Audit Report

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DOD PILOT PROGRAMS FOR SHIPMENT OF PERSONAL PROPERTY - DOD BASELINE COST METHODOLOGY

Report No. D-2001-031 December 29, 2000

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Acronyms

CONUS	Continental United States
DFAS	Defense Finance and Accounting Service
DTRS	Defense Transportation Payment System
MTMC	Military Traffic Management Command
PPPO	Personal Property Processing Office
PPSO	Personal Property Shipping Office
TOPS	Transportation Operational Personal Property Standard System
USTRANSCOM	U.S. Transportation Command
WHIST	Worldwide Household Goods Information System for Transportation

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December 29, 2000

MEMORANDUM FOR COMMANDER IN CHIEF, U.S. TRANSPORTATION COMMAND

SUBJECT: Audit Report on DoD Pilot Programs for Shipment of Personal Property - DoD Baseline Cost Methodology (Report No. D-2001-031)

We are providing this report for review and comment. We performed this audit in response to a request from the U.S. Transportation Command.

We considered management comments on a draft of this report in preparing the final report. DoD Directive 7650.3 requires that all recommendations and potential monetary benefits be resolved promptly. The U.S. Transportation Command comments on the draft report were partially responsive. We request the U.S. Transportation Command provide comments on the final report by January 31, 2001.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Mr. Robert Murrell at (703) 604-9180 (DSN 664-9180) (rmurrell@dodig.osd.mil) or Mr. Albert Putnam at (703) 604-8779 (DSN 664-8779) (aputnam@dodig.osd.mil). See Appendix B for the report distribution. The audit team members are listed inside the back cover.

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Report No. D-2001-031 **December 29, 2000**
(Project No. D1999LH-0038.001)
(formerly Project No. 9LH-5023.01)

DoD Pilot Programs for Shipment of Personal Property - DoD Baseline Cost Methodology

Executive Summary

Introduction. This audit was requested by the U.S. Transportation Command (USTRANSCOM). In response to Management Reform Memorandum No. 6, "Streamlining and Simplifying Member-Arranged Movement of Household Goods," June 4, 1997, DoD developed several pilot programs. The DoD personal property program is a $1.2 billion program that the Military Traffic Management Command (MTMC) manages for the Military Services, DoD agencies, and the Coast Guard. MTMC is the single largest customer of the household goods moving industry, arranging approximately 650,000 shipments annually. This report is the last in a series of reports on the DoD pilot programs.

Objectives. The overall audit objectives were to evaluate the methodology and processes used by MTMC to determine the baseline costs for the current DoD Personal Property Program (DoD Baseline Program); the methodology and processes used to collect, evaluate, and report transportation and cost data for the MTMC Reengineering DoD Personal Property Program Pilot (the MTMC Program Pilot); and the methodology used by the USTRANSCOM to compare and evaluate the DoD Baseline Program, the MTMC Program Pilot, the DoD Full Service Moving Project, and the Navy Service Member-Arranged Movement Pilot Program. This report discusses the first objective as it relates to the methodology and processes used to determine the direct and indirect baseline costs for the current DoD Baseline Program; and the remaining portion of the second objective as it relates to the methodology and process used to collect, evaluate, and report indirect transportation and cost data for the MTMC Program Pilot. The initial portion of the second objective as it relates to the methodology and process used to collect, evaluate, and report direct transportation and cost data for the MTMC Program Pilot was discussed in Inspector General, DoD, Report No. D-2000-147, June 12, 2000. The third objective, which relates to the overall USTRANSCOM evaluation plan, is currently under review by the General Accounting Office.

Results. Attempting to compensate for the lack of historical cost data, MTMC made commendable efforts to create the framework for rigorous and credible cost comparisons between alternative household goods transportation approaches. However, the methodology and processes used to determine direct costs under the DoD Baseline Program were flawed. As a result, the direct baseline costs developed using the current MTMC methodology and processes would be of very limited value in cost comparisons with pilot programs (finding A).

The methodology and processes used by MTMC to determine indirect costs under the DoD Baseline Program also were flawed. As a result, the indirect baseline costs developed using the current MTMC methodology and processes are not reliable and, therefore, do not provide a sound basis for cost comparison (finding B).

Summary of Recommendations. We recommend that the Commander in Chief, USTRANSCOM, in coordination with the Assistant Deputy Under Secretary of Defense for Transportation Policy, develop a methodology to constructively calculate direct baseline costs for real-time shipments made under the respective pilot programs, and develop a methodology to collect indirect baseline cost information that is regional and concurrent with the organizations involved under the pilot programs. Alternately, we recommend termination of the baseline comparison to the pilot programs, and incorporated elements currently deemed successful under the pilot programs into the DoD Baseline Program to provide interim relief to the Service members and their families.

Management Comments. USTRANSCOM nonconcurred with the recommendation to develop a methodology to constructively calculate direct baseline costs for real-time shipments moved under the pilot programs using DoD Baseline Program rates. USTRANSCOM believes that its direct cost methodology was justified, given the realities and data limitations of the current personal property system and the added cost and time to develop and implement an alternative method. USTRANSCOM also nonconcurred with the recommendation to develop a methodology to collect indirect baseline cost information that is regional and concurrent with the organizations involved in the pilot programs. USTRANSCOM stated that its indirect cost methodology was reasonable and represents only 10 percent of the total program costs. USTRANSCOM recommended that the audit report be modified to accept its methodologies and to reflect the final methodologies used. A discussion of management comments is in the findings section of the report and complete text is in the Management Comments section.

Audit Response. USTRANSCOM comments on using a constructed cost methodology and regionalized indirect baseline costs were partially responsive. The Office of Inspector General, DoD, cannot support the USTRANSCOM methodology and approach because the relationships between the results from the available partial data and those from the entire affected populations are unknown. However, as a result of additional discussions with management, we added an alternative recommendation to provide another option for consideration. We request that the USTRANSCOM reconsider its position and provide comments to the final report by January 31, 2001.

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Background

This audit was requested by the U.S. Transportation Command (USTRANSCOM). This is the last in a series of reports involving DoD transportation management initiatives in regard to Management Reform Memorandum No. 6, "Streamlining and Simplifying Member-Arranged Movement of Household Goods," June 4, 1997.

DoD currently uses commercial transportation contractors (carriers) to provide movement and storage services of personal property for the Military Services, DoD agencies, and the Coast Guard. Frequently, the process results in unsatisfactory service for military members and their families, causing increased levels of stress, frustration, and dissatisfaction with military life. In June 1994, USTRANSCOM, recognizing the poor quality of personal property movement and storage services that military members receive, tasked the Military Traffic Management Command (MTMC) to reengineer the DoD personal property program. In the summer of 1996, a MTMC survey of 3,000 moves revealed that more than 60 percent of shipments suffered loss or damage.

Military Traffic Management Command. MTMC is a jointly staffed Army command and a component of USTRANSCOM. MTMC is the DoD surface traffic manager and the common-user single port manager for water terminals. MTMC accomplishes its mission by providing global traffic management, including the movement of personal property shipments for DoD-sponsored and Coast Guard personnel.

DoD Personal Property Program. DoD expends $1.2 billion annually on its personal property program. MTMC manages the program for the Military Services, DoD agencies, and the Coast Guard. MTMC is the single largest customer of the household goods moving industry, arranging for approximately 650,000 shipments annually. The policies that MTMC implements govern the personal property movement and storage services for DoD and Coast Guard personnel and their families, impacting their quality of life.

Over the years, the DoD personal property program has undergone a number of isolated changes that have created a complex, rate-driven system. DoD uses more than 1,200 carriers to provide movement and storage services. Managing the use of so many carriers requires processes to qualify carriers, solicit rates, distribute traffic, evaluate carrier performance, pay bills, and settle claims.

Management Reform Memorandum No. 6. On June 4, 1997, the Under Secretary of Defense (Comptroller) issued Management Reform Memorandum No. 6, "Streamlining and Simplifying Member-Arranged Movement of Household Goods." The Under Secretary asked the Commander in Chief, USTRANSCOM, in coordination with the Assistant Deputy Under Secretary of Defense (Transportation Policy), to develop and implement a plan that would streamline and simplify policies and procedures for managing member-arranged movement of household goods. The plan was to include business-process changes that could be implemented immediately and to identify any long-term changes that may require legislation. Subsequent to that

direction, DoD embarked on several pilot programs to test different approaches for DoD personal property programs. A description of each pilot program follows:

Military Traffic Management Command Program Pilot. On January 11, 1999, MTMC began a pilot program to test a new acquisition process and operational concept for procurement of personal property transportation services that incorporate commercial business practices and standards of service. Like commercial companies, MTMC awarded longer term contracts for the pilot program to 43 carriers that proposed the best service and not the lowest cost. MTMC monitored carrier performance through customer satisfaction surveys. The contracts were awarded for a 1-year base period, with two 1-year option periods. Services provided under the MTMC Reengineering DoD Personal Property Program Pilot (the MTMC Program Pilot) that military members and their families do not enjoy under the current DoD personal property program include better liability coverage, toll free telephone numbers for resolving customer problems and tracking shipments, and direct contact between carriers and military members for arranging shipments and resolving claims.

The MTMC Program Pilot consists of 50 percent of the eligible traffic moving from Florida, North Carolina, and South Carolina destined to 13 continental United States (CONUS) regions and 5 European regions. The MTMC program pilot was to test approximately 18,500 shipments over a 12-month period from January 11, 1999, through January 10, 2000. However, actual shipments were about 24 percent of the volume expected. The reasons for the low volume was attributable to: not enough eligible members within the criteria of the MTMC program pilot, and the lack of support by the personal property shipping offices (PPSO) for the pilot program. The MTMC Program Pilot is continuing under the first 1-year option period.

DoD Full Service Moving Project. The Assistant Deputy Under Secretary of Defense (Transportation Policy) is leading the DoD Full Service Moving Project and in September 2000 awarded a contract for implementation of the pilot in January 2001. The pilot is expected to handle about 45,000 shipments made from the National Capital Region, Georgia, and North Dakota to locations within CONUS. To achieve economies of scale through greater volume, the pilot will serve all of the Military Services. In this pilot, a joint service team purchases move-management services through a full-service relocation package. The package provides point-to-point move management to military personnel, single point of contact, elimination of the current in-house processes, and optional relocation services such as finding or selling a home.

Service Member-Arranged Movement Pilot. The Service Member-Arranged Movement Pilot is a Navy-sponsored voluntary pilot program. The pilot began in January 1998 and features payment for services by credit card, involves Service members in the carrier-selection process, and is limited to shipments over 3,000 pounds. Approximately 200 shipments are handled annually through this pilot. This pilot will evaluate moves made from the Jacksonville, Florida; New London, Connecticut; Norfolk, Virginia;

Pensacola, Florida; Puget Sound, Washington; and San Diego, California, areas. The pilot offers alternatives to the Service member and allows direct involvement in the planning and execution phase of the move by the Service member.

Pilot Program Evaluation. USTRANSCOM is in the process of developing a comprehensive plan to evaluate the pilot programs. As part of the evaluation, USTRANSCOM will compare direct and indirect costs of the baseline and pilot programs. USTRANSCOM directed MTMC to develop a direct and indirect baseline cost for the current DoD personal property programs (DoD Baseline Program).

Objectives

The overall audit objectives were to evaluate the methodology and processes used by MTMC to determine the baseline costs for the current DoD Baseline Program; the methodology and processes used to collect, evaluate, and report transportation and cost data for the MTMC Program Pilot; and the methodology used by USTRANSCOM to compare and evaluate the DoD Baseline Program, the MTMC Program Pilot, the DoD Full Service Moving Project, and the Navy Service Member-Arranged Movement Pilot Program. This report discusses the first objective as it relates to the methodology and processes used to determine the direct and indirect baseline costs for the DoD Baseline Program; and the remaining portion of the second objective as it relates to the methodology and process used to collect, evaluate, and report indirect transportation and cost data for the MTMC Program Pilot. The initial portion of the second objective as it relates to the methodology and process used to collect, evaluate, and report direct transportation and cost data for the MTMC Program Pilot was discussed in Inspector General, DoD, Report No. D-2000-147, June 12, 2000. The third objective, which relates to the overall USTRANSCOM evaluation plan, is currently under review by the General Accounting Office. See Appendix A for a discussion of the audit scope and methodology and for prior coverage.

A. Methodology Used to Develop Direct Baseline Costs Under the DoD Baseline Program

The methodology and processes used by MTMC to determine direct costs under the DoD Baseline Program were flawed. This occurred because MTMC used incomplete, inconsistent, and outdated direct cost information. As a result, the direct baseline costs developed using the current MTMC methodology and processes are not reliable and, therefore, would be of very limited value in making cost comparisons with pilot programs.

Direct Cost Data Sources

Direct costs are the actual costs for movement of personal property shipments and include transportation, storage, and accessorial service costs. MTMC developed direct cost data by using the Activity Based Costing study, "Business Process Reengineering Support to MTMC for Administering the Personal Property Programs," December 28, 1995. Under the DoD Baseline Program, cost information was also extracted from several databases.

Shipment data for movement of personal property shipments were extracted from the Transportation Operational Personal Property Standard System (TOPS) and the TOPS History [formerly named the Worldwide Household Goods Information System for Transportation (WHIST)]. Financial information regarding payments for personal property shipments was extracted from the Defense Transportation Payment System (DTRS) and matched with corresponding shipment information in the TOPS and TOPS History.

Transportation Operational Personal Property Standard System. The TOPS is an automated transportation system with a distributed database architecture. Each PPSO has its own database not accessible by other PPSOs. The TOPS Program Management Office has dial-in access to each PPSO database to provide software and hardware problem assistance, data reference table updates, and other activities as necessary. Shipment data is exchanged between PPSOs and the TOPS History through a switcher at scheduled times after duty hours. Data may take 24 hours or more to move from one PPSO to another and the TOPS History.

Transportation Operational Personal Property Standard System History. The TOPS History is the centralized data system that links TOPS and DTRS. It is used to collect and store personal property shipment information and then shares that information between TOPS and DTRS. TOPS History also maintains carrier rate, shipment, and payment information.

Defense Transportation Payment System. The DTRS was developed to receive and process invoices from commercial carriers for the movement of personal property and freight. DTRS electronically receives shipment information such as government bills of lading data, issue dates, pickup and

delivery information, consignee, and origin and destination data from the TOPS History. This information is used to match corresponding shipment information provided by the commercial carriers from an electronic data interchange invoice to ensure payment was authorized. The actual payment history is then electronically submitted to the TOPS History.

Initial MTMC Baseline Direct Cost Methodology

The methodology and processes initially used by MTMC to determine direct costs under the DoD Baseline Program were flawed because MTMC used incomplete, inconsistent, and outdated direct cost information.

MTMC initially relied on cost summaries compiled from actual FY 1994 data collected for the Activity Based Costing study completed in December 1995. The rationale for using the study was to avoid duplication of effort and eliminate the need to collect new data. However, the raw data to support those cost summaries were incomplete; therefore, the conclusions of the study could not be adequately evaluated. The FY 1994 direct costs for transportation, storage, and accessorial service charges were about $1.2 billion. However, the number of shipments made in FY 1994 was not available. Therefore, the overall average direct cost per shipment could not be determined using solely FY 1994 shipment and costs data.

Because FY 1994 data was incomplete, the initial MTMC methodology included inflating the FY 1994 direct cost data using Census Bureau inflation factors to FY 1998 dollars and then using actual FY 1998 shipment numbers to determine the average direct cost per shipment. We concluded that the use of FY 1994 direct cost data with FY 1998 shipment volume data to calculate an average baseline direct cost was unacceptable because of the inconsistent relationship among the data components and because the data was outdated. In addition, MTMC did not consider the effect of using nonconcurrent global baseline information to compare with regional pilot program information, and the effect of shipment type on the overall average cost.

Revised MTMC Baseline Direct Cost Methodology

The revised methodology and processes used by MTMC to determine direct costs under the DoD Baseline Program were also flawed because MTMC used incomplete, inconsistent and outdated data.

To address concerns involving the use of the FY 1994 data, MTMC revised its initial baseline direct cost methodology. MTMC decided to stratify information by shipment type and extract more recent shipment and direct cost information from the TOPS, TOPS History, and DTRS databases.

Stratification by Shipment Type. The MTMC revised methodology proposed that direct costs be stratified by shipment type to provide a more accurate means of comparing the baseline costs with the various pilot program costs. An

average cost for each shipment type would be computed for each Military Service and the Coast Guard. The types that would be used included CONUS interstate household goods, intrastate household goods, unaccompanied baggage, mobile home, boat, and do-it-yourself-move shipments, international air household goods, air unaccompanied baggage, ocean household goods, and ocean unaccompanied baggage shipments. The baseline average cost for each shipment type would be compared with the corresponding shipment types of the pilot programs. We concluded that this was a logical approach, provided representative data were available to calculate baseline averages for each shipment type.

Extraction of More Recent Shipment and Direct Cost Information. MTMC requested the direct cost data from the Defense Finance and Accounting Service (DFAS) and the Military Services for FY 1995, FY 1996, and FY 1997. However, none of the Military Services could provide data for FY 1995; the Army, the Air Force, and Coast Guard could not provide data for FY 1996; the Marine Corps could not provide any data. Based on the partial data obtained, MTMC calculated the average cost per shipment by averaging information for FY 1995, FY 1996, and FY 1997. However, we determined that this average cost would not be useful to compare with other pilot programs because the shipment type mix likely is different among the Military Services and Coast Guard and because the data MTMC used to develop direct costs were incomplete and inconsistent.

Transportation Operational Personal Property Standard System History Database. Through contacts with DFAS, TOPS, and the TOPS History program office, MTMC determined more accurate information was available through the TOPS History database. The TOPS History database, however, was missing approximately one-third of the total DoD shipment data. The TOPS History database also did not have data on shipments that did not originate at TOPS-fielded sites. Further, the Navy stopped transmitting shipment data to the TOPS History database during the last quarter of FY 1998 to address system issues. Also, most of the Coast Guard shipment data were not included in the TOPS History database. Regardless, MTMC believed that an adequate amount of shipment data was available in the TOPS History database for most of the shipment types to provide cost averages with a high degree of statistical confidence. However, our position is that quantity of shipment data alone does not ensure its representativeness. The relationships for which data were available could not be established.

Several issues needed to be resolved. First, the TOPS History database records did not include all cost components for some shipment types, such as packaging and crating cost for shipments moved under the direct procurement method. Second, a sufficient amount of shipment data did not exist in the TOPS History database to determine the cost to move a mobile home, boat, or conduct a do-it-yourself move. Third, a sufficient amount of Coast Guard shipment data was not present in the TOPS History database to determine average shipment costs. We concluded that the data from this approach were incomplete, inconsistent, and outdated.

In a meeting on March 16, 2000, MTMC stated to us that the TOPS History database was the only practical source of information that could be used to provide estimates of transportation costs using a stratified statistical sampling

methodology. MTMC believed that the TOPS History database could be used to develop costs for the current DoD Baseline Program.

MTMC extracted 453,759 transportation shipment records from the TOPS History database for FY 1998. MTMC then contacted DFAS-Indianapolis to obtain transportation payment records that could be used to compare to the records obtained from the TOPS History database. DFAS-Indianapolis provided approximately 650,000 transportation payment records for FY 1998. MTMC revealed that there was a discrepancy between the shipment and payment records because the payment records obtained from DFAS-Indianapolis represented payments made in FY 1998, but not necessarily shipments made in FY 1998. In a subsequent meeting, MTMC stated that the TOPS History database contained 479,789 records for FY 1998, while DFAS made payments on 612,616 records for FY 1998.

Upon examining the DFAS extract, MTMC reduced the 612,616 DFAS records to 479,789 by matching the DFAS records to the TOPS History. The 479,789 matching records were further reduced to 240,869 records by deleting 151,559 records with missing information; 2,151 records with duplicate government bills of lading information; and 85,210 records that were out-of-scope of the pilot program comparison. Regardless, the figures are not comparable because DFAS could not specifically identify the shipments made during FY 1998.

Determining Total Shipments and Costs. In a meeting on April 3, 2000, MTMC identified to us additional discrepancies in the extracted data. MTMC stated that there was a substantial difference between the FY 1997 and FY 1998 payment records from DFAS-Indianapolis. The total FY 1997 records were 385,870 with a cost of about $948 million. The total FY 1998 records were 514,232 with a cost of about $1 billion. DFAS-Indianapolis officials stated that the difference in records was caused by a backlog in payments for shipments and suggested MTMC average the records for FY 1997 and FY 1998 to provide a more accurate estimate for total shipments for FY 1998. MTMC averaged the total shipments for FY 1997 and FY 1998 and calculated average shipments for FY 1998 to be 450,051 with a cost of about $998 million. While 450,051 is the computed average of 385,870 and 514,232, $998 million is not the computed average of $948 million and about $1 billion.

MTMC stated that the Marine Corps provided a cost figure for FY 1998 but was unable to provide the number of shipments for FY 1998. The Marine Corps could not separate the supplemental government bills of lading from the original government bills of lading. MTMC calculated the total shipments for the Marine Corps in FY 1998 to be 37,887 by dividing the cost per shipment from other Military Services ($2,313) into the Marine Corps total cost of $88 million for FY 1998.

MTMC then calculated the total number of shipments and cost for FY 1998. The final computations by MTMC included taking the average shipments (450,051) for FY 1998 as calculated by MTMC; adding the total shipments (114,127+10,551) from DFAS-Norfolk shipments paid by the DFAS location and the Coast Guard for FY 1998; and adding the estimated Marine Corps shipments (37,887) for FY 1998. As a result, MTMC calculated the total number of shipments for FY 1998 to be 612,616 and the total cost to be about

$1.4 billion. MTMC stated that it was going to calculate the average direct cost by dividing the $1.4 billion by 612,616. MTMC then planned to calculate the total direct cost by adding extra charges not in the TOPS History such as, the Air Force Mobility Command cost, Military Sealift Command compact charges, direct procurement method packing and crating charges, Do-It-Yourself Move shipment costs, and nontemporary storage charges to the $1.4 billion. Then, the baseline average cost would be calculated by shipment type and service.

We do not believe this approach is reasonable. The information on shipment volume and types, and direct cost components was incomplete, inconsistent, and outdated and not identifiable to a specific period of time. Therefore, the relationship between direct costs, shipment types, and Military Services are likely different and not representative to compare with the pilot programs.

Summary

In summary, MTMC made commendable efforts to create the framework for rigorous and credible cost comparisons between alternative household goods transportation approaches. However, we concluded the methodology used by MTMC to determine the direct baseline costs was flawed. Information and processes used to calculate the average direct costs were incomplete, inconsistent, and outdated. As a result, the direct baseline costs developed by MTMC are not reliable and, therefore, of very limited value in making cost comparisons with pilot programs.

To improve the methodology, we believe the baseline direct costs should be constructively calculated using DoD Baseline Program rates. The actual cost of each shipment under each pilot program should be compared to a baseline cost calculated as though the shipment had moved under the DoD Baseline Program. This approach would require application of various modeling and benchmarking techniques and would result in additional costs and delays, but would be a more reliable and defendable approach to support a comparison with the pilot programs. However, a more logical and productive option would be for management to terminate the comparison of the baseline to pilot programs, propose program changes now on a nonanalytical, executive-decision basis by incorporating elements currently deemed successful under the pilot programs into the DoD Baseline Program to provide interim relief to Service members and their families, while implementing the pilot programs. Such proposals would be based on the subjective accumulation of information provided by program area experts, indicators from available partial data, and other sources deemed appropriate.

Management Comments on the Finding and Audit Response

U.S. Transportation Command Comments. USTRANSCOM did not concur with the finding. USTRANSCOM stated that the MTMC methodology used actual historic shipments to develop baseline average current program costs by shipment type and by Service and provided in its management comments, starting on page 22, a detailed description of that methodology.

USTRANSCOM stated that it developed direct costs from a database with some missing records but actions were taken to account for missing information, eliminate unreliable records, and assess comprehensiveness of the database. USTRANSCOM also stated that the results were validated by Service disbursement and budget record comparison and reviewed and supported by the Services. USTRANSCOM concluded that its direct costs methodologies were justified given the realities and data limitations of the current personal property systems and the added cost and time to develop and implement an alternative method.

Audit Response. USTRANSCOM comments are not fully responsive because no new information was included to justify a change to our audit position. As discussed under the heading "Revised MTMC Baseline Direct Cost Methodology" beginning on page 5 of this report, we reviewed the revised MTMC baseline direct methodology and processes used to determine direct costs under the DoD Baseline Program and concluded that MTMC used incomplete, inconsistent, and outdated direct cost information. Management comments and additional information obtained during subsequent discussions with management representatives did not provide additional data that would justify a change in our audit position. We request that USTRANCOM provide comments on the final report.

Recommendations, Management Comments, and Audit Response

Revised Recommendation. As a result of management comments and additional discussions, we added Recommendation A.2. to provide another option for consideration.

A. We recommend that the Commander in Chief, U.S. Transportation Command, in coordination with the Assistant Deputy Under Secretary of Defense (Transportation Policy):

1. Develop a methodology to constructively calculate direct baseline costs for real-time shipments moved under the pilot programs using DoD Baseline Program rates, or

2. Terminate the comparison of the baseline to pilot programs, incorporate elements currently deemed successful under the pilot programs into the DoD Baseline Program to provide interim relief to Service members and their families, and gradually implement the pilot programs. Further, collect accurate, complete, consistent, and current transportation and cost data from reliable data systems to be used to further evaluate the efficiency and effectiveness of newly implemented programs.

USTRANSCOM Comments. USTRANSCOM did not concur with the recommendation to develop a methodology to constructively calculate direct baseline costs for real-time shipments moved under the pilot programs using DoD Baseline Program rates. USTRANSCOM stated that constructing costs from a shipment that moved under the pilot program as if it moved under the

current program introduces numerous assumptions and variability. USTRANSCOM asserted examples of these assumptions as carrier and shipment choice; costing of domestic packing and unpacking; nonexistent rates for mobile homes, boats, and other one-time-only shipments; and claims payment. USTRANSCOM stated that the constructive alternative approach was not detailed or demonstrated to be feasible and that it has been unable to find a viable alternative to its current approach.

Audit Response. USTRANSCOM comments were not fully responsive because no new information was included to justify a change in our audit position. As explained under the heading "Revised MTMC Baseline Direct Cost Methodology" beginning on page 5 of this report, the revised MTMC methodology and processes used to develop the direct baseline costs were not reliable and are unacceptable to support comparisons with the pilot programs.

We agree with some of the analyses performed by MTMC on the revised direct cost data. Specifically, we support their work in locating and removing unusable records from the TOPS History. The MTMC procedures for identifying records with missing or obviously incorrect information in critical fields and for identifying records out of scope for this analysis are adequate. However, we cannot support the MTMC attempts to generalize results from the partial available data to the entire population of Service member moves that would be affected by program changes. In particular, treating the partial data as though it constituted a random sample and constructing statistical confidence intervals based on that partial data is invalid and produces meaningless results.

Our recommendation to constructively calculate direct baseline costs is a valid quantitative approach that would require application of various modeling and benchmarking techniques. Our recommended approach would result in additional costs and delays but would be a more reliable and defendable approach to support a comparison with the pilot programs. If that alternative is not acceptable to management, we believe there are several available options:

- Management proceeds with the pilot program comparison based on partial data as in its current baseline methodology. However, we cannot support this approach because the relationships between the results from the available data and those from the entire affected population are unknown.

- Management develops a new methodology to collect accurate, complete, consistent, current, and representative direct cost data for a period of time and proceeds with the analysis of the new baseline data in comparison with the pilot programs. The approach would require resources and time to set up adequate data collection procedures and systems and as Recommendation A.1. would postpone the analysis until the end of the data collection period.

- Management terminates the comparison of the baseline to the pilot programs, and proposes program changes now on a nonanalytic, executive-decision basis as discussed in Recommendation A.2. Such proposals would be based on the subjective accumulation of information provided by program area experts, indicators from the

available partial data, and other sources deemed appropriate. The results of the accumulation would be qualitative rather than quantitative.

We believe the most logical and productive option would be the latter. Management could incorporate elements deemed successful from the pilot programs into the DoD Baseline Program. Although temporary, the option would provide interim relief to the Service members and their families while gradual implementation of the pilot programs proceed. Implementation of the pilot programs on a gradual basis would allow further evaluation of the effectiveness and efficiency of the new programs, and avoid further unnecessary costs to develop a baseline. The MTMC Program Pilot has an established methodology and data systems online to capture the necessary transportation and cost data to further evaluate the program. The Full Service Move Program methodology and data systems are under development and near implementation. We request that the Commander in Chief, U.S. Transportation Command, in coordination with the Assistant Deputy Under Secretary of Defense (Transportation Policy) consider this position and provide comments on the final report.

B. Methodology Used to Develop Indirect Baseline Costs Under the DoD Baseline Program

The methodology and processes used by MTMC to determine indirect costs under the DoD Baseline Program were flawed. This occurred because MTMC used incomplete, inconsistent, and outdated indirect cost information. As a result, the indirect baseline costs developed using the current MTMC methodology and processes are not reliable and, therefore, unacceptable to support comparison with pilot programs.

Indirect Cost Data Source

Indirect cost is the management cost of the personal property program. Indirect costs include the cost associated with military, civilian, and contracted personnel, facilities, equipment, consumables, and miscellaneous functions at Headquarters MTMC, the PPSOs, Personal Property Processing Offices[1] (PPPOs), of the Services and DFAS resource costs. MTMC developed indirect cost data by using the Activity Based Costing study, "Business Process Reengineering Support to MTMC for Administering the Personal Property Program," December 28, 1995. The FY 1994 indirect costs were about $351 million.

MTMC Indirect Baseline Cost Methodology

The methodology and processes initially used by MTMC to determine indirect costs under the DoD Baseline Program were flawed because MTMC used incomplete, inconsistent, and outdated indirect cost information.

Activity Based Costing Study. MTMC developed the indirect baseline cost using the 1995 Activity Based Costing study. In 1995, MTMC began the study of indirect costs by surveying a representative sample of small, medium, large, and extra large PPSOs and PPPOs from each Military Service. MTMC also surveyed MTMC headquarters, other Military Services headquarters, claim offices, and finance offices. MTMC attempted to capture costs associated with the military, civilian, and contracted personnel, facilities, equipment, consumables, and miscellaneous functions.

The initial MTMC methodology included inflating the FY 1994 indirect cost data using Census Bureau inflation factors to FY 1998 dollars. MTMC also added additional costs to the FY 1994 amounts, which were not included in the

[1]A personal property processing office is an activity that performs counseling and prepares the application for shipment and/or storage of a member's personal property. The application is then forwarded to a PPSO for booking, and shipment.

costing study. The costs not included in the initial Activity Base Costing study were DFAS payment processing costs, FY 1998 TOPS, and FY 1998 TOPS History operations and maintenance costs.

MTMC Data Call. MTMC did not effectively update the figures in the costing study to include force reduction that occurred during the period from FY 1995 through FY 1998. In response to our concern, MTMC issued a data call on December 23, 1999, to the Military Services to determine the number of PPSOs and PPPOs that were still operating in FY 1999. MTMC also issued a data call on January 7, 2000, to the Military Services to provide claims data for FY 1997 and FY 1998. The original staffing data supplied by the Military Services and used in the costing study were returned to the Military Services, and the Military Services were asked to update any changes in the data. However, MTMC did not issue specific instructions to the Military Services on how to collect the data or update the costing study. Specific instructions were necessary to ensure complete and relevant data were reported consistently by all Military Services.

The methodology was incomplete because not all indirect cost components were updated. Only information concerning military, civilian, and contract personnel and claims information was requested. MTMC planned to calculate a percentage change factor between FY 1995 and FY 1999 for these cost components and then apply the change factor to other relevant cost components. Therefore, the calculation of the average indirect baseline cost used shipment volume and indirect cost information that was not for a specific period of time. As a result, the indirect baseline cost would not be comparable to pilot programs because of the inconsistent relationship between shipment volume and type and indirect cost data.

Indirect Cost Calculation. The total number of personal property shipments was not available for FY 1994. To calculate average indirect cost per shipment, MTMC divided the inflated 1994 cost amount it had calculated by the MTMC calculated number of FY 1998 shipments.

As with our conclusions on direct costs, we believe that by trying to determine the indirect baseline costs using incomplete and outdated information will only add to already current inconsistencies and would not be defendable in an evaluation of the overall pilot programs. Raw data was not available to support FY 1994 summary data. Shipment volume for FY 1994 was not captured. The collection process was not fully documented to ensure data consistency among the Military Services. In addition, the effect of force reductions between FY 1994 and FY 1998 was not reflected in adjusting FY 1994 costs to FY 1998 dollars. Further, the data were outdated and not concurrent with the ongoing pilot program data. Therefore, indirect costs developed by MTMC were incomplete and unreliable.

MTMC Program Pilot Indirect Cost Methodology

We did not complete our evaluation of the methodology and processes used to collect, evaluate, and report indirect transportation and cost data for the MTMC

Program Pilot as stated in the objectives because the methodology had not been finalized. However, implementing our recommendation to finding B would make such an evaluation unnecessary because MTMC Program Pilot data would be collected concurrently with the DoD Baseline Program.

Summary

In summary, the methodology used by MTMC to determine the indirect baseline costs was flawed. Information and processes used to calculate the average indirect costs were incomplete, inconsistent, and outdated.

To improve the methodology, we believe actual indirect baseline cost data should be collected by those organizations directly involved in the shipment of personal property under the respective pilot programs. For comparison purposes, the total actual indirect costs should be adjusted to reflect the effect on actual costs as though organization operations were totally under the MTMC Program Pilot and the Service Member-Arranged Movement Pilot. For organizations involved in the DoD Full Service Moving Project, the most recent indirect cost data for those functions that were contracted out would have to be determined. As is the case with our recommendation related to the direct cost baseline, we believe the analytical foundation of the pilot program initiative could be greatly enhanced. However, as discussed in Finding A, a more logical and productive option would be for management to terminate the comparison of the baseline to pilot programs, propose program changes now on a nonanalytical, executive-decision basis by incorporating elements currently deemed successful under the pilot programs into the DoD Baseline Program to provide interim relief to Service members and their families, while implementing the pilot programs. Such proposals would be based on the subjective accumulation of information provided by program area experts, indicators from available partial data, and other sources deemed appropriate.

Management Comments on the Finding and Audit Response

United States Transportation Command Comments. USTRANSCOM did not concur with the finding that it used incomplete, inconsistent, and outdated information to develop indirect baseline costs under the DoD baseline program or that the methodology and process were flawed. USTRANSCOM stated that MTMC updated a previous activity based costing study published in FY 1995 with a data call to the Services to update the labor cost information. USTRANSCOM provided in its management comments beginning on page 24 a detailed description of its indirect cost methodology. USTRANSCOM concluded that its indirect cost methodology was reasonable and represents only 10 percent of the total program costs.

Audit Response. USTRANSCOM comments are not fully responsive. As discussed under the heading "MTMC Indirect Baseline Cost Methodology" beginning on page 12 of this report, we reviewed the MTMC baseline indirect methodology and processes used to determine indirect costs under the DoD Baseline Program and concluded that MTMC used incomplete, inconsistent, and

outdated indirect cost information. Management comments and additional information obtained during subsequent discussions with management representatives did not provide additional data that would justify a change in our audit position. We request that USTRANCOM provide comments on the final report.

Recommendations, Management Comments, and Audit Response

Revised Recommendation. As a result of management comments and additional discussions with management, we added Recommendation B.2. to provide management with another option for consideration.

B. We recommend that the Commander in Chief, U.S. Transportation Command, in coordination with the Assistant Deputy Under Secretary of Defense (Transportation Policy):

1. Develop a methodology to collect indirect baseline cost information that is regional and concurrent with the organizations involved in the pilot programs, or

2. Terminate the comparison of the baseline to the pilot programs, incorporate elements currently deemed successful under the pilot programs into the DoD Baseline Program, as discussed in Recommendation A.2., thereby eliminating the need to determine an indirect baseline under the DoD Baseline Program.

USTRANSCOM Comments. USTRANSCOM did not concur with the recommendation to develop a methodology to collect indirect baseline cost information that is regional and concurrent with the organizations involved in pilot programs. USTRANSCOM stated that using a regionalized indirect baseline cost would not be consistent with DOD Personal Property practices and that indirect costs represent only 10 percent of the total program cost. USTRANSCOM stated that approximately one-half of the indirect costs are program costs that cannot be attributed to individual shipments, including MTMC headquarters, Service headquarters, Service finance offices, and Service claims office costs. USTRANSCOM also stated that shipping office costs that can be associated with processing individual shipments usually occur in multiple regions. USTRANSCOM believes that MTMC used a reasonable approach in its direction to MTMC to use the previous activity based costing study published in FY 1995, with a data call to the Services to update the labor cost information.

Audit Response. USTRANSCOM comments are not fully responsive because no new information was included to justify a change in our audit position. As discussed under the heading "MTMC Indirect Baseline Cost Methodology" beginning on page 12 of this report, MTMC methodology and processes used to develop the indirect baseline costs were not reliable and are unacceptable to support comparisons with pilot programs. However, as a result of additional discussions with management, we have added an alternative recommendation to

provide another option for USTRANSCOM consideration. We request that USTRANSCOM reconsider its position and provide comments on the final report.

Appendix A. Audit Process

This is the last in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership between the DoD transportation community and the Office of the Inspector General, DoD, to help ensure the success of the initiatives related to Management Reform Memorandum No. 6, "Streamlining and Simplifying Member-Arranged Movement of Household Goods."

Scope and Methodology

We reviewed and evaluated the processes used to determine the direct and indirect baseline costs for the current DoD Baseline Program. We met with personnel who were personal property focal points for USTRANSCOM, MTMC, and DoD contractors to obtain and assess the processes used to determine the baseline costs. We also met with representatives of the General Accounting Office, the Assistant Deputy Under Secretary of Defense for Transportation Policy, and consulted with the Technical Director, Quantitative Methods Division, Office of the Assistant Inspector General for Audit, DoD. We reviewed briefing charts on the personal property pilot program evaluation by USTRANSCOM, the DoD personal property pilot program, and the MTMC pilot program prepared by MTMC, and briefing charts on the DoD Full Service Moving Project by the Assistant Deputy Under Secretary of Defense for Transportation Policy. We reviewed MTMC initial and revised methodology for determining direct and indirect cost for the DoD Baseline Program covering the periods FY 1994 through FY 1998. We reviewed MTMC data calls to the Military Services on December 23, 1999 and January 7, 2000, and the Military Services response to the data calls.

DoD-Wide Corporate Level Coverage. In response to the Government Performance and Results Act, the Secretary of Defense annually establishes DoD-wide corporate level goals, subordinate performance goals, and performance measures. This report pertains to achievement of the following goal, subordinate performance goal, and performance measures:

> **FY 2000 DoD Corporate Level Goal 2:** Prepare now for an uncertain future by pursuing a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. Transform the force by exploiting the Revolution in Military Affairs, and reengineer the Department to achieve a 21st century infrastructure. **(00-DoD-2)**
>
> **FY 2000 Subordinate Performance Goal 2.3:** Streamline the DoD infrastructure by redesigning the Department's support structure and pursuing business practice reforms. **(00-DoD-2.3)**
>
> **FY 2000 Performance Measure 2.3.1:** Percentage of the DoD Budget Spent on Infrastructure. **(00-DoD-2.3.1)**

FY 2000 Performance Measure 2.4.8: Qualitative Assessment of Defense Transportation. **(00-DoD-2.4.8)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following objectives and goals in the Logistics Functional Area:

- **Objective:** Streamline logistics infrastructure.
  Goal: Implement most successful business practices. **(LOG-3.1)**

- **Objective:** Streamline logistics infrastructure.
  Goal: Increase outsourcing. **(LOG-3.2)**

High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Military Personnel Management high-risk area.

Audit Type, Dates, and Standards. We performed this program audit from September 1999 through November 2000 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not use computer-processed data for this audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD, the DoD contractors, the General Accounting Office, and the Technical Director, Quantitative Methods Division, Office of the Assistant Inspector General for Audit, DoD. Further details are available on request.

Management Control Program. We did not review the management control program related to the overall audit objective.

Prior Coverage

The General Accounting Office has issued three reports and the Office of the Inspector General, DoD, issued one report related to the DoD pilot program for shipment of personal property. General Accounting Office reports can be accessed over the Internet at http://www.gao.gov/. Office of the Inspector General, DoD, reports can be accessed over the Internet at http://www.dodig.osd.mil/audits/reports. Specific reports related to our audit are listed below.

General Accounting Office

General Accounting Office Report No. NSIAD-99-129 (OSD Case No. 1800), "The Army's Hunter Pilot Project is Inconclusive but Provides Lessons Learned," June 1999

General Accounting Office Testimony Report No. T-NSIAD-99-106, "Defense Transportation Efforts to Improve DOD's Personal Property Program," March 18, 1999

General Accounting Office Report No. NSIAD-98-99 (OSD Case No. 1556), "Defense Transportation – Status of U.S. Transportation Command Savings Initiatives," May 1998

Inspector General

Inspector General, DoD, Report No. D-2000-147, "DoD Pilot Program for Shipment of Personal Property – Military Traffic Management Command Reengineering DoD Personal Property Program Pilot," June 12, 2000

Appendix B. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Technology, and Logistics
  Assistant Deputy Under Secretary of Defense (Transportation Policy)
Under Secretary of Defense (Comptroller/Chief Financial Officer)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Under Secretary of Defense for Personnel and Readiness

Department of the Army

Auditor General, Department of the Army
Commander, Military Traffic Management Command

Department of the Navy

Naval Inspector General
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Department of the Air Force

Unified Commands

Commander in Chief, U.S. Transportation Command

Non-Defense Federal Organizations

Office of Management and Budget

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology, Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform

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United States Transportation Command Comments

UNITED STATES TRANSPORTATION COMMAND
508 SCOTT DR
SCOTT AIR FORCE BASE, ILLINOIS 62225-5357

MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL,
DIRECTOR, READINESS AND LOGISTICS SUPPORT

FROM: TCCC

SUBJECT: Audit Report on DOD Pilot Programs for Shipment of Personal Property – DOD Baseline Cost Methodology (Project No. D1999LH-0038.01), 30 Jun 00

1. We appreciate the opportunity to comment on your draft report regarding the baseline cost methodology supporting DOD's personal property reengineering efforts. Since this initiative is critical to improving the quality of life for all Service members, we appreciate the effort, candor, and thoroughness of your report. We are sensitive to the fact that your focus is the soundness of our methodology, and we are committed to work through any and all challenges to ensure our baseline cost methodology is both accurate and statistically defensible, based on available data.

2. After reviewing your draft report, we offer several comments for your consideration. Attached is our response to your specific findings. As you know, DOD's main concern is to pursue better quality of life for our Service members worldwide. We appreciate DODIG's support and continued interest in this challenging but worthwhile project.

3. Our POCs are Debora Barnard, Debora.Barnard@hq.transcom.mil, or Lt Col Darcy Lilley, Darcy.Lilley@hq.transcom.mil, DSN 779-1985.

CHARLES T. ROBERTSON, JR.
General, USAF
Commander in Chief

Attachment:
DODIG Response

cc:
ADUSD(TP)

Printed on recycled paper

Response to Proposed DODIG Audit Report Dated June 30, 2000

DOD Pilot Programs for Shipment of Personal Property

DOD Baseline Cost Methodology

Introduction

Your draft report assesses the methodologies DOD used to develop cost baseline information. We believe that DOD's methodologies were reasonable. This response to the DODIG report will layout DOD's rationale and will ask the DODIG to reconsider its position.

DODIG Finding A: Direct Cost Methodology

Audit finding A recommends using a constructed cost methodology. In the absence of additional guidance, we interpret the DODIG counsel is to use the Hunter Army Airfield Pilot methodology. This methodology was labor intensive requiring contractors to annotate transportation, storage, and accessorial costs on each bill, input the baseline data into a database, obtain claims data, update the access database with claims data and create a master file. The limited scope of the Hunter test (approximately 1,300) shipments allowed the latitude of this methodology. The current MTMC Pilot encompassed over 9,000 shipments last year. Using the Hunter methodology would be costly and would expend considerable resources. In addition, the GAO's report to Congressional Committees, June 99, stated "Because of weaknesses in the Army's evaluation methodology and data, we were unable to validate the reported results of the quality of life and cost factors of the Hunter pilot program". The results of the DOD direct cost methodology were validated by Service payment center and budget comparison. We believe this methodology was reasonable.

For clarification, the direct costs were defined as costs paid for transportation services, including: linehaul, storage-in-transit, other accessorial services, local packing and crating, and over-ocean charges on international shipments.

The DOD direct cost methodology used actual historic shipments to develop baseline average current program costs by shipment type and by Service. Cost per shipment calculations were developed using FY98 costs and shipment volume data because FY98 was the most recent year available with complete information at the time of the study. The study began in January 1999.

MTMC's Transportation Operational Personal Property Standard System (TOPS) history database was used to develop the baseline cost for the majority of the shipment types. TOPS history contains costs included on government bill of lading (GBL) and paid by Defense Finance and Accounting System (DFAS). Some cost information, not included on GBLs, was missing from the database. This included Air Mobility Command (AMC) charges, local packing and crating charges, and do-it-yourself (DITY) moves. Coast Guard GBL costs were also missing from the database. Coast Guard GBLs only accounted for approximately 2% of the total shipments per year. These missing cost components were identified and available through other

sources. The actual rates charged by AMC were used to determine an average AMC charge for international air shipments and, in the January 2000 data call, the Services provided local packing and crating and DITY cost information. Mobile homes and boat data was obtained from MTMC headquarters. Since the Coast Guard was not able to provide data by shipment type, baseline averages developed for the Military Services were used. These costs compared closely to Coast Guard budget information for FY98.

A director-level statistician with a PhD in Applied Statistics from PricewaterhouseCoopers (PwC) analyzed the TOPS history database. Over 78 percent of an estimated 613,000 records were available in the database. The missing records included Coast Guard, one time only, mobile home and boat shipments, and Direct Procurement Method (DPM) shipments that were not included in the pilot. As part of the editing process, analysts removed 85,210 valid non-pilot shipment records and 153,710 records with missing or invalid data. Validation analysis was conducted to determine if the 240,869 remaining records used to develop baseline costs were representative of the total population.

To validate findings, the number of shipments for each type was projected to annual volumes based on proportions available in the TOPS history database. Total cost was then projected using the baseline costs developed for each shipment type and, finally, the total projected cost was compared with total costs provided by the Service payment centers. The results were within 8 percent. Validation analysis is shown in Appendix A. The projected total costs for each Service and Coast Guard were also provided to personnel budget offices for review. Costs were determined to be consistent.

Your draft report recommends that direct baseline costs be constructed for shipments moved in the pilot using current program rates. Constructing costs from a shipment that moved under the pilot program as if it were moved under the current program introduces numerous assumptions and variability. Some examples of these assumptions are:

- Carrier and shipment choice. These assumptions will have the greatest impact on the results. There are about 440 current program carriers in the MTMC pilot region (NC, SC, and FL) and less than 40 in the MTMC pilot program. Current domestic Household Goods (HHG) rates commonly range more than 60 percent and can range as much as 130 percent of the MTMC published baseline rates. Rates also differ drastically for HHG shipments that move loose in the truck versus containerized. Domestic shipments represent about 40 percent of total shipments. International rates can range from $30/cwt to $250/cwt and represent about 54 percent of total shipments. International shipments require the addition of costs for AMC (air). Additionally, the first carrier refuses approximately 24 percent of shipments during the peak season.
- Costing domestic packing and unpacking. Current program packing costs are factored by the number of cartons of each size, up to a maximum amount. Pilot program charges are factored by weight and geographical location. The pilot program does not collect data on the number of cartons used. Costs can vary from $150.00 to over $1,000.00 per shipment. All domestic shipments would be affected.

- Mobile homes, boats, and other one-time-only (OTO) shipments do not have rates on file. Rates are solicited for each shipment. It would not be possible to construct rates for these shipments.
- Claims payment. Current program shipment claims average $677, with $314 per claim not recovered from the carrier. Approximately 35 percent of shipments result in a claim. In the pilot program, due to direct claims settlement, there are virtually no claims paid by the government and therefore, no unrecovered claims costs. Constructed cost methodology would be difficult to apply.

Examples of the implementation of the constructed cost method are included as Appendix B. As shown by the examples, results can vary significantly depending on carrier and shipment method selected and packing costs. Developing business rules to make these determinations would add additional bias since actual applications of assumptions are unknown.

In conclusion, we non-concur on audit finding A. The direct cost methodologies adopted by DOD was justified given the realities and data limitations of the current personal property system and the added cost and time to develop and implement an alternative method.

DODIG Finding B: Indirect Cost Methodology

Audit finding B recommends using regionalized indirect baseline cost. This method is not consistent with DOD Personal Property practices. Approximately half of the indirect costs are program costs that cannot be attributed to individual shipments, including MTMC headquarters, Service headquarters, Service finance offices and Service claims office costs. Even shipping office costs that can be associated with processing individual shipments usually occur in multiple regions. MTMC updated a previous activity based costing study published in FY95 with a data call to the Services to update the labor cost information. We believe that this approach was reasonable.

For clarification, indirect costs have been defined as administrative and operating costs, including: labor, facilities, consumables, equipment, information technology costs, and DFAS payment charges. Indirect costs represent only 10 percent of the total program cost which consists of 8 percent being indirect labor and 2 percent being indirect non-labor costs. In developing the indirect cost baseline, MTMC's contractor, PwC, was directed to use a previous activity based costing (ABC) study published in 1995 to avoid duplication of effort. However, DODIG voiced concerns that force reduction could change the results of the ABC study. Therefore, MTMC sent a data call to the Services in January 2000 to update labor cost information for the representative shipping offices, Services headquarters, Services finance centers, and Services claims offices. In addition, updated information was collected from MTMC headquarters. In determining the labor costs, composite pay rates for FY98 were used. Labor costs compose the vast majority of indirect costs, approximately 80 percent ($293 per shipment). All labor costs were current but reported in FY98 dollars to be consistent with the direct cost methodology.

The non-labor costs, consisting of costs such as facility, consumables, and equipment were not updated through the data call. The Services expressed concern that those types of costs would be expensive, difficult and time consuming to collect. These costs only account for about 2 percent of total program costs ($72 per shipment). Therefore, these costs were updated from the 1995 ABC study based on force reduction where the non-labor costs are related to labor costs. A sensitivity analysis was conducted to determine the impact of assuming that the non-labor costs were fixed, variable, or a combination of fixed and variable. The Office of Management and Budget then inflated the adjusted non-labor costs to FY98 dollars using inflation rates provided.

The DODIG report stated "To calculate average indirect costs per shipment, MTMC divided the inflated 1994 cost amount it had calculated by the MTMC calculated number of FY98 shipments." As described above, this does not accurately reflect the methodology used to update the indirect costs from the previous ABC study. In fact, 80 percent of the indirect costs were updated to FY98 costs and were compared to FY98 shipments.

In conclusion, we non-concur on audit finding B. The indirect cost methodology adopted by DOD was reasonable and it represents only ten percent of the total program costs.

Conclusions

DOD did develop direct costs from a database with some missing records. However, actions were taken to account for missing information, eliminate unreliable records, and assess comprehensiveness of the database. Results were validated by Service disbursement and budget record comparison and reviewed and supported by the Services.

In addition, due to fiscal responsibility and concerns, small portions (2 percent) of indirect costs were not updated. However, labor-related costs were updated through a data call in January 2000. Non-labor costs, difficult for the Services to develop, were updated to FY98 from a previous study taking into account force reduction and inflation. The costs were current and consistently reported in FY98 dollars.

The methodologies developed for determining the indirect and direct baseline costs were reasonable and statistically justified. Expert statisticians and cost management specialists from two professional services firms, PricewaterhouseCoopers and Arthur Anderson, the Full Service Move Program contractor, agree that the approach is reasonable and provides information valid for decision making. Upon advice of statisticians, appropriate actions were taken to address database deficiencies. The results for each shipment type were computed using a 95 percent confidence interval. Again, comparing against disbursement records validated the results and the results are consistent with Services' expenditures.

The DODIG's recommended alternative approach has not been detailed or demonstrated to be feasible. We have been unable to find a viable alternative to the current approach. Using the constructed cost approach to develop direct costs introduces excessive variability and regionalizing indirect costs does not reflect DOD business practices. Therefore, we believe DOD's methodology to be reasonable.

Recommendations

DOD's primary goal is providing Service members with a high quality moving experience. We recommend that the DODIG modify the audit report to accept the methodologies used by the DOD. Further, the report should be modified so that it reflects the final methodologies used.

Appendix A

In order to validate the stratified direct cost baselines, the number of shipments of each type in the TOPS History database were projected to the annual shipment volume of 612,616 using the same proportion as the database. The projected total cost for these shipment types was compared to the total cost reported by the Services payment centers.

To ensure an accurate comparison, all non-GBL costs, such as AMC charges, local packing and crating charges, and DITY moves were left out. These were the costs added into TOPS History to ensure the averages were complete, but they are costs not paid on the GBL.

The following spreadsheet shows the comparison between the projected direct cost baseline and the reported payments by the Services payment centers. As shown on the spreadsheet, the difference between the projected and reported costs is 8.15 percent.

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Direct Cost Validation Analysis

Current Progam Baseline Costs (FY 98)				Finance Centers Reported Costs (FY 98)	
Shipment Type	Avg Cost per Shipment [1]	Projected # Shipments [2]	Projected Total Cost	Service	Cost
Dom Inter HHG	$3,327	213,517	$710,371,059	Army/Air Force	$998,461,675
Dom Intra HHG	$1,869	14,757	$27,580,833		
Int'l Surf HHG	$4,579	149,284	$683,571,436	Navy	$306,023,641
Int'l Air HHG [1]	$3,041	4,959	$15,080,319		
Dom DPM UB [1]	$122	26,636	$3,249,592	Marine Corps	$87,633,087
Int'l Surf UB	$512	17,819	$9,123,328		
Int'l Air UB [1]	$531	156,694	$83,204,514	Coast Guard	$24,824,675
Mobile Homes	$4,633	185	$857,105		
Boats	$2,090	109	$227,810		
Dom DPM HHG [3]	$355	14,818	$5,260,390		
Int'l DPM HHG [3]	$743	2,143	$1,592,249		
Int'l DPM UB [3]	$213	11,695	$2,491,035		
Total Shipments		612,616			
Projected Total Cost			$1,542,609,670		$1,416,943,078
			% Difference		8.15%

[1] Baseline Costs only include costs paid by finance centers. Excludes AMC charges ($6,693 and $866 per shipment for Int'l air HHG and UB respectively), and local packing and crating.
charges ($332 per shipment on Dom DPM UB).
[2] Shipments projected to total based on percent of each shipment type in TOPS History database.
[3] Shipment types not included in pilot program, did not undergo data editing actions.

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Appendix B

The DODIG report recommended constructing the cost for pilot shipments as if they moved in the current program. As previously stated, there are numerous assumptions that must be made in order to construct the costs. There can be a very wide range between the high and low cost depending on which carrier and shipment method are selected and the estimated packing costs. The following examples illustrate the variability when using the constructed cost approach.

Example 1:

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Comparative Example of DoDIG and DoD Approaches

- Actual MTMC Pilot shipment
- Domestic HHG interstate shipment
- Camp Lejeune, NC to Marine Corps Air Station Yuma, AZ
- 4,640 pounds

DoDIG Approach		Current Program			
Cost Components	MTMC Pilot Cost	Constructed Low Cost	Constructed Mode Cost	Constructed High Cost	Explanation of Current Program Constructed Cost Differences
Transportation Charge	$3,303.00	$1,674.04	$2,837.36 [1]	$5,107.25	Carrier Selection: 59% to 180% of MTMC Tariff Low = Sample profile for 5000 lb shipment Mode and High = MAXPAC
Container, Pack and Unpack	$668.40	$192.84	$524.32	$943.78	
SIT Charges	$731.20	$482.10	$482.10	$482.10	
Other accessorials[2]	$69.60	$31.36	$31.36	$31.36	
Full Replacement Protection	incl.	$0.00		$85.00	Low = No add'l liability coverage High = $10,000 of add'l coverage
Total Cost	$4,772.20	$2,380.34	$3,875.14	$6,649.49	
Percent Variability			179.35%		

DoD Approach	Average Cost per Shipment	
	$3,306	$2,793

[1] About 90% of carriers bid 100% of standard tender.

[2] Some accessorials are affected by carrier discount rates.

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Example 2:

Comparative Example of DoDIG and DoD Approaches

- Actual MTMC Pilot shipment
- International HHG surface shipment
- Eglin AFB, FL to Germany
- 4,530 pounds

DoDIG Approach

Cost Components	MTMC Pilot Cost	Current Program: Constructed Low Cost	Current Program: Constructed Mode Cost	Current Program: Constructed High Cost	Explanation of Current Program Constructed Cost Differences
Transportation Charge	$5,090.81	$2,579.38	$2,579.38 [1]	$4,844.38	Carrier Selection: $56.94 - $106.94 SFR
SIT Charges	$662.74	$491.51	$491.51	$491.51	
Total Cost	$5,753.55	$3,070.89	$3,070.89	$5,335.89	
Percent Variability			73.76%		

DoD Approach

Average Cost per Shipment	
$5,465	$3,603

Additional liability coverage is not available on international shipments.

[1] About 33% of carriers bid the low single factor rate of $56.94.

Example 3:

Comparative Example of DoDIG and DoD Approaches

- Actual MTMC Pilot shipment
- International UB air shipment
- Shaw AFB, SC to Germany
- 685 pounds

DoDIG Approach		Current Program			
Cost Components	**MTMC Pilot Cost**	**Constructed Low Cost**	**Constructed Mode Cost [1]**	**Constructed High Cost**	**Explanation of Current Program Constructed Cost Differences**
Transportation Charge	$543.96	$456.35		$904.34	Carrier Selection: $66.62 - $132.02 SFR
Air Charge	$748.68	$1,233.00		$1,233.00	ODC for Pilot, AMC for Cur. Prgm
SIT Charges	$108.23	$102.96		$102.96	
Total Cost	**$1,400.87**	**$1,792.31**		**$2,240.30**	
Percent Variability			**25.00%**		
DoD Approach	**Average Cost per Shipment**				
	$1,097		**$1,292**		

Additional liability coverage is not available for international shipments.

[1] In this example, there were 27 carriers with rates on file, all carriers submitted unique rates.

Audit Team Members

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