NEW YORK STATE DOT REPAIR PARTS MANAGEMENT SYSTEM

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INTRODUCTION

The New York State Department of Transportation issues approximately $11 million in parts and supplies each fiscal year. For the most part the purchasing of these parts is done on a local basis. However to assist the regions in parts purchasing contracts, most are awarded centrally to establish preset prices and delivery conditions. These contracts may have a vendor in each region or there may be only one vendor for the State depending on the volume to be purchased and the number of vendors Statewide.

The Repair Parts Management System (RPMS) is an on-line computer system that runs on a Unisys main frame. However, the Department is currently converting central processing applications to an IBM main frame. The Department is also doing a lot of distributive processing on PC's connected to the main frame.

There are 10 major stock locations or warehouses Statewide. These are located at the major repair facilities in each region. Each of these facilities services the mechanics that work in the major region repair facilities. They also service the satellite repair facilities in the Highway Maintenance residencies and sub-residencies of which there are 85. A residency's jurisdiction normally corresponds to a county, however, some do extend into adjoining counties. Most of the preventive maintenance (PM) and minor repairs are done in the residencies. A residency may have from $20,000 to $30,000 worth of stock on-hand depending on the size of the fleet and the distance from a regional facility. The RPMS facilitates the stocking of parts in the region warehouse and in the residencies. It is an on line, real-time system connected to a Unisys main frame via leased lines.

FEATURES

The features of the RPMS include:

- Automatic cross referencing of part numbers;
- Automatic matching of parts to multiple applications;
- Three year consumption history;
- Automatic setting of minimum/maximum levels;
- Ability to override the calculated minimum/maximum;
- Restock of satellite locations; and
- Overstock obsolete reports.

Cross Referencing

To explain the automatic cross referencing feature, back ground on what is used for part numbers is in order. During the design of the system there was considerable discussion on whether manufacturers' part numbers should be used or if "State part numbers" should be created. The main issues surrounding the use of State created parts numbers were that the generation of these numbers from a central location would provide control over what could be entered into the database, and it would require a central staff that was not available. In addition, the system was being set up to save money, not increase overhead costs.

The final decision was to use manufacturers' part numbers combined with the manufacturer's code (abbreviation) which was already being used in the fleet inventory system. This code consisted of a five-letter abbreviation (if needed) of the manufacturer's name. To keep track of records within the computer, a record keeping number is generated by the computer and assigned to a new part when it is entered into the database. This approach allows the system to be run at the region level without any central office involvement. Simply stated, any location can create a new record and once created any other location can use that record.

Once a record is created, another part number can be added as a cross reference at the regional level. Entry by any equivalent part number will provide the same record. The RPMS combines the efforts of cross referencing done at any location. As an example, if both Regions 1 and 2 stock Ford part number XYZ and Region 1 determines that Ford XYZ is the same as GM UVW, entry by any Region on either part will get stock information on both parts. There is also a cross reference inquiry to aid in the purchasing process.

Applications Record

An applications record is used to prevent the disposal of parts that may be thought to be obsolete. This also assists in identifying problem equipment by listing all the applications for a part. Each time a part is used, the issue record contains the unit ID number on which the part was installed. This then creates or updates for the using region a record containing the consumption history for the part by make, model and model year.

Consumption History

The database contains consumption history for all parts for up to three years. The current year's data are kept by quarters which is summarized in an annual consumption history. This is done after the minimum and maximum stock levels are calculated at the end of the fiscal year.

Minimum/Maximum Settings

Minimum and maximum stock levels for each region are reset each year. They are based on consumption history for the last year. For a part to be considered for stock, it must have been used at least three times during the previous year. The maximum is the single highest quarter usage. The minimum is based on quarterly usage and lead time with a 20% safety stock.

Override of Calculated Minimum/Maximum

Historical consumption may not be the best basis for predicting future consumption of parts. Therefore, the system allows personnel in the regions to manually override the calculated minimum/maximum for use in reordering. The reorder programs use the override if it is present. Reorder reports by product line, vendor, contract application, etc., are available.

Restock Reports

There are 85 stock locations other than the major repair facilities and warehouses. All parts stocked at these locations have a three-year consumption history and are controlled by a stock-level. This stock-level can be set either automatically using a set consumption formula or manually. Most stock locations are restocked from the main warehouse weekly, while some are biweekly depending on consumption. These decisions are made at the local level. When a residency stock location is to be restocked, a restock report is run. This lists all the parts with a balance less than the stock-level for the stock location. This list is produced in bin number order to simplify filling of the order at the main warehouse. The stock clerk simply goes up and down the aisles once to fill an order. The restock report becomes the packing list and a copy is used to post the transfer from the main warehouse to the residency.

Overstock Obsolete Reports

Parts become stale or obsolete when the equipment fleet requirements decrease or are eliminated. To minimize this, stock room personnel use an overstock obsolete report. This report can list parts based on several selection criteria. These are by equipment make, model and model year, no use for a certain number of days or parts that are in excess of the calculated maximum, or by any combination of these criteria.

In addition to these reports, the Department has a policy that before parts are ordered, the other region parts- levels must be checked to see if they are overstock. If another region is overstock, the parts are shipped to the region that needs them. Each year parts worth several hundred thousand dollars are transferred from one region to another. This reduces the potential for parts becoming obsolete.

ENHANCEMENTS

Bar Coding of Data Entry

Currently all data entry is done manually from a terminal in the 10 major warehouses. However, bar code readers are being installed at the main warehouses and residencies. These will be used for scanning all high volume transactions, such as issues, receipts of orders, transfers, and inventory adjustments and counts. This concept is one step being taken to move toward a paperless operation.

Local Purchase Quote System Via Fax

Besides the State's official accounting system, a PC based accounting system has been developed that feeds the State's system via modems. Because this is PC

based, it can be tailored to fit the operation. Like most all state-of-the-art accounting systems it prints requisitions, purchase orders, vouchers, etc. For purchase of parts that are not on contract, a quote is faxed to vendors known to carry the parts. The vendors in turn fax back the information on price and availability. A Purchase Order is then cut based on the best price.