



MUNICIPAL TECHNICAL ADVISORY SERVICE
The University of Tennessee
in cooperation with The Tennessee Municipal League



CITY OF KNOXVILLE
DEPARTMENT OF PUBLIC SERVICES
ORGANIZATION AND OPERATIONS STUDY

Prepared by:

The Municipal Technical Advisory Service of The University of Tennessee

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MTAS PROJECT TEAM

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I. PROJECT CHRONOLOGY

In March, 1989, J. Laurens Tullock, Director of the Department of Public Services of the City of Knoxville requested that the Municipal Technical Advisory Service (MTAS) of the University of Tennessee conduct a review of the organization and operations of the Public Services Department.

MTAS Executive Director, C. L. Overman, selected a project team from the staff of MTAS to administer the study. The team consisted of Elwyn Bembry, Public Works Consultant, Thomas A. Brant, Management Consultant, Joseph Muscatello, Senior Program Manager, and M. Michael Tallent, Senior Regional Management Consultant. The project was initiated on March 20th.

The project team met with the supervisory staff of the Public Services Department at a staff meeting on March 22nd. At that meeting Mr. Tullock expressed his interest in the project, and indicated that he wanted a thorough and complete review of the department. He indicated that several supervisory positions were currently vacant, and that the study was important and timely to the future staffing of the department. Subsequent to this initial meeting, the MTAS team submitted a list of information it would need to do its work.

Mr. Tullock and his staff promptly provided the following requested items of information, which were used in conducting the study:

- o A list of City department heads to be interviewed.
- o A copy of the City's code of ordinances.
- o The administrative rules and regulations of the Public Services Department.
- o A copy of the City's policies and procedures.
- o Departmental policies governing the performance of functions and activities.
- o Employee evaluation forms used within the Department.
- o Forms used in processing citizen complaints, and requests for service.
- o Information on training programs provided for departmental personnel.
- o Information on safety programs provided for departmental employees.
- o An organizational chart of the entire city government.
- o A map of existing city council districts.
- o A summary of the Department's budget history.
- o Any available base data, such as miles of roads.
- o Information that might indicate the literacy rate within the Department.
- o An explanation of the "small areas" concept that the Department has identified.

In addition to the above information, the Department compiled and delivered a notebook 1 1/2 inches thick with information on personnel, job descriptions, equipment inventory, structure of work crews and considerable additional information. Dave Lambert and Joe Inman were extremely helpful to the project team in providing this information, and responding to additional requests for information during the course of the project.

On April 5th the MTAS project team delivered to Mr. Tullock a draft work outline and project schedule.

On April 28th the MTAS team met with a Policy Team that Mr. Tullock had formed to work with and assist MTAS during the course of the study. The Policy Team consisted of Mr. Tullock; Melissa Mitchell, Civil Service; Sheridan Anglia, Management & Budget; Herb Kidd, Public Services; Bob Barker, Public Services; and Jean Bright, Public Services, who served as secretary. The MTAS team explained the approach that it would take in doing it's work, and the schedule that it would follow.

On May 4th Mr. Tullock advised by letter that the interview schedule proposed by MTAS was approved and that arrangements had been made for the interviews to be conducted as requested. During the months of May and June, the MTAS team interviewed over forty management, supervisory and foreman level employees within and outside of the Public Services Department.

On May 25th the MTAS team toured the following physical facilities of the Department: horticulture, grounds maintenance, building maintenance, the transfer station, and the buildings located at the Loraine Street complex.

During the months of June and July, Elwyn Bembry, MTAS Public Works Consultant, spent 15 days in the field with many of the Department's work crews verifying information secured through personal interviews, and obtaining additional information through personal observation.

During the same period the MTAS project team held several meetings to discuss a broad range of problems and issues associated with the completion of the study. At this point the study team was giving intense consideration to the development of the organizational concepts that would be recommended. In early July the study team began preparation of the first written draft of its findings and conclusions.

On July 14th the MTAS study team met with the City's Policy Team, and presented the organizational concept and organizational changes that it had developed. A similar presentation was made to Mayor Victor Ashe on August 4th.

While work was proceeding on the study, MTAS, Public Service Department staff members, and representatives of the City's Policy Team visited several cities to observe the operations of other Public Works Departments. Visits were made to Chattanooga on July 13, to Johnson City and Kingsport on July 27, to Greensboro, North Carolina on August 10th and 11th, and to Louisville Kentucky on August 24th and 25th.

The writing of this report began in September and was completed in November.

II. DESCRIPTION OF PRESENT ORGANIZATION

The Department of Public Services is organized in a centralized manner within two divisions: Operations, and Administration.

Operations presently consists of seven distinct organizational units. Six of the seven are structured in a centralized manner. Only the Street Cleaning Division, which is organized by geographic zones, reflects any degree of decentralization.

The seven organizational components of Operations are:

1. Building Maintenance is responsible for all general maintenance and repairs, including the heating and air conditioning for all city owned buildings. There are 104 city owned buildings. The work is performed by five crews. There are 16 budgeted positions.
2. Construction performs new construction as well as the regular maintenance of streets, rights-of-ways and alleys. This includes "pot-hole" patching, major asphalt paving, maintenance and installation of storm sewers, driveway tiles and basins, re-rocking and oiling of alleys, maintenance of handicap ramps, maintenance of all concrete walls, stairs and walk-overs, construction and maintenance of sidewalks and driveway approaches. The work is performed by seven crews.
3. Stores System - Central Warehouse orders, receives and issues equipment and supplies. It controls pilferage, repairs equipment (small tools), and warehouses materials and equipment for various departments of the City. There are 3 budgeted employees. The facility is located at Loraine Street.
4. Transfer Station provides an inner city dumping site for residential and commercial customers, as well as city crews. The major use of the transfer station is currently for tree, brush and yard debris. Approximately 100 City vehicles dump at this location each day. The three operations that occur at the transfer station are weigh-in, compaction, and clean up. There are 9 budgeted employees.
5. Street Cleaning performs brush pick-up, street sweeping and flushing, leaf pick-up, snow removal and a variety of miscellaneous services, which includes alley clean-up, vacant lots, tree removal, weed spraying, dead animal pick-up, prisoner detail, and the night cleaning of downtown streets and alleys. With the exception of the miscellaneous services, work is organized and performed within three zones. Each zone is assigned approximately 22 employees. There are 141 budgeted positions.
6. Grounds Maintenance performs mowing, trim work and special services in maintaining rights-of-way, athletic fields, parks, riverbanks, creekbeds, vacant lots, boulevards and medians, recreation centers, and provides services for special events. There is a well defined winter schedule, and summer schedule. There are 44 budgeted positions. The grounds maintenance office and storage facility is located on Winona Street.
7. Horticulture produces and grows plants, landscapes properties, and maintains landscaping on streets, parks, building sites, planters and

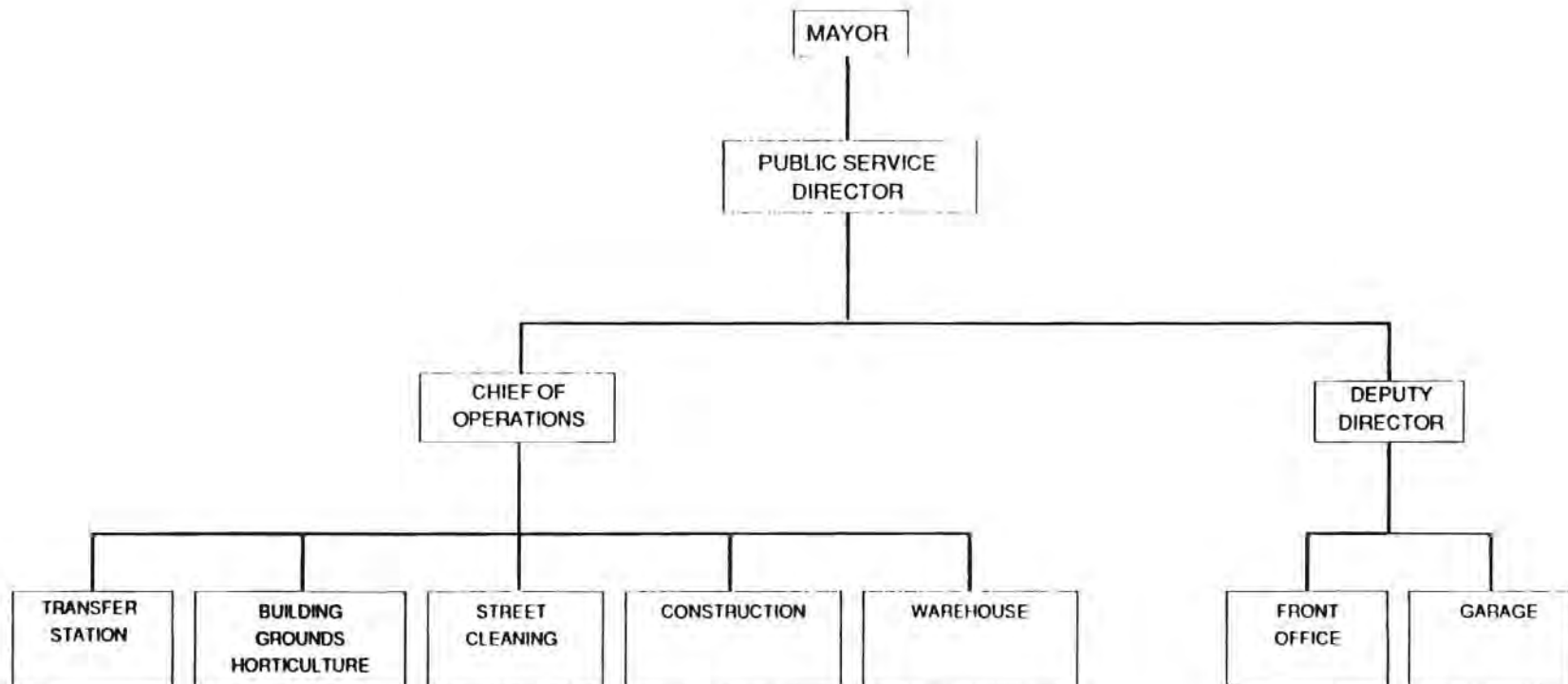
other city owned facilities. A greenhouse and nursery is operated at West Adair Drive. There are 13 budgeted positions.

The Supervisor of each of the above operating units reports to the Chief of Operations.

In addition to the Operations Division of the organization, there is also a Division of Administration. The Deputy Director supervises Administration, which includes front office and garage administration. The Deputy Director supervises budget, payroll, purchasing, personnel actions, record keeping, contract administration, and annexation.

An organization chart of the present departmental structure is on the following page.

PRESENT ORGANIZATION CHART - PUBLIC SERVICE DEPARTMENT



III. ORGANIZATIONAL ANALYSES BY ORGANIZATIONAL UNIT

- A. Building Maintenance
- B. Construction
- C. Stores - Central Warehouse
- D. Transfer Station
- E. Street Cleaning
- F. Grounds Maintenance
- G. Horticulture
- H. Loraine Street Garage

A. BUILDING MAINTENANCE

Description of Operations

The Building Maintenance unit is responsible for all the general maintenance and repairs of all city owned buildings. "All maintenance and repair" includes heating and air conditioning: "All city owned buildings", does not include the city and county building (Public Building Authority, Building Maintenance only maintains the furniture), the coliseum (has its own maintenance staff), World's Fair Site (has its own maintenance staff) and the Safety Building (sometimes it's under Building Maintenance and sometimes it's not). Excluding these buildings, the Building Maintenance department is still responsible for 104 city owned buildings. This number was less until the recent consolidation that placed twenty-two (22) fire department buildings and thirty (30) recreation buildings under Building Maintenance.

The maintenance that is performed ranges from simple maintenance functions such as changing light bulbs, to major repairs such as replacing roofs, and even constructing small buildings. According to the Buildings and Grounds Chief about ninety-five percent (95%) of the work is work order generated, with about sixty percent (60%) of that originating with the Parks and Recreation Department. The schedules and general information regarding Building Maintenance indicate an emphasis on preventive maintenance, but in reality little emphasis or time is devoted to preventive maintenance. This does not appear to be a decision of choice, but rather one that is required because of significant workload and limited resources.

In addition to actual "building" maintenance, the unit also has responsibility for non-building items, such as the tennis courts and all private property damage, such as mail boxes and water faucets that are damaged by a knuckle-boom operator while picking up brush. Building Maintenance also "bids" on repair or new construction jobs in councilmanic districts. Whether these are truly competitive bids on the part of Building Maintenance, or simply general estimates is not known. In either case, Building Maintenance usually gets the job, and these jobs appear to take a priority over other maintenance.

Staffing

Building Maintenance is operating with a sixteen (16) person unit, composed of two (2) supervisor types (Chief and Supervisor), one (1) account clerk, one (1) senior electrician, ten (10) craft workers and two (2) general maintenance workers. The staff generally operates in two (2) man crews, unless the job requires more men. The staff appears to be very capable and the quality of work appears to be good. This is, however, a totally subjective opinion, since there is no evaluation program or criteria in place. Staffing may be inadequate, if preventive maintenance is not being performed and can't be performed because of the limited staff size. Currently, with 104 buildings, each crew would have to visit between 17 and 21 buildings (depends on the number of crews) per week just to be on site at each building each week.

The Building and Grounds Chief's title includes grounds maintenance, but he has no authority or responsibility over Grounds Maintenance or Horticulture. The Chief has a Maintenance Supervisor reporting to him, but without the additional responsibility for Grounds Maintenance and Horticulture it is difficult to justify that additional supervisory position.

Facilities and Equipment

The shop site at Elm Street appears to be adequate and the tools also appear to be adequate. The vehicles are operable, but they are secondhand from other departments. Regardless of its cost efficiency, it doesn't do much for employee morale. If a pickup truck is good enough to continue operating, then it is good enough to stay with its original department. Although each truck has a "mounted" radio, the trucks do not have portables. In many cases the crews are either too far away from their truck to hear the radio, or in a building without a telephone, or working where they can't hear the telephone. If a crew is on top of a roof, neither the truck mounted radio nor the telephone are of much use. In such instances contact with these crews requires that someone actually drive to the job site.

Recommendations

1. It is recommended that a building inventory be established. This should include basic data, such as location, type of construction, square footage, age, maintenance history (major repairs) etc. It should also include architectural plans where they are available. High school or college students could prepare the inventory under the Chief's supervision.
2. A thorough preventive maintenance plan and schedule should be developed. It should be prepared without consideration of manpower limitations. When a plan and schedule have been prepared, they should be used as a primary budget element for manpower and materials. The Department should draw on industry standards in putting this plan together and in allocating manpower. If other City departments are involved in preparing this plan and schedule, it should substantially lessen the amount of work orders that are being generated, especially by Parks and Recreation.
3. A formula should be developed for costing out major repairs or construction (roofs and new buildings etc.). This formula should be used to estimate the cost of a project using city forces and, where possible, comparative bids should be sought from the private sector for those projects. The primary objective of Building Maintenance should be preventive maintenance and minor repairs, except in those cases where substantial free time is available, or the private sector cost is totally unacceptable.
4. If there is justification for having a Building Maintenance unit, then there is justification for all city owned buildings and facilities being maintained by that unit. There may be exceptions on jointly owned property such as the City and County Building, but if it is a City

controlled facility, whether directly or indirectly (Public Building Authority), it should be maintained by Building Maintenance. If all personnel currently devoted to maintenance, at these other facilities are transferred with the buildings, it would give Building Maintenance greater flexibility in scheduling, and should give the City greater utilization of those workers.

5. The internal cost accounting system should be re-evaluated, and if it is discontinued, consideration should be given to assigning the account clerk in Building Maintenance the paperwork for the Department (records, payroll, purchasing, etc.) and also the tasks performed by a data supervisor when needed.

B. CONSTRUCTION (STREET MAINTENANCE)

Description of Operations

The Construction unit of the Department performs new construction and regular maintenance of streets, and street related structures. The unit's crews are organized to perform specific functions Citywide. Services provided include the following:

- o repair of pot-holes
- o asphalt paving
- o maintenance and installation of storm sewers and basins.
- o re-rocking and oiling alleys
- o maintenance of concrete walls, stairs and walk-overs
- o street construction
- o maintenance of handicapped walks connected to City property

There are seven crews within the Construction unit. The foreman of each of the crews reports to the Construction Supervisor. Work is generated through work orders resulting from the input of the Engineering Department, the Parks & Recreation Department, the Mayor, Council members, the general public and the Public Service Department itself. There is an average of about ten requests per day from all sources.

Staffing

Employees of the Construction unit are assigned to one of seven crews as follows:

- Crew 1 - cleans and maintains all storm sewer lines and driveway tiles (7).
- Crew 2 - maintains streets, rights of way, and alleys (13).
- Crew 3 - installs and repairs sidewalks, and concrete driveway approaches (6).
- Crew 4 - performs several aspects of street construction such as installation of storm sewer pipe, and construction of catch basins and manholes (7).
- Crew 5 - performs the same functions as Crew 4 (9).
- Crew 6 - performs the same functions as Crews 4 & 5 (7).
- Crew 7 - organized in three sections to perform maintenance of asphalt streets (18).

Facilities and Equipment

All of the Construction unit's work crews work out of the Loraine Street Garage. Each of the crews works Citywide, as assigned by the Construction Supervisor. There are approximately 90 pieces of rolling stock assigned to the unit, but no planned equipment replacement program. The condition of equipment is evaluated on a year to year basis, and the Director of Operations makes decisions relating to specifications of equipment to be purchased.

Recommendations

1. Abolish the Construction unit as presently organized.
2. Each function performed within the Construction unit must be analyzed, and a decision made as to the most effective and efficient manner of service delivery. Currently, all functions are delivered through centralized crews with Citywide responsibilities. MTAS believes that many of these functions would be performed with greater effectiveness and efficiency through a decentralized organizational structure. This means defining geographic zones. Within each zone all required "construction" services would be delivered, together with many services now delivered by other organizational units of the department. Large capital projects would be performed by a central crew.
3. Centralized construction services (large capital projects) should be organized within a new Infrastructure Group, that also includes heavy equipment, and paving operations.

Special Issues and Problems

During the interview stages of this project, the following items emerged as matters of concern in the Construction unit:

- o The asphalt patching function is neither efficient nor effective. The entire operation needs to be evaluated, and different work procedures and methods need to be used.
- o Preventive maintenance on equipment must be improved. Some way must be found to get broken equipment back in operation in less time. During the tour of the Loraine Street facilities, it was noted that a street sweeper and other major rolling stock had not been in service for several weeks.
- o Management needs to assess the condition of all radios, and replace old and inoperative radios as soon as possible.
- o Job orders should indicate what materials are needed to complete the work.
- o There are indications of significant losses of work tools and small pieces of equipment, more so than in other operating units. This problem merits the attention of top management.

C. STORES SYSTEM - CENTRAL WAREHOUSE

Description of Operations

The Central Warehouse is open from 7:00 am to 3:30 pm and exists solely to serve Public Service. However all Public Service operations (Building Maintenance and Grounds Maintenance) do not use the facility. Other departments may use it, but only if its prices are lower than the private sector. In a field review of the warehouse, prices did not seem to be competitive in all cases. The primary purpose of having a warehouse is (1) to provide convenient one stop shopping; (2) consolidate purchasing and thereby save money; and (3) assure that needed materials will always be in stock. To obtain these features requires traffic in large volumes of stock, and this requires broad participation.

The warehouse stocks between 300 and 400 separate items and maintains a dollar inventory between \$95,000 and \$115,000. Typical items are tools, safety shoes, janitorial supplies, metal culvert etc. All of this is controlled with a manual inventory system. The warehouse has total control over the items and the quantities purchased. There are problems of communication between the Central Warehouse and Purchasing. The Central Warehouse believes that Purchasing really controls the quality of items purchased, and that Purchasing does not monitor and police companies in the performance of their delivery responsibilities.

Staffing

The staffing for the warehouse consists of a supervisor and two (2) utility workers. The supervisor assumed his current position without any prior experience in supervision or in operating a warehouse. The two (2) utility workers apparently had not been assigned by management with accounting or paperwork experience as a priority qualification.

Compensation appears to be a point of concern. The supervisor noted that he made less than the Transfer Station Foreman, but expresses satisfaction with benefits.

Facilities and Equipment

The warehouse facility appears to be of adequate size, and the vehicle appears to meet existing needs.

Recommendations

1. It is recommended that the supervisor detail his problems with Purchasing, whether real or perceived, and submit these to the Public Service Director. It is suggested that the Director then convene a meeting of Purchasing and the Warehouse Supervisor to resolve these problems.
2. It is recommended that all units of the Public Service organization be required to use the warehouse.
3. It is suggested that the internal cost accounting be abandoned, that commodities be charged at cost and that overhead be apportioned at the end of the fiscal year, based upon each unit's percentage of total dollar activity.
4. It is recommended that standing specifications be developed for all items where possible, and that such specifications be scrutinized to insure quality.
5. It is suggested that one or both of the utility clerks be transferred to other utility worker positions within the department or to another department, and that the warehouse be assigned a stock/account clerk.
6. It is recommended that the warehouse consider orders via the radio and that long term consideration be given to field deliveries.
7. It is suggested, if Public Service goes to zones, that mini-supply rooms be provided at each zone, and that the warehouse be responsible for maintaining them.

D. TRANSFER STATION

Description of Operations

At one time, the transfer station was the central transfer point for all of the City's solid waste, but with solid waste collection and transport now contracted to Browning Ferris Industries (BFI) the transfer station currently only serves the City's brush collection operations, and individual residents and private businesses. The transfer station has three (3) dumping units capable of handling four (4) trucks each, and has scales for weighing all incoming loads. The Station charges all business and non-city residents using the facility \$14.00 per ton. The average daily volume of the transfer station is one hundred and twenty-five (125) tons as compared to nine hundred (900) tons from the City and County combined in 1984. The biggest percentage of this tonnage is composed of brush, which is a waste product that the transfer station and the transfer trailers were not designed to handle. The next biggest waste product is an estimated ten (10) to fifteen (15) tons of cardboard per day. Even though the station will not accept tires, roofing and other types of demolition material (wood, brick, concrete etc.), it will take brush in all lengths. This practice ignores the City's policy as established in the Municipal Code.

The transfer station opens at 7:00 am and closes at 3:30 pm, Monday through Friday. Saturday operations were closed in 1983. Ninety percent (90%) of the station's volume is generated by City work forces, who frequently are unable to dump their last load of the day before the station closes. Since all Public Service operations close at the same time, brush crews either dump their last loads of brush early or hold it on the truck at the Public Service yard. The City is currently operating approximately eighteen (18) brush collection vehicles (knucklebooms) that average four (4) to five (5) loads each per day at one and one-half (1½) to two (2) tons per load. All refuse from the transfer station is transported to the Anderson County Landfill which involves a one-hour round trip.

Staffing

The transfer station operates with a staff of nine (9) employees which includes the foreman, a scale operator, two (2) equipment operators, three (3) semi-truck drivers, and two (2) utility workers. The equipment operators are responsible for operating the compactors and the backhoe, and take the lead in maintenance. They are assisted by the utility workers, who also clean the facility. Most of these employees have been with the City for a number of years and many of them are entitled to five (5) weeks vacation per year. The volume of leave time causes scheduling problems during the summer. The foreman controls vacation scheduling, and usually limits summer vacations to two weeks at a time. Such a limitation should be City policy. Regarding salary and benefits, there is a feeling that the pay scale is low, but other benefits, except for the cost of health insurance, are very good.

Facilities and Equipment

The facility, as described above, is sixteen (16) years old and has suffered a lot of wear, especially while trying to compact brush. The station also has a backhoe, three (3) tandem road tractors, and four (4) seventy-five (75) yard transport trailers. Only two of the trucks have radios and this presents a problem, if the third truck breaks down on the way to or from the landfill. Although some of the trailers have been replaced, they have been known to operate for extended periods of time without brakes or lights. Fleet Management's preventive maintenance program is well received, but the turn-around time on repairs is not considered acceptable.

Transfer station personnel clean the facility. They wash down the facility daily and steam clean it every two weeks. Station personnel also do their own maintenance on the compactor, with major repair work being done by Fleet Management or by contract.

The scale appears to be doing an adequate job. The foreman noted that on one occasion weigh tickets were not used for two months because there was no printer ribbon. The station foreman drives his own vehicle on City business, but does not receive any compensation for its use (i.e. mileage payment for miles driven).

Recommendations

1. If the City does not compost its brush, it is recommended that the hours of operation of the transfer station be changed to accommodate the late arriving brush trucks. Currently, a trailer can be loaded in the afternoon, but not taken to the landfill until the next day.
2. It is recommended that the station's hours be extended in the spring, summer and fall to better accommodate the public. It is also recommended that the station stay open on Saturday for at least one-half (1/2) day to accommodate residents' clean up efforts.
3. It is recommended that all transfer tractors be equipped with radios.
4. It is recommended that equipment safety standards be adopted and that no tractor or trailer be allowed to operate, if it does not comply with those standards.
5. If the transfer station continues to accept brush, it is recommended that the standards on length and diameter be observed, as stated in Section 19-20 (b)(3) of the Knoxville Municipal Code.
6. It is suggested that consideration be given to installing a cardboard "bailer" at the transfer station to permit recycling of the large amount of cardboard that is received daily.
7. It is suggested that the transfer station be promoted as an alternative to roadside or alley dumping. This would have considerable effectiveness if the station is open on Saturday.

E. STREET CLEANING

Description of Operations

The Street Cleaning unit performs a broad range of public services that include the following:

- o Brush pick-up
- o Street sweeping and flushing
- o Leaf pick-up
- o Snow removal
- o Alley clean-up
- o Vacant lot and right of way maintenance
- o Tree removal
- o Dead animal pick-up
- o Weed control
- o Litter pick-up - prisoner detail

Brush pick-up, street cleaning, leaf pick-up, and snow removal are performed by crews working in specifically assigned zones of the City.

Staffing

Three zones have been established for the performance of the basic functions of the Street Cleaning unit. Each of the zones is assigned either 22 or 23 employees, which includes a foreman for each zone. These 67 employees comprise less than one half of the unit's 141 budgeted positions. In recent years many positions, vacated through retirement or resignation have not been filled.

Other services delivered through this unit are organized to serve all areas of the City. All employees of the Street Cleaning unit report to the Street Cleaning Supervisor, who reports to the Director of Operations.

Facilities and Equipment

All of the Street Cleaning crews work out of the Loraine Street garage. The zone crews are assigned dump trucks, knuckle-booms, salt spreaders, a sweeper and a flusher. There are on-going equipment maintenance problems, and frequently a zone crew is unable to perform all of it's duties because assigned equipment is inoperative.

There is no planned equipment replacement program, and an inadequate preventive maintenance program.

Recommendations

1. Abolish the Street Cleaning unit as presently organized.
2. Each service and function performed by the "Street Cleaning" unit must be analyzed, and a decision made as to the most effective and efficient manner of service delivery. The unit is already familiar with some aspects of a zone based organization. As indicated above, the following services now provided by the Street Cleaning unit should be delivered through a revised and expanded zone structure.

Special Issues and Problems

During the interview stages of this project, the following items emerged as matters of concern in the Street Cleaning unit:

- o Private tree trimming businesses are quoting prices to the public based upon the assumption that the City will pick up the branches and cuttings resulting from the job. This is not true, and has on several occasions been a public relations problem. There is a need for an enforcement program to assure that private companies do the clean up, and include that cost in their pricing to their customers.
- o The alley clean up crew, and the zone crews are spending considerable time in trying to keep the residential alleys in the City clean. It appears that there is a need for top management of the Department to closely monitor contract performance by the private collector, and to mount some kind of public campaign to secure greater cooperation in maintaining alleys in a sanitary condition. Making the transfer station available for public use at more convenient hours could be a key to improving the appearance of alleys.
- o As is the case in many cities, parked cars present a problem in cleaning streets effectively and efficiently. The top management of the Department should develop a parking plan, in neighborhoods where it is feasible, that would assure better results from street cleaning operations.
- o There does not appear to be adequate equipment to accomplish effective performance in picking up leaves, or cleaning up alleys. Departmental management needs to thoroughly assess it's methods, and the equipment it needs to perform these services.
- o There is never enough operable equipment to perform street cleaning on a scheduled basis. This entire operation needs to be studied and corrected. There are indications of frequent abuse of equipment, lack of appropriate training of equipment operators, and an inability to keep equipment on the street without unreasonable interruptions because of breakdowns.

- o Far too much time is being expended going to and from the transfer station, and the landfill. Too much time is also being expended in going to and returning from work sites in the morning and evenings. Changing to an expanded zone based organization will alleviate much of this, but the Department's top management needs to address these extremely wasteful and counterproductive practices.

F. GROUNDS MAINTENANCE

Description of Operations

The Grounds Maintenance operation was located within the Recreation Department at one time. It is currently housed at a facility on Winona Street and much of its work (40% to 45%) is still performed for the Recreation Department. Much of its work involves grass mowing over a season that starts in March and sometimes goes through November. Its responsibilities for mowing include all Recreation facilities (except active parks and ballfields which may sometimes be mowed by Recreation personnel), all Public Service facilities, all Public Safety facilities (does not include every fire station) and considerable street rights-of-way, limited mainly to the area between the curb and sidewalk. Most of these areas are mowed on a three (3) week cycle, except for Public Safety, which is mowed on a two (2) week cycle.

There are four (4) "Primary Crews" that perform most of the mowing. Each crew has three (3) employees. Following the "primary" crews is a trim crew, also consisting of three (3) people. Part of the rights-of-way (ROW) mowing is performed by one crew, of four (4) people, that cuts the sidewalk medians, followed by another three (3) person crew that mows and "trims" boulevard medians and cul-de-sacs in addition to mowing around curbs, fences and city owned buildings. This crew is accompanied by the operator of the "Slopemaster Machine" that is used to mow steep banks that require a fine cut.

Grounds Maintenance also operates "special" crews such as the "fine trim" two (2) person crew that uses two (2) Kubota tractors to mow and trim the athletic fields. Another special crew is the two (2) person crew that uses bushhogs to mow river banks, creek banks and vacant lots. Another two (2) person crew uses "trail blade" mowers to mow boulevards, rights-of-ways, and all street medians. One of these crew members also operates the Mowtrim on large city lots and other vacant lots. All of these crews are devoted to "mowing".

In addition to the mowing function, other special crews perform ballfield maintenance (one man on a grader tractor), and maintain and repair city owned fences and playground equipment (one man). A garbage or litter crew cleans up around recreation facilities and empties the garbage drums (55 gallon barrels). One person sprays vegetation that cannot be cut.

Drawing from these various crews, Grounds Maintenance provides a "special projects crew" for the Dogwood Arts Festival, the Riverfest, Nativity Pageant, Christmas in the City, the Water Ski Classic, swimming pool clean-up and preparation, and other events. The net result of "the special projects crew" is to assure the effectiveness of other crews during times of sick leave or vacation leave.

During the "off" season or winter season, the Grounds Maintenance assigns crews to recreation cleaning and maintenance such as window washing, floor stripping and waxing, re-painting lines on floors, painting backboards, and cleaning bathroom tile. They also perform special clean up operations such as clearing brush and vines from areas that cannot be reached by machine. Although no exact figures are available, considerable time and manpower is devoted to leaf collection. This is not a function directly performed by

Grounds Maintenance, but employees are "loaned" to the Street Cleaning Department. The term loan may be incorrect, because the net result is that overtime is generated. Again, no figures were available as to the extent of this overtime.

In addition to these crews, Grounds Maintenance also employs a year around crew at Evans Collins Field and at Tyson park. A special mechanic crew is stationed at the Winona facility, which performs preventive maintenance and repairs on all mowing and small engine equipment.

Almost all of Grounds Maintenance work is charged out to other departments, with Recreation bearing a large part of the cost. Recreation is a big user of Grounds Maintenance Services. Grounds Maintenance even installs new playground equipment. Scheduling is a continuous problem with this service because new playground equipment comes in during the spring, one of the busiest times of the year for Grounds Maintenance.

Staffing

Grounds Maintenance is operating with forty-four (44) positions, which includes a supervisor, a foreman and an account clerk. The other employees are equipment operators, mechanics, utility workers, or custodians. There are indications that the performance of the Department is good, but the overall ability and versatility is questionable. There appears to be a select group of people who are versatile and therefore are frequently assigned to "special crews." However, some of the remaining crew members cannot even be trusted to mix fuel for their equipment. It is questionable if the Department has sufficient staff for all of the functions it is asked to perform. A three (3) week mowing cycle is a rather long cycle and when it is not met (which can be often during rainy weather), it is a totally unacceptable cycle especially from an aesthetic standpoint.

Facilities and Equipment

The facility at Winona appears to be adequate, although the Department is not able to get all of its equipment under cover. The housekeeping at Winona is not adequate. There is too much clutter, too many unlabeled containers and too much unutilized space. The mowing and trimming equipment appears to be adequate. It was indicated that the quality of the equipment had improved since Grounds Maintenance was taken from Recreation and placed under Public Service.

There are communication problems because much of the equipment (trucks included) lack communication equipment. This results in the foreman not functioning as a supervisor, but more in the role of a "checker," because he ends up trying to visit each work site one or more times a day. This also poses a problem, if someone gets hurt and needs emergency assistance.

Although the crews are "on the road" by 7:45 am and don't return to the shop until 3:10 to 3:25 pm, actual "working" time is rather short. If the crews are spending from fifty (50) minutes to sixty-five (65) minutes at the shop and are taking another hour for lunch, only six and one-half (6-1/2) hours remain to work. If another thirty minutes is spent traveling to the job and another is spent coming in from the job the actual field work time is

reduced to five and one-half (5-1/2) hours per day. This doesn't allow for break time and any additional time associated with travel at lunch time. Actual travel time to and from the job may be more than indicated, since much of the equipment travels the street without the benefit of a trailer.

Recommendations

1. If work zones are developed, it is recommended that routine grounds maintenance be performed by the zone crews.
2. It is recommended that maintenance of Recreation's active parks (ballfields and heavy playground and picnic areas) be reassigned to the Recreation Department. Janitorial Services personnel should also be included in the transfer.
3. It is suggested that the mowing operation be staffed sufficiently to establish a mowing cycle of two (2) weeks.
4. It is recommended that Recreation, rather than Grounds Maintenance, order playground equipment for delivery during the late fall or early winter.
5. It is recommended that a safety inspection be conducted at the Winona Street facility, and that housekeeping standards be developed and followed.
6. It is recommended that sufficient facilities for storing equipment be provided at the Winona Street site, and at each zone location.
7. It is recommended that the mowing schedule be reviewed and revised to eliminate reassignment of crews with like equipment to the same work sites. It is important that scheduling encourages optional use of manpower and equipment, and minimal time for travel. Any existing overlap or duplication between primary crews and trimming crews should be eliminated.
8. It is recommended that all mobile equipment (vehicles and tractors) be equipped with radios.
9. It is recommended that the Public Service Director and the Mayor address the long term maintenance consequences of "special" clean-up efforts initiated by the Mayor and the Council.
10. It is recommended that the flat bed truck and 55 gallon drum approach to litter collection and disposal be exchanged for a small recreation size sanitation truck and 20 gallon garbage cans and bags.
11. It is recommended that safety equipment be made mandatory and that employees be required to wear vests (where necessary) and use other types of safety equipment.

12. Grounds Maintenance should coordinate efforts with the Horticultural Unit to insure that proper maintenance of landscaped areas is provided. The two divisions may also co-develop operational training programs. A joint program on tree identification, to help employees identify "valuable" trees when an area such as the Neyland Drive riverbank is to be cut and cleared, is an example of the benefits that could be derived from a joint training program. Other topics could include proper cutting and trimming procedures around tree lined areas, proper handling of fertilizers and other hazardous chemicals, and general grounds maintenance/landscaping procedures.

G. HORTICULTURE

Description of Operations

The City of Knoxville's horticultural unit is housed within the Public Service Department. This is not a typical organizational location for the horticultural operation. In many cities it operates within the Parks and Recreation Department. In Knoxville, however there is sufficient justification to retain the unit within the present organizational structure. The advantages for doing so include; (1) the opportunity to plan and coordinate major projects with construction and maintenance units; (2) the enhancement of the sharing of manpower and equipment for major projects; and (3) lack of any better organizational location.

The City of Knoxville purchased the greenhouse facilities on West Adair Street, (formerly Moore's Greenhouse), to improve and expand its landscaping services. The horticultural facilities consist of eight glass greenhouses built circa 1945, and three nurseries in various areas of the city. The annual and perennial plants raised at the greenhouse and nurseries are used to landscape streets, parks, and the grounds of various municipal buildings throughout the City.

Interest in landscaping and beautification has fluctuated over the years. After years of treatment as a low priority unit of the Public Service Department, the emphasis is changing and the horticulture unit is now experiencing a heavy demand for its services.

Staffing

The personnel structure of the horticultural unit consists of; one (1) professional horticulturist, one (1) landscape supervisor, four (4) nursery workers, six (6) landscape workers and one (1) utility worker. A total of thirteen (13) staff members. Of the thirteen (13) allocated positions, four (4) are presently vacant.

The job of the horticulturist is two fold; (1) planning and designing new areas which is a major portion of the job, and (2) supervising day-to-day operations. These tasks, with ever increasing demands, are more than one person can reasonably handle. Currently, the professional horticulturist makes all planning decisions, staff assignments, and supervises all operations. An additional horticulturist would solve this problem. One should be assigned to work solely with all planning and design elements involved in the city's overall landscaping and beautification plan, and the other should be responsible for the implementation of the plan and the day-to-day operations and administration of the unit. This division of work would give the City a much better planned and coordinated beautification program.

Continuing the current emphasis on landscaping and beautification in the City of Knoxville will require the horticultural staff to be increased or supplemented from other departments.

Horticulture recently experienced difficulty recruiting workers. An extensive amount of time was expended in setting up useless interviews, primarily because of lack of communication and basic misunderstanding between

a newly appointed director and the Civil Service office.

Administrative assistance is needed by the unit if the processing of necessary administrative duties is to be completed in a reasonable time. Currently all administrative work is taken to the City Hall offices. There is little equipment on site to assist in the accomplishment of administrative tasks, (no copy machine, etc), and no staff person is assigned to handle routine administrative duties.

Facilities and Equipment

The major facilities problem of the horticulture unit is the West Adair Greenhouse Facility.

The Greenhouse Complex is in need of major repair. The City must make a decision either; (1) to spend a great deal of money in retrofitting the facility, (2) to purchase/build a new facility, or (3) to enter into a contract for greenhouse operations. Dangerous conditions exist throughout the facility, especially around the boiler area. Workers must routinely replace glass panels in the roof of the greenhouses, a dangerous task. The third option would allow the city to discontinue its green house operation, and contract with a private nursery for greenhouse services, primarily for the raising of annual plantings. Presently only one employee is assigned full-time to the greenhouse.

Morale of the unit has improved. This is due in part to the purchase of several new pieces of equipment. This action is perceived by the employees as a positive change in the philosophy of the Public Service Department towards the horticulture unit.

Recommendations

1. There are no written policies or procedures for the unit's operations. Work orders are received from a variety of sources, and there is little follow-up to insure that work orders have been completed in a timely fashion. This problem exists in other operating units of the Department.

Suggestion: Management should develop explicit and comprehensive policies and procedures for Horticulture, and other operating units of the Department.

2. Because the Horticulture Unit is currently receiving greater attention, expectations are also increasing. These expectations cannot be met with current staff levels. The Horticulturist is spending too much time on administrative duties, at the expense of time needed for planning and developing major landscaping projects.

Suggestion: The Department either needs to hire an additional horticulturist, or an administrative aide to assist the present horticulturist.

3. The West Adair Greenhouse is in need of substantial repair.

Suggestion: Management should make an early decision to either fund for necessary repairs, or to contract with a private operation for greenhouse services.

4. There is little, if any, coordination between Grounds Maintenance and Horticulture.

Suggestion: Grounds Maintenance and Horticulture, organizationally, should be under a central command.

5. The City is experiencing a reduced level of volunteerism from garden clubs.

Suggestion: The City should encourage civic groups to participate in programs like "adopt a spot," in order to better realize its aesthetic potential.

H. LORAIN STREET GARAGE

Description of Operations

The Loraine Street garage currently serves as the headquarters for the Street Cleaning and Street Construction operations. It is also the holding area for all of the equipment used by those units of the Department. The personnel of these units report to work at the garage. If the zone concept is implemented, these uses will decrease at this location.

Complaint handling and service requests are processed at the garage, and records management and accounting functions are also performed there. The Operations Manager maintains his office at this location, as does a significant element of the City Engineering Department.

The central warehouse and fuel pumps are located on the same site as the garage.

Recommendations

1. The Department needs to begin to prepare a plan for the relocation of resources to zones, and to consider the most appropriate use of ground and building space at Loraine Street, during and following that transition.
2. Some provision should be made to provide a roof over the piles of salt stored at the Loraine Street property. Significant caking and dilution is occurring because the salt is completely exposed to the weather.
3. Attention should be directed to the surface drainage at this location. It appears that grease and oil is running over the land into creeks and other natural drainage areas. If so, the City should take action to demonstrate a greater concern for the environment.

IV. RECOMMENDED ORGANIZATIONAL STRUCTURE

The "proposed" organization chart included at the end of this section of the report displays the revised structure recommended by MTAS. If implemented the new structure would change the organization in two fundamental ways.

A. TEAM MANAGEMENT

The Department would be directed by a team of managers. The Public Service Director would be assisted in the management of the Department by three professional appointees, who would function as a cabinet for the Directorship, and would exercise all major management responsibilities for the Department. These positions are:

- a. Operations Manager.
- b. Technical Services Manager.
- c. Manpower and Programs Manager.

The cabinet approach tremendously expands the range of skills, abilities and talents at the top level of the organization. The Department is simply too large and complex to be managed by one person. MTAS recommends that all four of these top management positions be exempt, and not subject to civil service. It is also recommended that the exempt classification currently assigned to the Administrative Assistant I position be removed.

The Technical Services Manager, and the Manpower and Programs Manager positions are new positions under the recommended reorganization. Both are high level professional management positions. The Technical Services Manager will bring to the organization the innovative and creative talents needed to place the organization on the leading edge of technical innovation in the field of public works. An idea that the Technical Services Manager might consider is the use of UT students majoring in civil engineering with a public works specialization as interns, and proper assistants. The Manpower and Programs Manager will enable the organization to respond to the broad range of training needs that currently exist. Position descriptions for these two positions are included at the end of this section of the report.

B. DECENTRALIZED MANAGEMENT

One of the most consistent characteristics observed on the field trips to Chattanooga, Johnson City, Kingsport, Greensboro, and Louisville was the commitment in those public works departments to the concept of decentralized management. There comes a time when the size of the city, and the scope and depth of departmental operations make a decentralized structure more effective and efficient than the centralized management model. Knoxville has reached that point.

As indicated earlier in this report, only the Street Cleaning Division is organized in a way that even resembles a decentralized structure. The organizational structure, recommended by MTAS, expands this concept on a broader basis within the organization. The establishment of geographic zones is the key concept in the reorganization of the Department.

At the present time, there is an excessive level of decision making /control at the top of the organization. Positions with the title "supervisor" and "foreman" lack basic management responsibilities. There is no meaningful participation in budget or program planning. There is no sense of "end results" for most supervisory positions. There is no proprietary feeling or familial relationship within the current management structure. The zone concept is an integral ingredient for improving the future productivity and effectiveness of the Department.

The Zone Concept

The mechanism by which decentralized management is to be implemented is the geographic zone. Unlike the current use of zone assignments in the Street Cleaning unit, the recommended zone system is far more comprehensive in its characteristics. Under the present organization for Street Cleaning, there are three work zones. They are zones only in the sense that each crew confines its work output to one of those three areas.

What is being suggested here is the performance of a broad range of public services within a specific geographic area - a small city unto itself in a sense. MTAS is recommending that six zones (small cities) be created. In each zone, there would be a zone chief, two foremen and approximately 20 employees. This team will have an accountability in a proprietary sense for the delivery of a broad range of public works services in that territory. The team will develop a familiarity with the people and the problems. They will plan, prioritize, schedule, and perform. They will be, in effect, a small town public works department.

Zone chiefs will be responsible for reporting information and record keeping on personnel and equipment. The use of bar-coding can facilitate rapid marking and entry into a computer.

The foremen will be multi-functional, and will be assigned on the basis of functional responsibilities, or territory. Crew size will vary, and will be determined on the basis of task performed. It is recommended that the City initiate the "lead man" concept. These are employees designated to head up mini-crews. A "lead man" is paid extra when performing in this role. It is a technique that provides for a team leader on an as-needed basis.

The Department needs to work closely with Civil Service in developing a more generic classification for supervisory and non-supervisory personnel. The success of the zone concept involves the flexible use of personnel resources, and while there may be some exceptions such as operators of large and complex equipment, in general optimum results will accrue to maximum flexibility.

Another important application of increased flexibility is the concept of temporary duty. The Operations Manager should have the flexibility to expand and contract zones, assign central crews in whole or in part to zone chiefs, and reassign fractions of zone crews to other tasks.

It was previously recommended that the City consider establishing six zones. This number is neither magical nor cast in stone, but it's about what the City will eventually decide upon if it looks at pertinent considerations, such as lane miles of road, and "communities of common interest." Other criteria to be considered may include population, configuration of storm water basins and sub-basins, councilmanic boundaries, location of parks and recreation facilities, optimum use of available equipment and potential zone headquarters facilities.

In each zone there will be an office, a storage area for vehicles, some supplies, a base level of vehicle maintenance. Employees will report to work at the zone station, rather than to a central area. Equipment will be

customized for the performance of services in each zone. Operators will be assigned to, and held accountable for specific rolling stock. Work runs to job sites will be shorter, with resulting less wear on machinery and less dead heading of labor.

The location of zone headquarters is an important consideration. In several of the six zones, existing city property may meet the need. For example, the Loraine Street property could be the headquarters for the CBD zone; the abandoned fire station may be adequate for the south Knoxville zone; and the fire department garage and training facility is a potential location for the east Knoxville zone headquarters. The zone locations must have adequate space for shelters, and peripheral activities such as tub grinding, chip piles, composting and asphalt storage.

This reshaping of the span of control from the current centralized management model has significant benefits for the Director. It means that he and his top management staff can tend more to policy, and delegate micro-management to the zone teams. The zone chiefs will be real managers, and not chaperons. The zone chief is the equivalent of a public works director in a small city. It is expected that each zone chief will apply his manpower, equipment and materials flexibly and responsively to the unique problems and situations of his zone.

The zone concept will foster the development of a supervisory promotion pool that offers the kind of comprehensive knowledge needed by public works supervisors. It will encourage the purchase of equipment that is task efficient, and multi-purpose in function. Employees will see end results.

These are the services that will be performed by the zone teams:

- o Pick-up of brush and leaves.
- o Light construction, such as curb, sidewalks and basins.
- o Light duty asphalt patching.
- o Grass cutting and tree maintenance/removal.
- o Routine basin cleaning.
- o Street sweeping.
- o Alley cleaning.
- o Grounds and horticulture maintenance.
- o Vacant lot and right-of-way maintenance.
- o Weed control.
- o Snow removal.

Specialization and Centralization

While MTAS recommends a more liberal dose of decentralized management for those services that can most effectively and efficiently be performed in that manner, it also recognizes the advantages of specialization and centralization for the following functions in varying degrees:

Complete Centralization

- o Building Maintenance
- o Transfer Station
- o Stores System - Central Warehouse
- o Special Projects
- o Dead Animal Pick-Up

Partial Centralization

- o Grounds Maintenance
- o Horticulture
- o Composting
- o Construction

Some of these centralized functions may be further integrated through appropriate consolidation. For example, grounds maintenance, horticulture and composting have sufficient commonality to suggest that they might well be placed under a professional manager with overall responsibility for plant life and aesthetics. Building Maintenance and the transfer station could be effectively combined into one organizational unit because of location proximity.

Construction includes not only the storm sewer, catch basin and sidewalk construction activities, but also the assignment and utilization of all heavy equipment. It also includes the asphalt patching function.

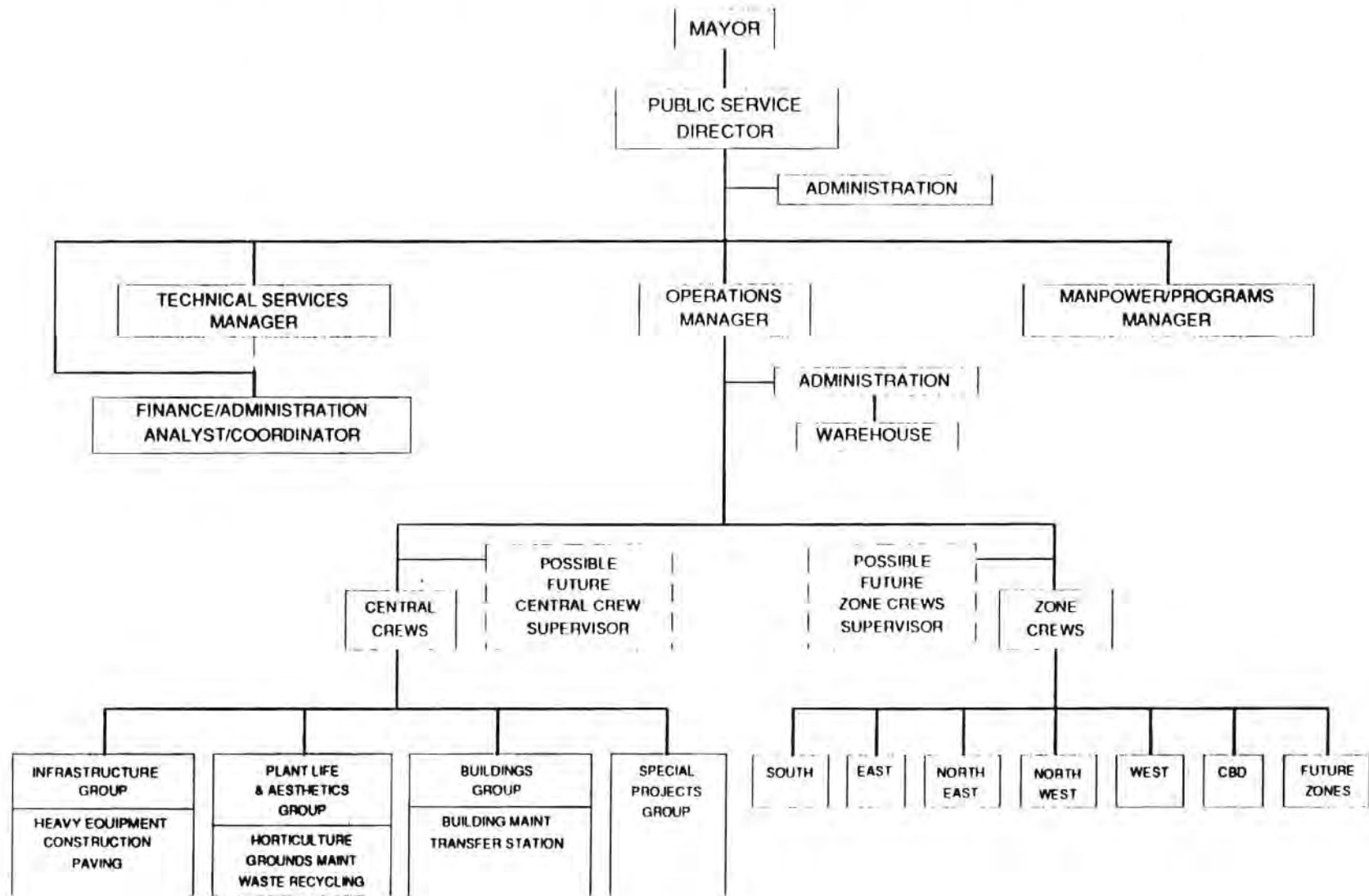
The Special Projects crew is just that. It is assigned to the Operations Manager for use on special projects like festival duty, lot clean up, right of way clean up, leaf pick up, and other seasonal and special needs. It is an added resource to permit a flexible and productive response to special situations.

Summary of Organizational Structure

The basic concepts of team management, decentralized management, zone and specialization provide a basic framework within which the organization as a whole can evolve and develop. The Technical Services Manager will be a prime force in testing and experimenting with methods and procedures, and that position will also provide leadership and management in guiding organizational change within the new framework. As new systems are put into place, current methods, e.g. the present work-order system, will no longer be appropriate. The proposed organizational chart includes potential mid-management positions.

If and when these positions become reality will depend upon the evolution of the organization. They may be needed soon, or they may never be needed. It will be a critical function of the Technical Services Manager to test, experiment and develop many options in both organizational development, and methods and procedures. As this process takes hold, new ideas and patterns will emerge.

PROPOSED ORGANIZATION CHART - PUBLIC SERVICE DEPARTMENT



POSITION DESCRIPTION

TITLE: TECHNICAL SERVICES MANAGER

DEFINITION

Performs management functions including the development and implementation of policy under the direct supervision of the Public Services Director.

EXAMPLES OF WORK PERFORMED

- o Reviews methods, machinery and materials to determine the most effective and efficient combination for tasks to be performed.
- o Performs in-depth management operations analyses.
- o Develops economic analyses position papers.
- o Initiates, develops and implements changes in the way public services are performed and delivered.
- o Participates as a member of the Department's top management team in the overall direction of Department.
- o Maintains liaison with other City departments and external agencies and organizations.
- o Advises the Public Services Director on policy matters.
- o Performs other duties and tasks as assigned by the Director.

REQUIRED KNOWLEDGE, SKILLS AND ABILITIES

- o Thorough knowledge and understanding of the management of public works functions and services.
- o Thorough technical knowledge and understanding of new methods and technologies impacting the delivery and performance of public services.
- o Thorough knowledge of methodologies involved in the performance of economic analyses, productivity analyses, management operations analyses, performance measurement and public response (complaint/reconciliation) systems.
- o Ability to initiate, communicate and implement policy changes.

- o Ability to work effectively as a major participant in a policy making and management team environment.
- o Ability to work effectively at all levels within a diverse organization.
- o Ability to generate, communicate and implement creative ideas and solutions to the delivery of public services.

RECOMMENDED QUALIFICATIONS

- o B.S. degree in civil engineering or industrial engineering or a closely related field.
- o Considerable wide ranging experience in the field of public construction and/or public works.
- o Evidence of association and contact with public works peers, vendors and professional associations.
- o A proven track record of initiating and implementing innovation and change in a public works or public contracting environment.

POSITION DESCRIPTION

TITLE: MANPOWER AND PROGRAMS MANAGER

DEFINITION

Performs a broad range of organizational and employee development programs and processes, including the development and implementation of policy, under the direct supervision of the Public Services Director.

EXAMPLES OF WORK PERFORMED

- o Designs and implements a comprehensive range of training programs for employees.
- o Develops and recommends policies, programs and processes directed at improving employee morale and productivity.
- o Plans and conducts retreats and workshops to foster organizational development.
- o Develops and implements career development and personal development programs for employees.
- o Develops and assists employee assistance programs to meet needs in times of personal crises.
- o Develops and implements for the Department policies, programs and processes directed at motivation of employees.
- o Performs as primary liaison for the Department with Civil Service, and Risk Management.
- o Performs other duties and tasks as assigned by the Director.

REQUIRED KNOWLEDGE, SKILLS AND ABILITIES

- o Thorough knowledge and understanding of the philosophies and mechanics involved in the structuring and administration of employee training programs.
- o The ability to assess training needs and requirements and gain acceptance and participation in training programs.
- o The ability to understand in detail the functions and operations of the Department, and develop programs in a manner that will not disrupt productivity and work routines.

- o Knowledge and understanding of the civil service and risk management missions and their roles in the context of the total City organization.
- o Ability to work effectively as a major participant in a policy making and management team environment.
- o Ability to initiate, communicate and implement policy changes.
- o Ability to work effectively at all levels within a diverse organization.

RECOMMENDED QUALIFICATIONS

- o Masters degree in psychology, vocational education, organizational development or a similar or related field.
- o Experience in the development and implementation of training programs within an organizational environment similar to the Public Services Department.
- o Experience in strategic planning and development.
- o Hands on training experience in safety programs, career development programs and supervisory development programs.

V. RECOMMENDED OPERATING PRACTICES AND PROCEDURES

The organizational structure provides a framework within which the Department's activities and functions can be performed. Structure was addressed in the preceding chapter. To really be productive, however, the Department must also apply effective and efficient practices and procedures in performing it's tasks. This section of the report deals with that aspect of Departmental management. What follows is a series of descriptions of the way in which basic tasks are now being performed within the Department. After each description, recommendations are presented. In some cases alternative methodologies that deserve further study and consideration are suggested.

Considering and selecting operating practices and procedures requires a search for optimum methods, equipment and crew size. It involves the pre-planning of work, monitoring performance on an on-going basis, and making changes that will bring further improvement. It is a frame of mind, a mind set, that focuses on results and strives to do better.

STORM WATER MAINTENANCE

Storm water maintenance is performed by a six man crew with a Vac-All flusher truck and a Ditchmaster self loading truck. Work is performed on a call basis, and is currently a crisis oriented reactive process. The recommendations that follow are designed to alter the current orientation from crisis response to preventive maintenance.

Recommendations

1. The central storm water maintenance crew should be reduced to a driver and laborer, and assigned to the Heavy Equipment Section of the new Infrastructure Group. This crew would be assigned to zones by the Operations Manager as he decides, and the zone chiefs would provide trucks as needed.
2. The Vac-All crew, which is now a centralized crew that operates on a crisis basis, should be eliminated. Primary preventive maintenance responsibilities should be assumed by the zone chiefs, with the following equipment related options given further consideration:
 - o Zones should be equipped with sweepers which have a built-in catch basin cleaning unit. Catch basin cleaning would be done by the driver of the sweeper with the help of one laborer.
 - o Zones should be provided tow-behind catch basin cleaners.
 - o In each zone equip several crews with a catch basin lid lifter, which is either a bumper add-on crane, or a hand held lever device.

Any of the above equipment selections would improve productivity by eliminating the current practice of two men traveling across the City to replace or adjust a catch basin lid.

3. Enact and enforce an erosion control ordinance to prevent dirt and mud resulting from development activities from clogging storm sewer lines and catch basins.
4. Perform erosion control immediately when it is required. This may involve the use of rip-rap, checking of dams, placement of erosion fabric, sodding, and placement of root control revegetation mats.
5. When recurring problem situations are a matter of record, reconstruction should be scheduled as soon as possible.

ALLEY CLEAN-UP

The Alley Clean-Up Crew currently has a crew of 16 employees including the foreman. It is organized as a centralized function to clean alleys throughout the entire City. It is now a part of the Street Cleaning unit.

Recommendations

1. Abolish the Alley Clean-Up Crew.
2. Assign the workload to the Zone Chiefs, and use the Special Projects Crew to assist in special situations.
3. Develop and implement a public relations and enforcement program to make property owners more responsible for the appearance of alleys.

TREE REMOVAL

The Tree Removal Crew presently consists of five members. It removes trees and overhanging branches along rights-of-way, and cuts trees and branches on vacant lots and creekbeds.

Recommendations

1. Routine tree work should be performed by Zone Crews.
2. The Tree Removal Crew would handle work in all zones that requires a boom.
3. Crew size should be reduced to three.
4. A full range of equipment should be assigned to the Crew. This should include a cherry-picker, chain saws, a portable hydraulic power pack to carry a number of boom extension add-ons (pruning hooks, chain saws, and circular saws).
5. The Tree Removal Crew would perform work on a scheduled basis, and not be run back and forth to do a tree here and there.

WEED SPRAYING

This is currently a two man crew that sprays weed killer on curbs and fence rows throughout the City. The Crew also handles special call-in projects.

Recommendations

1. First line activity should be performed by Zone Crews, who should use small tank and wand units.
2. It may be possible to reduce the size of the Weed Spraying Crew from two to one, but in any event the Crew should only do high production type work, utilizing a cab computer controlled nozzle.

GROUNDS MAINTENANCE

Grounds Maintenance is presently a centralized operation. It maintains rights-of-way, athletic fields, parks, riverbanks, creek beds, vacant lots, boulevards, medians and recreation centers.

Recommendations

1. Organizationally integrate Grounds Maintenance with Horticulture in a new Plant Life & Aesthetics Group.
2. Assign primary grounds maintenance responsibilities to Zone Crews.
3. Assign maintenance of active parks to the Parks and Recreation Department.
4. Grounds Maintenance Unit should perform only high production work, using large equipment (sixteen foot mowers and specialized units like boom mowers).
5. Move the Grounds Maintenance Unit to Loraine Street.
6. Develop and implement a comprehensive program of weed and grass control.
7. Implement alternative maintenance methods in areas that are difficult to maintain through the use of ground cover, herbicide with plant growth regulations, or man-made cover such as rip-rap.

HORTICULTURE

The Horticulture Unit produces and grows plants, landscapes properties and maintains landscaping on streets, parks, building sites, planters and other City owned facilities. It currently functions as a centralized unit.

Recommendations

1. Organizationally integrate Horticulture and Grounds Maintenance.
2. Assign primary responsibility for maintenance to Zone Crews.
3. Assign Horticulture the primary responsibility for planning and installation.
4. Assign Horticulture the responsibility for establishing maintenance guidelines for the Zone Crews.
5. Develop and implement plans for drip irrigation and underground lines for new work, and added to existing areas where needed.
6. Develop and implement low maintenance approaches in problem areas using grass only, or man made coverings.
7. Make a prompt decision on the future of the greenhouse. Either repair it or get rid of it.
8. Investigate and move toward the purchase of labor saving equipment, such as air knives, stump grinders.
9. Assign the Horticulturist primary responsibility for tree life in the City.

COMPOSTING

At present there is no composting operation within the Public Services Department.

Recommendations

1. Study the feasibility of composting in detail with consideration of all factors and needs. This will include a thorough review of the following options:
 - o Location Options - zone headquarters, central location, incineration, a county farm.
 - o Densification Options - use of tub grinders (central or mobile), use of packer trucks for pick-up of bundles and tow behind chippers.

- o Collection Options (for brush) - knuckleboom trucks, knucklebooms with sway carts, tied bundles and packer trucks and hand or boom fed tow behind chippers.
 - o Collection Options (for leaves) - use of paper or plastic bags, vacuum pickup with tow behind vacuum units, sweep and discharge tow units or packer truck vacuum.
 - o Transportation Options - shuttle or long run, transfer or non-transfer and sizing.
 - o Methods Options - large pile turned by front end loaders, windrow composting with further divides or static piles.
2. The preliminary recommendation on brush is to pick up by knuckleboom, deliver the brush to zone areas by shuttle truck or carts, tub grind for mulch or compost, blend by truckload with leaves for windrow composting and then screen and use in City horticulture program, or sell it.
 3. The preliminary recommendation on leaves is to use heavy duty vacuum machines with shuttle truck (cart) support during specified months, and at other times to use bags, and then windrow compost with other materials at zone sites.
 4. If for any reason zone sites cannot be used for the composting process, then the transfer station should be used as the grinding location. The grind and leaves would be punched into a dedicated transfer packer and trucks for delivery to a central composting farm. This approach would take the bulge out of early and late arrivals, now causing so much lost time at the transfer station. It would require the purchase of appropriate machinery. Transporting would be by twenty yard sway carts, side boarded and mounded to maximize efficiency of transport.

TRANSFER STATION

Presently the major use of the Transfer Station is for tree, brush and yard debris primarily delivered by City vehicles. The Transfer Station is in sad repair from the handling of brush, which constitutes about 90% of the current volume.

Recommendations

1. Eliminate the processing of brush by the Transfer Station.
2. Reduce the crew size from nine to two or three. In the event that the City decides on a process of central densification, then the existing crew size should be adequate.
3. Change the hours of operation to accommodate the public.

BUILDING MAINTENANCE

The Building Maintenance unit performs general maintenance and repairs on most City owned buildings.

Recommendations

1. Assign all construction and repair of all City owned man-made structures to Building Maintenance.
2. Provide additional manpower and equipment to do the job.
3. Purchase specialized equipment such as a trencher with a light trailer for towing, and a personnel boom for reaching high places.
4. Assign personnel from other units of the organization, when weather or seasonal considerations permit. This can be the starting point for establishing a new organizational culture of flexibility, and temporary duty under other leadership, as contrasted with the present pattern of inflexibility and hoarding. Given time and practice, it should be possible to reshape crews and organizational units on a weekly basis.

CONSTRUCTION

Construction performs new construction as well as the regular maintenance of streets, rights-of-way and alleys. This includes curbs, sidewalks and catch basins and asphalt paving. This work is currently performed by seven crews.

Recommendations

1. Assign tasks and functions for performance by Zone Crews, as indicated in the previous chapter of this report. Zone Crews in most instances will consist of two members, with a pick-up truck and light accessories. The concept is to do as much as possible at the zone level.
2. Restructure the Construction unit in the image of a private construction company.
3. Conduct a comprehensive and thorough review of the equipment inventory, and make changes to serve the restructured role of the unit. This might include a consideration of the following assortment of equipment items: bobcat skid steer loader with attachments, a tow concrete mixer or carrier, a hydration stopper for overnight storage of concrete, alignment and leveling equipment, root control barriers, thin add-on systems for sidewalk repair, mudjack systems, spider type channel excavators, various erosion and scour materials, aquatic brushicide and herbicide.
4. Establish financial and reporting systems that permit comparisons with privatization alternatives.

STREET SURFACE REPAIR

Currently the repair of street surfaces is performed within the Construction unit. There are three six man asphalt repair and paving crews that tend to the surface condition of streets, alleys and parking lots. They are assigned other duties on a seasonal basis.

Recommendations

1. Light duty work should be assigned to Zone Crews. There are several options that might be considered for filling potholes, such as use of proprietary cold mix that uses compaction rather than heat as the working agent; surface heater units that are towed; hot box storage units that hold hot mix overnight; spray-on crack and surface rejuvenator and; proprietary interface material for binding new mix.
2. A Central Crew should be retained, and should be provided paving equipment comparable to a private paving company. The Central Crew should be assigned to major projects, and perform according to production lay-down standards comparable to a private company. If standards cannot be met, the Central Crew should be eliminated. If retained, the Central Crew would probably consist of six to eight members, and be equipped with an all purpose pavement maintenance machine, and three or four heavy trucks.
3. The Public Service Department should initiate in cooperation with the Engineering Department the preparation of standard operating procedures governing all phases of street surface maintenance.

SNOW REMOVAL

Snow removal is performed by the Street Cleaning unit of the Public Service Department.

Recommendations

1. Develop a more thorough and comprehensive service plan for snow removal. While a basic plan involving the identification of hospital routes, main thoroughfares and secondary roads is in place, there is a need for a more detailed service plan. This should include prioritization of streets, based upon a broad range of pertinent variables.
2. Build a salt dome, and add a conveyor with a liquid calcium chloride feed. This will significantly assist in achieving greater efficiency in salt distribution. In fact the full range of methods of salt distribution should be explored. This might include set-in boxes, small barrel distributors for pick-up's, and year round retractable (fold down) spreaders for dump trucks.

SPECIAL PROJECTS

Until recently requests for special projects were handled in a very informal and unorganized manner. At present there is some semblance of organization, but there should be a specific and definitive organizational entity to provide quick and effective response to special needs.

Recommendations

1. Formally recognize the need for and establish a Special Projects Group under the direction of the Operations Manager. Flexibility in composition, equipment inventory, and crew size are important to the effective performance of this function.

VI. SPECIAL DEPARTMENTAL ISSUES AND PROBLEMS

The MTAS study team through interviews, observations and research, was able to identify a number of issues and problems, which it believes are serious and of a recurring nature. Singularly, each of these items is important and worthy of attention and corrective action. Collectively, they constitute a formidable work program to be addressed by the management of the Department. The following is a brief description of each of the issues, general comment, and some suggestions for consideration by the Department's management team.

CIVIL SERVICE:

There is at present an adversarial relationship between the Department and the Civil Service System. This has had a significant negative impact upon the effectiveness of the Department. There is little knowledge among supervisors and foremen as to the procedural requirements for discipline and dismissal, and a pervasive feeling among supervisory personnel that employees cannot be fired or even appropriately disciplined. The result of this lack of knowledge and skills, and this negative attitude is that supervisors and foremen have for the most part abandoned even a pretext of discipline.

Suggestion: Both the management of the Department and Civil Service should initiate positive and constructive actions to dispel the negative perceptions about Civil Service that exist within the Department. It is time for a new beginning, and it is important that the Department and Civil Service both demonstrate that there is going to be a constructive working relationship in the future.

Suggestion: The Department should initiate a mandatory training program for all supervisory personnel in the basics of making the existing civil service system a productive partner in the effective management of the Department.

MIDDLE - MANAGEMENT:

The Department is woefully lacking in middle-management. In fact almost no management now occurs at the supervisory and foreman level of the Department. These tiers of supervision are in effect excluded from any real work planning, program planning or budget management.

Suggestion: The Department must be reorganized and the reorganization must provide for a dynamic and positive contribution by middle-management.

Suggestion: Once a new organizational structure is in place, there should be a concerted effort by top management to implement a team management concept, which includes middle-management in work planning, program planning, problem solving, and budget management.

CITIZEN SERVICE:

The present system for handling citizen complaints and requests for service does not include any follow-through or accountability feature. The supervisor receives a slip of paper with the request for service written on

it. The work may or may not be done. Top management never knows because there is no procedure for reporting back.

Suggestion: The present complaint handling system should be revised to include a report-back feature. A formal customer relations program should be initiated and implemented as soon as the Department has completed it's reorganization.

Suggestion: The Department should investigate and consider the purchase and use of a computerized complaint processing program. Several are now on the market, and some are particularly suitable for public works management.

PERFORMANCE EVALUATION:

Department personnel are currently evaluated as required by Civil Service requirements. At the present time, most employees see very little purpose in the process, and only an occasional connection between performance and pay. Supervisors generally try to head off trouble with employees by avoiding any extremes in evaluating.

Suggestion: Evaluation forms should be redesigned to more closely reflect the characteristics and features of the job. The present evaluation forms are not job-specific, and tend to reflect criteria that are not really "key" performance factors. Department management should request civil service to develop "specialized" performance appraisal instruments.

Suggestion: All management and supervisory personnel need training in the purposes of performance evaluation, and the techniques of evaluation. This should be accomplished within the context of organizational team building.

Suggestion: A decision should be made. Either performance evaluation should have nothing to do with pay, or it should be clearly tied to pay. There is a need to make a clear philosophical statement, and follow it up with clear and consistent action.

EMPLOYEE SAFETY:

Employee safety is currently treated in a very casual and inconsistent manner. There is no ongoing training program, and there is little management enforcement of basic employee safety practices. It is a basic responsibility of management to provide both. The potential human and monetary costs of not doing so are prohibitive. This situation is not only a Departmental condition, but exists throughout the entire city government organization. It should be addressed both on a departmental basis and on an organization-wide basis.

Suggestion: The Department in cooperation with Risk Management should initiate an on-going comprehensive safety training program.

Suggestion: A program of recognition, incentives and rewards should be implemented to encourage employees to make safety a priority in their daily work practices.

Suggestion: The Department in cooperation with Risk Management should conduct a thorough review of accident history within the Department for the prior five year period, and develop an accident profile as a guide for training and administrative priorities in employee safety.

Suggestion: Risk Management should be funded for a Safety Officer position. The job would have primary responsibility for performing independent inspections of hazardous conditions of buildings and operations, and on playgrounds and streets, and would also inspect structural repairs for safety and compliance.

SICK LEAVE ABUSE:

There appears to be considerable abuse of the sick leave benefit within the Department. This is most apparent within the Street Cleaning division. This abuse creates a very unfair situation for those employees who are conscientious in using sick leave. There seems to be little management attention to the problem, and even less action to stop it.

Suggestion: The Department should provide positive incentives in the administration of sick leave, but it should also take specific disciplinary action to reduce the abuse that is occurring. One possible positive incentive would be to provide for the conversion of a certain number of sick leave days to pay or vacation leave at the end of each year. The present conversion formula is too minimal to provide any incentive.

Suggestion: If implemented, the zone concept will provide an effective framework for group competition and group rewards for reduction in sick leave abuse.

EQUIPMENT ABUSE:

There is considerable abuse of equipment within the Department. In part this is attributable to the mileage that is traveled in going to and returning from work sites. Other significant contributing factors include lack of adequate training for equipment operators, lack of any pride in or personal attachment to a specific piece of equipment, and inadequate restrictive measures on operators with poor safety records.

Suggestion: The need to drive equipment long distances should be reduced through organizational and operational changes.

Suggestion: Formal operating and safety training procedures should be established for equipment operators. Status of licenses should be randomly checked periodically.

Suggestion: Operators with more than one accident with a specific piece of equipment should not be reassigned to operate that piece of equipment.

Suggestion: Management must communicate the importance of safety in the operation of departmental equipment, and institute procedures to hold personnel accountable for accidents and damage to equipment.

Suggestion: Management should consider establishing a departmental safety review committee with the authority to establish operating policies and guidelines, and to enforce disciplinary actions when policies and guidelines are violated.

ADMINISTRATIVE AND OPERATING POLICIES:

There currently are no administrative policies and procedures, or operating policies and procedures within the Department. The only existing policies are those that have been developed by Civil Service to govern personnel matters.

Suggestion: Administrative and operational policies should be developed for the Department, and fully explained to all employees in formal training sessions.

CLASSIFICATION OF PERSONNEL:

Classification specifications for many positions are so specifically structured that it inhibits flexible and productive use of existing personnel.

Suggestion: Rewrite classification specifications in a more generic manner.

TRAINING:

Employee training has already been suggested as a partial solution to many of the problems that currently need attention within the Department. In the past very little attention has been given to the development of human potential. There have been very few occasions when the Department mandated training. Some supervisors need training in how to supervise. Others need training that emphasizes employee motivation. Employees need training in safety, and employee benefits. They need to know and feel that the City is providing good wages and benefits, and appreciates them. This of necessity is a long term process. Like risk management, training is a need that should be addressed organizationally, as well as departmentally.

Suggestion: The Department should provide a mechanism for developing and implementing a comprehensive training program. This could take the form of a regular full-time staff position. Training should be a priority within the Department.

Suggestion: The purchasing system needs to be explained to all personnel in the Department, that are in any way involved in purchasing.

Suggestion: Some Public Service crews, and specifically the Horticulture unit, must work with hazardous chemicals and/or dangerous equipment. All workers should observe and practice the correct handling of dangerous materials and the proper application of chemicals. The Department should provide training in these procedures on a periodic basis. "Employee Right To Know" legislation mandates that all employees handling any hazardous materials must complete an annual training course in the proper operation and handling of the hazardous materials.

Suggestion: There is a need for a joint training effort involving Grounds Maintenance and Horticulture. Basic nursery and greenhouse operations, with annual updates, should be included. The University of Tennessee's Horticulture Department, and the Center for Government Training could be called upon to offer this kind of program.

Suggestion: A formal training program in leadership/management should be offered on three levels: lead man, foreman, and zone chief/crew chief.

COMMUNICATIONS:

Communications is a very important element in attaining organizational and operational effectiveness. It needs to be looked at in a comprehensive way.

Suggestion: Service requests from council members should be routed through the Public Service Director, so that he is always aware of work being performed, and it's impact on the total organization.

Suggestion: As truck radios are replaced or transferred, trucks should be equipped with radios that have a portable cell that can be pulled and carried to the actual work site.

ACCOUNTING:

Much of the Department's current accounting resources are dedicated to accommodate two external considerations: state street aid allocations, and charge-backs to other departments using the services of the Public Service Department.

Suggestion: Serious consideration should be given to eliminating the cost accounting mechanism associated with charging other departments for services rendered. As presently administered it is unfair, and has created ill will toward the Department. If retained, it needs to be revised to reflect actual expenditures of resources.

Suggestion: With respect to state street aid, the Department needs to develop a list of eligible, and non-eligible activities, and assign expenditures of time accordingly. The Department's priorities should not be determined by the source of funding.

Suggestion: The Department should consider an internal cost accounting process, structured by zones. The resources currently expended on charge-backs, and state street aid might well be applied to the development of internal cost allocations and controls.

VII. CHECKLIST OF RECOMMENDATIONS

CHECKLIST OF RECOMMENDATIONS

I. ORGANIZATION AND SYSTEMS

A. STRUCTURE

1. Institute team management, employing cabinet management system.
2. Initiate decentratized management, phasing in zone concept, and integrating central crews into functional groups as appropriate.

B. STAFFING

1. Hire Technical Services Manager.
2. Hire Manpower/Programs Manager.
3. Reorganize administrative and financial functions under the direction of a Finance/Administration Coordinator.
4. Assign Zone Chiefs and Zone Foremen as appropriate.
5. Consider and implement potential positions of Central Crews Supervisor and Zone Crews Supervisor as appropriate.

C. TRAINING

1. Leadership training on three levels - lead man, foreman, and zone chief/crew chief.
2. Purchasing procedures.
3. Civil Service procedures.
4. Methods improvements.
5. Employee safety.
6. Performance evaluations.
7. Equipment operation.
8. Hazardous materials.
9. Joint training between Grounds Maintenance and Horticulture on basic nursery and horticulture operations.

D. FINANCE AND ADMINISTRATION

1. Establish internal cost accounting system.
2. Eliminate charge-back system, or revise it to reflect reality.
3. Develop a list of eligible and non-eligible activities, and assign expenditures of time accordingly for state street aid.
4. Consider a bar coding reporting system for field supervisors.

E. PERSONNEL SYSTEMS

1. Initiate incentive and reward programs for safety, sick leave and performance.
2. Revise position classification specifications in a more generic format.
3. Work with Civil Service to implement a critical-incident performance appraisal system.
4. Decide on relationship between performance evaluation and pay.

F. CITIZEN SERVICE SYSTEMS

1. Implement a report back feature in processing complaint handling/service requests.
2. Consider the installation of a computerized complaint handling system, specifically designed for public works administration.

G. EMPLOYEE SAFETY

1. Initiate on-going training program.
2. Establish reward and incentive programs.
3. Develop inventory of accident history, and establish accident profile.
4. Encourage the establishment of a safety management position within the Risk Management office.
5. Establish an employee safety committee with the ability to impact decisions and discipline in employee safety matters.

H. COMMUNICATIONS

1. Route service requests from council members through the Public Service Director.
2. Improve interdepartmental communications and relationships, with particular emphasis on civil service, purchasing and risk management.
3. As appropriate, replace truck radios with radios that have a portable cell.
4. Develop and implement administrative and operating policies for the department, and explain them to all employees in formal training sessions.

II. FACILITIES AND EQUIPMENT

A. FACILITIES

1. Make a decision on the future of the greenhouse - replace, repair, or privatize. Find a way to get horticulture equipment under cover.
2. Determine and implement facility requirements for zone management.
3. Secure a cover for salt storage.
4. Make decisions for best uses of Loraine Street garage, and other existing facilities as zone concept is implemented.

B. EQUIPMENT

1. Reduce over the road travel through organizational and operational changes.
2. Establish formal training for equipment operation.
3. Periodically check status of operator licenses.
4. Make operator assignments based upon safety record.
5. Hold personnel accountable for accidents and damage to equipment.
6. Make equipment abuse an issue, and communicate the importance of safety.

7. Work with Fleet Management to develop a more effective preventive maintenance program.
8. Work with Fleet Management to speed up major equipment repairs.
9. Explore the organizational integration of Fleet Management and Public Service.
10. Make personnel more accountable for lost or missing work tools and small pieces of equipment.

III. METHODS AND OPERATIONS

A. GENERAL PRINCIPLES

1. Focus on results. Emphasize performance.
2. Use optimum methods, equipment and crew composition.
3. Pre-plan work, and monitor performance.
4. Make changes to increase efficiency and effectiveness.

B. BUILDING MAINTENANCE

1. Develop and maintain a building inventory.
2. Develop and maintain a preventive maintenance plan and schedule.
3. Cost out projects involving major repairs or construction, and use private sector if work can be done at less cost.
4. Except for jointly owned property, assign Building Maintenance the responsibility for maintaining all city owned buildings.
5. Consider assigning the account clerk the tasks of handling records, payroll, purchasing etc., and performing as a data supervisor when appropriate.
6. Upgrade equipment inventory.

C. STREET MAINTENANCE

1. Abolish this organizational unit as presently constituted.
2. Under the direction of the Technical Services Manager, analyze the way that every service function is performed.
3. Decide which functions will be delivered by zone crews, and which by centralized crews.
4. Make better use of job orders to indicate materials needed to complete a task.

D. WAREHOUSE AND STORES

1. Resolve with the cooperation of the Purchasing office existing problems, whether real or perceived.
2. Require all Departmental units to make use of the stores and warehouse operation.
3. Revise the internal cost accounting system.
4. Establish and maintain standing specifications.
5. Reassign utility clerks, and provide a stock/account clerk, or clerks.
6. Consider accepting orders by radio, and making field deliveries.
7. As zones are established, consider mini-supply rooms stocked with generic materials under the management of the warehouse.

E. TRANSFER STATION

1. Evaluate the feasibility of composting and/or mulching brush.
2. If brush is not composted, change hours of operation to accomodate late arriving trucks.
3. Lengthen hours of operation in spring and fall, including a half day of operation on Saturday, to better accomocate the public's use of the transfer station.
4. Equip all transfer tractors with radios.

5. Establish and enforce equipment safety standards for tractors and trailers.
6. If brush is not composted, establish and enforce standards governing length and diameter.
7. Consider a cardboard bailer to facilitate recycling .
8. Promote the transfer station as an alternative to roadside and alley dumping.

F. STREET CLEANING

1. Abolish this organizational unit as presently constituted.
2. Under the direction of the Technical Services Manager, analyze the way that every service function is performed.
3. Determine which services will be performed by zone crews, and which by centralized crews.
4. Establish a formal enforcement program to assure that private tree trimming crews clean up after their work.
5. Improve the appearance of alleys by doing a better job of monitoring the contract responsibilities of private refuse contractors.
6. Develop a formal parking plan to facilitate more effective and efficient street cleaning.
7. Make leaf collection methods a priority for analysis.
8. Improve the on-the-street time for street sweepers.
9. Reduce non-productive travel time involved in street cleaning operations.

G. GROUNDS MAINTENANCE

1. Consider the feasibility of Grounds Maintenance as partially a zone function.
2. Assign the maintenance of active parks to the Recreation Department.
3. Establish a two week mowing cycle in the summer.
4. Assign the ordering of playground equipment to the Recreation Department.

5. Conduct a safety inspection at the Winona facilities, and establish and maintain housekeeping standards at that facility.
6. Provide adequate equipment storage facilities at all operational locations.
7. Eliminate overlapping and duplicative crew assignments in mowing.
8. Equip all mobile equipment with radios.
9. Reassess the way litter is collected and disposed of.
10. Mandate the use of safety equipment.
11. Evaluate the long term consequences of special clean-up efforts initiated by the Mayor and Council.
12. Develop better coordination of effort with the Horticultural unit.

H. HORTICULTURE

1. Establish a work order system, and written policies and procedures governing the unit's operations.
2. Hire an additional horticulturist, or an administrative aid to assist the present horticulturist.
3. Make an early decision to either fund necessary repairs to the greenhouse, relocate it, or contract for services.
4. Consider placing Horticulture and Grounds Maintenance under a central command.
5. Encourage civic groups to participate in programs like "adopt a spot."
6. Initiate a "trouble spot" elimination program, using techniques like underground irrigation, ground cover, mulch cover etc.

VIII. CONCLUSION

This report and the research, interviews and field investigations that preceded its preparation were performed in response to a request from the City of Knoxville to conduct a review of the organization and operations of the Public Service Department. The project was performed over a seven month period, and involved the participation of a large number of personnel within the Department. Their input and cooperation was invaluable to the study team in reaching its conclusions, and developing its recommendations.

Many recommendations regarding organization and operations are included in the report. MTAS fully understands the complexities and difficulties inherent in making changes of the depth and scope that have been suggested. They will not happen by waving a wand. Many of them involve changes in basic ways of thinking. Many involve changing habits and responses deeply ingrained in work routines. Many impact existing claims to status and turf. The implementation of the study's recommendations will not be easy, but clearly broad and sweeping change is justified. The City should get on with the job without delay.

The restructuring of the Public Service Department's basic organization, and the ways that it delivers its services will be a transitional process. Today's changes will be built upon yesterday's changes, and tomorrow's upon today's. It is important to see it as a process rather than a project, and to see it as a continuing process, ever on-going and never ending. For it to end would be resigning to mediocrity.

The study team believes that to accelerate the change process, the Department's top management team must be put in place as soon as possible. The Department Director, the Operations Manager, the Technical Services Manager and the Manpower & Programs Manager have key roles and assignments in generating change. This involves the formulation of new policies, new programs and new procedures. The concepts of team management and decentralized management begin at this level within the organization. This is also where the commitment to change, and the leadership to make it happen must begin.

As the Department reshapes its structure and its resources to achieve better performance and greater efficiency, it should view the contents of this report only as square one. Once key staff is in place, the Department must focus forward, leave the launch pad and make its own way. At that point, the talents and the synergy of the management team will provide the requisite direction and strategies to achieve desired changes in organization and operations.

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