

**DEPARTMENT OF PUBLIC WORKS**  
**Metropolitan Government of Nashville and Davidson County, Tennessee**

**I. INTRODUCTION AND EXECUTIVE SUMMARY**

**1. INTRODUCTION**

The report presents a summary of issues developed by the project team regarding operations, organization and staffing of the Nashville and Davidson County (Metro) Public Works Department and recommendations for improvement. This is based on our review of the various departmental functions, including extensive interviewing both within the Department and with external agencies and data collection and analysis.

This report consists of several sections, as follows

Chapter I: Introduction

Chapter II: Streets and Roads Division

Chapter III: Chipper Division

Chapter IV: Engineering Division, including parking operations

Chapter V: Administrative Functions

Chapter VI: Conclusions and Implementation Plan

Appendix A: Departmental Profile

Appendix B: Best Management Practices Analysis

Appendix C: Comparative Survey

Appendix D: Analysis of Implementation of Prior Internal Audit Work

This first chapter provides an overview of the Department of Public Works and the analytical methodology the MAXIMUS project team used in conducting the analysis. We also provide a summary of key observations and recommendations that the report discusses in detail.

## **2. SCOPE OF PROJECT**

Metro Nashville retained the services of MAXIMUS, Inc. to conduct a performance audit of Metro's Public Works Department, and to issue a report to the Department which summarizes all findings and recommendations resulting from field work and analysis. This assessment includes the Divisions of Staff Services, Engineering, Streets and Roads, Parking, and the Chipper Service located within the Waste Management Division. This project did not include all aspects of the Waste Management Division since Metro has recently completed a comprehensive waste management study of its waste management program. The assessment included a review and analysis of the following elements:

- All previous audit recommendations and studies performed in the Department to determine their appropriateness and the degree to which they have been implemented.
- The appropriateness of current staffing levels, and the methods of measuring employee performance and efficiency.
- Current work scheduling for all routine and special activities. This included an assessment of how overtime is used and controlled.
- A determination of which functions are performed in-house, and those that are outsourced. This included an assessment of the appropriateness of these practices and arrangements.
- The appropriateness of educational and certification requirements for professional staff, as well as training and development programs in place for support staff.
- The effectiveness of the current organizational structures within each of the Divisions, as well as for the Department of Public Works.

- Current operating effectiveness and cost of providing the significant services of each division. This included identifying any functions which could be combined or contracted.
- Significant service and construction contracts currently in effect.
- Financial controls over revenues and costs.
- The degree to which Public Works maintains an awareness of, and utilizes, available grants.
- The adequacy of technology systems, and their abilities to provide reliable and useful information to generate meaningful management reports.
- The effectiveness of right of way management.
- Planning, scheduling and management of Metro's infrastructure, taking into account legal and regulatory requirements and planning and engineering recommendations.
- Planning, scheduling and management of maintenance functions such as equipment repair, mowing, cleaning and other routine work elements.
- A determination of specific functions which are also performed in other Metro Departments, and the appropriateness of their placements in current organizations.
- An assessment of the deferred maintenance tracking systems in place.
- Current customer service systems, including the manner in which complaints are tracked, and the responsiveness of the Department to neighborhood and community concerns.
- A determination of how fees are established and reviewed for appropriateness.
- An assessment of the cost recovery systems in place for services provided by Metro which are outside its right of way.
- A review of the scope of Metro's storm water management study to determine whether other factors should be considered.
- A determination of the significant regulatory requirements with which Metro must comply, and the controls in place to ensure compliance.

- A determination of the controls in place to enforce developer compliance with Metro regulations and requirements, and the methods in place to correct deficiencies.
- An assessment of the employee safety program in place.
- A comparison of current traffic operations and systems with best practices and a determination of the effectiveness and appropriateness of the roles of the Department in managing traffic. This included an assessment of the appropriateness of the level of coordination with State and other entities involved in traffic control.
- A determination of the effectiveness of the Department's management of on and off-street parking operations.
- An assessment of the degree to which Public Works coordinates planned activities with other Metro agencies and other public and private entities.
- An assessment of the Department's long-range planning and budgeting processes and capabilities.
- An assessment of the security of grounds and facilities.
- A determination of the adequacy of inventory control systems in place.

Findings and recommendations resulting from the above work are included throughout this report.

### **3. PROJECT WORK PLAN**

The MAXIMUS project team conducted the analysis using a methodology designed to obtain the maximum amount of Departmental participation, employee insight, and data collection and analysis within the project timeframe. Our specific work steps included:

- Developing an understanding of key issues within the Department through interviews with principal Department managers and Metro executive management. This included meetings and interviews with seven principal external Metro managers who have regular interaction with the Department, the Interim Department Director, and all Assistant Directors.

- Developing a detailed profile of the Public Works Department. This profile presented a summary of the organization, staffing, and operational procedures for the Department. It is based on interviews with all of the Department's management and supervisory personnel; interviews, field observation, and focus group meetings that involved nearly half of all of the Department's work force; and preliminary data collection. The project team prepared a draft profile and submitted to Metro for review. Metro staff submitted several suggested corrections, which the MAXIMUS staff have made. Attachment A to this report is the final version of the profile.
  
- We performed two different approaches to benchmarking best practices.
  - The first approach was a best management practice analysis, in which the project team identified key management practices within the Department and compared those practices against industry standards which we have observed over the many years of our consulting experience. The analysis of standards was drafted and reviewed with Metro personnel. Based on comments and responses, we modified the analysis to be as accurate as possible. The results of that analysis are included as Attachment B. The project team used both the comparative survey and the best practices analysis as guides in evaluating departmental operations and providing recommendations for improvement.
  
  - The second was a comparative survey of local governments that can be considered peers of Metro Nashville. The survey was designed to obtain, in a short period of time, comparative information relating to key activities of the Department of Public Works. Because of the wide disparity in the organization, operation, and budgeting of the various municipal operations, we did not attempt to make conclusive comparisons between the Metro Nashville Department of Public Works and the other jurisdictions. However, the comparisons do provide useful information relating to different service approaches and service levels. A copy of the survey results is included as Attachment C.
  
- Following these analyses, we prepared an issues list, in which we presented to Metro a listing of what the project team had preliminarily identified as key performance issues within the Department of Public Works. This issues list, together with suggestions provided by Metro staff for other issues, served as the core of our focused analysis.
  
- Based on the identified issues, we conducted detail analysis of staffing, work load and work performance, operational processes, and departmental organization as those relate to key performance. The analysis included detailed data collection, sampling of work data as appropriate, follow-up interviews, and the development of analytical models.

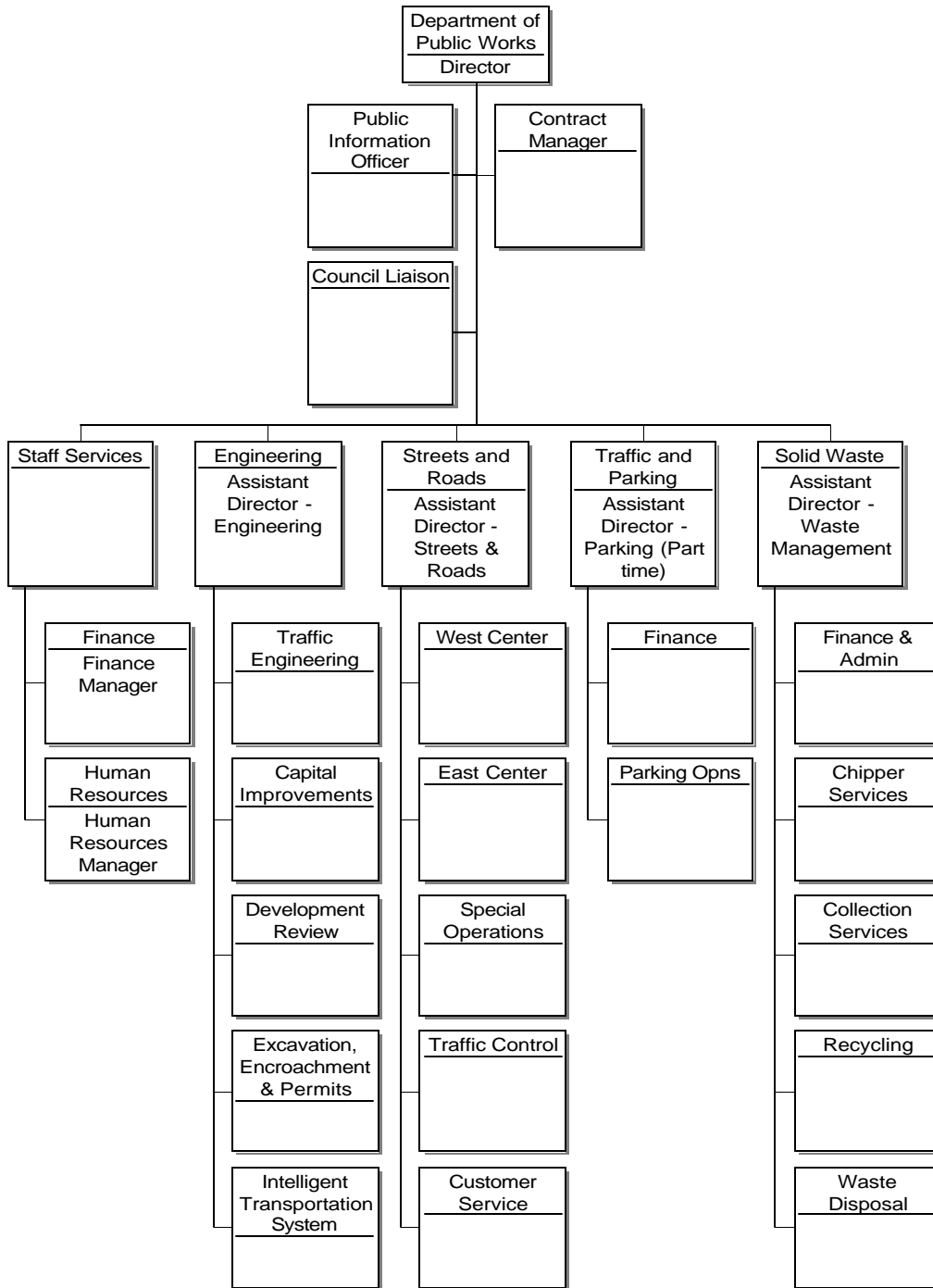
- We have drafted this report, which provides the results of our analysis, our recommendations for operational improvements, cost estimates relating to those improvements, and identification of key implementation issues.

#### **4. OVERVIEW OF THE PUBLIC WORKS DEPARTMENT.**

The Metro Department of Public Works is a traditionally structured and functioning department. Its principal responsibilities include

- Construction and maintenance of streets and roads
- Construction and maintenance of rights-of-way infrastructure such as curbs gutters, and sidewalks
- Traffic management traffic engineering and design, signs and signals
- Design, procurement, and management of capital projects
- Administration of parking, including parking meters and contract administration for Metro's parking garages
- Solid waste collection and management.

The chart on the following page presents the functional organization of the Department of Public Works. The Departmental Profile in Attachment A includes more detailed organization charts by division and staffing.



For the current fiscal year, the operating budget of the Public Works Department is \$91,996,487, exclusive of capital projects. Of this amount, \$32,195,767 is expended on solid waste operations. Two other major changes in departmental operating expenditures are occurring during this fiscal year. First, equipment operations is being transferred to a consolidated Metro Fleet Operations Department; the Public Works budget for this item is \$3,996,123. Second, the National Pollutant Discharge Elimination System (NPDES) staffing is being transferred to the Water Department. The budget for the storm water operations is \$1,438,096; however, this study recommends not transferring the full amount since the staff perform duties other than just storm water management. The Department projects revenues of \$8,318,358; as with operational expenditures, the majority of the revenue stream—\$6,688,774—is derived from solid waste operations. Expenditures and revenues are summarized in the following tables:

<b>DEPARTMENT OF PUBLIC WORKS SUMMARY OF FY 02 OPERATING BUDGET</b>	
<b>Expenditure Item</b>	<b>FY 02 Budget Amount</b>
Staff Services - Personnel	858,585
Staff Services - Other	370,307
Staff Services - Fringe	258,711
Engineering - Personnel	2,357,444
Engineering - Other	162,055
Engineering - Fringe	626,745
Operations/Maintenance - Personnel	5,909,769
Operations/Maintenance - Other	6,958,519
Operations/Maintenance - Fringe	1,522,066
Bridges - Personnel	329,700
Bridges - Other	10,500
Bridges - Fringe	84,399
Equipment - Personnel	1,773,196
Equipment - Other	1,732,015
Equipment - Fringe	490,912
Traffic & Parking - Personnel	443,790
Traffic & Parking - Other	50,418
Traffic & Parking - Fringe	126,821
Storm Water Quality - Personnel	334,546
Storm Water Quality - Other	1,019,586
Storm Water Quality - Fringe	83,964
Highway Safety Lighting - Other	45,000
Satellite Cities	223,112
GSD Chipper Service Transfer	935,978
USD PW Chipper Service Transfer	1,530,868

<b>DEPARTMENT OF PUBLIC WORKS SUMMARY OF FY 02 OPERATING BUDGET</b>	
<b>Expenditure Item</b>	<b>FY 02 Budget Amount</b>
GSD PW Solid Waste Transfer	9,262,121
GSD PW Recycling Transfer	4,136,159
GSD PW Disposal Fee	1,000,000
USD PW Refuse Collection Support	8,641,867
Subtotal of Solid Waste Transfers	25,506,993
Signal, Sign, Marking - Personnel	882,779
Signal, Sign, Marking - Other	1,078,323
Signal, Sign, Marking - Fringe	235,808
Street Cleaning - Transfer to Other	65,000
Street Cleaning - Personnel	1,004,241
Street Cleaning - Other	940,984
Street Cleaning - Fringe	264,181
Street Lighting - NES	4,050,251
Waste Management	32,195,767
<b>Total</b>	<b>91,996,487</b>

<b>DEPARTMENT OF PUBLIC WORKS SUMMARY OF FY 02 OPERATING REVENUE</b>	
<b>Revenue Item</b>	<b>Budgeted Amount</b>
<b>GSD General</b>	
Excavation Permits	200,000
Sidewalk & ROW Permits	1,000
Obstruction Permits	1,750
Meter Occupancy Permits	30,000
Temp Street Close Permits	100,000
Plans & Specifications	3,000
Garbage & Junk	2,100
Storm Water Mgmt Appeals	2,000
Parking	1,200,000
House Mover Escort	2,300
Other Transfers	69,044
Subtotal	1,611,194
<b>USD General</b>	
PW Refuse Collection Support	18,390
Subtotal	18,390
<b>Waste Management Operations</b>	
Total Fee for Service	6,558,499
Miscellaneous Revenue	130,275
Subtotal	6,688,774
<b>Total of Department Revenues</b>	
	<b>8,318,358</b>

**5. PRINCIPAL RECOMMENDATIONS.**

This report provides many different recommendations relating to the operation of the Public Works Department. Some have clearly defined cost implications, both for savings as well as needed additional costs; but, many are suggestions for improved work processes that, while not necessarily quantifiable, will have a significant overall impact on departmental efficiency and effectiveness when taken as a whole. In the concluding chapter, we list all of the recommendations, together with project fiscal impacts.

There are several recommendations, however, which are encompassing in scope, either by virtue of impacting all departmental operations or having significant expenditure requirements or cost savings. These are the recommendations on which Metro should focus its primary attention. They include the following:

- The Department needs to acquire and implement systems for both job management and contract management. In both cases, these should be efforts that are integrated with Metro's overall information technology strategies and coordinated with other Metro departments that also use such systems.
- The Department needs to completely redesign its approach to pavement management. Various recommendations include evaluation of the methodology by which it makes overlay decisions, relocating responsibility to Engineering, and implementing a slurry seal program whose estimated cost savings would be as much as \$2.0 million to \$4.7 million dollars annually when compared to current plans to expand overlay.
- Staffing and operations for signs and signal maintenance need to be greatly expanded, with significant additions to staffing. As part of the effort, the Department should develop a structured competition model in which it competes against private service providers when there is insufficient local private competition. This relates particularly to signal installation work.
- Engineering functions need to be reorganized in order to place greater emphasis on capital project design and management.
- Responding to the expanded sidewalk program will require the Department to develop a more systematic approach to the service, including designation of specific staff leadership and application of a project planning model.
- The Department should discontinue its chipper reservation system while expanding its regular capacity through specialized equipment.

These, and the other, recommendations are discussed in detail in the body of this report, beginning with a review of Streets and Roads Operations in the following chapter.