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Work Order Systems Mean Better Financial Management

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WORK ORDER SYSTEMS MEAN BETTER FINANCIAL MANAGEMENT

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Control, accountability, and allocation of scarce resources are the foundation of a good financial management system in any city. That's why a complete work order system is a good idea. It can enhance the financial manager's control and accountability of any public works project.

Work orders include management pre-approval for jobs and give managers a place to spell out directives and specific actions to be taken. Most important to the financial manager is that work orders conveniently capture labor, material, and equipment costs by job. Also, overhead can be calculated and applied to each job. The better the financial management system, the more viable a work order system becomes.

Components of a Financial Management System

Centralized purchasing

Centralized purchasing simply means one individual department controls all city purchasing, allowing for the efficient purchase of many small items such as parts, paper, and supplies. Also, the number of transactions can be reduced, thus saving time. Purchasing larger quantities may qualify for discounts.

A centralized purchasing department prevents the duplication of purchase facilities by every department. In fact, the volume of work may allow for the employment of a full-time purchasing professional, even in small towns. Professional purchasers should be familiar with applicable state statutes and city ordinances, as well as sources of supplies and markets. A purchasing professional should be less susceptible to political pressures or special interest groups. Professional ethics and good purchasing procedures will minimize the opportunities, incentives, and risks of corruption associated with any procurement system. The opportunity for a conflict of interest is reduced with a central purchasing department since there are fewer authorized purchasers.

Written purchasing procedures

Written procedures define the roles and responsibilities of purchasing, and there are many advantages of good written procurement procedures. For example, city policy goals such as competitive bidding, minority business solicitations, and local business preferences can be easily coordinated through a central purchasing department and encompassed in written procurement regulations.

Compliance with laws

Federal law compliance is a purchasing necessity. The Clayton Antitrust Act, the Robinson-Patman Act, and the Sherman Act all deal with antitrust activities such as price fixing, bid rotations, geographic customer allocation, and exclusive dealing. Violations of these acts can constitute civil or criminal offenses, and government has a responsibility to detect and prevent violations of these antitrust laws. Also, engaging or promoting antitrust activity may leave your city liable. Even the appearance of being in collusion with city suppliers can cause severe problems politically, raising questions of integrity and fair play. The procurement requirements of federal and state grant programs should be incorporated as part of your city's purchasing regulations.

Purchase orders

A purchase order is another management tool to control acquisitions. It's a sequentially pre-numbered document with all the information about the purchase, including cost, payment terms, delivery location, and description of the items to be acquired. Most purchase orders have multiple carbon copies, but computers have eliminated the need for carbons in many systems.

Whether computerized or not, a purchase order is sent to the vendor supplying the goods. Then, a copy is sent to everyone involved in the purchase. One part is given to the department head that requested the goods, one to the finance department that will ultimately pay for the goods, and one is kept in the purchasing department for control. In larger operations, there may be a formal receiving department that would get a copy. The distribution of the purchase order depends on your operation's size and needs.

Inventory control

Inventory control is concerned with goods already purchased and may be thought of as a custodial service. There are two basic financial information systems dealing with inventories — the perpetual and the periodic systems.

A perpetual inventory system keeps a running balance of both inventory on hand and the cost of goods sold or used. Frequently, these balances are in units and dollars. Inventory by units is necessary for an automatic reorder system, which must begin with a predetermined inventory level. That level should be high enough so that an adequate amount is always on hand. This represents normal inventory plus a safety stock equal to the average consumption, delivery, and restock times. A reminder to reorder the item is automatically created when the stock reaches the safety stock level.

When inventory is bought, entries are made to increase an inventory control account and appropriate subsidiary accounts. As inventory is used, an accounting entry is made to transfer the cost of the goods to the department using the goods. A perpetual inventory is an expensive and time-consuming process to maintain without computerization.

A periodic inventory system doesn't keep track of ending inventories or the cost of goods used. Purchases are expensed and acquired and not recorded as inventory. To determine ending inventory levels and costs, a physical inventory count must be performed. Basically, you calculate the cost of goods sold by subtracting the most recent physical inventory count from beginning inventory and adding all the purchases.

The periodic inventory system is simple, but there's not much information for managerial decision-making purposes. Under the periodic inventory system, losses due to employee theft, spoilage, and obsolescence are automatically included in the cost of goods sold. Since these losses aren't noticed or segregated, managers may be lulled into thinking that tight inventory controls aren't necessary for their organization. Although this is a naïve outlook, there may not be any substantive evidence to the

contrary. This is one explanation as to why the "honor system" for inventory use seems to work.

Property management

Property management is an important responsibility of any financial manager. It begins with ensuring that the proper authorization is obtained for the purchase of long-term or fixed assets. Due to high cost of some fixed assets, authorization may come from the mayor, city manager or governing body. Expensive purchases should be intensely scrutinized and bought through competitive bidding.

Property management includes proper identification of assets. Physical tags should be attached to the asset identifying it as "Property of the City." This tag should have an identification number. Files should be maintained, by identification number, that include: the historical cost, age, type, location, and description of assets. Since government funds are only concerned with short-term assets, long-term assets and their record-keeping have historically been ignored. The tagging of assets is essential in tracking the location of equipment and for assigning responsibility.

Fixed assets include more than vehicles and equipment. The sewer and water systems, roads, land, buildings, and fire hydrants are examples of other property typically owned by local governments. Maintenance of these items is part of property management.

Road maintenance is one item often overlooked by management. Without good records including age, compaction, and type of materials used, it's difficult to project the life of a road and the ramification of deferred maintenance. Potholes can develop, hastening the decline of road integrity, and creating an increased liability for the government. Failure to maintain the road will decrease the potential useful life, resulting in costly premature recapping.

Deferred maintenance on water tanks can cause health hazards due to rust and its subsequent ingestion by the water system's customers. Failure to inspect and properly maintain sewer lines results in undetected cracks in the lines, allowing untreated sewage to leak out of the pipes before it gets to the treatment plant. In wet weather, excessive rainfall can enter the lines through those cracks, which results in additional pumping and treating costs.

Subsidiary ledgers

Subsidiary ledgers are detailed accounting records that back up a control account. A good financial management system uses subsidiary accounting records and a control account. The general ledger will contain a separate asset account for each major asset category considered to be control accounts. The sum of all the subsidiary records adds up to what's listed in the control accounts. Failure to maintain proper records might result in the misstatement of the asset accounts, accumulated depreciation accounts, and depreciation expense. Subsidiary ledgers are maintained separately with detailed information about each specific asset such as:

- tag number,
- cost,
- useful life,
- depreciation method,
- date of purchase, and
- insurance coverage.

Each time an entry is posted to the subsidiary ledger, it must be posted to the control account in the general ledger. Amounts are tracked in two separate places to enhance a manager's control over many assets. A control account is a summary ledger of all important data from the subsidiary ledgers. Subsidiary records are routinely balanced with the control ledger by adding up the cost figure for each subsidiary ledger card. If they balance, this ensures that no ledger cards are missing or altered. A physical inventory should be taken at least yearly, matching the subsidiary ledger to the actual asset.

In summary, a good financial management system will have centralized purchasing and professional staff; written procurement requirements; purchase orders; an adequate inventory system; property management; and subsidiary records. Without these necessary elements, a work order system provides very little quality information beyond direct labor and materials.

Work Orders

A properly designed work order system provides a new level of management tools. Fully implemented, a work order system is used for all routine repairs and maintenance, capitalized repairs, and recovery of accident-related damages. It doesn't replace any part of management. In fact, it probably requires additional staff such as a cost accountant. However, it augments management's ability to supervise and allocate costs by tracking work through each assigned job number.

Work request

A typical work order begins with a request for repairs or maintenance. It may be a citizen complaint or department head request. Any work request should be funneled to mid-management or wherever in the organization work requests are considered for authorization.

Authorization

No work is authorized until management decides the scope of the work necessary. After authorization, the work request is recorded as a work order, then signed by the manager so work can proceed. There's space on the work order for the manager's directions.

The work order is a multi-part document. A copy is retained by the manager for control and information. Other copies may go to the work supervisors for assignment, purchasing, and accounting. In some cities today, the work order system is completely on computer.

Management control

Management control is established by reviewing "open" work orders or the work in progress file. Thus, the manager can tell exactly the number of jobs in progress and their location. When the job is completed, the work order is closed and filed separately from the open work orders.

Closed or completed work orders may be filed and cross-referenced for later review, such as when preparing next year's budget. Progress can be monitored and results quantitatively measured by job or work order very quickly. This is essential for billing repairs of city-owned property, such as fire hydrants damaged by a vehicle accident. However, the accuracy of information provided is only as good as the input. Consistency is the first goal.

Work supervisor

The work supervisor receives work orders from management, which may have added specific instructions or recommendations for correction. The supervisor reviews each work order and assigns personnel to the jobs. The work order will have a written description of the request for assistance and the location. The supervisor also may provide written instructions on the work order. The instructions on a work order usually depend on the experience of the crew or line workers. New types of work may require exacting directions, whereas routine work needs less.

It's the work supervisor's responsibility to know the status of all authorized work in his or her area. The supervisor decides when the job is complete. Then, the date of completion is noted on the work order along with any description of how the job was completed. The closed work order is sent back to the manager, since the work supervisor only has open work orders.

Accounting

After authorization, a copy of the work order is sent to accounting or finance. Someone in that department (a cost accountant) should be very familiar with the work involved, the budgets affected, the chart of accounts, and the accounting requirements for proper recording. This is a critical function wherein the work order is "coded" so that all the accrued costs of labor, materials, equipment, and overhead are charged to the proper department(s).

Coding is how work orders are segregated into recoverable (from accidents), capital, or routine. There's nothing magical about this process, although it requires considerable knowledge of city activities and consistency. The process is similar to any accounts payable function and allows the costs to be spread to any number of activities or departments.

Usually on a monthly basis, accounting will produce work order reports. These reports should list all labor,

materials, equipment, and overhead costs for every job work order number. There should be two reports — one of previously closed work orders and one recording all work accomplished last month. You'd want to know when an open work order was closed last month.

These work order reports provide management with a lot of timely information. At a glance, a manager can see who worked on what jobs; the amount and type of materials used; the equipment used; and which jobs were completed. The reports give managers access to new information. They can quickly see exactly the resources involved with any job they wish to track.

Many routine jobs are authorized on a single work order for simplicity. For example, street sweeping is done on a schedule throughout the year. It's a budgeted expense, but one that usually doesn't vary much. It's probably not worth the effort to authorize a separate work order every time you want to sweep a street. You would still continue to record all labor, materials, and so forth by work order each month, but some orders would stay open all year.

Components of the Work Order System

Labor

The best work order system captures all time spent through an employee identification number. When the line employee arrives at work, jobs are assigned by the supervisor based on the work order(s). A work order system could be partially implemented; for example, only certain jobs are tracked such as for recoverable accident repairs. In these limited situations, only direct costs are tracked. Therefore, labor time not spent on a work order wouldn't be tracked. This significantly reduces the effectiveness of the work order system as a management tool.

On a daily basis, all labor time should be accounted for on a time sheet. Each employee should have a time sheet, corresponding to the pay period. This is common for any department. Additionally, there should be some type of daily "labor distribution" sheet. The labor distribution sheet is a key element as it tracks every employee, all day, along with the equipment used, by work order number. The labor distribution sheet is reconciled weekly with the time cards. This function must be done by someone, often a cost accountant, familiar with employees and jobs.

Capturing all time means that even when employees aren't working, their time should be accounted for. This means any down time, vacation, illness, cleaning, and any other non-working time should be recorded on separate work orders. These "nonchargeable" labor costs are reallocated as overhead costs (more on overhead costs later). Capturing all time reduces verification problems by providing a separate check of time charged and time paid for. This also gives a manager a quick reference to unproductive labor costs such as monthly time spent on leave, in-house cleaning, or time lost due to inclement weather. This is one way the manager can properly review each employee's productivity.

After the weekly employee time sheets are turned in to the payroll department, they're sent to the employee handling cost accounting and verified with the daily labor distribution sheets. Note: This isn't a normal payroll department function. The employee's identification number is then matched to his or her individual pay rate, thus creating the proper labor costs by job (work number). This is the reconciliation process mentioned earlier, ensuring that all labor hours to be paid are also captured by work order number. Allocating labor by work order is considered an extra step or function in accounting.

Without work orders, labor costs (plus material, equipment, and overhead) are typically recorded as expenditures by department or function only. With a complete work order system, all labor costs (plus material, equipment, and overhead) are charged out to the proper department via the work order reports. Work orders provide a more detailed, additional level of allocating costs. Labor used on a job wouldn't be charged directly to a department as an expenditure.

Rather, labor would be charged against the work order. Then, after the monthly work order reports are prepared, charges for labor and other costs are made to the appropriate departments.

Materials

The work order provides the necessary authorization to acquire materials from the purchasing department. Many repair jobs use standard parts that can be pulled from inventory for routine jobs. Specialty parts can be bought after an on-site inspection of the job.

In some computerized systems, an inventory clerk would "fill" the work order with materials form inventory before the line employees arrive in the morning. This can save time on stocking and restocking, keeping the line employees on the job where they're more productive.

Regardless of the sophistication of the purchasing/ inventory department, the concept is to attach a work order number to all inventory withdrawals or purchases. There should be a "material issue" sheet for each inventory withdrawals. This sheet should have a space for the date, work order number or activity code, inventory number and description, quantity, unit price, total price, and employee signature. Most of this information can be computerized, but the employee signature indicates responsibility for the inventory.

The cost accounting function can charge materials to a specific job by placing the work order number on the material issue sheet. On a monthly basis, the work order reports will be run. Like labor costs, material costs will be listed by work order number. Those costs are subsequently charged to the proper department.

Equipment

Often, equipment is necessary to transport employees to a job site. Vehicles for transportation of labor and equipment used on the job may properly be charged out via the work order. Each piece of equipment should have an inventory number or some other identification number. This is similar to the employee identification number but it's for equipment. The employee simply records the various equipment numbers and the time used on the daily labor distribution sheet by work order.

Rates used to charge out equipment will vary due to different costs and use, and those rates must be set up in the computer system just like payroll rates. One way to develop an equipment rate is to approximate the annual cost of a piece of equipment and divide it by the number of hours of expected use for the year. The annual costs could be developed by dividing the original equipment cost by its anticipated useful life. This is how depreciation is calculated. That amount should be increased by the annual maintenance costs. The concept is to come up with the total estimated costs of operation for one year. Then estimate the number of hours or days that the equipment would be used. If your estimate is accurate, all costs of equipment operation will be charged out via the work orders.

Hours of operation or mileage may be a better basis for allocating use than years. In these cases, the equipment rate is determined by dividing the cost by the total expected hours of operational life. This will produce a rate per hour based on budgeted use. This works best when the budgeted number of hours equals actual use. A poor estimate of equipment use will result in improper charges per unit of measurement (hours, days, mileage).

Constant monitoring and making adjustments when necessary are essential to accurate cost allocations. The people creating this rate need to know what they're doing and have a good grasp of the work flow. Consistency in application is very important. Written guidelines should be developed for charging equipment out. Anticipate questions such as, "Since I drive my truck to and from the work site but don't use it on the job, do I charge eight hours or just my commuting time?" The correct answer is to do it the same way as budgeted use is commuted. In that way, the proper amounts are being charged out as anticipated. This is another area where it's critical to have a knowledgeable cost accountant help with the work order system. Cost accounting will charge out the equipment when the daily labor distribution sheets are recorder.

As a rule of thumb, transportation equipment rates are usually based on commuting time only since the vehicle is not "being used" all day. Basing this computation on mileage rather than hours of use eliminates this question. Other equipment (not used for transportation) is used for specific periods of time. A trencher is used only to open and close a ditch. If the equipment has an "hours" gauge, it should be used. The goal is to use some method that approximates the cost and fairly distributes it.

Overhead

The costs of labor, materials, and equipment use discussed above are called direct costs. They're directly associated with the jobs performed. However, most work has valid costs that can't be charged directly to a job. These are called indirect costs. When a department operates as a profit center, such as internal service funds, or where cost accounting is used, overhead is the term used to charge out the indirect costs. The terms overhead and indirect costs are synonymous. Although you can use the work order system without overhead considerations, computation of overhead separates the men from the boys in cost accounting.

Items such as rent, debt service, utilities, and non-chargeable labor costs (vacations, inclement weather, tool cleaning, etc.) are indirect costs. There is an underlying assumption that any work performed requires overhead costs, even though these indirect costs aren't attributable to any specific job (hence the term indirect). For instance, work supervisor wages are necessary for someone to receive work orders and to allocate the work. This function is necessary even though management may not even see the work accomplished. These indirect costs are necessary to conduct business. Indirect costs are accumulated monthly and become the numerator (the top number) in the overhead rate calculation. These costs are properly charged out each month as overhead through the work orders each month.

Once the overhead costs are determined, there must be a way of charging them out via the work order. The preferred method is to charge out overhead per direct labor hour. The concept is that jobs requiring more direct labor receive more indirect labor, such as supervision. Any other indirect costs are piggy-backed on this concept.

The daily labor distribution sheets are reconciled with the payrolls and the payrolls are tied to the general ledger. The monthly work order system reports should contain the direct labor hours charged per work order. Direct labor hours become the denominator (the bottom number) in the overhead rate calculation. Remember that you account for all non-chargeable time and that it is accumulated as indirect costs.

Now for the overhead rate calculation. Divide the monthly indirect costs (numerator) by the number of direct labor hours (denominator) charged to the work orders to compute the overhead rate per direct labor hour. This overhead rate can change dramatically from month to month. The biggest reason for the change is differing direct labor hours due to changes in the workload.

In better work order systems, after years of experience, this rate is estimated (budgeted) at the beginning of the year. That would eliminate monthly fluctuations in the overhead rate, but requires some adjustments to clear out all the actual costs before year end. However the overhead rate is computed, it should be charged out at so much per direct labor hour. Often, the overhead rate is quite large.

With direct labor, material, equipment, and overhead aggregated by work order, all costs of the operation may be charged out. This type of cost accounting and documentation will stand up in court, enabling your city to recoup overhead costs from accident-related accounts receivable. Capital work orders may be easily segregated and used as a backup for journal entries. Routine work orders can assist in next year's budgeting process while assisting management with work trend analyses.

The actual forms will differ for each city. Devise some of your city and update them as needed. The system can be integrated with your accounting records and updated automatically, or completely separate and partially used.

Several other MTAS publications are available that may help you to set up a work order system for your city. Ask for the *Purchasing Guide for Tennessee Municipalities*, *General Fixed Asset Accounting*, and the Technical Bulletin entitled *Good Service Request Systems Keep Customers Happy*.

For More Information

If you have questions please contact your MTAS Management Consultant.

Or, call the **MTAS Answer Line** to receive quick answers to short questions: **(888) 667-MTAS** (6827). You also may visit our Web site at **www.mtas.utk.edu**.

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