PART V - FISCAL MANAGEMENT

FISCAL MANAGEMENT OF EQUIPMENT REVOLVING FUND, STRUCTURE, ADMINISTRATION RENTAL RATES AND EQUIPMENT MANAGEMENT SYSTEMS

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History of WSDOT Transportation Fund

Established in 1935 as an appropriated Revolving Fund with a cash loan from the Motor Vehicle Fund of $250,000. In 1959, Legislature declared the fund to be proprietary - "Business Enterprise and Working Capital Fund."

47.08.120

There is hereby created in the state treasury a state fund to be known as the "Transportation Equipment Fund", the same to be used by the Department of Transportation as a revolving fund to be expended for salaries, wages and operations required for the repair, replacement, purchase and operation of equipment and for purchase of equipment and materials and supplies to be used as follows: (1) in the administration and operation of this fund and (2) in the administration, maintenance and construction of highways and transportation facilities.

The transportation equipment fund shall be credited, in the case of equipment with a reasonable rental assessed upon the use of such equipment by the various state departments, and in the case of materials and supplies, with a reasonable charge for such materials and supplies. Equipment may be rented and materials and supplies may be sold out of this fund to any federal, state, county or city political subdivision or governmental agency.

Key Words

Repair, replacement, purchase, and operation of equipment. Defined as business function of the FUND. Reasonable rental assessed.

Introduction

The Transportation Equipment Fund (TEF) has grown from a simple means to provide vehicles to what is today a multifaceted $92,000,000 element of the Washington State Department of Transportation (WSDOT) budget for 1987-89. Every function, organization, and employee of WSDOT is directly affected by equipment or services provided by TEF.

Recent history best illustrates the growth of TEF; in 1980 there were total assets of $24,195,000 compared to $58,978,000 in June of 1986, an increase of 144 percent. The investment in data processing grew 208 percent from $3,178,000 to $9,780,000 during the same period. TEF income was $19,039,000 in 1980 compared to $42,097,000 in FY 1986. $14,171,000 (34 percent) of the FY 1986 TEF income was from data processing.

In addition to the cost of TEF-supplied equipment and services, the types of equipment and services have increased as engineering equipment, materials laboratory equipment, CADD equipment, and microcomputers have been added. No longer do employees depend on TEF only for vehicles; they depend on it for the tools necessary to perform the jobs of nearly all offices. Further, Management Information Systems (MIS) systems development services will be added to those paid for through TEF in 1987-89. The estimated receipts for just the original

highway fleet would be $58,211,000 in 1978-89. The addition of other services in MIS, reproduction, photogrammetry, materials, laboratory, and engineering equipment brings it to $92,492,000 of which $32,921,000 (36 percent) is MIS related.

Incidentally, approximately 400 fuel and waste oil tanks and approximately 250 pumps in 150 fuel site locations are in the TEF inventory. This is known as Class 66 equipment, "fuel storage and dispensing equipment".

The system that supports these functions was designed as a mainframe application in 1973 and has received little support or upgrading to date.

The files, which are updated monthly, are based upon a payroll system that uses a Personnel Action form. The Equipment Action form is completed and loaded when the equipment is purchased. Each piece of equipment becomes a cost center with the following costs charged appropriately:

Ownership

Depreciation
Administrative Overhead

Operating

Fuel, Oil, Parts, Labor and Shop Overhead

A Cost and Income Report generated by the system becomes the basis for establishing rental rates that are adjusted annually.

A uniform statewide rental rate is charged for each subclass of equipment. The deficiencies of the current system are as follows:

1) Batch process
2) No shop work order system
3) A parts system that only tracks inventory items; 10% of parts charges on-line real time
4) Slow turn around of reported data

Several studies of the management of TEF have been conducted.

We were not "fiscally managed" properly. We gained a fiscal analyst position to complement our staff of two and an entire budgeting procedure that overlies our existing business accounting controls. The feasibility of using a revolving fund concept for facilities is being studied and, I think, will be adopted in the near future upon enactment of enabling legislation. There are currently two schools of though concerning revision of the TEF System.

1) Throw everything out and contract for a complete system that meets all accounting requirements. This system would be a mainframe application with on-line data entry.

2) Preserve the core mainframe files and upgrade as necessary. Utilize a PC network to provide field information and feed the mainframe.

I personally subscribe to Option 2. We have 15 years of data that we have used successfully to illustrate our equipment replacement needs. The job of transferring these files would be massive. Also, the trauma created by a "new system" will take years to iron out even under the best of management.

To expand upon Option 2, I think we can have the best of both worlds in mainframe and PC networking. Our fuel system, which currently is a batch ticket process, is being replaced by a vendor card control system. Our next module would be a parts management and work order control system. The data needed by the managers are essentially broken into two main categories:

1) Historical - Life of the equipment stored on mainframe, updated monthly.
2) Operations - Overnight reporting
   Fuel use as of yesterday
   Preventive maintenance reported as of yesterday
   A work order report on the shop superintendent's desk of all work in progress as of yesterday.
   Parts would be charged and reported with the work order.

Controls imposed that eliminate charging errors and that would guarantee "clean data."

I propose to use magnetic encoded cards, bar coding, fuel sensors and electronic transfer of information rather than mailing reports. Each manager would receive only information on equipment in his control in simple, easily understood formats that he, himself, would be able to create and produce.

Long-range historical data could be down loaded for special statistical reports.

The most effective use of the existing system was performed in 1983, when we developed the concept of economic life.

The equipment fleet was aging because there were inadequate replacement funds.

This was first illustrated by comparing the declining book value percent of inventory value from previous years.

Book value percent had declined to about 40% from 50% with a calculated cost of several million dollars to return the book value to 50%.

Why was 50% the magic number?

We determined the age of the equipment and found an average age of equipment by class.

I used 10 annual history tapes and sorted out a population of 500 dump trucks and tracked them by year.

In other words, a 10-year history of 1-year-old trucks, a 10-year history of 2-year-old trucks, etc., and three 15-year-old trucks. The following is what we discovered as a result of this effort:

1) Maintenance hours on new trucks are up the first year, remain fairly stable through the 10 years, and start gradually rising after that.
2) Utilization of new trucks is around 65-70%, levels out to 60%, gradually declines to 50%, and then drops off to less than 35% after 10 years.

The maintenance costs when the lower utilization was considered practically doubled for each use hour.

The average purchase price of a dump truck doubled over a 10-year period. From this mass of data we were able to:

1) Determine economic life of all our equipment
2) Do statistical modeling on future anticipated costs.

Through this work we were able to double our equipment replacement budget and, from 1983 to 1989, we bring the fleet back to an operational level much appreciated in the field.

Management still did not trust us completely, however, and sent out questionnaires to other states requesting "economic Life" figures.

I think some people still think we used a dart board, then backed into the figures with computer programming.

The best advise I could give for designing and equipment management system is to keep it simple!

Equipment managers are not statistical people.

Do not attempt to get information unless it is practical to do so.

With all due respect to Doug, completely filled pages with small columnar print are not very popular in Washington. Custom reports with only the requested data in the requested format are in. For example, a popular report is a listing of all cars and pickups that are older than seven years, active in the fleet, and have more than 100,000 miles on the odometer. Equipment superintendents use this list to build their light equipment replacement needs.

Custom reports have almost totally replaced standard production columnar reports.

We are looking at a P.M. system that would be credit card actuated in a mobile data collector carried by the service man. The data collector could have sufficient memory for 50 vehicles (those assigned to each area) and prompt the service man to perform services such as charging oil. The data recorder would be plugged in and data polled to a district PC nightly. Eventually, a microwave system could be used to communicate directly from the service truck. Now, that would be state of the art! The use of microwave to send and revise data is possible.

Purpose of TEF:

<u>TO PROVIDE SAFE, RELIABLE, JOB-RATED EQUIPMENT AT THE LOWEST TOTAL COST</u>

Downtime - The time that a vehicle is unable to serve its purpose.

Breakdown time is defined as the time that assigned work has been delayed including enforced idle time of personnel and support equipment.

Certain pieces of equipment pack higher breakdown costs than others, i.e., loaders, rollers, etc.

If a roller will not run, a patching job goes down that involves a crew of 12, 6 dump trucks, a grader, distributor, etc.

Priorities can be established for these types of equipment in P.M. and maintenance inspection.

Downtown may not be blamed on the equipment. It is an indication that one of the equipment programs has failed.

Specifications - Right equipment for the job?

P.M. - Not caught in inspection?

Operator Training - Abuse?

Parts and Supply - Downtime extended because of inadequate parts backup?

Shop - Downtime because of repeat work, etc.

A complete analysis should be done for each breakdown and the reason for failure pinpointed to eliminate future occurrences.