1.89	1760	128	3214	5	3.23	388	2147
CARSON	2882	22425	7	4.43	12613	756	8829	2	1.57	1184	2345	18868	5	3.23	7574	21171
NEB/DAK	272	2025	6	3.82	1039	1777	10279	4	2.3	4088	75	647	6	3.82	287	5413
KANSAS	596	4494	5	3.23	1925	2532	12923	4	2.3	5824	160	1269	6	3.82	611	8160
RILEY	3696	24887	6	3.82	14119	2078	10766	4	2.3	4779	1184	8230	6	3.82	4523	23421
						RRAD LINES	RRAD WEIGHT				TEAD LINES	TEAD WEIGHT				
MNT/IDA	562	4102	8	4.65	2613	623	3355	6	3.26	2031	4944	29992	1	2.14	10580	15224
UTAH/NV	284	2325	8	4.65	1321	313	1668	6	3.26	1020	1307	13153	2	1.73	2260	4601
ARIZONA	167	1089	8	4.65	777	232	1498	6	3.26	756	1056	13697	5	3.02	5695	7138
HUACHUC	355	1659	8	4.65	1651	476	2172	5	2.8	1333	3459	22569	6	3.54	12245	15228
TEAD	367	3471	8	4.65	1707	385	2304	6	3.26	1190	71	634	2	1.73	123	3019
SUBTOT	9554	70930			39578	11936	67142			26077	15691	113382			44616	111063
											SHAD LINES	SHAD WEIGHT				
CALIF	885	5893	8	4.65	3743	1122	7271	7	3.74	4196	6193	40920	3	2.82	12518	20449
OREGON	319	2093	8	4.65	1483	314	1814	7	3.74	1174	2897	19975	4	2.47	7156	9813
WASHNTN	259	2572	8	4.65	1204	312	2021	7	3.74	1167	2228	22226	4	2.47	5503	7874
NEVADA											1306	13153	2	1.65	2155	2155
IDWIN	937	8134	8	4.65	4357	1523	10659	7	3.74	5696	14	157	3	2.82	28	10081
LEWIS	3011	26731	8	4.65	14001	213	847	7	3.74	797	1880	9663	4	2.47	4644	19441
ORD	1618	12735	8	4.65	7487	246	1319	7	3.74	920	2641	21863	2	1.65	4358	12764
PRSIDIO	157	1536	8	4.65	730	174	931	7	3.74	651	2292	13595	2	1.65	3782	5163
SAAD	661	1562	8	4.65	3074	406	992	7	3.74	1518	2069	8162	2	1.65	3414	8006
SUBTOT	7759	59256			36079	4310	25854			16119	21520	149714			43549	95747
TOTAL	117287	911373				89318	698712			199680	59410	445364			193624	709213
													TOTAL	LINES	256887	
													TOTAL	WEIGHT	1.8586	

ALT. NO ONE THRU SIX
MODE AIR

DESTINATION	TOTAL LINES	WEIGHT S-TONS	NCAD LINES	NCAD WEIGHT	RRAD LINES	RRAD WEIGHT	SHAD LINES	SHAD WEIGHT	TOT AIR WGT	TOTAL LINES	AVG WGT PER LINE LBS	NO OF SHPMTS	TOTAL COST
MAINE	2530	74	470	6	29	0	27	0	7	526	25	14	15528
NH/VER	3894	162	680	4	39	0	37	1	5	756	12	20	11658
MASS	7929	248	2304	8	156	1	116	1	10	2576	8	68	26894
CONN/RI	7057	260	1742	7	145	0	114	1	9	2001	9	33	22377
NEW YORK	18304	811	3124	13	197	1	149	2	16	3470	9	92	40578
PENN	10813	391	226	0	162	1	113	0	1	501	5	13	3831
NJ/DEL	15760	501	1568	5	133	1	90	1	7	1791	8	47	19135
MD/DC	4962	181	790	2	72	0	48	0	2	910	5	24	6895
VA/W.VA	7881	486	1266	4	154	0	87	1	5	1507	6	40	13125
N. CARO	8238	352	1218	7	105	0	56	0	7	1371	11	36	18449
S. CARO	6606	255	1307	8	58	0	91	1	8	1456	11	39	20840
OHIO	6644	329	1314	7	70	0	55	0	8	1439	11	38	19245
MICH	4714	366	826	6	51	0	45	0	7	922	15	24	16763
INDIANA	7723	248	1601	13	72	0	59	1	14	1732	16	46	32993
ILL.	8478	496	1308	8	112	1	123	0	9	1543	12	41	22288
WISC	7313	354	1598	15	93	1	64	0	16	1747	18	46	38852
MINN	7387	432	1405	8	109	0	89	1	9	1603	11	42	22330
IOWA	4328	134	774	4	24	0	42	0	4	840	11	22	11185
BRAGG	68695	1633	1561	5	1091	5	783	5	14	3415	8	90	37933
DEVENS	11042	346	2427	10	119	1	90	1	11	2636	8	70	29267
DRUM	6657	179	1031	5	42	0	39	0	5	1112	10	29	13587
MCCOY	8774	247	1206	6	48	0	40	0	6	1294	10	34	16325
MEADE	21254	446	1036	3	145	1	161	1	5	1342	8	36	14458
SHERIDN	6617	186	1621	9	89	1	60	0	9	1770	11	47	23630
BELVOIR	5952	249	879	3	129	0	58	0	4	1066	7	28	10174
DIX	10811	398	1801	6	104	1	61	0	8	1966	8	52	20316
EUSTIS	7514	286	312	1	203	2	75	0	4	790	9	21	9584
JACKSON	5191	215	965	5	52	0	31	0	6	1048	11	28	14565
LEE	5179	276	973	4	54	1	49	1	5	1076	10	28	13227
TOAD	6321	166	376	1	159	1	118	0	2	693	5	17	4748
LEAD	18022	484	23	0	294	4	256	1	5	573	17	15	11520
SUBTOT	322594	11110	37896	183	4310	23	3226	22	228	45432	324	1203	581478
FLORIDA	6873	260	338	2	585	1	58	0	4	981	8	26	10037
GEORGIA	14573	892	1281	10	1583	4	188	2	16	3054	11	81	40886
ALABAMA	17818	1229	812	10	1052	8	685	3	21	2349	16	68	49831
MISS	14792	808	622	4	1813	2	111	1	6	1746	7	46	16734
TENN	6328	274	261	3	378	1	56	0	4	695	10	18	9833
KENT	5161	165	308	2	391	2	59	1	5	758	12	20	11672
MISSOUR	5831	348	383	1	781	1	68	0	3	1132	4	30	7556
ARKANS	5438	259	240	2	495	1	50	0	3	783	7	21	7689
LOUISNA	11125	588	760	14	975	2	151	2	18	1886	19	50	42288
TEXAS	10859	492	472	4	1499	4	83	0	9	2054	8	54	22384
OKLA	17048	733	949	8	186	1	116	1	9	1251	14	33	22108
KANSAS	6077	280	170	1	269	1	37	0	2	476	10	13	6175
NEB/DAK	3896	191	236	3	389	2	41	0	5	666	15	18	12040
COL/WYO	5038	186	164	2	284	1	22	0	3	470	12	12	7130
NEW MEX	2596	160	71	1	216	1	27	0	1	314	9	8	3799
CAMPBLL	42744	1039	959	9	43	0	528	4	13	1538	17	41	31748
CARSON	60555	3655	3799	33	47	0	1164	9	43	5010	17	133	102236
HOOD	135934	8274	2361	30	221	0	1143	8	39	3725	21	99	91760
POLK	47373	3308	2568	26	609	2	483	4	32	3660	18	97	76735
RILEY	65826	3003	3317	34	98	1	723	5	39	4138	19	110	91456
SAM HOU	6267	144	181	2	957	2	67	1	5	1205	8	32	12141
STEWART	63050	3102	4417	33	179	1	975	7	42	5571	15	148	101532
BENNING	30217	2078	2256	17	12	0	452	3	20	2720	15	72	48231
BLISS	45696	2749	3258	25	195	1	493	5	32	3938	16	104	77814
GORDON	9578	214	835	4	491	1	121	0	5	1447	7	38	13584
KNOX	61568	3857	2801	23	156	1	677	5	29	3634	16	96	69645
L. WOOD	9647	549	744	6	394	1	140	1	8	1278	12	34	18824
MCCLELN	5123	212	297	3	31	0	48	0	4	376	20	10	8735
RUCKER	18536	535	1291	8	26	0	472	2	10	1789	11	47	25150
SILL	16450	891	1203	11	50	0	234	2	13	1507	18	40	31912
CCAD	44392	348	867	5	23	0	426	2	7	1316	11	35	17871
ANAD	38914	3280	107	5	6	0	198	1	6	311	41	8	14529
RRAD	8366	1090	469	6	2	0	319	2	8	790	20	21	18941
SUBTOT	841675	45213	38709	345	13618	44	10435	72	462	52762	464	1662	1123327
MNT/IDA	9459	649	300	3	90	0	997	5	8	1387	12	37	20829
UTAH/NV	5259	279	152	2	69	0	375	4	6	796	16	21	15179
ARIZONA	5438	254	168	2	188	0	685	3	5	1041	9	28	11904
CALIF	18295	1147	722	5	558	1	1369	3	10	2649	7	70	26481
OREGON	6637	210	244	1	88	1	1008	5	7	1340	10	35	17365
WASHNTN	4813	334	91	1	20	0	224	2	3	335	15	9	6212
IRWIN	22213	3948	1094	5	429	4	3	0	9	1528	11	40	21608
LEWIS	59658	2577	2286	33	574	3	400	2	38	3260	23	86	88800
ORD	33740	1442	1515	34	355	1	183	1	36	2053	35	54	81296
PRSIDIO	3924	114	87	1	23	0	270	1	2	388	12	10	5641
HUACHUC	7291	165	348	2	55	0	635	3	5	1030	10	27	12988
SAAD	9417	148	580	2	197	56	342	1	59	1119	105	30	130486
TEAD	8789	778	264	8	124	1	458	4	12	838	29	22	28147
SUBTOT	190933	12046	7843	99	2770	68	7143	32	199	17756	295	470	466936
TOTAL	1355202	68369	84448	627	20698	135	20804	126	888	125950	1084	3336	2171742

TOTAL LINES 125950
TOTAL WEIGHT 888
TOTAL COST 2171742

APPENDIX F

ORDER-SHIP-TIME CALCULATIONS

ALT. NO ONE
MODE TRUCKLOAD OST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD DAYS	SHAD LINES	TRANSIT TIME	SHAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	5	14	1	7	7		10	0	21	543	1751	3218
NH/VER	5	4	21		7	0		10	0	21	410	1625	3040
MASS	2074	4	8710	2	7	13		10	0	8723	301	1589	3004
CONN/RI	8	4	32	1	7	7		10	0	39	313	1521	3022
NEW YORK	3283	4	13164	6	6	39	3	9	28	13230	287	1483	2917
PENN	255	4	926	73	6	429	31	9	270	1633	100	1208	2739
NJ/DEL	946	4	3499	1	6	6		9	0	3505	133	1291	2867
MD/DC	27	4	98		6	0		9	0	98	104	1173	2795
VA/W.VA	32	4	128	3	5	16	3	9	27	171	288	997	2688
N. CARO	2385	4	9638	7	5	38		9	0	9677	372	1014	2743
S. CARO	1041	5	4778	1	5	5		9	0	4783	574	858	2622
OHIO	41	4	172	5	5	26		8	0	198	374	877	2410
MICH	1182	4	5190	15	6	83	3	8	25	5305	479	1025	2374
INDIANA	17	5	77		5	0	1	8	8	85	552	731	2238
ILL.	1615	5	7980	7	5	33	1	8	8	8020	748	645	2050
WISC	15	5	75	9	5	47	2	8	15	138	793	892	2873
MINN	17	6	95	8	5	42		7	0	137	1058	928	1932
IOWA	618	5	3273	69	5	332		9	0	3605	958	683	2742
BRAGG	49391	4	194946	54	5	296	0	9	72	195314	430	1020	2768
DEVENS	970	4	4854	1	7	7	1	10	10	4870	371	1579	3067
DRUM	1310	4	5369		6	0	1	9	9	5378	331	1415	2824
MCCOY	175	5	919	2	5	11	2	7	15	945	983	952	1997
MEADE	3390	4	12237	4	6	23	3	9	27	12288	89	1103	2798
SHERIDN	6	5	29		5	0	1	7	7	36	672	831	1798
BELVOIR	1652	4	6083		6	0		9	0	6083	125	1162	2793
OIX	1201	4	4445	2	6	12	1	9	9	4466	134	1327	2867
EUSTIS	4586	4	17886	2	6	12		9	0	17897	267	1158	2895
JACKSON	682	5	3130	6	5	31		9	0	3161	574	863	2627
LEE	411	4	1610	2	6	11		9	0	1621	241	1111	2840
TOAD	55	4	203		6	0	1	9	9	212	127	1335	2811
LEAD	12744	4	44922	46	6	266	8	9	72	45259	47	1167	2712
SUBTOT	85929			327			70				412	1141	2656
FLORIDA	1	5	5	13	5	64		8	0	69	936	733	2507
GEORGIA	83	5	404	864	5	3799	1	8	8	4211	714	641	2401
ALABAMA	4	5	21	2341	5	10588		8	0	10609	871	541	2327
MISS	329	6	1810	345	4	1390	1	8	8	3224	1038	308	2082
TENN	3	5	15	40	4	177	1	8	8	200	711	497	2226
KENT	18	5	45	228	5	1072		8	0	1118	541	715	2389
MISSOUR	2	5	11	126	4	527		7	0	538	927	374	1847
ARKANS	190	6	1054	124	4	465		7	0	1519	1049	159	1984
LOUISNA	76	6	445	1524	4	6228		8	0	6673	1201	325	2111
TEXAS	3	7	20	411	4	1703	1	7	7	1729	1563	353	1691
OKLA	719	6	4354	9330	4	37430		7	0	41784	1308	288	1563
KANSAS	36	6	284	282	4	1246		7	0	1451	1109	498	1743
NEB/DAK	1	6	6	7	5	38		7	0	44	1344	1010	1528
COL/WYO	8	7	54	564	5	3028	1	6	6	3088	1614	960	1170
NEW MEX	1	7	7	87	5	433		6	0	440	1839	766	1074
CAMPBELL	5573	5	27637	29332	4	130530	5	8	40	158207	757	585	2242
CARSON	2591	7	17465	42669	5	219531	29	6	173	237170	1639	849	1258
HOOD	20284	7	131375	99569	4	407090	58	7	341	538606	1521	326	1682
POLK	2179	6	13090	31684	4	122116	9	7	67	135274	1276	210	1978
RILEY	3184	6	18880	47188	5	212660	32	7	210	238886	1174	533	1680
SAM HOU	- 1	7	28	13	4	56		7	0	77	1642	447	1668
STEWART	3884	5	14752	42437	5	220309		9	0	235061	733	872	2648
BENNING	1388	5	6633	23074	5	108741	58	8	417	115791	828	635	2433
BLISS	1564	7	11604	31464	5	159212	13	6	74	170890	1975	887	1189
GORDON	2	5	9	13	5	65		9	0	75	649	782	2556
KNOX	7858	5	36526	40976	5	194184	13	8	106	230814	603	648	2343
L. WOOD	351	5	1866	584	4	2548	2	7	15	4429	934	462	1933
MCCLELN		5	0	2885	5	13171		8	0	13171	773	562	2321
RUCKER	3	5	16	11362	5	53339	1	8	8	53363	948	626	2488
SILL	789	6	4912	10299	4	41920	2	7	13	46846	1384	317	1546
CCAD	2821	7	13786	36171	5	162791	13	7	92	176670	1679	530	1805
AMAD	6534	5	32614	28457	5	129568	13	8	106	162288	773	556	2321
RRAD	4089	6	24083	10	3	34	6	7	42	24088	1208	0	1790
SUBTOT	62635			494485			243				1129	548	1948
MNT/IDA		8	0	14	7	96	24	5	123	219	2210	1695	937
UTAH/NV		8	0	3	7	20	9	4	39	59	2305	1572	441
ARIZONA		8	0	1	6	6	15	5	72	78	2300	1182	693
CALIF	47	9	417	8	7	57	1437	4	5080	5554	2689	1843	52
OREGON	2	9	18		8	0	14	5	65	83	2769	2146	583
WASHNTN	34	9	303	3	8	24	12	5	60	387	2712	2218	773
IRWIN	937	9	8046	174	6	1117	13706	4	57532	66695	2553	1488	388
LEWIS	2081	9	18471	4715	8	37421	39956	5	198228	254120	2696	2231	758
ORD	32	9	296	2414	7	17111	19641	4	72963	90370	2880	1811	141
PRSIDIO		9	0		7	0	14	4	50	50	2785	1856	81
HUACHUC	18	8	79	6	6	34	2	5	10	123	2222	1886	877
SAAD	5	9	44		7	0	1	4	4	48	2689	1843	52
TEAD	587	8	3862	6	6	37	5810	5	28050	31949	2073	1389	692
SUBTOT	3655			7344			80641	TOTAL DAYS		3416449			
TOTAL	152219			502076			80954	TOTAL LINES		735249			
								AVERAGE DAYS		4.64666			

ALT. NO ONE IDEAL PERFECT POSITIONING
MODE TRUCKLOAD OST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	NCAD LINES	TRANSIT TIME	NCAD DAYS	NCAD LINES	TRANSIT TIME	NCAD DAYS	TOTAL DAYS	TOTAL LINES	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	5	14	1	7	7		10	0	18	4	543	1751	3210
NH/VER	5	4	21		7	0		10	0	21	5	418	1625	3040
MASS	2074	4	8710	2	7	13		10	0	8710	2076	381	1589	3004
CONN/RI	8	4	32	1	7	7		10	0	37	9	313	1521	3022
NEW YORK	3283	4	13164	6	6	39	3	9	28	13200	3292	287	1483	2917
PENN	255	4	926	73	6	429	31	9	278	1384	359	188	1288	2739
NJ/DEL	946	4	3499	1	6	6		9	0	3503	947	133	1291	2867
MD/DC	27	4	98		6	0		9	0	98	27	184	1173	2795
VA/W.VA	32	4	128	3	5	16	3	9	27	152	38	288	997	2688
N. CARO	2305	4	9638	7	5	38		9	0	9667	2312	372	1814	2743
S. CARO	1041	5	4778	1	5	5		9	0	4782	1042	574	858	2622
OHIO	41	4	172	5	5	26		8	0	193	46	374	877	2410
MICH	1182	4	5198	15	6	83	3	8	25	5277	1200	479	1025	2374
INDIANA	17	5	77		5	0	1	8	0	82	18	552	731	2238
ILL.	1615	5	7980	7	5	33	1	8	8	8019	1623	748	645	2050
WISC	15	5	75	9	5	47	2	8	15	131	26	793	892	2873
MINN	17	6	95	8	5	42		7	0	139	25	1058	928	1932
IOWA	618	5	3273	69	5	332		9	0	3643	679	958	683	2742
BRAGG	45351	4	194946	54	5	296	8	9	72	195212	45413	438	1020	2768
DEVENS	970	4	4854	1	7	7	1	10	10	4862	972	371	1579	3067
DRUM	1310	4	5369		6	0	1	9	9	5373	1311	331	1415	2824
MCCOY	175	5	919	2	5	11	2	7	15	940	179	983	952	1997
MEADE	3390	4	12237	4	6	23	3	9	27	12262	3397	89	1183	2798
SHERIDN	6	5	29		5	0	1	7	7	34	7	672	831	1790
SELVOIR	1652	4	6883		6	0		9	0	6883	1652	125	1162	2793
DIX	1201	4	4445	2	6	12	1	9	9	4456	1204	134	1327	2867
EUSTIS	4586	4	17886	2	6	12		9	0	17894	4588	267	1158	2895
JACKSON	682	5	3138	6	5	31		9	0	3178	688	574	863	2627
LEE	411	4	1610	2	6	11		9	0	1618	413	241	1111	2840
TOAD	55	4	203		6	0	1	9	9	206	56	127	1335	2811
LEAD	12744	4	44922	46	6	266	8	9	71	45112	12790	47	1167	2712
SUBTOT	85929 RRAD			327 RRAD			70 RRAD					412	1141	2656
FLORIDA	1	5	5	13	5	64		8	0	69	14	936	733	2507
GEORGIA	83	5	404	804	5	3799	1	8	0	4196	888	714	641	2481
ALABAMA	4	5	21	2341	5	10588		8	0	10606	2345	871	541	2327
MISS	329	6	1818	345	4	1398	1	8	0	2735	675	1038	308	2882
TENN	3	5	15	48	4	177	1	8	0	195	44	711	497	2226
KENT	18	5	45	220	5	1872		8	0	1121	230	541	715	2389
MISSOUR	2	5	11	126	4	527		7	0	536	128	927	374	1847
ARKANS	198	6	1054	124	4	465		7	0	1178	314	1049	159	1904
LOUISNA	76	6	445	1524	4	6228		8	0	6538	1600	1201	325	2111
TEXAS	3	7	20	411	4	1703	1	7	7	1719	415	1563	353	1691
OKLA	719	6	4354	9338	4	37438		7	0	40314	10049	1308	288	1563
KANSAS	36	6	204	282	4	1246		7	0	1485	318	1189	498	1743
NEB/OAK	1	6	6	7	5	38		7	0	44	8	1344	1018	1528
COL/WYO	8	7	54	564	5	3028	1	6	6	3077	573	1614	960	1170
NEW MEX	1	7	7	87	5	433		6	0	438	88	1839	766	1874
CAMPBLL	5573	5	27637	29332	4	130538	5	8	40	155353	34918	757	585	2242
CARSON	2591	7	17469	42669	5	219531	29	6	173	233811	45289	1639	849	1258
HOOD	20284	7	131375	99569	4	467898	58	7	341	489899	119823	1521	326	1682
POLK	2179	6	13090	31684	4	122116	9	7	67	138549	33872	1276	210	1978
RILEY	3184	6	18988	47188	5	212668	32	7	218	226793	50324	1174	533	1680
SAM HOU	3	7	20	13	4	56		7	0	69	16	1642	447	1660
STEWART	3884	5	14752	42437	5	220389		9	0	235904	45441	733	872	2648
BENNING	1388	5	6633	23874	5	108741	58	8	417	115183	24424	828	635	2433
BLISS	1564	7	11684	31464	5	159212	13	6	74	167192	33841	1975	887	1189
GORDON	2	5	9	13	5	65		9	0	75	15	649	782	2556
KNOX	7858	5	36524	40976	5	194184	13	8	106	231484	48847	683	648	2343
L. WOOD	351	5	1866	584	4	2548	2	7	15	4888	937	934	462	1933
MCCLELN		5	0	2885	5	13171		8	0	13171	2885	773	562	2321
RUCKER	3	5	16	11362	5	53339	1	8	8	53358	11366	948	626	2408
SILL	789	6	4912	10299	4	41928	2	7	13	45140	11090	1384	317	1546
CCAD	2921	7	13786	36171	5	162791	13	7	92	171945	38285	1679	530	1805
ANAD	6534	5	32614	28457	5	129568	13	8	106	159377	35084	773	556	2321
RRAD	4089	6	24083	10	3	34	6	7	42	14088	4105	1298	0	1798
SUBTOT	62635 SHAD			494485 SHAD			243 SHAD					1129	540	1948
MNT/IDA		8	0	14	7	96	24	5	123	195	38	2218	1695	837
UTAH/NV		8	0	3	7	20	9	4	39	52	12	2385	1572	441
ARIZONA		8	0	1	6	6	15	5	72	77	16	2388	1182	693
CALIF	47	9	417	8	7	57	1437	4	5088	5274	1492	2689	1843	52
OREGON	2	9	18		8	0	14	5	65	74	16	2769	2146	583
WASHNTN	34	9	303	3	8	24	12	5	60	245	49	2712	2218	773
IRWIN	937	9	8846	174	6	1117	13796	4	57532	62196	14817	2553	1488	388
LEWIS	2881	9	18471	4715	8	37421	39956	5	198228	231944	46752	2696	2231	758
ORD	32	9	296	2414	7	17111	19641	4	72963	82849	22887	2888	1811	141
PRSIDIO		9	0		7	0	14	4	50	50	14	2785	1856	81
HUACHUC	18	8	79	6	6	34	2	5	18	94	18	2222	1886	877
SAAD	5	9	44		7	0	1	4	4	21	6	2689	1843	52
TEAD	587	8	3862	6	6	37	5818	5	28858	38526	6323	2873	1389	692
SUBTOT	3655			7344			80641	TOTAL DAYS		3288958				
TOTAL	152219			502876			80954	TOTAL LINES		735249				
								AVERAGE DAYS		4.47326				

ALT. NO TWO
MODE TRUCKLOAD OST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD DAYS	SHAD LINES	TRANSIT TIME	SHAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	5	14	1	7	7		10	0	21	543	1751	3218
NH/VER	5	4	21		7	0		10	0	21	418	1625	3040
MASS	2074	4	8718	2	7	13		10	0	8723	381	1589	3004
CONN/RI	8	4	32	1	7	7		10	0	39	313	1521	3022
NEW YORK	3283	4	1316	6	6	39	3	9	28	13236	287	1483	2917
PENN	255	4	926	73	6	429	31	9	270	1633	188	1288	2739
NJ/DEL	946	4	3499	1	6	6		9	0	3505	133	1291	2867
MD/DC	27	4	98		6	0		9	0	98	184	1173	2795
VA/W.VA	32	4	128	3	5	16	3	9	27	171	288	997	2688
N. CARO	2385	4	9638	7	5	38		9	0	9677	372	1814	2743
OHIO	41	4	172	5	5	26		8	0	198	374	877	2418
MICH	1182	4	5190	15	6	83	3	8	25	5305	479	1825	2374
INDIANA	17	5	77		5	0	1	8	8	85	552	731	2238
ILL.	1615	5	7988	7	5	33	1	8	8	8028	748	645	2858
WISC	15	5	75	9	5	47	2	8	15	138	793	892	2873
MINN	17	6	95	8	5	42		7	0	137	1858	920	1932
IOWA	618	5	3273	69	5	332		9	0	3605	958	683	2742
BRAGG	45351	4	194946	54	5	296	8	9	72	195314	438	1828	2768
DEVENS	978	4	4054	1	7	7	1	10	10	4070	371	1579	3067
DRUM	1318	4	5369		6	0	1	9	9	5378	331	1415	2824
MCCOY	175	5	919	2	5	11	2	7	15	945	903	952	1997
MEADE	3390	4	12237	4	6	23	3	9	27	12288	89	1183	2798
SHERIDN	6	5	29		5	0	1	7	7	36	672	831	1798
BELVOIR	1652	4	6883		6	0		9	0	6883	125	1162	2793
DIX	1281	4	4445	2	6	12	1	9	9	4466	134	1327	2867
EUSTIS	4506	4	17886	2	6	12		9	0	17897	267	1158	2895
LEE	411	4	1618	2	6	11		9	0	1621	241	1111	2848
TOAD	55	4	203		6	0	1	9	9	212	127	1335	2811
LEAD	12744	4	44922	46	6	266	8	9	71	45259	47	1167	2712
SUBTOT	84206			320			70				401	1161	2658

				AHAD LINES	TRANSIT TIME	AHAD DAYS						AHAD MILAGE	
FLORIDA	1	5	5	13	4	53		8	0	58	936	389	2507
GEORGIA	83	5	404	804	4	2906	1	8	8	3318	714	91	2481
S. CARO	1	5	5	1041	4	4218		9	0	4223	574	388	2622
ALABAMA	4	5	21	2341	4	8564		8	0	8585	871	113	2327
MISS	329	6	1818	345	4	1395	1	8	8	3228	1838	383	2882
TENN	3	5	15	48	4	154	1	8	8	177	711	214	2226
KENT	10	5	45	228	4	937		8	0	982	541	418	2389
JACKSON	6	5	28	682	4	2778		9	0	2798	574	313	2627
CAMPBLL	5573	5	27637	29332	4	116547	5	8	40	144224	757	269	2242
STEWART	3884	5	14752	42437	4	174190		9	0	188942	733	334	2648
BENNING	1388	5	6633	23074	4	86842	58	8	417	93893	828	148	2433
GORDON	2	5	9	13	4	51		9	0	60	649	232	2556
KNOX	7858	5	36524	40976	4	170759	13	8	186	207390	683	365	2343
MCCLELN		5	0	2885	3	9931		8	0	9931	773	6	2321
RUCKER	3	5	16	11362	4	43539	1	8	8	43563	948	199	2488
AHAD	6534	5	32614	28457	3	97888	13	8	186	130327	773	0	2321
SUBTOT	24711			184822			85				751	226	2483

				RRAD LINES		RRAD DAYS						RRAD MILAGE	
MISSOUR	2	5	11	126	4	527		7	0	538	927	374	1847
ARKANS	198	6	1854	124	4	465		7	0	1519	1849	159	1984
LOUISNA	76	6	445	1524	4	6228		8	0	6673	1281	325	2111
TEXAS	3	7	20	411	4	1703	1	7	7	1729	1563	353	1691
OKLA	719	6	4354	9330	4	37430		7	0	41784	1388	288	1563
KANSAS	36	6	204	282	4	1246		7	0	1451	1189	498	1743
NEB/DAK	1	6	6	7	5	38		7	0	44	1344	1818	1528
COL/WYO	8	7	54	564	5	3828	1	6	6	3888	1614	968	1178
NEW MEX	1	7	7	87	5	433		6	0	448	1839	766	1874
CARSON	2591	7	17465	42669	5	219531	29	6	173	237178	1639	349	1258
HOOD	28284	7	131375	99569	4	487898	58	7	341	538896	1521	326	1682
POLK	2179	6	13098	31684	4	122116	9	7	67	135274	1276	218	1978
RILEY	3184	6	18888	47188	5	212668	32	7	218	230886	1174	533	1688
SAM HOU	3	7	20	13	4	56		7	0	77	1642	447	1668
BLISS	1564	7	11684	31464	5	159212	13	6	74	170898	1975	887	1189
L. WOOD	351	5	1866	584	4	2548	2	7	15	4429	934	462	1933
SILL	789	6	4912	10299	4	41928	2	7	13	46846	1384	317	1546
CCAD	2821	7	13786	36171	5	162791	13	7	92	176670	1679	538	1885
RRAD	4889	6	24883	18	3	34	6	7	42	24888	1288	0	1798
SUBTOT	37931			312186			158				1388	485	1635
MNT/IDA		8	0	14	7	96	24	5	123	219	2218	1695	837
UTAH/NV		8	0	3	7	20	9	4	39	59	2385	1572	441
ARIZONA		8	0	1	6	6	15	5	72	78	2388	1182	693
CALIF	47	9	417	8	7	57	1437	4	5888	5554	2689	1843	52
OREGON	2	9	18		8	0	14	5	65	83	2769	2146	583
WASHNTN	34	9	383	3	8	24	12	5	68	387	2712	2218	773
IRWIN	937	9	8846	174	6	1117	13786	4	57532	66695	2553	1488	388
LEWIS	2881	9	18471	4715	8	37421	39956	5	198228	254128	2696	2231	758
ORD	32	9	296	2414	7	17111	19641	4	72963	90378	2888	1811	141
PRSIDIO		9	0		7	0	14	4	58	58	2785	1856	81
HUACHUC	18	8	79	6	6	34	2	5	18	123	2222	1886	877
SAAD	5	9	44		7	0	1	4	4	48	2689	1843	52
TEAD	587	8	3862	6	6	37	5818	5	28898	31949	2873	1389	692
SUBTOT	3655			7344			88641	TOTAL DAYS		3261195	2529	1719	489
TOTAL	158583			583792			88954	TOTAL LINES		735249	1448	1122	1594
								AVERAGE DAYS		4.43558			

ALT. NO THREE MODE TRUCKLOAD OST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD DAYS	SHAD LINES	TRANSIT TIME	SHAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	5	14	1	7	7		10	0	21	543	1751	3210
NH/VER	5	4	21		7	0		10	0	21	410	1625	3040
MASS	2074	4	8710	2	7	13		10	0	8723	381	1589	3084
CONN/RI	8	4	32	1	7	7		10	0	39	313	1521	3022
NEW YORK	3283	4	13164	6	6	39	3	9	28	13230	287	1483	2917
PENN	255	4	926	73	6	429	31	9	278	1633	180	1288	2739
NJ/DEL	946	4	3499	1	6	6		9	0	3505	133	1291	2867
MD/DC	27	4	98		6	0		9	0	98	184	1173	2795
VA/W.VA	32	4	128	3	5	16	3	9	27	171	288	997	2688
N. CARO	2305	4	9638	7	5	38		9	0	9677	372	1014	2743
OHIO	41	4	172	5	5	26		8	0	198	374	877	2418
MICH	1182	4	5198	15	6	83	3	8	25	5305	479	1025	2374
INDIANA	17	5	77		5	0	1	8	8	85	552	731	2238
ILL.	1615	5	7900	7	5	33	1	8	8	8020	748	645	2058
WISC	15	5	75	9	5	47	2	8	15	138	793	892	2073
MINN	17	6	95	8	5	42		7	0	137	1058	928	1932
IOWA	618	5	3273	69	5	332		9	0	3605	958	683	2742
BRAGG	45351	4	194946	54	5	296	8	9	72	195314	438	1028	2768
DEVENS	970	4	4054	1	7	7	1	10	10	4070	371	1579	3067
DRUM	1310	4	5369		6	0	1	9	9	5378	331	1415	2824
MCCOY	175	5	919	2	5	11	2	7	15	945	903	952	1997
MEADE	3390	4	12237	4	6	23	3	9	27	12288	89	1183	2798
SHERIDN	6	5	29		5	0	1	7	7	36	672	831	1790
BELVOIR	1652	4	6883		6	0		9	0	6883	125	1162	2793
DIX	1281	4	4445	2	6	12	1	9	9	4466	134	1327	2867
EUSTIS	4586	4	17886	2	6	12		9	0	17897	267	1158	2895
LEE	411	4	1610	2	6	11		9	0	1621	241	1111	2840
TOAD	55	4	203		6	0	1	9	9	212	127	1335	2811
LEAD	12744	4	44922	46	6	266	8	9	71	45259	47	1167	2712

				AMAD LINES		AMAD DAYS						AMAD MILAGE	
FLORIDA	1	5	5	13	4	53		8	8	58	936	309	2587
GEORGIA	83	5	484	884	4	2986	1	8	8	3318	714	91	2481
S. CARO	1	5	5	1041	4	4218		9	0	4223	574	388	2622
ALABAMA	4	5	21	2341	4	8564		8	0	8585	871	113	2327
MISS	329	6	1818	345	4	1395	1	8	8	3228	1038	303	2882
TENN	3	5	15	40	4	154	1	8	8	177	711	214	2226
KENT	18	5	45	228	4	937		8	8	982	541	418	2389
JACKSON	6	5	28	682	4	2770		9	0	2798	574	313	2627
CAMPBLL	5573	5	27637	29332	4	116947	5	8	48	144224	757	269	2242
STEWART	3884	5	14752	42437	4	174190		9	0	188942	733	334	2648
BENNING	1368	5	6633	23874	4	86042	58	8	417	93093	828	148	2433
GORDON	2	5	9	13	4	51		9	0	60	649	232	2556
KNOX	7858	5	36524	40976	4	170759	13	8	186	207398	603	365	2343
MCCLELN		5	0	2885	3	9931		8	0	9931	773	6	2321
ROCKER	3	5	16	11362	4	43539	1	8	8	43563	948	199	2488
AMAD	6534	5	32614	28457	3	97608	13	8	186	130327	773	0	2321

				RRAD LINES		RRAD DAYS						RRAD MILEAGE	
MISSOUR	2	5	11	126	4	527		7	0	538	927	374	1847
ARKNSS	198	6	1854	124	4	485		7	0	1519	1949	159	1984
LOUISNA	76	6	445	1524	4	6228		8	0	6673	1281	325	2111
TEXAS	3	7	20	411	4	1703	1	7	7	1729	1563	153	1691
OKLA	719	6	4354	9330	4	37438		7	6	41784	1300	288	1563
KANSAS	36	6	204	282	4	1246		7	0	1451	1189	498	1743
NEB/OAK	1	6	6	2	5	11		7	0	17	1344	1010	1528
HOOD	28284	7	131375	99569	4	407898	58	7	341	538806	1521	326	1682
POLK	2179	6	13090	31684	4	122116	9	7	67	135274	1276	218	1978
RILEY	3184	6	18888	47188	5	212660	32	7	218	230886	1174	533	1680
SAM HOU	3	7	20	13	4	56		7	0	77	1642	447	1660
BLISS	1564	7	11604	31464	5	159212	13	6	74	170890	1975	807	1189
L. WOOD	351	5	1866	584	4	2548	2	7	15	4429	934	462	1933
SILL	789	6	4912	10299	4	41928	2	7	13	46846	1384	317	1546
CCAD	2021	7	13786	36171	5	162791	13	7	92	176670	1679	538	1885
RRAD	4089	6	24883	18	3	34	6	7	42	24880	1288	0	1790

				TEAD LINES		TEAD DAYS						TEAD MILAGE	
COL/WYO	8	7	54	564	5	2544	1	6	6	2603	1614	535	1178
NEW MEX	1	7	7	87	5	408		6	0	415	1839	623	1874
CARSON	2591	7	17465	42669	5	197835	29	6	173	214674	1639	588	1258
OAK				5	5	26				26	1344	914	1528

				RRAD LINES		RRAD DAYS	TEAD LINES		TEAD DAYS			RRAD MILAGE	TEAD MILAGE
MNT/IDA		8	0	14	7	96	24	4	184	280	2218	1695	446
UTAH/NV		8	0	3	7	20	4	4	14	34	2385	1572	37
ARIZONA		8	0	1	6	6	15	5	72	78	2388	1182	677
HUACHOC	10	8	79	6	6	34	2	5	10	123	2222	1086	861
TEAD	587	6	3862	6	6	37	5818	3	19928	23818	2073	1389	0

							SHAD LINES		SHAD DAYS				SHAD MILEAGE
CALIF	47	9	417	8	7	57	1437	4	5080	5554	2689	1843	52
OREGON	2	9	18		8	0	14	5	65	83	2769	2146	583
WASHNTN	34	9	303	1	8	24	12	5	68	387	2712	2218	773
NEVADA						0	5	4	19	19			188
IRWIN	937	9	8046	174	6	1117	13786	4	57532	66695	2553	1488	388
LEWIS	2881	9	18471	4715	8	37421	39956	5	198228	254120	2696	2231	758
ORD	32	9	296	2414	7	17111	19641	4	72963	90370	2888	1811	141
PRSIDIO		9	0		7	0	14	4	50	50	2785	1856	81
SAAD	5	9	44		7	0	1	4	4	48	2689	1843	52

TOTAL	150583			503792			80954	TOTAL DAYS		3238042	ARSS-60	ARSS-60	
								TOTAL LINES		735249			
								AVERAGE DAYS		4.39313			

ALT. NO FOUR TRUCKLOAD OST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD DAYS	SHAD LINES	TRANSIT TIME	SHAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	5	14	1	7	7		10	0	21	543	1751	3218
NH/VER	5	4	21		7	0		10	0	21	418	1625	3040
MASS	2074	4	8718	2	7	13		10	0	8723	381	1589	3004
CONN/RI	8	4	32	1	7	7		10	0	39	313	1521	3022
NEW YORK	3283	4	13164	6	6	39	3	9	28	13230	287	1483	2917
PENN	255	4	926	73	6	429	31	9	270	1633	100	1208	2739
NJ/DEL	946	4	3499	1	6	6		9	0	3505	133	1291	2867
MD/DC	27	4	98		6	0		9	0	98	104	1173	2795
VA/W.VA	32	4	128	3	5	16	3	9	27	171	288	997	2688
N. CARO	2305	4	9638	7	5	38		9	0	9677	372	1014	2743
BRAGG	45351	4	194946	54	5	296	8	9	72	195314	430	1020	2768
DEVENS	970	4	4054	1	7	7	1	10	10	4070	371	1579	3067
DRUM	1310	4	5369		6	0	1	9	9	5370	331	1415	2824
MEADE	3390	4	12237	4	6	23	3	9	27	12288	89	1183	2798
BELVOIR	1652	4	6883		6	0		9	0	6883	125	1162	2793
DIX	1201	4	4445	2	6	12	1	9	9	4466	134	1327	2867
EUSTIS	4586	4	17886	2	6	12		9	0	17897	267	1158	2895
LEE	411	4	1610	2	6	11		9	0	1621	241	1111	2840
TOAD	55	4	203		6	0	1	9	9	212	127	1335	2811
LEAD	12744	4	44922	46	6	266	8	9	72	45259	47	1167	2712

	LBDA LINES										LBDA MILEAGE		
OHIO	41	4	157	5	5	26		8	0	183	200	877	2410
MICH	1102	4	4947	15	6	83	3	8	25	5054	374	1025	2374
INDIANA	17	4	65		5	0	1	8	0	73	192	731	2238
ILL.	1615	4	6717	7	5	33	1	8	8	6758	361	645	2050
WISC	15	4	67	9	5	47	2	8	15	129	519	892	2073
MINN	17	5	85	0	5	42		7	0	128	784	928	1932
IOWA	618	5	2908	69	5	332		9	0	3240	662	683	2742
MCCOY	175	5	838	2	5	11	2	7	15	855	649	952	1997
SHERIDN	6	4	25		5	0	1	7	7	32	398	831	1798
KENT	220	4	772	10	4	43		8	0	815	40	410	2389
CAMPBLL	29332	4	114296	5573	4	22144	5	8	40	136479	231	269	2242
KNOX	40976	4	149073	7858	4	32747	13	8	106	181926	103	365	2343

	NCAD LINES			AMAD LINES							NCAD MILAGE	AMAD MILAGE	
FLORIDA	1	5	5	13	4	53		8	0	58	936	389	2587
GEORGIA	83	5	404	804	4	2906	1	8	8	3318	714	91	2401
S. CARO	1	5	5	1041	4	4218		9	0	4223	574	388	2622
ALABAMA	4	5	21	2341	4	8564		8	0	8585	871	113	2327
MISS	329	6	1818	345	4	1395	1	8	8	3220	1038	303	2082
TENN	3	5	15	40	4	154	1	8	8	177	711	214	2226
JACKSON	6	5	28	682	4	2770		9	0	2798	574	313	2627
STEWART	3884	5	14752	42437	4	174190		9	0	188942	733	334	2648
BENNING	1300	5	6633	23874	4	86042	50	8	417	93093	828	148	2433
GORDON	2	5	9	13	4	51		9	0	60	649	232	2556
MCCLELN		5	0	2435	3	9931		8	0	9931	773	6	2321
RUCKER	3	5	16	11362	4	43539	1	8	8	43563	948	199	2488
AMAD	6534	5	32614	28457	3	97608	13	8	106	130327	773	0	2321

				RRAD LINES									
MISSOUR	2	5	11	126	4	527		7	0	538	927	374	1847
ARKANS	198	6	1054	124	4	465		7	0	1519	1049	159	1984
LOUISNA	76	6	445	1524	4	6228		8	0	6673	1201	325	2111
TEXAS	3	7	20	411	4	1703	1	7	7	1729	1563	353	1691
OKLA	719	6	4354	9330	4	37430		7	0	41784	1300	288	1563
KANSAS	36	6	204	282	4	1246		7	0	1451	1189	498	1743
NEB/DAK	1	6	6	2	5	11		7	0	17	1344	1818	1528
HOOD	20284	7	131375	99569	4	407890	50	7	341	538806	1521	326	1682
POLK	2179	6	13090	31684	4	122116	9	7	67	135274	1276	218	1978
RILEY	3104	6	18668	47188	5	212660	32	7	218	230886	1174	533	1680
SAM HOU	3	7	20	13	4	56		7	0	77	1642	447	1660
BLISS	1564	7	11604	31464	5	159212	13	6	74	170890	1975	807	1109
L. WOOD	351	5	1866	584	4	2548	2	7	15	4429	934	462	1933
SILL	789	6	4912	18299	4	41920	2	7	13	46846	1384	317	1546
CCAD	2021	7	13786	36171	5	162791	13	7	92	176670	1679	530	1805
RRAD	4089	6	24003	10	3	34	6	7	42	24088	1208	0	1790

				TEAD LINES								TEAD MILAGE	
COL/WYO	8	7	54	564	5	2544	1	6	6	2603	1614	535	1170
NEW MEX	1	7	7	87	5	408		6	0	415	1839	623	1874
CARSON	2591	7	17465	42669	5	197035	29	6	173	214674	1639	588	1250
DAK				5	5	26					1344	914	1528

				RRAD LINES			TEAD LINES					RRAD MILAGE	TEAD MILAGE
MNT/IDA		8	0	14	7	96	24	4	184	280	2210	1695	446
UTAH/NV		8	0	3	7	20	4	4	14	34	2385	1572	37
ARIZONA		8	0	1	6	6	15	5	72	78	2380	1182	677
HUACHUC	18	8	79	6	6	34	2	5	18	123	2222	1886	861
TEAD	587	8	3862	6	6	37	5818	3	19928	23828	2073	1389	0

							SHAD LINES						SHAD MILEAGE
CALIF.	47	9	417	8	7	57	1437	4	5088	5554	2689	1843	52
OREGON	2	9	18		8	0	14	5	65	83	2769	2146	583
WASHNTN	34	9	303	3	8	24	12	5	60	387	2712	2218	773
NEVADA							5	4	19	19			180
IRWIN	937	9	8046	174	6	1117	13706	4	57532	66695	2553	1488	380
LEWIS	2081	9	18471	4715	8	37421	39956	5	190228	254120	2696	2231	758
ORD	32	9	296	2414	7	17111	19641	4	72963	90370	2880	1811	141
PRESIDIO		9	0		7	0	14	4	50	50	2785	1856	81
SAAD	5	9	44		7	0	1	4	4	48	2689	1843	52

TOTAL	207590			446785			88954	TOTAL DAYS		3194624
								TOTAL LINES		735249
								AVERAGE DAYS		4.34495

ALT. NO FIVE AND SIX TRUCKLOAD OST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD DAYS	SHAD LINES	TRANSIT TIME	SHAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	3	5	14	1	7	7		10	0	21	543	1751	3218
NH/VER	5	4	21		7	0		10	0	21	410	1625	3040
MASS	2074	4	8689	2	7	13		10	0	8703	381	1589	3084
CONN/RI	8	4	32	1	6	6		10	0	39	313	1521	3022
NEW YORK	3283	4	13131	6	6	38	3	9	28	13198	287	1483	2917
PENN	255	4	924	73	6	428	31	9	278	1629	180	1288	2739
NJ/DEL	946	4	3489	1	6	6		9	0	3496	133	1291	2867
MD/DC	27	4	98		6	0		9	0	98	184	1173	2795
VA/W.VA	32	4	128	3	5	16	3	9	27	171	288	997	2688
N. CARO	2385	4	9615	7	5	38		9	0	9653	372	1814	2743
BRAGG	45351	4	194492	54	5	296	8	9	72	194860	438	1828	2768
DEVENS	970	4	4844	1	7	7	1	10	10	4861	371	1579	3867
DRUM	1310	4	5356		6	0	1	9	9	5365	331	1415	2824
MEADE	3390	4	12283	4	6	23	3	9	27	12254	89	1183	2798
BELVOIR	1652	4	6867		6	0		9	0	6867	125	1162	2793
DIX	1201	4	4433	2	6	12	1	9	9	4454	134	1327	2867
EUSTIS	4586	4	17841	2	6	12		9	0	17852	267	1158	2895
LEE	411	4	1606	2	6	11		9	0	1617	241	1111	2840
TOAD	55	4	202		6	0	1	9	9	211	127	1335	2811
LEAD	12744	4	44794	46	6	266	8	9	71	45131	47	1167	2712
	LBDA LINES										LBDA MILEAGE		
OHIO	41	4	157	5	5	26		8	0	183	200	877	2410
MICH	1182	4	4935	15	5	82	3	8	25	5042	374	1825	2374
INDIANA	17	4	65		5	0	1	8	8	73	192	731	2238
ILL.	1615	4	6701	7	5	33	1	8	8	6742	361	645	2058
WISC	15	4	67	9	5	47	2	8	15	129	519	892	2073
MINN	17	5	85	8	5	42		7	8	127	784	928	1932
IOWA	618	5	2902	69	5	331		9	0	3233	662	683	2742
MCCOY	175	5	828	2	5	11	2	7	15	854	649	952	1997
SHERIDN	6	4	25		5	0	1	7	7	32	398	831	1790
KENT	220	4	770	10	4	42		8	0	813	40	410	2389
CAMPBELL	29332	4	114602	5573	4	22088	5	8	48	136138	231	269	2242
KNOX	40976	4	148663	7858	4	32668	13	8	106	181437	183	365	2343
	NCAD LINES			AHAD LINES							NCAD MILAGE	AHAD MILAGE	
FLORIDA	1	5	5	13	4	53		8	0	58	936	389	2587
GEORGIA	83	5	484	804	4	2897	1	8	8	3389	714	91	2401
S. CARO	1	5	5	1041	4	4208		9	0	4212	574	388	2622
ALABAMA	4	5	21	2341	4	8541		8	0	8561	871	113	2327
MISS	329	6	1815	345	4	1391	1	8	8	3214	1038	383	2882
TENN	3	5	15	48	4	154	1	8	8	177	711	214	2226
JACKSON	6	5	27	682	4	2764		9	0	2791	574	313	2627
STEWART	3884	5	14722	42637	4	173766		9	0	188488	733	334	2648
BENNING	1388	5	6628	23874	4	85811	58	8	417	92848	828	148	2433
GORDON	2	5	9	13	4	51		9	0	68	649	232	2556
MCCLELN		5	0	2885	3	9982		8	0	9982	773	6	2321
RUCKER	3	5	16	11362	4	43425	1	8	8	43458	948	199	2488
AHAD	6534	5	32549	28457	3	97323	13	8	105	129977	773	0	2321
				RRAD LINES								RRAD MILEAGE	
MISSOUR	-2	5	11	126	4	526		7	0	537	927	374	1847
ARKANS	190	6	1052	124	4	464		7	0	1516	1049	159	1984
LOUISNA	76	6	444	1524	4	6213		8	0	6657	1281	325	2111
TEXAS	3	7	20	411	4	1699	1	7	7	1725	1563	353	1691
OKLA	719	6	4347	9330	4	37336		7	0	41683	1388	288	1563
HOOD	28284	6	131173	99569	4	406894	58	7	341	537688	1521	326	1682
POLK	2179	6	13869	31684	4	121888	9	7	67	134935	1276	218	1978
SAM HOU	3	7	28	13	4	56		7	0	76	1642	447	1668
BLISS	1564	7	11588	31464	5	158898	13	6	74	178568	1975	887	1189
L. WOOD	351	5	1863	584	4	2542	2	7	15	4428	934	462	1933
SILL	789	6	4984	18299	4	41817	2	7	13	46735	1384	317	1546
CCAD	2821	7	13766	36171	4	162429	13	7	92	176288	1679	538	1885
RRAD	4889	6	23962	18	3	34	6	7	42	24039	1288	0	1798
				PUDA LINES								PUDA MILAGE	
COL/WYO	8	7	53	564	4	2072	1	6	6	2132	1614	126	1178
NEW MEX	1	7	7	87	4	343		6	0	358	1839	259	1874
CARSON	2591	7	17439	42669	3	149031	29	6	173	166643	1639	36	1258
NEB/DAK	1	6	6	7	5	33		7	0	48	1344	669	1528
KANSAS	36	6	284	282	5	1278		7	0	1482	1189	551	1743
RILEY	3184	6	17977	47188	4	287899	32	7	218	226894	1174	488	1688
				RRAD LINES			TEAD LINES					RRAD MILAGE	TEAD MILAGE
MNT/IDA		8	0	14	7	96	24	4	184	288	2218	1695	446
UTAH/NV		8	0	3	7	20	4	3	14	34	2385	1572	37
ARIZONA		8	0	1	6	6	15	5	72	78	2388	1182	677
HUACHUC	18	8	79	6	6	34	2	5	18	123	2222	1886	861
TEAD	987	8	3857	6	6	37	5818	3	19878	23765	2873	1389	0
							SHAD LINES						SHAD MILEAGE
CALIF	47	9	416	8	7	57	1437	4	5865	5539	2689	1843	52
OREGON	2	9	18		8	0	14	5	64	82	2769	2146	583
WASHNTN	34	9	383	3	8	24	12	5	68	386	2712	2218	773
NEVADA							5	4	19	19			188
IRWIN	937	9	8837	174	6	1115	13788	4	57395	66547	2553	1488	388
LEWIS	2881	9	18458	4715	8	37374	39956	5	197829	253653	2696	2231	758
ORD	32	9	296	2414	7	17887	19641	4	72766	98149	2888	1811	141
PRESIDIO		9	0		7	0	14	4	58	58	2785	1856	81
SAAD	5	9	44		7	0	1	4	4	48	2689	1843	52
TOTAL	207598			446785			88954	TOTAL DAYS		3134932	AR55-68	AR55-68	
								TOTAL LINES		735249			
								AVERAGE DAYS		4.26377			

ALT. NO ONE
MODE LESS THAN TRUCKLOAD OCT

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD DAYS	SHAD LINES	TRANSIT TIME	SHAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	454	7	3090	42	10	423	19	14	267	3779	543	1751	3218
NH/VER	788	6	4580	69	10	671	39	14	528	5779	418	1625	3040
MASS	194	6	1236	154	10	1483	46	14	629	3347	301	1589	3084
CONN/RI	1133	6	7808	97	9	916	49	13	661	8586	313	1521	3022
NEW YORK	1468	6	8928	445	9	4158	147	13	1943	15029	287	1483	2917
PENN	2818	6	15889	356	9	3062	82	13	1044	19915	188	1288	2739
NJ/DEL	1115	6	6354	174	9	1536	58	13	759	8649	133	1291	2867
MD/DC	1181	6	6189	138	9	1174	45	13	588	7942	184	1173	2795
VA/W.VA	1982	6	12125	197	8	1582	57	13	718	14425	288	997	2688
N. CARO	265	6	1681	189	8	1527	52	13	663	3871	372	1814	2743
S. CARO	411	7	2832	176	8	1348	56	12	695	4875	574	858	2622
OHIO	1452	6	9228	217	8	1673	49	12	581	11473	374	877	2410
MICH	128	7	849	161	8	1385	52	12	611	2765	479	1825	2374
INDIANA	1188	7	8115	152	7	1112	58	11	668	9886	552	731	2238
ILL.	37	7	272	165	7	1168	45	11	489	1930	748	645	2858
WISC	1782	7	12733	263	8	2038	59	11	645	15416	793	892	2873
MINN	325	8	2664	238	8	1888	83	11	876	5348	1858	928	1932
IOWA	156	8	1237	69	7	496	51	13	658	2382	958	683	2742
BRAGG	388	7	2522	1463	8	11842	534	13	6842	21206	438	1828	2768
DEVENS	575	6	3646	151	10	1458	66	14	899	5996	371	1579	3867
DRUM	143	6	891	145	9	1328	37	13	488	2699	331	1415	2824
MCCOY	1816	8	14125	125	8	989	59	11	633	15747	983	952	1997
MEADE	1955	6	18989	268	9	2287	115	13	1483	14688	89	1183	2798
SHERIDN	842	7	6824	97	8	736	58	18	589	7268	672	831	1798
BELVOIR	3	6	17	75	8	636	36	13	464	1117	125	1162	2793
DIX	1868	6	6844	227	9	2825	76	13	994	9864	134	1327	2867
EUSTIS	92	6	558	95	8	804	63	13	829	2191	267	1158	2895
JACKSON	158	7	1833	119	8	913	36	12	448	2394	574	863	2627
LEE	427	6	2558	114	8	951	35	13	455	3964	241	1111	2848
TOAD	1461	6	8383	58	9	519	43	13	556	9377	127	1335	2811
LEAD	347	5	1897	495	8	4283	153	13	1937	8837	47	1167	2712
SUBTOT	25888			6726			2358				412	1141	2656
FLORIDA	353	8	2777	1855	7	13577	79	12	957	17311	936	733	2587
GEORGIA	541	7	3932	3525	7	24924	118	12	1388	30157	714	641	2481
ALABAMA	684	8	4646	2387	7	15689	131	12	1523	21858	871	541	2327
MISS	325	8	2646	2855	6	17628	185	11	1151	21417	1838	388	2882
TENN	299	7	2171	2833	7	13584	64	11	726	16481	711	497	2226
KENT	162	7	1182	882	7	6413	34	12	481	7915	541	715	2389
MISSOUR	158	8	1176	973	6	6178	44	18	454	7889	927	374	1847
ARKANS	198	8	1553	1514	6	8735	41	18	438	18717	1849	159	1984
LOUISNA	398	9	3347	2921	6	18161	98	11	1882	22598	1281	325	2111
TEXAS	447	18	4273	3878	6	19328	93	18	921	24514	1563	353	1691
OKLA	186	9	1646	951	6	5818	125	18	1195	8659	1388	288	1563
KANSAS	245	8	2842	1292	7	8689	59	18	593	11243	1189	498	1743
NEB/DAK	137	9	1229	632	8	5898	48	9	454	6781	1344	1818	1528
COL/WYO	183	18	999	989	8	7845	34	8	289	9133	1614	968	1178
NEW MEX	133	18	1371	568	7	4288	27	8	222	5881	1839	766	1874
CAMPBLL	139	7	1826	63	7	422	295	11	3361	4818	757	585	2242
CARSON	64	18	625	94	8	717	678	9	5923	7266	1639	849	1258
HOOD	152	9	1436	188	6	622	864	18	8538	18595	1521	326	1682
POLK	184	9	1616	983	6	5334	357	11	3813	18763	1276	218	1978
RILEY	75	9	638	428	7	2847	471	18	4652	8137	1174	533	1688
SAM HOU	77	18	753	676	7	4426	21	18	286	5385	1642	447	1668
STEWART	195	7	1427	668	8	5878	345	12	4389	18814	733	872	2648
BENNING	7	8	53	32	7	226	239	12	2846	3125	828	635	2433
BLISS	2	11	21	17	8	128	248	8	2888	2149	1975	887	1189
GORDON	225	7	1596	1241	7	9247	57	12	698	11541	649	782	2556
KNOX	588	7	4897	199	7	1411	271	12	3162	8678	683	648	2343
L. WOOD	122	8	959	1525	7	18846	123	11	1299	12384	934	462	1933
MCCLELN	151	7	1121	232	7	1591	36	12	418	3138	773	562	2321
RUCKER	345	8	2725	228	7	1547	134	12	1587	5859	948	626	2488
SILL	23	9	289	57	6	353	143	18	1361	1922	1384	317	1546
CCAD	2	18	28	9	7	61	374	18	3828	3981	1679	538	1885
ANAD	336	7	2496	33	7	226	412	12	4782	7583	773	556	2321
RRAD	83	9	714	1	5	5	489	18	4161	4888	1288	8	1798
SUBTOT	7835			32849			6561				1129	548	1948
MNT/IDA	161	11	1828	129	18	1279	933	9	7891	18198	2218	1695	837
UTAH/NV	119	12	1376	95	18	911	616	7	4823	6389	2385	1572	441
ARIZONA	62	12	716	189	9	1612	617	7	4449	6778	2388	1182	693
CALIF	431	13	5431	446	18	4681	2384	5	12627	22659	2689	1843	52
OREGON	132	13	1692	78	11	868	956	7	6618	9178	2769	2146	583
WASHNTN	78	13	886	82	11	929	1868	7	7932	9747	2712	2218	773
IRWIN	4	12	49	1194	9	11147	78	6	446	11642	2553	1488	388
LEWIS	27	13	341	33	11	375	228	7	1684	2488	2696	2231	758
ORD	891	13	11686	77	18	788	1168	6	6636	19118	2888	1811	141
PRSIDIO	81	13	1842	39	18	484	458	6	2546	3991	2785	1856	81
HUACHUC	135	11	1531	98	8	811	982	8	7569	9911	2222	1886	877
SAAD	116	13	1462	18	18	186	379	5	2877	3724	2689	1843	52
TEAD	2	11	22	382	9	3472	9	7	65	3559	2873	1389	692
SUBTOT	2231			2868			9788	TOTAL DAYS		713462.			
TOTAL	35154			42435			18691	TOTAL LINES		96288			
								AVERAGE DAYS		7.41828			

ALT. NO ONE IDEAL PERFECT POSITIONING
MODE LESS THAN TRUCKLOAD OST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	NCAD LINES	TRANSIT TIME	NCAD DAYS	NCAD LINES	TRANSIT TIME	NCAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	454	7	3090	42	10	423	19	14	267	3505	543	1751	3210
NH/VER	700	6	4500	69	10	671	39	14	528	5270	418	1625	3040
MASS	194	6	1236	154	10	1403	46	14	629	2509	381	1589	3084
CONN/RI	1133	6	7000	97	9	916	49	13	661	7911	313	1521	3022
NEW YORK	1460	6	8920	445	9	4150	147	13	1943	12540	207	1483	2917
PENN	2810	6	15009	356	9	3062	82	13	1044	18266	100	1208	2739
NJ/DEL	1115	6	6354	174	9	1536	58	13	759	7677	133	1291	2867
MD/DC	1101	6	6189	130	9	1174	45	13	580	7217	104	1173	2795
VA/W.VA	1982	6	12125	197	8	1582	57	13	718	13679	288	997	2688
N. CARO	265	6	1601	189	8	1527	52	13	663	3210	372	1014	2743
S. CARO	411	7	2832	176	8	1348	56	12	695	4430	574	858	2622
OHIO	1452	6	9220	217	8	1673	49	12	581	10909	374	877	2410
MICH	128	7	849	161	8	1305	52	12	611	2262	479	1025	2374
INDIANA	1188	7	8115	152	7	1112	58	11	660	9549	552	731	2238
ILL.	37	7	272	165	7	1168	45	11	489	1818	748	645	2050
WISC	1702	7	12733	263	8	2038	59	11	645	15142	793	892	2073
MINN	325	8	2664	230	8	1800	83	11	876	5229	1058	920	1932
IOWA	156	8	1237	69	7	496	51	13	650	2108	958	683	2742
BRAGG	308	7	2522	1463	8	11842	534	13	6842	15505	430	1020	2768
DEVENS	575	6	3646	151	10	1450	66	14	899	5023	371	1579	3067
DRUM	143	6	891	145	9	1328	37	13	480	2026	331	1415	2824
MCCOY	1816	8	14125	125	8	989	59	11	633	15556	903	952	1997
MEADE	1955	6	10909	260	9	2287	115	13	1403	13047	89	1183	2798
SHERIDN	842	7	6024	97	8	736	50	10	509	7076	672	831	1790
BELVOIR	3	6	17	75	8	636	36	13	464	647	125	1162	2793
DIX	1060	6	6044	227	9	2025	76	13	994	7772	134	1327	2867
EUSTIS	92	6	550	95	8	804	63	13	829	1515	267	1150	2895
JACKSON	150	7	1033	119	8	913	36	12	448	2101	574	863	2627
LEE	427	6	2550	114	8	951	35	13	455	3451	241	1111	2840
TOAD	1461	6	8303	58	9	519	43	13	556	8877	127	1335	2811
LEAD	347	5	1897	495	8	4203	153	13	1937	5440	47	1167	2712
SUBTOT	25800			6726			2350				412	1141	2656
	RRAD			RRAD			RRAD						
FLORIDA	353	8	2777	1855	7	13577	79	12	957	16739	936	733	2507
GEORGIA	541	7	3932	3525	7	24924	110	12	1300	29527	714	641	2401
ALABAMA	604	8	4646	2307	7	15609	131	12	1523	20680	871	541	2327
MISS	325	8	2646	2855	6	17620	105	11	1151	20274	1030	300	2082
TENN	299	7	2171	2033	7	13504	64	11	726	16010	711	497	2226
KENT	162	7	1102	882	7	6413	34	12	401	7830	541	715	2389
MISSOUR	150	8	1176	973	6	6178	44	10	454	7410	927	374	1847
ARKANS	190	8	1553	1514	6	8735	41	10	430	10067	1049	159	1904
LOUISNA	390	9	3347	2921	6	18161	90	11	1082	21195	1201	325	2111
TEXAS	447	10	4273	3070	6	19320	93	10	921	22710	1563	353	1691
OKLA	186	9	1646	951	6	5810	125	10	1195	7720	1300	288	1563
KANSAS	245	8	2042	1292	7	8609	59	10	593	10634	1109	490	1743
NEB/DAK	137	9	1229	632	8	5090	40	9	454	6591	1344	1010	1520
COL/WYO	103	10	999	989	8	7845	34	8	289	8931	1614	960	1170
NEW MEX	133	10	1371	560	7	4200	27	8	222	5393	1839	766	1074
CAMPBLL	139	7	1026	63	7	422	295	11	3361	3332	757	505	2242
CARSON	64	10	625	94	8	717	670	9	5923	6301	1639	849	1250
HOOD	152	9	1436	100	6	622	864	10	8530	6942	1521	326	1682
POLK	184	9	1616	903	6	5334	357	11	3813	8530	1276	210	1978
RILEY	75	9	638	420	7	2847	471	10	4652	6549	1174	533	1680
SAM HOU	77	10	753	676	7	4426	21	10	206	5067	1642	447	1660
STEWART	195	7	1427	660	8	5070	345	12	4309	9233	733	872	2640
BENNING	7	8	53	32	7	226	239	12	2046	1961	828	635	2433
BLISS	2	11	21	17	8	120	240	8	2000	1947	1975	807	1109
GORDON	225	7	1596	1241	7	9247	57	12	698	11340	649	782	2556
KNOX	[illegible]	7	4097	199	7	[illegible]	271	12	3162	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ANAD	336	7	2496	33	7	226	412	12	4782	5343	773	556	2321
RRAD	83	9	714	1	5	5	409	10	4161	2633	1208	0	1790
SUBTOT	7035			32849			6561				1129	540	1948
	SHAD			SHAD			SHAD						
MNT/IDA	161	11	1820	129	12	1279	333	8	7091	9295	2210	1695	437
UTAH/NV	119	12	1376	95	10	911	616	7	4023	5420	2305	1572	441
ARIZONA	62	12	716	189	9	1612	617	7	4449	6259	2300	1182	693
CALIF	431	13	5431	446	10	4601	2304	5	12627	17433	2689	1843	52
OREGON	132	13	1692	78	11	868	956	7	6610	8062	2769	2146	593
WASHNTN	70	13	886	32	11	329	1068	7	7932	9061	2712	1218	773
IRWIN	4	12	49	1194	9	11147	70	6	446	8072	2553	1480	380
LEWIS	27	13	341	33	11	375	228	7	1604	2127	2696	2231	758
ORD	891	13	11606	77	10	700	1160	6	6636	12174	2800	1811	141
PRSIDIO	81	13	1042	39	10	404	458	6	2546	3213	2785	1856	81
HUACHUC	135	11	1531	90	8	811	982	8	7569	9365	2222	1006	877
SAAD	116	13	1462	18	10	186	379	5	2077	2811	2689	1843	52
TEAD	2	11	22	382	9	3472	9	7	65	2833	2073	1309	692
SUBTOT	2231			2060			9780	TOTAL DAYS		629425			
TOTAL	35154			42435			18691	TOTAL LINES		96280			
								AVERAGE DAYS		6.53745			

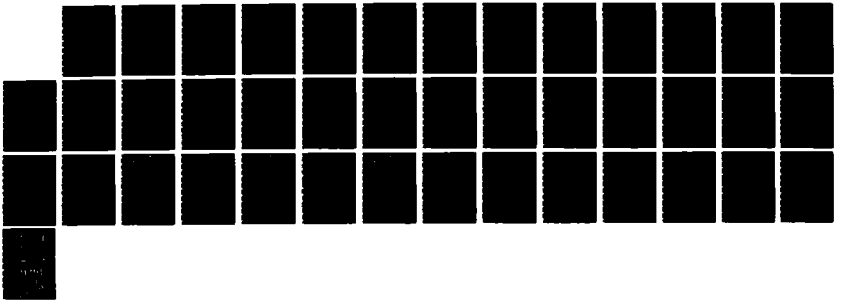
ALT. NO TWO
MODE LESS THAN TRUCKLOAD OST

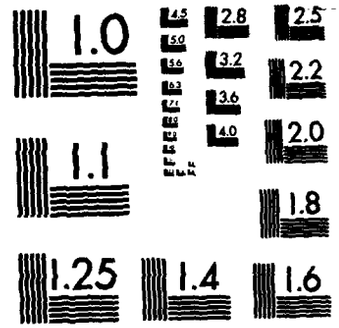
DESTINA-TION	NCAD LINES	TRANSIT TIME	NCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD DAYS	SHAD LINES	TRANSIT TIME	SHAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	454	7	3090	42	10	423	19	14	267	3779	543	1751	3210
NH/VER	700	6	4580	69	10	671	39	14	520	5779	410	1625	3040
MASS	194	6	1236	154	10	1403	46	14	629	3347	381	1589	3084
CONN/RI	1133	6	7000	97	9	916	49	13	661	8586	313	1521	3022
NEW YORK	1460	6	8920	445	9	4150	147	13	1943	15029	287	1403	2917
PENN	2010	6	15009	356	9	3062	82	13	1044	19915	100	1200	2739
NJ/DEL	1115	6	6354	174	9	1536	58	13	759	8649	133	1291	2867
MD/DC	1101	6	6189	130	9	1174	45	13	580	7942	104	1173	2795
VA/W.VA	1902	6	12125	197	8	1502	57	13	710	14425	288	997	2600
N. CARO	265	6	1601	189	8	1527	52	13	663	3071	372	1014	2743
OHIO	1452	6	9220	217	8	1673	49	12	501	11473	374	877	2410
MICH	120	7	849	161	8	1305	52	12	611	2765	479	1025	2374
INDIANA	1100	7	8115	152	7	1112	58	11	660	9886	552	731	2230
ILL.	37	7	272	165	7	1160	45	11	409	1930	740	645	2050
WISC	1702	7	12733	263	8	2030	39	11	645	15416	793	892	2073
MINN	325	8	2664	230	8	1000	83	11	876	5340	1050	920	1932
IOWA	156	8	1237	69	7	496	51	13	650	2302	950	603	2742
BRAGG	300	7	2522	1463	8	11842	534	13	6842	21206	430	1020	2760
DEVENS	575	6	3646	151	10	1450	66	14	899	5996	371	1579	3067
DRUM	143	6	891	145	9	1320	37	13	400	2699	331	1415	2824
MCCOY	1016	8	14125	125	8	309	59	11	633	15747	903	952	1997
MEADE	1955	6	10909	260	9	2207	115	13	1403	14600	89	1183	2790
SHERIDN	842	7	6024	97	8	736	50	10	509	7260	672	831	1790
BELVOIR	3	6	17	75	8	636	36	13	464	1117	125	1162	2793
DIX	1060	6	6044	227	9	2025	76	13	994	9064	134	1327	2067
EUSTIS	92	6	558	95	8	804	63	13	829	2191	267	1150	2895
LEE	427	6	2558	114	8	951	35	13	455	3964	241	1111	2040
TOAD	1461	6	8303	58	9	519	43	13	556	9377	127	1335	2811
LEAD	347	5	1097	495	8	4203	153	13	1937	8037	47	1167	2712
SUBTOT	25327			6431			2250				401.310	1160.86	2650.41
				AMAD LINES								AMAD MILEAGE	
FLORIDA	353	8	2777	1055	6	11453	79	12	957	15187	936	309	2507
GEORGIA	541	7	3932	3525	6	19690	110	12	1300	24922	714	91	2401
S. CARO	176	7	1213	411	6	2537	56	12	695	4445	574	300	2622
ALABAMA	604	8	4646	2307	6	13023	131	12	1523	19192	871	113	2327
MISS	325	8	2646	2055	6	17501	105	11	1151	21379	1030	303	2082
TENN	299	7	2171	2033	6	12031	64	11	726	14920	711	214	2226
KENT	162	7	1102	802	6	5606	34	12	401	7109	541	410	2309
JACKSON	119	7	820	150	6	920	36	12	440	2195	574	313	2627
CAMPBLL	139	7	1026	63	6	382	295	11	3361	4770	757	269	2242
STEWART	195	7	1427	660	6	4120	345	12	4309	9856	733	334	2640
BENNING	7	8	53	32	6	104	239	12	2846	3083	820	140	2433
GORDON	225	7	1596	1241	6	7404	57	12	698	9698	649	232	2556
KNOX	508	7	4097	199	6	1259	271	12	3162	8518	603	365	2343
MCCLELN	151	7	1121	32	5	1243	36	12	418	2782	773	6	2321
RUCKER	345	8	2725	220	6	1293	134	12	1587	5605	940	199	2408
AMAD	336	7	2496	33	5	176	412	12	4702	7454	773	0	2321
SUBTOT	4565			16690			2404				751	226	2403
				RRAD LINES								RRAD MILEAGE	
MISSOUR	150	8	1176	973	6	6170	44	10	454	7809	927	374	1847
ARKANS	190	8	1553	1514	6	8735	41	10	430	10717	1049	159	1904
LOUISNA	390	9	3347	2921	6	18161	98	11	1002	22590	1201	325	2111
TEXAS	447	10	4273	3070	6	19320	93	10	921	24514	1563	353	1691
OKLA	186	9	1646	951	6	5818	125	10	1195	8659	1300	288	1563
KANSAS	245	8	2042	1292	7	8609	59	10	593	11243	1109	490	1743
NEB/DAK	137	9	1229	632	8	5098	48	9	454	6781	1344	1010	1528
COL/WYO	103	10	999	989	8	7845	34	8	289	9133	1614	960	1170
NEW MEX	133	10	1371	568	7	4208	27	8	222	5801	1839	766	1074
CARSON	64	10	625	94	8	717	678	9	5923	7266	1639	849	1258
HOOD	152	9	1436	100	6	622	864	10	8538	10595	1521	326	1682
POLK	184	9	1616	903	6	5334	357	11	3813	10763	1276	210	1978
RILEY	76	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1642	[illegible]	[illegible]
SAMHOU	72	10	[illegible]	[illegible]	[illegible]	4826	[illegible]	10	[illegible]	9385			
BLISS	2	11	21	17	8	[illegible]	21	[illegible]	[illegible]				
[illegible]WOOD	128	10	[illegible]	1588	8	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RRAD	83	9	714	1	5	5	409	10	4161	4880	1208	0	1790
SUBTOT	2765			16712			4249				1388	485	1635
MNT/IDA	161	11	1820	129	10	1279	933	8	7091	10190	2210	1695	837
UTAH/NV	119	12	1376	95	10	911	616	7	4023	6309	2305	1572	441
ARIZONA	62	12	716	189	9	1612	617	7	4449	6770	2300	1182	693
CALIF	431	13	5431	446	10	4601	2304	5	12627	22659	2689	1843	52
OREGON	132	13	1692	78	11	868	956	7	6610	9170	2769	2146	583
WASHNTN	70	13	886	82	11	929	1060	7	7932	9747	2712	2210	773
IRWIN	4	12	49	1194	9	11147	70	6	446	11642	2553	1400	380
LEWIS	27	13	341	33	11	375	220	7	1604	2400	2696	2231	758
ORD	891	13	11686	77	10	700	1160	6	6636	19110	2880	1811	141
PRSIDIO	81	13	1042	39	10	404	450	6	2546	3991	2785	1856	81
HUACHUC	135	11	1531	90	8	811	902	8	7569	9911	2222	1006	877
SAAD	116	13	1462	10	10	186	379	5	2077	3724	2689	1843	52
TEAD	2	11	22	302	9	3472	9	7	65	3559	2073	1389	692
SUBTOT	2231			2860			9700	TOTAL DAYS		696804	2529	1719	489
											1260	898	1797
TOTAL	34888			42701			18691	TOTAL LINES		96200	AR55-60	AR55-60	

AVERAGE DAYS 7.23726

AD-A162 916 WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES 3/3
PHASE I VOLUME 2 METHODOLOGY(U) LOGISTICS STUDIES
OFFICE (ARMY) FORT LEE VA P E GROVER AUG 85

UNCLASSIFIED F/G 15/5 NL





ALT. NO THREE
MODE LESS THAN TRUCKLOAD COST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD DAYS	SNAD LINES	TRANSIT TIME	SNAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SNAD
MAINE	454	7	3698	42	10	423	19	14	267	3779	543	1751	3218
NH/VER	788	6	4588	69	10	671	39	14	528	5779	418	1625	3040
MASS	194	6	1236	154	10	1483	46	14	629	3367	381	1589	3004
CONN/RI	1133	6	7008	97	9	916	49	13	661	8586	313	1521	3022
NEW YORK	1460	6	8928	445	9	4158	147	13	1943	15029	287	1483	2917
PENN	2018	6	15889	356	9	3862	82	13	1844	19915	188	1288	2739
NJ/DEL	1115	6	6354	174	9	1536	58	13	759	8649	133	1291	2867
MD/DC	1101	6	6189	138	9	1174	45	13	588	7962	104	1173	2795
VA/W.VA	1902	6	12125	197	8	1582	57	13	718	14425	288	997	2688
N. CARO	265	6	1681	189	8	1527	52	13	663	3871	372	1014	2743
OHIO	1452	6	9228	217	8	1673	49	12	581	11473	374	877	2618
MICH	128	7	849	161	8	1305	52	12	611	2765	479	1025	2374
INDIANA	1188	7	8115	152	7	1112	58	11	668	9886	552	731	2238
ILL.	37	7	272	165	7	1160	45	12	489	1930	748	645	2058
WISC	1702	7	12733	263	8	2038	59	11	645	15416	793	892	2873
MINN	325	8	2664	230	8	1800	83	11	876	5340	1058	928	1932
IOWA	136	8	1237	69	7	496	91	13	658	2302	958	683	2742
NRAGS	388	7	2522	1463	8	11842	534	13	6842	21286	438	1028	2768
DEVENS	575	6	3646	151	10	1458	66	14	899	5996	371	1579	3067
DRUM	143	6	891	145	9	1328	37	12	488	2699	331	1415	2824
MCCOY	1816	8	14125	125	8	989	59	11	633	15747	903	952	1997
MEADE	1955	6	10909	268	9	2287	115	13	1483	14688	89	1183	2798
SHERIDN	842	7	6824	97	8	736	50	10	589	7268	672	831	1798
BELVOIR	3	6	17	75	8	636	36	13	464	1117	125	1162	2793
DIX	1668	6	6844	227	9	2025	76	13	994	9864	134	1327	2867
CUSTIS	92	6	538	98	8	864	63	13	829	2191	267	1158	2895
LEE	427	6	2558	114	8	951	35	13	455	3964	241	1111	2840
TOAD	1461	6	8383	58	9	519	43	13	596	9377	127	1335	2811
LEAD	347	5	1897	495	8	4283	153	13	1937	8837	47	1167	2712
SUBTOT	25327			6431			2258				401.318	1160.86	2658.41
				NRAD LINES								NRAD MILEAGE	
FLORIDA	353	8	2777	1858	6	11453	79	12	957	15187	936	389	2587
GEORGIA	561	7	3932	3525	6	19690	118	12	1388	24922	714	91	2481
S. CARO	176	7	1213	411	6	2537	56	12	695	4445	574	388	2622
ALABAMA	684	8	4646	2387	6	13823	131	12	1523	19192	671	113	2327
MISS	325	8	2646	2859	6	17581	105	11	1151	21379	1038	383	2882
TENN	299	7	2171	2033	6	12831	64	11	726	14928	711	214	2226
KENT	162	7	1182	882	6	5686	34	12	481	7189	561	418	2389
JACKSON	119	7	828	158	6	928	36	12	448	2195	574	313	2627
CAMPBLL	139	7	1026	63	6	382	295	11	3361	4778	757	269	2242
STEWART	195	7	1427	668	6	4128	345	12	4389	9856	733	336	2648
CAMPNG	7	8	53	32	6	184	239	12	2846	3083	828	148	2433
GORDON	225	7	1596	1241	6	7484	57	12	698	9698	649	232	2556
KNOX	588	7	4097	199	6	1259	271	12	3162	8518	603	365	2363
MCCLELN	151	7	1121	232	5	1263	36	12	418	2782	773	6	2321
ROCKER	345	8	2725	220	6	1293	134	12	1587	5685	948	199	2488
ANAD	336	7	2496	33	5	176	412	12	4782	7454	773	0	2321
SUBTOT	4565			16698			2484				751	226	2483
				RRAD LINES								RRAD MILEAGE	
MISSOUR	138	8	1176	973	6	6178	44	10	454	7809	927	374	1847
ARKANS	198	8	1553	1514	6	8735	61	10	638	10717	1049	159	1984
LOUISNA	398	9	3347	2921	6	18161	98	11	1082	22598	1201	325	2111
TEXAS	447	10	4273	3078	6	19328	93	10	921	24514	1563	353	1691
OKLA	186	9	1646	951	6	5818	125	10	1195	8659	1388	288	1563
KANSAS	245	8	2042	1292	7	8609	59	10	593	11243	1189	498	1743
NEB/OAK	137	9	1239	211	8	1782	48	9	454	3385	1344	1018	1528
WOOD	152	9	1436	188	6	622	864	10	8538	10595	1521	326	1682
POLK	184	9	1616	983	6	9334	357	11	3813	18763	1276	218	1978
RILEY	75	9	638	428	7	2847	471	10	4652	8137	1174	533	1688
SAM HOU	77	10	793	676	7	4426	21	10	286	5385	1642	447	1668
BLISS	2	11	21	17	8	128	248	8	2888	2149	1975	887	1189
L. WOOD	122	8	959	1525	7	10846	123	11	1299	12384	934	462	1933
SILL	23	9	289	57	6	353	143	10	1361	1922	1384	317	1546
CCAD	2	10	28	9	7	61	374	10	3828	3981	1679	530	1885
RRAD	83	9	714	1	5	5	489	10	4161	4888	1288	0	1798
SUBTOT	2465			14648			3518				1338	414	1723
				TEAD LINES								TEAD MILEAGE	
COL/WYO	183	10	999	989	7	6718	34	8	289	7998	1614	535	1178
NEW MEX	133	10	1371	568	7	3989	27	8	222	5582	1839	623	1674
CARSON	64	10	625	94	7	651	678	9	5923	7288	1639	588	1258
OAK			0	421	8	3287			0	3287		914	
SUBTOT	380			2072			739				1697	665	1167
							TEAD LINES					RRAD MILEAGE	TEAD MILEAGE
MNT/IDA	161	11	1828	129	10	1279	933	7	6186	9285	2218	1695	446
UTAH/NV	119	12	1376	95	10	911	616	5	3351	5638	2305	1572	37
ARIZONA	62	12	716	189	9	1612	617	7	4423	6751	2300	1182	677
WOACHUC	135	11	1531	98	8	811	902	8	7527	9868	2222	1886	861
TEAD	2	11	22	382	9	3472	9	5	48	3542	2073	1389	0
SUBTOT	479			893			3157				2222	1385	484
							SNAD LINES						SNAD MILEAGE
CALIF	431	13	5431	446	10	4681	2384	5	12627	22659	2689	1843	52
OREGON	132	13	1692	78	11	868	956	7	6618	9178	2769	2146	583
WASHSTN	78	13	986	82	11	929	1068	7	7932	9747	2712	2218	773
IRWIN	4	12	49	1194	9	11147	78	6	446	11642	2553	1488	388
LEWIS	27	13	341	33	11	375	228	7	1684	2488	2696	2231	758
ORD	891	13	11686	77	10	788	1168	6	6636	19118	2888	1811	141
PRESIDIO	81	13	1042	39	10	404	458	6	2546	3991	2785	1896	81
SAAD	116	13	1482	18	10	186	379	5	2877	3724	2689	1843	52
SUBTOT	1752			1967			6623	TOTAL DAYS		693531	2722	1929	393
TOTAL	34888			42781			18691	TOTAL LINES		96288ARSS-60	1521	963	1491
								AVERAGE DAYS		7.20327	ARSS-60		

ALT. NO FOUR
MODE LESS THAN TRUCKLOAD COST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	SRAD LINES	TRANSIT TIME	SRAD DAYS	SNAD LINES	TRANSIT TIME	SNAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE SRAD	MILEAGE SNAD
MAINE	454	7	3090	42	10	423	19	14	267	3779	543	1751	3218
NH/VER	708	6	4588	69	10	671	39	14	528	5779	418	1625	3040
MASS	194	6	1236	154	10	1483	46	14	629	3347	381	1589	3084
CONN/RI	1133	6	7080	97	9	916	49	13	661	8586	313	1521	3022
NEW YORK	1468	6	8928	445	9	4198	147	13	1943	15029	287	1483	2917
PENN	2018	6	15089	356	9	3062	82	13	1044	19915	198	1288	2739
NJ/DEL	1115	6	6354	174	9	1536	58	13	759	8649	133	1291	2867
MD/DC	1101	6	6189	138	9	1174	45	13	588	7942	104	1173	2795
VA/W.VA	1902	6	12125	197	8	1502	57	13	718	14425	288	997	2688
N. CARO	265	6	1681	189	8	1527	52	13	663	3871	372	1014	2743
BRAGG	388	7	2522	1463	8	11842	534	13	6842	21296	430	1020	2768
DEVENS	575	6	3646	151	10	1458	66	14	899	5996	371	1579	3067
ORDN	143	6	891	145	9	1328	37	13	488	2699	331	1415	2824
MEADE	1955	6	10909	268	9	2287	115	13	1403	14688	89	1183	2798
BELVOIR	3	6	17	75	8	636	36	13	464	1117	125	1162	2793
DIX	1068	6	6844	227	9	2025	76	13	994	9964	134	1327	2867
GRIFFIS	92	6	558	95	8	804	63	13	829	2191	267	1198	2895
LEE	427	6	2558	114	8	951	35	13	455	3964	241	1111	2848
TOAD	1461	6	8383	58	9	519	43	13	556	9277	127	1335	2811
LEAD	347	5	1897	495	8	4203	193	13	1937	8037	47	1167	2712
SUBTOT	17681			4952			1752				255.85	1385.45	2876.4
	LSDA LINES										LSDA MILEAGE		
OHIO	1492	6	8938	217	8	1673	49	13	581	10791	208	877	2418
MICH	128	6	813	161	8	1385	52	12	611	2729	374	1825	2374
INDIANA	1188	6	6968	152	7	1112	58	11	668	8732	192	731	2238
ILL.	37	6	234	185	7	1168	45	11	489	1891	361	645	2858
WISC	1782	7	11474	263	8	2038	98	11	845	14157	519	892	2873
MINN	325	7	2623	238	8	1888	83	11	878	5099	784	920	1932
IOWA	196	7	1112	69	7	496	51	13	858	2257	662	683	2742
MCCOY	1816	7	12888	125	8	999	98	11	833	14982	649	952	1997
SHERIDN	842	6	5481	97	8	736	58	10	588	6645	398	831	1790
RENT	882	5	4085	182	6	1844	84	12	681	6258	48	418	2389
CAMPBELL	63	6	376	139	6	843	298	11	3361	4588	231	269	2242
KNOX	199	6	1118	988	6	3719	271	12	3162	7999	183	365	2343
SUBTOT	8798			2368			1186				376	717	2215
	NCAD LINES			AMAD LINES							NCAD MILEAGE	AMAD MILEAGE	
FLORIDA	293	8	2777	1898	6	11493	79	12	957	15187	936	309	2567
GEORGIA	541	7	3932	3525	6	19698	118	12	1388	24925	714	91	2481
S. CARO	176	7	1213	411	6	3537	96	12	695	4445	574	388	2622
ALABAMA	664	8	4646	2387	6	13823	131	12	1523	19192	871	113	2327
MISS	325	8	2646	2898	6	17581	189	11	1151	21379	1838	383	2882
TENN	299	7	2171	2833	6	12831	66	11	726	14928	711	214	2226
JACKSON	119	7	828	158	6	928	36	12	448	2195	574	313	2627
STEWART	195	7	1427	648	6	4128	145	12	4188	9856	733	334	2648
BENNING	7	8	53	32	6	184	229	12	2846	3083	828	148	2433
GORDON	225	7	1598	1241	6	7486	97	12	698	9698	649	232	2596
MCCLELN	191	7	1121	232	5	1243	36	12	418	2782	773	6	2321
ROCKER	345	8	2725	228	6	1293	134	12	1587	5685	948	199	2488
AMAD	336	7	2496	33	5	176	612	12	4782	7494	773	8	2321
SUBTOT	3676			13554			1884				779	198	2421
				SRAD LINES								SRAD MILEAGE	
MISSOUR	158	8	1176	973	6	6178	44	10	454	7889	927	374	1847
ARKANS	198	8	1553	1514	6	8735	41	10	438	10717	1049	159	1984
LOUISNA	398	9	3367	2921	6	18161	98	11	1882	22598	1281	325	2111
TEXAS	447	10	4273	3878	6	19328	93	10	921	24514	1563	353	1691
OKLA	186	9	1646	991	6	5818	125	10	1195	8659	1388	288	1963
KANSAS	248	8	2042	1292	7	8689	59	10	593	11243	1189	498	1743
NEB/DAK	137	9	1229	211	8	1782	48	9	454	3385	1344	1818	1528
HOOD	152	9	1436	188	6	622	864	10	8538	18995	1521	126	1682
POLK	184	9	1616	983	6	5334	357	11	3813	18763	1276	218	1978
RILEY	75	9	638	428	7	2847	471	10	4652	8137	1174	533	1688
SAM HOU	77	10	753	676	7	4426	21	10	286	5385	1642	447	1668
BLISS	2	11	21	17	8	128	248	8	2888	2149	1975	887	1189
L. WOOD	122	8	959	1925	7	18846	123	11	1299	12384	934	462	1933
SILL	23	9	289	57	6	353	143	10	1361	1922	1384	317	1546
CCAD	2	10	28	9		61	374	10	3828	3981	1679	538	1885
RRAD	83	9	714	1	5	5	409	10	4161	4888	1288	8	1798
SUBTOT	2465			14448			3518				1338	414	1723
				TEAD LINES								TEAD MILEAGE	
COL/WYO	183	10	999	989	7	6718	34	8	289	7998	1614	535	1178
NEW MEX	133	10	1371	568	7	3989	27	8	222	5582	1839	623	1874
CARSON	64	10	625	94	7	651	678	9	5923	7288	1639	588	1258
DAK				421	8	3287				3287		914	
SUBTOT	388			2872			739				1697	665	1167
							TEAD LINES					SRAD MILEAGE	TEAD MILEAGE
MNT/IDA	161	11	1828	128	10	1279	933	7	6186	9285	2218	1695	446
UTAH/NV	119	12	1376	95	10	911	616	5	3351	5638	2385	1572	37
ARIZONA	62	12	716	189	9	1612	617	7	4423	6751	2388	1182	677
HUACHUC	135	11	1531	98	8	811	982	8	7527	9868	2222	1886	861
TEAD	2	11	22	382	9	3472	9	5	48	3542	2873	1389	8
SUBTOT	479			893			3157				2222	1385	484
							SNAD LINES						SNAD MILEAGE
CALIF	431	13	5431	446	10	4681	2384	5	12627	22658	2689	1843	32
OREGON	132	13	1692	78	11	868	956	7	6618	9178	2769	2146	583
WASHTN	78	13	886	82	11	929	1868	7	7932	9747	2712	2218	773
IDAHO	4	12	49	1194	9	11147	78	6	446	11642	2553	1488	388
LEWIS	27	13	341	33	11	375	228	7	1684	2488	2896	2231	758
ORD	891	13	11686	77	10	788	1168	6	6636	19118	2888	1811	141
PRESIDIO	81	13	1042	39	10	484	458	6	2546	3991	2785	1856	81
SRAD	116	13	1482	18	10	186	379	5	2877	3724	2689	1843	52
SUBTOT	1752			1967			6623	TOTAL DAYS		686488	2722	1929	353
											1348	945	1994
TOTAL	38143			42446			18691	TOTAL LINES		96288	ARSS-60	ARSS-60	
								AVERAGE DAYS		7.13084			

ALT. NO FIVE AND SIX
MODE LESS THAN TRUCKLOAD OST

DESTINATION	NCAD LINES	TRANSIT TIME	NCAD DAYS	SRAD LINES	TRANSIT TIME	SRAD DAYS	SNAD LINES	TRANSIT TIME	SNAD DAYS	TOTAL DAYS	MILEAGE NCAD	MILEAGE SRAD	MILEAGE SNAD
MAINE	454	7	3090	42	10	423	19	14	267	3779	543	1751	3218
NH/VER	788	6	4588	69	10	671	39	14	528	5779	418	1625	3040
MASS	194	6	1236	154	10	1483	46	14	629	3347	381	1589	3004
CONN/RI	1133	6	7088	97	9	916	49	13	661	8586	313	1521	3022
NEW YORK	1460	6	8928	445	9	4138	147	13	1943	15029	287	1483	2917
PENN	2818	6	15809	356	9	3062	82	13	1044	19915	188	1288	2739
NJ/DEL	1115	6	6354	174	9	1536	58	13	759	8649	133	1291	2867
MD/DC	1101	6	6189	138	9	1174	45	13	586	7942	184	1173	2795
VA/W.VA	1982	6	12125	197	8	1582	57	13	718	14425	288	997	2688
N. CARO	265	6	1681	189	8	1527	52	13	663	3871	372	1814	2743
BRAGG	388	7	2522	1463	8	11842	534	13	6842	21206	438	1828	2748
DEVENS	575	6	3646	151	10	1458	66	14	899	5996	371	1579	3067
DRUM	143	6	891	145	9	1328	37	13	488	2699	331	1415	2824
MEADE	1955	6	10909	268	9	2287	115	13	1483	14688	89	1183	2798
BELVOIR	3	6	17	75	8	636	36	13	484	1117	125	1162	2793
DIX	1068	6	6844	227	9	2025	78	13	994	9864	134	1327	2867
EUSTIS	92	6	558	95	8	804	63	13	829	2191	267	1158	2895
LEE	427	6	2558	114	8	951	35	13	455	3964	241	1111	2840
TOAD	1461	6	8303	58	9	919	42	13	586	9377	127	1335	2811
LEAD	347	5	1897	495	8	4283	153	13	1937	8037	47	1167	2712
SUBTOT	17681			4952			1792				255.85	1385.45	2874.4
	LSOA LINES										LSOA MILEAGE		
OHIO	1452	6	8538	217	8	1673	49	12	581	10791	288	877	2618
MICH	128	6	813	161	8	1305	52	12	611	2729	374	1825	2374
INDIANA	1188	6	6960	152	7	1112	58	11	668	8732	192	731	2238
ILL.	37	6	234	165	7	1168	45	11	489	1891	361	645	2058
WISC	1782	7	11474	263	8	2038	59	11	645	14157	519	892	2073
MINN	325	7	2423	238	8	1888	83	11	876	5099	784	928	1932
IOWA	156	7	1112	69	7	496	51	13	658	2257	662	683	2742
MCCOY	1816	7	12888	125	8	989	59	11	633	14582	649	952	1997
SHERIDN	642	6	5481	97	8	736	98	10	599	6645	398	831	1798
KENT	882	5	4885	162	6	1844	34	12	401	6258	40	618	2389
CAMPBELL	63	6	376	139	6	843	295	11	3361	4588	231	269	2242
KNOX	199	6	1118	588	6	3719	271	12	3162	7999	183	365	2343
SUBTOT	8790			2368			1186				376	717	2215
	NCAD LINES			SNAD LINES							NCAD MILEAGE	SNAD MILEAGE	
FLORIDA	353	8	2777	1055	6	11453	79	12	957	15187	936	389	2587
GEORGIA	541	7	3932	3525	6	19690	118	12	1388	24922	714	91	2481
S. CARO	176	7	1213	411	6	2537	96	12	695	4445	574	388	2622
ALABAMA	606	8	4646	2387	6	13823	131	12	1523	19192	871	113	2327
MISS	325	8	2646	2855	6	17581	185	11	1191	21379	1036	383	2082
TENN	299	7	2171	2833	6	12831	64	11	726	14928	711	214	2226
JACKSON	119	7	828	158	6	928	36	12	448	2195	574	313	2627
STEWART	195	7	1427	668	6	4128	345	12	4389	9856	733	334	2648
BENNING	7	8	53	32	6	184	239	12	2846	3883	828	148	2433
GORDON	225	7	1596	1241	6	7486	57	12	698	9698	649	232	2556
MCCLELN	151	7	1121	232	5	1243	36	12	418	2782	773	6	2321
RUCKER	349	8	2725	228	6	1293	134	12	1587	5605	948	199	2488
MRAD	336	7	2496	33	5	176	412	12	4782	7454	773	8	2321
SUBTOT	3676			15554			1884				779	198	2421
				SRAD LINES								SRAD MILEAGE	
MISSOUR	158	8	1176	973	6	6178	44	10	454	7809	927	374	1847
ARKANS	198	8	1553	1314	6	8735	41	10	438	10717	1049	159	1904
LOUISNA	398	9	3347	2921	6	18161	98	11	1082	22598	1281	325	2111
TEXAS	447	10	4273	3878	6	19328	93	10	921	24514	1563	353	1691
OKLA	186	9	1646	951	8	5818	125	10	1195	8659	1388	288	1563
HOOD	152	9	1436	108	6	622	864	10	8538	10595	1521	326	1682
POLK	184	9	1618	983	6	5334	357	11	3813	10763	1276	218	1978
SAM HOU	77	10	753	676	7	4426	21	10	206	5385	1642	447	1668
BLISS	2	11	21	17	8	128	248	8	2088	2149	1975	887	1189
L. WOOD	122	8	959	1525	7	10846	123	11	1299	12384	934	462	1933
SILL	23	9	289	57	6	353	143	10	1361	1922	1384	317	1546
CCAD	2	10	20	9	7	61	374	10	3828	3901	1679	538	1805
RRAD	83	9	714	1	5	5	489	10	4161	4880	1288	8	1798
SUBTOT	2088			12717			2932				1358	354	1748
				PUDA LINES								PUDA MILEAGE	
COL/WYO	183	10	999	989	6	5618	34	8	289	6986	1614	126	1178
NEW MEX	133	10	1371	568	6	3838	27	8	222	5023	1839	259	1074
CARSON	64	10	625	94	5	511	670	9	5923	7859	1639	36	1258
KANSAS	245	8	2042	1292	7	8821	59	10	593	11456	1189	551	1743
NEB/DAK	137	9	1229	632	7	4516	48	9	454	6288	1344	669	1528
RILEY	75	9	638	420	7	2796	471	10	4652	8886	1174	488	1688
SUBTOT	757			3995			1317				1453	355	1489
							TEAD LINES					RRAD MILEAGE	TEAD MILEAGE
MNT/IDA	161	11	1820	129	10	1279	933	7	6186	9285	2218	1695	446
UTAH/NV	119	12	1376	95	10	911	616	5	3351	5638	2305	1572	37
ARIZONA	62	12	716	189	9	1612	617	7	4423	6751	2300	1182	677
HUACHUC	135	11	1531	98	8	811	982	8	7527	9868	2222	1886	861
TEAD	2	11	22	382	9	3472	9	5	48	3542	2073	1389	0
SUBTOT	479			893			3157				2222	1389	484
							SNAD LINES						SNAD MILEAGE
CALIF	431	13	5431	446	10	4681	2384	5	12627	22859	2689	1843	52
OREGON	132	13	1692	78	11	868	956	7	6618	9178	2769	2146	583
WASHNTN	78	11	886	82	11	929	1069	7	7932	9747	2712	2218	773
IDAHO	4	12	49	1196	9	11147	78	6	446	11642	2553	1488	388
LEWIS	27	13	341	33	11	375	228	7	1884	2488	2696	2231	758
ORD	891	13	11686	77	10	788	1168	6	6636	19118	2888	1811	141
PRESIDIO	81	13	1042	39	10	484	458	6	2546	3991	2785	1856	81
SAAD	116	13	1462	18	10	186	379	5	2877	3724	2689	1843	52
SUBTOT	1752			1967			6623	TOTAL DAYS		684379	2722	1929	353
TOTAL	35143			42446			18691	TOTAL LINES		96288	1389	892	1631
								AVERAGE DAYS		7.18821	ARSS-60	ARSS-60	

GEORGIA 666 4 ZHOOE UPS ALT. NO ONE OST

DESTINATION	NCAD LINES	UPS ZONE	TRANSIT TIME	RRAD LINES	UPS ZONE	TRANSIT TIME	SHAD LINES	UPS ZONE	TRANSIT TIME	TOTAL DAYS
MAINE	342	4	2	120	7	5	75	8	6	2974
NH/VER	1207	4	2	102	6	4	90	8	6	3090
MASS	1310	3	1	302	6	4	180	8	6	3004
CONN/RI	2136	3	1	341	6	4	144	8	6	4363
NEW YORK	5391	3	1	1232	6	4	490	8	6	13058
PENN	4416	2	0	578	6	4	199	8	6	3506
NJ/DEL	3094	2	0	399	6	4	238	8	6	3098
MD/DC	1711	2	0	291	6	4	95	8	6	1734
VA/W.VA	2330	3	1	319	5	3	210	8	6	3183
N. CARO	2257	3	1	615	5	3	166	8	6	5090
S. CARO	1974	4	2	424	5	3	163	8	6	6198
OHIO	1901	4	2	461	5	3	187	8	6	5607
MICH	1133	4	2	285	5	3	121	8	6	3707
INDIANA	2900	4	2	460	5	3	214	8	6	8600
ILL.	1512	5	3	490	4	2	190	7	5	8402
WISC	1891	5	3	475	5	3	158	7	5	7800
MINN	2119	5	3	403	5	3	200	7	5	8804
IOWA	1504	5	3	287	4	2	118	7	5	5916
BRAGG	1943	4	2	4827	5	3	1720	8	6	26323
DEVENS	4210	3	1	516	6	4	210	8	6	7634
DRUM	2881	3	1	381	6	4	177	8	6	4947
MCCOY	3082	5	3	952	5	3	254	7	5	12082
MEADE	9104	2	0	1231	6	4	611	8	6	8890
SHERIDN	2375	4	2	396	5	3	163	7	5	6753
BELVOIR	2898	2	0	270	6	4	132	8	6	1872
DIX	4184	2	0	580	6	4	214	8	6	3604
EUSTIS	121	3	1	543	6	4	159	8	6	3247
JACKSON	2106	4	2	426	5	3	114	8	6	6172
LEE	2808	3	1	292	5	3	119	8	6	3822
TOAD	2568	2	0	294	6	4	200	8	6	2904
LEAD	70	2	0	1403	6	4	804	8	6	10436
SUBTOT	70909			18001			8197			
FLORIDA	403	5	3	2282	5	3	224	8	6	9397
GEORGIA	666	4	2	4006	4	2	299	8	6	12098
ALABAMA	908	5	3	3082	4	2	238	8	6	10798
MISS	1085	5	3	8636	3	1	303	7	5	11206
TENN	446	4	2	2863	4	2	111	8	6	9804
KENT	422	4	2	2180	5	3	108	8	6	8800
MISSOURI	302	5	3	2272	3	1	129	7	5	8823
ARKANS	363	5	3	1787	2	0	114	7	5	1629
LOUISNA	400	6	4	2910	3	1	130	7	5	9007
TEXAS	661	6	4	3046	2	0	200	7	5	3904
OKLA	1102	6	4	1200	3	1	308	6	4	7380
KANSAS	996	5	3	2532	4	2	100	6	4	7402
NEB/DAK	272	6	4	1777	5	3	79	6	4	6719
COL/WYO	463	7	5	1006	5	3	130	5	3	8220
NEW MEX		7	5	931	5	3	120	5	3	3153
CAMPBLL	198	4	2	600	4	2	1043	8	6	7964
CARSON	2002	7	5	790	5	3	2340	5	3	23307
HOOD	163	6	4	372	2	0	2391	7	5	12007
POLK	2507	6	4	2808	2	0	773	7	5	13583
RILEY	3006	6	4	2070	4	2	1104	6	4	23676
SAM HOU	243	7	5	1302	2	0	112	7	5	1079
STEWART	2833	4	2	2736	5	3	1144	8	6	20730
BENNING	1702	5	3	323	4	2	502	8	6	8944
BLISS	3161	7	5	224	4	2	879	5	3	10000
GORDON	995	4	2	3871	5	3	217	8	6	14086
KNOX	2717	4	2	841	5	3	875	8	6	13207
L. WOOD	774	5	3	3948	3	1	243	7	5	7485
MCCLELN	288	5	3	721	4	2	98	8	6	2094
RUCKER	709	5	3	708	4	2	325	8	6	9493
SILL	999	6	4	347	3	1	303	6	4	5806
CCAD	1083	7	5	46	3	1	1387	7	5	13048
ANAD	204	5	3	30	4	2	866	8	6	5030
RRAD	60	6	4	7	2	0	606	7	5	3040
SUBTOT	33759			61215			18056			
MNT/IDA	582	8	6	623	6	4	4944	5	3	20896
UTAH/NV	284	8	6	313	6	4	2613	4	2	8182
ARIZONA	167	8	6	232	6	4	1856	4	2	5642
CALIF	805	8	6	1122	7	5	6193	3	1	16633
OREGON	319	8	6	314	7	5	2897	4	2	9278
WASHNTN	259	8	6	312	7	5	2228	4	2	7570
IRWIN	937	3	6	1523	7	5	14	3	1	13251
LEWIS	3011	8	6	213	7	5	1800	4	2	22891
ORD	1610	8	6	246	7	5	2641	2	0	10890
PRSIDIO	157	8	6	174	7	5	2292	2	0	1812
HUACHUC	395	8	6	476	5	3	3459	5	3	13935
SAAD	661	8	6	406	7	5	2089	2	0	5996
TEAD	367	8	6	385	6	4	71	4	2	3804
SUBTOT	9494			6319			33157	TOTAL	DAYS	649318
TOTAL	120162			86435			59410	TOTAL	LINES	266007
								AVERAGE	DAYS	2.4410

MODE ALT. NO ONE

OST ASSUMING PERFECT STOCK POSITION

DESTINATION		UPS ZONE	TRANSIT TIME	TOTAL DAYS
MAINE	1145	4	2	2290
NH/VER	1567	4	2	3134
MASS	1848	3	1	1848
CONN/RI	2628	3	1	2628
NEW YOR	7079	3	1	7079
PENN	5193	2	0	0
NJ/DEL	4783	2	0	0
MD/DC	2897	2	0	0
VA/W.VA	3065	3	1	3065
N. CARO	3038	3	1	3038
S. CARO	2561	4	2	5122
OHIO	2149	4	2	4298
MICH	1519	4	2	3038
INDIANA	3642	4	2	7284
ILL.	2168	5	3	6488
WISC	2524	5	3	7572
MINN	2718	5	3	8154
IOWA	1989	5	3	5967
BRAGG	7696	4	2	15392
DEVENS	4936	3	1	4936
OHUM	3159	3	1	3159
MCCOY	3858	5	3	11574
MEADE	11886	2	0	0
SHERIDN	2934	4	2	5868
BELVOIR	2492	2	0	0
DIX	4948	2	0	0
CUSTIS	823	3	1	823
JACKSON	2645	4	2	5290
LEE	2463	3	1	2463
TOAD	3147	2	0	0
LEAD	2283	2	0	0
SUBTOT	104867			
	RRAD LINES			
FLORIDA	2909	5	3	8727
GEORGIA	5531	4	2	11062
ALABAMA	4528	4	2	9056
MISS	7903	3	1	7903
TENN	2570	4	2	5140
KENT	2719	5	3	8157
MISSOUR	2703	3	1	2703
ARKANS	2254	2	0	0
LOUISNA	3544	3	1	3544
TEXAS	3956	2	0	0
OKLA	2790	3	1	2790
KANSAS	3288	2	0	0
NEB/DAK	2124	3	1	2124
COL/WYO	2438	5	3	7314
NEW MEX	1051	5	3	3153
CAMPBLL	1896	4	2	3792
CARSON	5901	5	3	17703
HOOD	2926	2	0	0
POLK	5820	2	0	0
RILEY	6958	4	2	13916
SAM HOU	1927	2	0	0
STEWART	6713	5	3	20139
BENNING	2587	4	2	5174
BLISS	4264	4	2	8528
GORDON	4783	5	3	14349
KNOX	4433	5	3	13299
L. WOOD	4965	3	1	4965
MCCLELN	1107	4	2	2214
RUCKER	1742	4	2	3484
SILL	1649	3	1	1649
CCAD	3286	3	1	3286
ANAD	1098	4	2	2196
RRAD	747	2	0	0
SUBTOT	113038			
	SNAD LINES			
MNT/IDA	6129	5	3	18387
UTAH/NV	3210	4	2	6420
ARIZONA	2255	4	2	4510
CALIF	8120	3	1	8120
OREGON	3530	4	2	7060
WASHNTN	2799	4	2	5598
IRWIN	2474	3	1	2474
LEWIS	5104	4	2	10208
ORD	4497	2	0	0
PRESIDIO	2623	2	0	0
HUACHUC	4290	5	3	12870
SAAD	3136	2	0	0
TEAD	803	4	2	1606
TOTAL	483844			384834
AVERAGE				.79583

MODE UPS ALT. NO TWO

DESTINATION	NCAD LINES	UPS ZONE	TRANSIT TIME	NCAD DAYS	RRAD LINES	UPS ZONE	TRANSIT TIME	RRAD DAYS	SHAD LINES	UPS ZONE	TRANSIT TIME	SHAD DAYS	TOTAL DAYS
MAINE	942	4	2	1884	128	7	5	640	75	8	6	450	2974
NH/VER	1287	4	2	2574	182	6	4	728	90	8	6	500	3890
MASS	1316	3	1	1316	352	6	4	1408	100	8	6	1080	3804
CONN/RI	2135	3	1	2135	341	6	4	1364	[illegible]	8	6	[illegible]	4303
NEW YOR	5391	3	1	5391	1232	6	4	4928	456	8	6	2736	13055
PENN	4416	2	0	0	578	6	4	2312	199	8	6	1194	3506
NJ/DEL	3854	2	0	0	599	6	4	2396	250	8	6	1500	3896
MD/DC	1711	2	0	0	291	6	4	1164	95	8	6	570	1734
VA/W.VA	2330	3	1	2330	519	5	3	1557	216	8	6	1296	5183
N. CARO	2257	3	1	2257	615	5	3	1845	100	8	6	[illegible]	[illegible]
OHIO	1501	4	2	3002	461	5	3	1383	187	8	6	1122	5507
MICH	2133	4	2	[illegible]	209	5	3	795	122	8	6	726	3787
INDIANA	2968	4	2	5936	460	5	3	1380	214	8	6	1284	8600
ILL.	2312	5	3	[illegible]	490	4	2	910	190	7	5	950	[illegible]
WISC	1891	5	3	5673	475	5	3	1425	150	7	5	790	7888
MINN	2115	5	3	6345	403	5	3	1209	200	7	5	1000	8554
IOWA	1584	5	3	4752	287	4	2	574	118	7	5	590	5916
BRAGG	1903	4	2	3806	4027	5	3	12081	1720	8	6	10330	26323
DEVENS	4210	3	1	4210	516	6	4	2064	210	8	6	1260	7534
DRUM	2001	3	1	2001	302	6	4	1208	177	8	6	1062	4947
MCCOY	3052	5	3	9156	552	5	3	1656	254	7	5	1270	12082
MEADE	9164	2	0	0	1231	6	4	4924	611	8	6	3666	8590
SHERIDN	2375	4	2	4750	396	5	3	1188	163	7	5	815	6753
BELVOIR	2890	2	0	0	270	6	4	1080	132	8	6	792	1872
DIX	4154	2	0	0	580	6	4	2320	214	8	6	1284	3604
EUSTIS	121	3	1	121	343	6	4	2172	159	8	6	954	3247
LEE	2056	3	1	2056	292	5	3	876	115	8	6	690	3622
YORK	2505	2	0	0	294	6	4	1176	288	8	6	1728	2904
LEAD	76	2	0	0	1403	6	4	5612	804	8	6	4824	10436
SUBTOT	72830				18051				7920				
					ANAD LINES			ANAD DAYS					
FLORIDA	603	5	3	1209	2202	3	1	2202	224	8	6	1344	4835
GEORGIA	666	4	2	1332	4606	2	0	0	259	8	6	1554	2886
S. CARO	424	4	2	848	1974	3	1	1974	103	8	6	978	3800
ALABAMA	668	5	3	2004	3602	2	0	0	258	8	6	1548	3552
MISS	1065	5	3	3195	6535	3	1	6535	303	7	5	1515	11245
TENN	446	4	2	892	2013	3	1	2013	111	8	6	666	3571
KENT	422	4	2	844	2189	3	1	2189	108	8	6	648	3681
JACKSON	426	4	2	852	2105	3	1	2105	114	8	6	684	3641
CAMPBELL	195	4	2	390	658	3	1	658	1043	8	6	6258	7306
STEWART	2833	4	2	5666	2736	3	1	2736	1144	8	6	6864	15266
BENNING	1762	5	3	5286	323	2	0	0	502	8	6	3012	8298
GORDON	995	4	2	1990	3571	3	1	3571	217	8	6	1302	6863
KNOX	2717	4	2	5434	841	3	1	841	875	8	6	5250	11525
MCCLELN	288	5	3	864	721	2	0	0	98	8	6	588	1452
RUCKER	709	5	3	2127	700	2	0	0	325	8	6	1950	4077
ANAD	204	5	3	612	39	2	0	0	855	8	6	5130	5742
SUBTOT	14223				34903				6599				
					RRAD LINES			RRAD DAYS					
MISSOUR	302	5	3	906	2872	3	1	2872	129	7	5	645	3083
ARKANS	353	5	3	1059	1787	2	0	0	114	7	5	570	1629
LOUISNA	469	6	4	1876	2916	3	1	2916	159	7	5	795	5587
TEXAS	651	6	4	2604	3045	2	0	0	260	7	5	1300	3904
OKLA	1102	6	4	4640	1260	3	1	1260	360	6	4	1472	7300
KANSAS	596	5	3	1788	2532	4	2	5064	160	6	4	640	7492
NEB/DAK	272	6	4	1088	1777	5	3	5331	75	6	4	300	6719
COL/WYO	453	7	5	2265	1855	5	3	5565	130	5	3	390	8220
NEW MEX		7	5	0	931	5	3	2793	120	5	3	360	3153
CARSON	2802	7	5	14010	754	5	3	2262	2345	5	3	7035	23307
HOOD	163	6	4	652	372	2	0	0	2391	7	5	11955	12607
POLK	2357	6	4	9428	2688	2	0	0	775	7	5	3875	13303
RILEY	3696	6	4	14784	2078	4	2	4156	1184	6	4	4736	23676
SAM HOU	263	7	5	1315	1552	2	0	0	112	7	5	560	1875
BLISS	3161	7	5	15805	224	4	2	448	879	5	3	2637	18890
L. WOOD	774	5	3	2322	3948	3	1	3948	243	7	5	1215	7485
SILL	999	6	4	3996	347	3	1	347	303	6	4	1212	5555
CCAD	1853	7	5	9265	46	3	1	46	1307	7	5	6535	15846
RRAD	60	6	4	240	7	2	0	0	680	7	5	3400	3640
SUBTOT	20380				30391				11734				
MNT/IDA	302	8	6	3372	623	6	4	2492	4944	5	3	14832	20696
UTAH/NV	284	8	6	1704	313	6	4	1252	2613	4	2	5226	8182
ARIZONA	207	8	6	1002	232	6	4	928	1856	4	2	3712	5642
CALIF	805	8	6	4830	1122	7	5	5610	6193	3	1	6193	16633
OREGON	329	8	6	1914	314	7	5	1570	2097	4	2	5794	9278
WASHNTN	259	8	6	1554	312	7	5	1560	2228	4	2	4456	7570
IRWIN	937	8	6	5622	1525	7	5	7625	14	3	1	14	13261
LEWIS	3011	8	6	18066	213	7	5	1065	1880	4	2	3760	22891
ORD	1616	8	6	9696	246	7	5	1230	2042	2	0	0	10926
PRSIDIO	157	8	6	942	174	7	5	870	2292	2	0	0	1812
HUACHUC	355	8	6	2130	470	5	3	1420	3459	5	3	10377	13935
SAAD	661	8	6	3966	406	7	5	2030	2869	2	0	0	5996
TEAD	367	8	6	2202	365	6	4	1460	71	4	2	142	3804
SUBTOT	9494				6319				33137		TOTAL DAYS		390402
TOTAL	120933				89004				59420		TOTAL LINES		266007
											AVERAGE DAYS		2.2499

MODE UPS ALT. NO THREE OST

DESTINATION	NCAD LINES	UPS ZONE	TRANSIT TIME	NCAD DAYS	NRAD LINES	UPS ZONE	TRANSIT TIME	NRAD DAYS	SRAD LINES	UPS ZONE	TRANSIT TIME	SRAD DAYS	TOTAL DAYS
MAINE	942	4	2	1884	128	7	5	640	75	0	6	450	2974
NH/VER	1287	4	2	2574	182	6	4	728	98	0	6	588	3890
MASS	1316	3	1	1316	352	6	4	1408	188	0	6	1088	3804
CONN/RI	2135	3	1	2135	341	6	4	1364	144	0	6	864	4363
NEW YOR	5391	3	1	5391	1232	6	4	4928	456	0	6	2736	13055
PENN	4416	2	0	0	578	6	4	2312	199	0	6	1194	3506
NJ/DEL	3854	2	0	0	599	6	4	2396	250	0	6	1500	3896
MD/DC	1711	2	0	0	291	6	4	1164	95	0	6	570	1734
VA/W.VA	2338	3	1	2338	519	5	3	1557	216	0	6	1296	5183
N. CARO	2257	3	1	2257	615	5	3	1845	166	0	6	996	5098
OHIO	1501	4	2	3002	461	5	3	1383	187	0	6	1122	5507
MICH	1133	4	2	2266	265	5	3	795	121	0	6	726	3787
INDIANA	2968	4	2	5936	468	5	3	1368	214	0	6	1284	8588
ILL.	1512	5	3	4536	458	4	2	916	190	7	5	950	6402
WISC	1891	5	3	5673	475	5	3	1425	158	7	5	790	7888
MINN	2115	5	3	6345	403	5	3	1209	200	7	5	1000	8554
IOWA	1584	5	3	4752	287	4	2	574	118	7	5	590	5916
NEBRS	1943	4	2	3886	4027	5	3	12081	1726	0	6	10356	26323
DEVERS	4218	3	1	4218	516	6	4	2064	218	0	6	1260	7534
DKOT	2681	3	1	2681	301	6	4	1204	177	0	6	1062	4947
MCCOY	3052	5	3	9156	552	5	3	1656	254	7	5	1270	12082
MEADE	9164	2	0	0	1231	6	4	4924	611	0	6	3666	8590
SHERIDN	2375	4	2	4750	396	5	3	1188	163	7	5	815	6753
BELVOIR	2090	2	0	0	278	6	4	1088	132	0	6	792	1872
DIX	4154	2	0	0	508	6	4	2328	214	0	6	1284	3604
EUSTIS	121	3	1	121	543	6	4	2172	159	0	6	954	3247
LEE	2056	3	1	2056	292	5	3	876	115	0	6	690	3622
TOAD	2565	2	0	0	294	6	4	1176	288	0	6	1728	2904
LEAD	76	2	0	0	1403	6	4	5612	804	0	6	4824	10436
SUBTOT	72838				18951				7928				
					ARAD LINES			ARAD DAYS					
FLORIDA	403	5	3	1209	2282	3	1	2282	224	0	6	1344	4835
GEORGIA	666	4	2	1332	4606	2	0	0	259	0	6	1554	2886
S. CARO	424	4	2	848	1974	3	1	1974	163	0	6	978	3800
ALABAMA	668	5	3	2004	3602	2	0	0	258	0	6	1548	3552
MISS	1065	5	3	3195	6535	3	1	6535	303	7	5	1515	11245
TENN	446	4	2	892	2813	3	1	2813	111	0	6	666	3571
KENT	422	4	2	844	2189	3	1	2189	188	0	6	648	3681
JACKSON	426	4	2	852	2105	3	1	2105	114	0	6	684	3641
CAMPBELL	195	4	2	390	658	3	1	658	1043	0	6	6258	7306
STEWART	2833	4	2	5666	2736	3	1	2736	1144	0	6	6864	15266
BENNING	1762	5	3	5286	123	2	0	0	502	0	6	3012	8298
GORDON	995	4	2	1990	3571	3	1	3571	217	0	6	1302	6863
KNOX	2717	4	2	5434	841	3	1	841	875	0	6	5250	11525
MCCLELN	288	5	3	864	721	2	0	0	98	0	6	588	1452
RUCKER	709	5	3	2127	708	2	0	0	325	0	6	1950	4077
ARAD	204	5	3	612	39	2	0	0	855	0	6	5130	5742
SUBTOT	14223				34903				6999				
					NRAD LINES			NRAD DAYS					
MISSOUR	382	5	3	906	2272	3	1	2272	129	7	5	645	3823
ARKANS	353	5	3	1059	1787	2	0	0	114	7	5	570	1629
LOUISNA-	469	6	4	1876	2916	3	1	2916	159	7	5	795	5587
TEXAS	651	6	4	2604	3049	2	0	0	260	7	5	1300	3904
OKLA	1162	6	4	4648	1260	3	1	1260	368	6	4	1472	7388
KANSAS	596	5	3	1788	2532	4	2	5064	168	6	4	648	7492
FEB/OAK	272	6	4	1088	392	5	3	1777	75	6	4	300	3169
WOOD	163	6	4	652	372	2	0	0	2391	7	5	11955	12607
POLK	2357	6	4	9428	2688	2	0	0	775	7	5	3875	13303
RILEY	3696	6	4	14784	2878	4	2	4156	1184	6	4	4736	23676
SAM HOU	263	7	5	1315	1552	2	0	0	112	7	5	560	1875
BLISS	3161	7	5	15805	224	4	2	448	879	5	3	2637	18890
L. WOOD	774	5	3	2322	3948	3	1	3948	243	7	5	1215	7485
SILL	999	6	4	3996	347	3	1	347	303	6	4	1212	5555
CCAD	1853	7	5	9265	46	3	1	46	1307	7	5	6535	15846
RRAD	68	6	4	240	7	2	0	0	600	7	5	3400	3648
SUBTOT	17131				25666				9139				
					TRAD LINES			TRAD DAYS					
COL/WYO	453	7	5	2265	1855	4	2	1710	138	5	3	390	6365
NEW MEX		7	5	0	931	4	2	1862	128	5	3	360	2222
CARSON	2802	7	5	14010	754	4	2	1508	2345	5	3	7035	22353
OAK					1185	5	3	3555					3355
					RRAD LINES			RRAD DAYS	TRAD LINES			TRAD DAYS	
MNT/IDA	562	0	6	3372	623	6	4	2492	4944	3	1	4944	10808
UTAH/NV	284	0	6	1704	313	6	4	1252	1307	2	0	0	2956
ARIZONA	167	0	6	1002	232	6	4	928	1856	5	3	5568	7498
NUACHUC	355	0	6	2130	476	5	3	1428	3459	6	4	13836	17394
TRAD	367	0	6	2202	369	6	4	1460	71	2	0	0	3662
SUBTOT	4990				6734				14232				
									SRAD LINES			SRAD DAYS	
CALIF	805	0	6	4830	1122	7	5	5610	6193	3	1	6193	16633
OREGON	319	0	6	1914	314	7	5	1570	2897	4	2	5794	9278
WASHSTN	259	0	6	1554	312	7	5	1560	2228	4	2	4456	7570
NEVADA									1308	2	0	0	0
IRWIN	937	0	6	5622	1523	7	5	7615	14	3	1	14	13251
LEWIS	3011	0	6	18066	213	7	5	1065	1880	4	2	3760	22891
ORD	1618	0	6	9708	248	7	5	1240	2641	2	0	0	10990
PRESIDIO	157	0	6	942	174	7	5	870	2292	2	0	0	1812
SAAD	681	0	6	3966	406	7	5	2030	2069	2	0	0	5996
SUBTOT	7759				4310				21520	TOTAL DAYS			585002
TOTAL	116933				89664				59418	TOTAL LINES			266007
										AVERAGE DAYS			2.1992

NSDC UPS ALT. NO FOUR

DESTINATION	NCAD LINES	UPS ZONE	TRANSIT TIME	NCAD DAYS	NRAD LINES	UPS ZONE	TRANSIT TIME	NRAD DAYS	SRAD LINES	UPS ZONE	TRANSIT TIME	SRAD DAYS	TOTAL DAYS
MAINE	942	4	2	1884	128	7	5	640	75	8	6	450	2974
NH/VER	1287	4	2	2574	182	6	4	728	98	8	6	588	3890
MASS	1316	3	1	1316	352	6	4	1408	180	8	6	1080	3804
CONN/RI	2135	3	1	2135	341	6	4	1364	144	8	6	864	4363
NEW YOR	5391	3	1	5391	1232	6	4	4928	456	8	6	2736	13055
PENN	4416	2	0	0	578	6	4	2312	199	8	6	1194	3506
NJ/DEL	3894	2	0	0	599	6	4	2396	250	8	6	1500	3896
MD/DC	1711	2	0	0	291	6	4	1164	95	8	6	570	1734
VA/W.VA	2330	3	1	2330	519	5	3	1557	216	8	6	1296	5183
N. CARO	2257	3	1	2257	615	5	3	1845	166	8	6	996	5098
BRAGG	1943	4	2	3886	4027	5	3	12081	1726	8	6	10356	26323
DEVENS	4218	3	1	4218	516	6	4	2064	218	8	6	1260	7534
DRUM	2601	3	1	2601	301	6	4	1204	177	8	6	1062	4947
MEADE	9164	2	0	0	1231	6	4	4924	611	8	6	3666	8590
BELVOIR	2890	2	0	0	270	6	4	1080	132	8	6	792	1872
DIX	4154	2	0	0	580	6	4	2320	214	8	6	1284	3604
SUSTIS	121	3	1	121	543	6	4	2172	159	8	6	954	3247
LEE	2056	3	1	2056	292	5	3	876	115	8	6	690	3622
TOAD	2565	2	0	0	294	6	4	1176	288	8	6	1728	2904
LEAD	76	2	0	0	1403	6	4	5612	804	8	6	4824	10436
SUBTOT	54699				14294				6315				
	LEDA LINES												
OHIO	1581	2	0	0	461	5	3	1383	187	8	6	1122	2505
MICH	1133	3	1	1133	265	5	3	795	121	8	6	726	2654
INDIANA	2968	2	0	0	460	5	3	1380	214	8	6	1284	2664
ILL.	1912	3	1	1912	458	4	2	916	198	7	5	990	3378
WISC	1891	4	2	3782	475	5	3	1425	158	7	5	790	5997
MINN	2115	5	3	6345	483	5	3	1289	200	7	5	1000	8554
IOWA	1584	4	2	3168	287	4	2	574	118	7	5	590	4332
MCCOY	3052	5	3	9156	552	5	3	1656	254	7	5	1270	12082
SHERIDN	2375	3	1	2375	396	5	3	1188	163	7	5	815	4378
KENT	2189	2	0	0	422	3	1	422	100	8	6	600	1878
CAMPBLL	658	2	0	0	195	3	1	195	1043	8	6	6258	6453
KNOX	841	2	0	0	2717	3	1	2717	875	8	6	5250	7967
SUBTOT	21819				7091				3631				
	NCAD LINES				SRAD LINES								
FLORIDA	483	5	3	1209	2282	3	1	2282	224	8	6	1344	4835
GEORGIA	666	4	2	1332	4606	2	0	0	259	8	6	1554	2886
S. CARO	424	4	2	848	1974	3	1	1974	163	8	6	978	3800
ALABAMA	668	5	3	2004	3602	2	0	0	258	8	6	1548	3552
MISS	1065	5	3	3195	6535	3	1	6535	383	7	5	1915	11245
TENN	446	4	2	892	2813	3	1	2813	111	8	6	666	3571
JACKSON	436	4	2	872	2185	3	1	2185	114	8	6	684	3641
STEWART	2833	4	2	5666	2736	3	1	2736	1144	8	6	6864	15266
BENNING	1762	5	3	5286	323	2	0	0	502	8	6	3012	8298
GORDON	995	4	2	1990	3571	3	1	3571	217	8	6	1302	6863
MCCLELN	388	5	3	864	721	2	0	0	90	8	6	588	1452
ROCKER	709	5	3	2127	708	2	0	0	325	8	6	1950	4077
ANAD	284	5	3	612	39	2	0	0	855	8	6	5130	5742
SUBTOT	10809				31215				4573				
					NRAD LINES								
MISSOUR	302	5	3	906	2272	3	1	2272	129	7	5	645	3823
ARKANS	353	5	3	1059	1787	2	0	0	114	7	5	570	1629
LOUISNA	469	6	4	1876	2916	3	1	2916	159	7	5	795	5587
TEXAS	651	6	4	2604	3845	2	0	0	260	7	5	1300	3904
OKLA	1162	6	4	4648	1260	3	1	1260	368	6	4	1472	7388
KANSAS	596	5	3	1788	2532	4	2	5064	160	6	4	640	7492
NEB/DAK	272	6	4	1088	592	5	3	1777.8	75	6	4	300	3165.8
WOOD	163	6	4	652	372	2	0	0	2391	7	5	11955	12607
POLK	2357	6	4	9428	2688	2	0	0	775	7	5	3875	13303
RILEY	3696	6	4	14784	2078	4	2	4156	1184	6	4	4736	23676
SAM HOU	263	7	5	1315	1552	2	0	0	112	7	5	560	1875
BLISS	3161	7	5	15805	224	4	2	448	879	5	3	2637	18890
L. WOOD	774	5	3	2322	3948	3	1	3948	243	7	5	1215	7485
SILL	999	6	4	3996	147	3	1	147	303	6	4	1212	5555
CCAD	1853	7	5	9265	46	3	1	46	1307	7	5	6535	15846
NRAD	60	6	4	240	7	2	0	0	680	7	5	3400	3640
SUBTOT	17131				25666				9139				
					TEAD LINES								
COL/WYO	453	7	5	2265	1859	4	2	3718	138	5	3	390	6365
NEW MEX		7	5	0	931	4	2	1862	120	5	3	360	2222
CARSON	2802	7	5	14010	754	4	2	1508	2345	5	3	7035	22593
DAK				0	1105	5	3	3535				0	3535
					NRAD LINES				TEAD LINES				
MNT/IDA	562	8	6	3372	623	6	4	2492	4944	3	1	4944	18808
UTAH/NV	284	8	6	1704	313	6	4	1252	1387	2	0	0	2956
ARIZONA	167	8	6	1002	232	6	4	928	1856	5	3	5568	7498
NUACHUC	355	8	6	2130	476	5	3	1428	3459	6	4	13836	17394
TEAD	367	8	6	2202	365	6	4	1460	71	2	0	0	3662
SUBTOT	4998				6734				14232				
									SRAD LINES				
CALIF	885	8	6	4830	1122	7	5	5610	6193	3	1	6193	16633
OREGON	319	8	6	1914	314	7	5	1570	2897	4	2	5794	9278
WASHNTN	299	8	6	1554	312	7	5	1560	2220	4	2	4656	7570
NEVADA				0				0	1306	2	0	0	0
IDAHO	937	8	6	5622	1523	7	5	7615	14	3	1	14	13291
LEWIS	3811	8	6	18066	213	7	5	1065	1880	4	2	3760	22891
ORD	1618	8	6	9660	246	7	5	1230	2641	2	0	0	10890
PRESIDIO	197	8	6	942	174	7	5	870	2292	2	0	0	1812
SAAD	661	8	6	3966	406	7	5	2030	2069	2	0	0	5996
SUBTOT	7759				4310				21520	TOTAL DAYS			559035
TOTAL	117287				89310				59410	TOTAL LINES			266007
										AVERAGE DAYS			2.1014

MODE UPS ALT. NO FIVE AND SIX OST

DESTINATION	NCAD LINES	UPS ZONE	TRANSIT TIME	NCAD DAYS	RRAD LINES	UPS ZONE	TRANSIT TIME	RRAD DAYS	SHAD LINES	UPS ZONE	TRANSIT TIME	SHAD DAYS	TOTAL DAYS
MAINE	942	4	2	1884	128	7	5	640	75	8	6	450	2974
NH/VER	1287	4	2	2574	182	6	4	728	98	8	6	588	3890
MASS	1316	3	1	1316	352	6	4	1408	188	8	6	1080	3804
CONN/RI	2135	3	1	2135	341	6	4	1364	144	8	6	864	4363
NEW YOR	5391	3	1	5391	1232	6	4	4928	456	8	6	2736	13055
PENN	4416	2	0	0	578	6	4	2312	199	8	6	1194	3506
NJ/DEL	3854	2	0	0	599	6	4	2396	250	8	6	1500	3896
MD/DC	1711	2	0	0	291	6	4	1164	95	8	6	570	1734
VA/W.VA	2338	3	1	2338	519	5	3	1557	216	8	6	1296	5183
N. CARO	2257	3	1	2257	615	5	3	1845	166	8	6	996	5098
BRAGG	1943	4	2	3886	4027	5	3	12081	1726	8	6	10356	26323
STEVENS	4218	3	1	4218	516	6	4	2064	218	8	6	1260	7534
ORDN	2601	3	1	2601	301	6	4	1204	177	8	6	1062	4947
MEADE	9164	2	0	0	1231	6	4	4924	611	8	6	3666	8590
BELVOIR	2098	2	0	0	270	6	4	1080	132	8	6	792	1872
DIX	4154	2	0	0	506	6	4	2320	214	8	6	1284	3604
EUSTIS	121	3	1	121	543	6	4	2172	159	8	6	954	3247
LEE	2856	3	1	2856	292	5	3	876	115	8	6	690	3622
TOAD	2365	2	0	0	294	6	4	1176	288	8	6	1728	2904
LEAD	76	2	0	0	1403	6	4	5612	804	8	6	4824	10436
SUBTOT	54699				14294				6315				
	LBDA LINES												
OHIO	1501	2	0	0	461	5	3	1383	187	8	6	1122	2505
MICH	1133	3	1	1133	265	5	3	795	121	8	6	726	2654
INDIANA	2960	2	0	0	460	5	3	1380	214	8	6	1284	2664
ILL.	1512	3	1	1512	458	4	2	916	190	7	5	950	3378
WISC	1891	4	2	3782	475	5	3	1425	158	7	5	790	5997
MINN	2115	5	3	6345	403	5	3	1209	200	7	5	1000	8354
IOWA	1584	4	2	3168	287	4	2	574	118	7	5	590	4332
MCCOY.	3052	5	3	9156	552	5	3	1656	254	7	5	1270	12082
SHERIDN	2375	3	1	2375	396	5	3	1188	163	7	5	815	4378
KENT	2189	2	0	0	422	3	1	422	180	8	6	648	1070
CAMPBELL	658	2	0	0	195	3	1	195	1843	8	6	6258	6453
KNOX	841	2	0	0	2717	3	1	2717	875	8	6	5250	7967
SUBTOT	21819				7091				3631				
	NCAD LINES				AMAD LINES								
FLORIDA	403	5	3	1209	2282	3	1	2282	224	8	6	1344	4835
GEORGIA	666	4	2	1332	4606	2	0	0	259	8	6	1554	2886
S. CARO	424	4	2	848	1974	3	1	1974	163	8	6	978	3800
ALABAMA	668	5	3	2004	3602	2	0	0	258	8	6	1548	3552
MISS	1065	5	3	3195	6535	3	1	6535	303	7	5	1515	11245
TENN	446	4	2	892	2013	3	1	2013	111	8	6	666	3571
JACKSON	426	4	2	852	2105	3	1	2105	114	8	6	684	3641
STEWART	2833	4	2	5666	2736	3	1	2736	1144	8	6	6864	15266
BENNING	1762	5	3	5286	323	2	0	0	502	8	6	3012	8298
GORDON	995	4	2	1990	3571	3	1	3571	217	8	6	1302	6863
MCCLELN	288	5	3	864	721	2	0	0	98	8	6	588	1452
RUCKER	709	5	3	2127	708	2	0	0	325	8	6	1950	4077
AMAD	204	5	3	612	39	2	0	0	855	8	6	5130	5742
SUBTOT	10889				31215				4973				
					RRAD LINES								
MISSOUR	382	5	3	906	2272	3	1	2272	129	7	5	645	3823
ARKANS	353	5	3	1059	1787	2	0	0	114	7	5	570	1629
LOUISNA	469	6	4	1876	2916	3	1	2916	159	7	5	795	5587
TEXAS	651	6	4	2604	3845	2	0	0	260	7	5	1300	3904
OKLA	1162	6	4	4648	1260	3	1	1260	368	6	4	1472	7388
HOOD	163	6	4	652	372	2	0	0	2391	7	5	11955	12607
POLK	2357	6	4	9428	2688	2	0	0	775	7	5	3875	13303
SAM HOU	263	7	5	1315	1552	2	0	0	112	7	5	560	1875
BLISS	3161	7	5	15805	224	4	2	448	879	5	3	2637	18890
L. WOOD	774	5	3	2322	3948	3	1	3948	263	7	5	1215	7485
SILL	999	6	4	3996	347	3	1	347	383	6	4	1212	5555
CCAD	1853	7	5	9265	46	3	1	46	1387	7	5	6935	15846
RRAD	60	6	4	240	7	2	0	0	680	7	5	3400	3640
SUBTOT	12567				28464				7728				
					PUDA LINES								
COL/WYO	453	7	5	2265	1855	2	0	0	130	5	3	390	2655
NEW MEX		7	5	0	931	3	1	931	120	5	3	360	1291
CARSON	2802	7	5	14010	754	2	0	0	2345	5	3	7035	21045
NEB/OAK	272	6	4	1088	1777	4	2	3555	75	6	4	300	4943
KANSAS	596	5	3	1788	2532	4	2	5064	168	6	4	648	7492
RILEY	3696	6	4	14784	2078	4	2	4156	1184	6	4	4736	23676
					RRAD LINES				TEAD LINES				
MNT/IDA	562	8	6	3372	623	6	4	2492	4944	3	1	4944	10808
UTAH/NV	284	8	6	1704	313	6	4	1252	1307	2	0	0	2956
ARIZONA	167	8	6	1002	232	6	4	928	1856	5	3	5568	7498
HUACHUC	355	8	6	2130	476	5	3	1428	3459	6	4	13836	17394
TEAD	367	8	6	2202	365	6	4	1460	71	2	0	0	3662
SUBTOT	9554				11936				15691				
									SHAD LINES				
CALIF	885	8	6	4830	1122	7	5	9610	6193	3	1	6193	16633
OREGON	319	8	6	1914	314	7	5	1570	2097	4	2	5794	9278
WASHNTN	259	8	6	1554	312	7	5	1560	2228	4	2	4456	7570
NEVADA				0				0	1306	2	0	0	0
IDHO	937	8	6	5622	1523	7	5	7615	14	3	1	14	13251
LEWIS	3011	8	6	18066	213	7	5	1065	1888	4	2	3760	22891
ORD	1610	8	6	9660	246	7	5	1230	2641	2	0	0	10890
PRSIDIO	157	8	6	942	174	7	5	870	2292	2	0	0	1812
SAAD	661	8	6	3966	486	7	5	2430	2069	2	0	0	5996
SUBTOT	7759				4310				21520	TOTAL DAYS			551189
TOTAL	117287				89310				59410	TOTAL LINES			266007
										AVERAGE DAYS			2.0718

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APPENDIX G

This appendix contains calculations for First Destination Transportation Cost under four scenarios:

Scenario #1 - A producer in Columbus, Ohio, ships three truckloads totalling 50,000 lbs: 25,000 lbs -->NCAD, 15,000 lbs -->RRAD and 10,000 lbs -->SHAD.

Scenario #2 - A producer in New York City, New York, ships three truckloads totalling 80,000 lbs: 40,000 lbs -->NCAD, 25,000 lbs -->RRAD, 15,000 lbs -->SHAD.

Scenario #3 - A producer in Los Angeles, California, ships three less-than truckloads totalling 10,000 lbs: 5,000 lbs -->NCAD, 3,000 lbs -->RRAD, and 2,000 lbs --> SHAD.

Scenario #4 - A producer in Detroit, Michigan, ships three less-than truckload shipments totalling 2,050 lbs: 1,000 lbs -->NCAD, 800 lbs -->RRAD, and 250 lbs -->SHAD.

Equations used to estimate costs are:

Truckload: $\text{Cost} = 120.57 + .009597(\text{WT}) + .7427(\text{MILES})$ for $\text{WT} \geq 10{,}000$ lbs

Less Truckload: $\text{Cost} = .433(\text{WT})^{.541}(\text{MILES})^{.328}$ for $\text{WT} < 10{,}000$ lbs

Scenario #1 - Most likely midwest producer.

Producer - Columbus, Ohio, ships truckload shipments

						% Change
ALT 1	NCAD:	25,000 lbs	@ 374 mi	--->	$ 638.27	
	RRAD:	15,000 lbs	@ 877 mi	--->	$ 915.86	
	SHAD:	10,000 lbs	@ 2410 mi	--->	$2006.42	
					$3560.54	0%
ALT 2	NCAD:	24,800 lbs	@ 374 mi	--->	$ 636.35	
	RRAD:	11,205 lbs	@ 877 mi	--->	$ 879.44	
	SHAD:	10,000 lbs	@ 2410 mi	--->	$2006.42	
	ANAD:	3,995 lbs	@ 594 mi	--->	$ 312.40	
					$3834.61	+7.70%
ALT 3	NCAD:	24,800 lbs	@ 374 mi	--->	$ 636.35	-
	RRAD:	9,720 lbs	@ 877 mi	--->	$ 865.19	
	SHAD:	9,440 lbs	@ 2410 mi	--->	$2001.04	
	ANAD:	3,995 lbs	@ 594 mi	--->	$ 312.40	
	TEAD:	2,045 lbs	@ 1738 mi	--->	$ 309.25	
					$4124.23	+15.83%
ALT 4	NCAD:	23,850 lbs	@ 374 mi	--->	$ 627.23	
	RRAD:	9,720 lbs	@ 877 mi	--->	$ 865.19	
	SHAD:	9,440 lbs	@ 2410 mi	--->	$2001.04	
	ANAD:	2,870 lbs	@ 594 mi	--->	$ 261.22	
	TEAD:	2,045 lbs	@ 1738 mi	--->	$ 309.25	
	LBDA:	2,075 lbs	@ 194 mi	--->	$ 151.84	
					$4215.77	+18.40%
ALT 5	NCAD:	23,850 lbs	@ 374 mi	--->	$ 627.23	
	RRAD:	9,720 lbs	@ 877 mi	--->	$ 865.19	
	SHAD:	9,440 lbs	@ 2410 mi	--->	$2001.04	
	ANAD:	2,870 lbs	@ 594 mi	--->	$ 261.22	
	TEAD:	560 lbs	@ 1738 mi	--->	$ 153.46	
	LBDA:	2,075 lbs	@ 194 mi	--->	$ 151.84	
	PUDA:	1,485 lbs	@ 1366 mi	--->	$ 240.34	
					$4300.32	+20.78%

ALT 6

NCAD:	22,250 lbs	@	374 mi	--->	$ 611.87
RRAD:	9,720 lbs	@	877 mi	--->	$ 865.19
SHAD:	9,440 lbs	@	2410 mi	--->	$2001.04
ANAD:	2,870 lbs	@	594 mi	--->	$ 261.22
TEAD:	560 lbs	@	1738 mi	--->	$ 153.46
LBDA:	2,075 lbs	@	194 mi	--->	$ 151.84
PUDA:	1,485 lbs	@	1366 mi	--->	$ 240.34
LEAD:	1,600 lbs	@	347 mi	--->	$ 159.64

$4444.60 +24.83%

Scenario 2 - East coast producer.

Producer - New York City shipping as

ALT 1	NCAD:	40,000 lbs	@ 168 mi	--->	$ 629.23
	RRAD:	25,000 lbs	@ 1376 mi	--->	$1382.44
	SHAD:	15,000 lbs	@ 2891 mi	--->	$2411.63
					$4423.31
ALT 2	NCAD:	39,680 lbs	@ 168 mi	--->	$ 626.16
	RRAD:	18,675 lbs	@ 1376 mi	--->	$1321.73
	SHAD:	15,000 lbs	@ 2891 mi	--->	$2411.63
	ANAD:	6,645 lbs	@ 938 mi	--->	$ 477.90
					$4837.42 +9.36%
ALT 3	NCAD:	39,680 lbs	@ 168 mi	--->	$ 626.16
	RRAD:	16,200 lbs	@ 1376 mi	--->	$1297.98
	SHAD:	14,160 lbs	@ 2891 mi	--->	$2403.57
	ANAD:	6,645 lbs	@ 930 mi	--->	$ 477.90
	TEAD:	3,315 lbs	@ 2225 mi	--->	$ 435.51
					$5241.12 +18.49%
ALT 4	NCAD:	38,160 lbs	@ 168 mi	--->	$ 611.57
	RRAD:	16,200 lbs	@ 1376 mi	--->	$1297.98
	SHAD:	14,160 lbs	@ 2891 mi	--->	$2403.57
	ANAD:	4,770 lbs	@ 938 mi	--->	$ 399.44
	TEAD:	3,315 lbs	@ 2225 mi	--->	$ 435.51
	LBDA:	3,395 lbs	@ 709 mi	--->	$ 303.17
					$5450.83 +23.23%
ALT 5	NCAD:	38,160 lbs	@ 168 mi	--->	$ 611.57
	RRAD:	16,200 lbs	@ 1376 mi	--->	$1297.98
	SHAD:	14,160 lbs	@ 2891 mi	--->	$2403.57
	ANAD:	4,770 lbs	@ 938 mi	--->	$ 399.44
	TEAD:	840 lbs	@ 2225 mi	--->	$ 207.23
	LBDA:	3,395 lbs	@ 709 mi	--->	$ 303.17
	PUDA:	2,475 lbs	@ 1828 mi	--->	$ 348.61
					$5571.16 +25.95%

ALT 6

NCAD:	35,600 lbs	@	168 mi	--->	$ 587.00
RRAD:	16,200 lbs	@	1376 mi	--->	$1297.98
SHAD:	14,160 lbs	@	2891 mi	--->	$2403.57
ANAD:	4,770 lbs	@	938 mi	--->	$ 399.45
TEAD:	840 lbs	@	2225 mi	--->	$ 207.23
LBDA:	3,395 lbs	@	709 mi	--->	$ 303.17
PUDA:	2,475 lbs	@	1828 mi	--->	$ 348.61
LEAD:	2,560 lbs	@	215 mi	--->	$ 175.94
					$5722.54

+29.37%

Scenario #3 - West coast producer.

Producer in Los Angeles - lightweight items to

ALT 1	NCAD:	5,000 lbs	@ 2627 mi	--->	$ 574.40
	RRAD:	3,000 lbs	@ 1547 mi	--->	$ 366.24
	SHAD:	2,000 lbs	@ 330 mi	--->	$ 177.18
					$1117.82
ALT 2	NCAD:	4,960 lbs	@ 2627 mi	--->	$ 571.91
	RRAD:	2,241 lbs	@ 1547 mi	--->	$ 312.24
	SHAD:	2,000 lbs	@ 330 mi	--->	$ 177.18
	ANAD:	799 lbs	@ 2085 mi	--->	$ 197.44
					$1258.77 +12.6%
ALT 3	NCAD:	4,960 lbs	@ 2627 mi	--->	$ 571.91
	RRAD:	1,944 lbs	@ 1547 mi	--->	$ 289.62
	SHAD:	1,888 lbs	@ 330 mi	--->	$ 171.74
	ANAD:	799 lbs	@ 2085 mi	--->	$ 177.18
	TEAD:	409 lbs	@ 695 mi	--->	$ 95.85
					$1306.30 +16.86%
ALT 4	NCAD:	4,770 lbs	@ 2627 mi	--->	$ 559.95
	RRAD:	1,944 lbs	@ 1547 mi	--->	$ 289.62
	SHAD:	1,888 lbs	@ 330 mi	--->	$ 171.74
	ANAD:	574 lbs	@ 2085 mi	--->	$ 165.09
	TEAD:	409 lbs	@ 695 mi	--->	$ 95.85
	LBDA:	415 lbs	@ 2159 mi	--->	$ 140.12
					$1422.37 +27.72%
ALT 5	NCAD:	4,770 lbs	@ 2627 mi	--->	$ 559.95
	RRAD:	1,944 lbs	@ 1547 mi	--->	$ 289.62
	SHAD:	1,888 lbs	@ 330 mi	--->	$ 171.74
	ANAD:	574 lbs	@ 2085 mi	--->	$ 165.09
	TEAD:	112 lbs	@ 695 mi	--->	$ 47.56
	LBDA:	415 lbs	@ 2159 mi	--->	$ 140.12
	PUDA:	297 lbs	@ 1021 mi	--->	$ 91.45
					$1465.53 +31.11%

ALT 6						
	NCAD:	4,450 lbs	@ 2627 mi	--->	$ 539.30	
	RRAD:	1,944 lbs	@ 1547 mi	--->	$ 289.62	
	SHAD:	1,888 lbs	@ 330 mi	--->	$ 171.74	
	ANAD:	574 lbs	@ 2085 mi	--->	$ 165.09	
	TEAD:	112 lbs	@ 695 mi	--->	$ 47.56	
	LBDA:	415 lbs	@ 2159 mi	--->	$ 140.12	
	PUDA:	297 lbs	@ 1021 mi	--->	$ 91.45	
	LEAD:	320 lbs	@ 2600 mi	--->	$ 129.39	
					$1574.27	+40.83%

Scenario #4 - Midwest producer of small lightweight parts in limited quantity.

Producer: Dearborn, Michigan, shipping less than truckload shipments.

ALT 1	NCAD:	1,000 lbs	@ 479 mi	--->	$ 137.61
	RRAD:	800 lbs	@ 1025 mi	--->	$ 156.52
	SHAD:	250 lbs	@ 2374 mi	--->	$ 109.88
					$ 404.01
ALT 2	NCAD:	992 lbs	@ 479 mi	--->	$ 137.01
	RRAD:	598 lbs	@ 1025 mi	--->	$ 133.72
	SHAD:	250 lbs	@ 2374 mi	--->	$ 109.88
	ANAD:	210 lbs	@ 748 mi	--->	$ 68.46
					$ 449.07 +11.1%
ALT 3	NCAD:	992 lbs	@ 479 mi	--->	$ 137.01
	RRAD:	518 lbs	@ 1025 mi	--->	$ 123.73
	SHAD:	236 lbs	@ 2374 mi	--->	$ 106.51
	ANAD:	210 lbs	@ 748 mi	--->	$ 68.46
	TEAD:	94 lbs	@ 1708 mi	--->	$ 49.96
					$ 485.67 +20.2%
ALT 4	NCAD:	954 lbs	@ 479 mi	--->	$ 134.14
	RRAD:	518 lbs	@ 1025 mi	--->	$ 123.73
	SHAD:	236 lbs	@ 2374 mi	--->	$ 106.51
	ANAD:	150 lbs	@ 748 mi	--->	$ 57.07
	TEAD:	94 lbs	@ 1708 mi	--->	$ 49.96
	LBDA:	98 lbs	@ 354 mi	--->	$ 35.47
					$ 506.88 +25.4%
ALT 5	NCAD:	954 lbs	@ 479 mi	--->	$ 134.14
	RRAD:	518 lbs	@ 1025 mi	--->	$ 123.73
	SHAD:	236 lbs	@ 2374 mi	--->	$ 106.51
	ANAD:	150 lbs	@ 748 mi	--->	$ 57.07
	TEAD:	15 lbs	@ 1708 mi	--->	$ 21.53
	LBDA:	98 lbs	@ 354 mi	--->	$ 35.47
	PUDA:	79 lbs	@ 1360 mi	--->	$ 49.08
					$ 527.53 +30.6%

ALT 6						
	NCAD:	890 lbs	@ 479 mi	--->	$ 129.20	
	RRAD:	518 lbs	@ 1025 mi	--->	$ 123.73	
	SHAD:	236 lbs	@ 2374 mi	--->	$ 106.51	
	ANAD:	150 lbs	@ 748 mi	--->	$ 57.07	
	TEAD:	15 lbs	@ 1708 mi	--->	$ 21.53	
	LBDA:	98 lbs	@ 354 mi	--->	$ 35.47	
	PUDA:	79 lbs	@ 1360 mi	--->	$ 49.08	
	LEAD:	64 lbs	@ 452 mi	--->	$ 30.52	
					$ 553.11	+36.9%

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APPENDIX H

ACRONYMS AND ABBREVIATIONS

Abs	Absolute
Adj	Adjusted
ADP	Automated Data Processing
AIF	Army Industrial Fund
AL	Alabama
ALMSA	Automated Logistics Management Systems Activity
ALT	Alternative
AMC	Army Materiel Command
AMCCOM	Armament, Munitions, and Chemical Command
AMDF	Army Master Data File
Ammo	Ammunition
AMS	Army Management Structure
ANAD	Anniston Army Depot
AOD	Area Oriented Depot
AR	Army Regulation
Arkans	Arkansas
ASF	Army Stock Fund
AV	Motor, Van, Closed
Avg	Average
AVCOM	Aviation Systems Command (officially AVSCOM)
AVSCOM	Aviation Systems Command
BPI	Blocks Per Inch
CA	California
Calif	California
Campbll	Fort Campbell
CCAD	Corpus Christi Army Depot
CCP	Container Consolidation Point
CCSS	Commodity Command Standard System
CCSSOI	Commodity Command Standard System Operating Instructions
CECOM	Communications-Electronics Command
CLIN	Contract Line Item Number
CO	Colorado
COL	Colorado
CONN	Connecticut
CONUS	Continental United States
CT	Connecticut
Cum	Cumulative
CY	Calendar Year

Dak	Dakota
DARCOM	US Army Materiel Development and Readiness Command (now AMC)
DESCOM	Depot Systems Command
Dest	Destination
Diff	Difference
DLA	Defense Logistics Agency
DLAM	Defense Logistics Agency Manual
DOD	Department of Defense
DODAAC	Department of Defense Activity Address Code
DODMDS	Department of Defense Materiel Distribution Study
DRD	Demand Return and Disposal File
DSS	Direct Support System
Eq	Equation
Est	Estimate(d)
FDT	First Destination Transportation
FINS	Freight Information System
FL	Florida
FOB	Free on Board
FORSCOM	US Army Forces Command
FSC	Federal Supply Classification
Ft	Fort
FWDA	Fort Wingate Depot Activity
FY	Fiscal Year
GA	Georgia
GBL	Government Bill of Lading
GBLOC	Government Bill of Lading Office Code
Gov	Government
HQ	Headquarters
HQMIS	Headquarters Management Information System
Hr	Hour
HUACHUC	Fort Hauchuca
K	Thousands
KENT	Kentucky
KS	Kansas
KY	Kentucky

LA	Louisiana
Lb	Pound
LBDA	Lexington-Bluegrass Depot Activity
LCA	Logistics Control Activity
LEAD	Letterkenny Army Depot
LIF	Logistics Intelligence File
Log	Logarithm
LOUISNA	Louisiana
LSAO	Logistics Systems Analysis Office
LSO	Logistics Studies Office
LSSA	Logistic Systems Support Activity
LT	Less Than
L.Wood	Fort Leonard Wood
M	Million
MA	Massachusetts
MASS	Massachusetts
MCCLELN	Fort McClellan
MD	Maryland
Meth	Methodology
MEX	Mexico
MI	Michigan
mi	Mile
MICH	Michigan
MICOM	Missile Command
MILSTEP	Military Supply Transportation Evaluation Procedure
MINN	Minnesota
Misc	Miscellaneous
MISS	Mississippi
MISSOUR	Missouri
MN	Minnesota
MNT	Montana
Mod	Modernization
MRO	Material Release Order
MS	Mississippi
MSC	Major Subordinate Command
MT	Montana
Mthd	Method(ology)
MTMC	Military Traffic Management Command
NC	North Carolina
NCAD	New Cumberland Army Depot
NCARO	North Carolina
NEB	Nebraska
New Yor	New York
NH	New Hampshire
NICP	National Inventory Control Point
NJ	New Jersey
NO	Number
NSN	National Stock Number
NSNMDR	National Stock Number Master Data Record

NY	New York
OASD(MRA&L)	Office of Assistant Secretary of Defense - Manpower Reserve Affairs and Logistics
OCONUS	Outside Continental United States
OH	Ohio
OKLA	Oklahoma
OMA	Operations Maintenance Army
Ops	Operations
Operns	Operations
Orig	Origin
OS	Other Supplies
OSD	Office of Secretary of Defense
OST	Order Ship Time
PA	Procurement Army
Param	Parameter
PE	Program Element
PENN	Pennsylvania
PIIN	Procurement Instrument Identification Number
POC	Point of Contact
PRSIDIO	Presidio of California
PUDA	Pueblo Army Depot Activity
Qtr	Quarter
Qty	Quantity
RI	Rhode Island
RRAD	Red River Army Depot
SAAD	Sacramento Army Depot
SAG	Study Advisory Group
SAM HOU	Fort Sam Houston
SC	South Carolina
S.CARO	South Carolina
SDT	Second Destination Transportation
SEAD	Seneca Army Depot
SHAD	Sharpe Army Depot
SHERIDN	Fort Sheridan
SIAD	Sierra Army Depot
SLAM	Simulation Language for Alternative Modelling
ST	Short Tons
Std	Standard
S-Tons	Short Tons
SVDA	Savannah Depot Activity

TACOM	Tank-Automotive Command
TEAD	Tooele Army Depot
TENN	Tennessee
T/Loads	Truckloads
tm	Trademark
TOAD	Tobyhanna Army Depot
Tot	Total
TRADOC	US Army Training and Doctrine Command
TROSCOM	Troop Support Command
TSARCOM	Troop Support and Aviation Readiness Command
TX	Texas
UMDA	Umatilla Depot Activity
UMMIPS	Uniform Materiel Movement and Issue Priority System
Unk	Unknown
UPS	United Parcel Service
USPS	United States Parcel Service
VA	Virginia
VER	Vermont
Vol	Volume
WA	Washington
WASHNTN	washington
WIDS	Wholesale Interservice Depot Support
WISC	Wisconsin
Wt	Weight
Wtd	Weighted
W.VA	West Virginia
WYO	Wyoming

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Wholesele Stock Positioning and Distribution Policies - Phase I

BRIEFING ____ REPORT _X_

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THE STUDY EFFORT was directed by Mr. Francis Toner, Directorate for Supply, Maintenance and Transportation, Supply Division, Depot Operations Branch.

ADDRESS FOR COMMENTS AND QUESTIONS. Director, AMSAA, ATTN: AMXSY-LLSO, Mr. Paul E. Grover.

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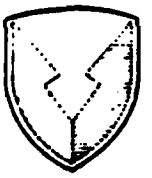

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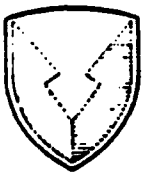

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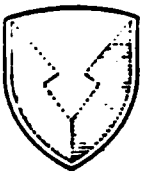

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3. Distribution non-effectiveness, measured as percent of "out-of-area" shipments is high, resulting in a higher than optimal cost of $1.5M per year in second destination transportation charges and an average transit time increase of one-half day per line shipped. Further study is recommended to investigate strategies to improve distribution effectiveness.

THE MAIN ASSUMPTIONS on which the work reported herein rests are as follows:

1. OCONUS distribution continues to flow through the existing container consolidation points.

2. Modes of transportation are primarily driven by volume of customer demand. Transportation modes are independent of the number and location of stock positioning points.

3. Distribution effectiveness is independent of the number and location of stock positioning points.

THE PRINCIPAL LIMITATIONS of this work which may affect the findings are as follows:

1. Study is based on data collected during the CY 1984 time frame.

2. Study is based on Army stock, positioned in Army depots serving Army demand. Extension of study results to distribution networks outside the Army is limited.

THE SCOPE OF THE STUDY was limited to the storage of Class IX supplies at up to eight Army depots.

THE STUDY OBJECTIVE was to determine the impact of expanded stock positioning at the depot level on the cost and effectiveness of the Army wholesale logistics system.

THE BASIC APPROACH. The CONUS distribution network is varied from the current configuration of three Area Oriented Depots to a maximum of eight stock positioning points. Through the use of parametric cost models developed from CY 84 data and questionnaire responses from functional experts, the impact on nonrecurring start up costs, first and second destination transportation cost, supply depot operating cost and recurring costs above depot are evaluated for each alternative distribution network. The effect on response time to requisitions is evaluated by the use of models developed by previous researchers, supplemented by a heuristic model developed for a special case.

THE REASONS FOR PERFORMING THE STUDY. The issue of optimal stock positioning within the Army and DOD is a recurring area of disagreement between individuals and organizations. Since the Army has not studied its wholesale stock positioning policy since the early 1970s and because subsequent studies by others have been critical of the Army's policy, a re-evaluation of the wholesale physical distribution system is needed. This new evaluation should address all important concerns raised by recent studies and their rebuttals.

STUDY IMPACT STATEMENT. This phase of the study validates the Army general distribution concept while pointing out some inefficiencies that may be reduced upon further study.

THE STUDY SPONSOR was the US Army Materiel Command, Directorate for Supply, Maintenance and Transportation.

THE STUDY EFFORT was directed by Mr. Francis Toner, Directorate for Supply, Maintenance and Transportation, Supply Division, Depot Operations Branch.

ADDRESS FOR COMMENTS AND QUESTIONS. Director, AMSAA, ATTN: AMXSY-LLSO, Mr. Paul E. Grover.

DTIC/DLSIE ACCESSION NUMBER OF FINAL REPORT. DA 306121.

GIST

TITLE
Wholesele Stock Positioning and Distribution Policies - Phase I

BRIEFING ____ REPORT X

THE PRINCIPAL FINDINGS and recommendations of the work reported herein are as follows:

1. Increasing the number of stock positioning locations within the Army Materiel command distribution network will:

a. Significantly increase supply depot operating costs, first destination transportation cost and result in a significant initial non-recurring cost.

b. Slightly reduce second destination transportation cost and transportation time.

2. Since the total supply cost increases as a result of increased stock positioning, the continuation of the existing three-depot structure is recommended.

3. Distribution non-effectiveness, measured as percent of "out-of-area" shipments is high, resulting in a higher than optimal cost of $1.5M per year in second destination transportation charges and an average transit time increase of one-half day per line shipped. Further study is recommended to investigate strategies to improve distribution effectiveness.

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