

**PUBLIC WORKS
TRANSPORTATION DIVISION
PAVEMENT MANGEMENT PROGRAM
AUDIT 05-19**

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Auditor


Acting Audit Director

**PUBLIC WORKS DEPARTMENT
TRANSPORTATION DIVISION
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INTRODUCTION

The Pavement Management Program within the city limits is assigned to the Technical Services Section of Public Works – Transportation, which has a current staff of nine employees. A system known as Micro Paver has been installed as a tool for maintaining information related to the roadway system. Micro Paver uses input from Pavement Condition Index studies to determine the condition of the roadway. The information from Micro Paver is also one criterion considered when determining street segments to re-surface.

STATEMENT OF OBJECTIVES

This audit was conducted in accordance with the Internal Audit Department's FY05 Audit Agenda. The objectives of this audit were to ensure that:

1. The Pavement Management Program was administered in an effective manner and performed in accordance with established policies and procedures; and
2. The data entered into the Micro Paver system was accurate.

STATEMENT OF SCOPE

The audit period covered street paving activity that occurred from October 1, 2002 through September 30, 2004. Source documentation was obtained from the Technical Services section of the Transportation Division. Original records as well as copies were used as evidence and verified through physical examination.

STATEMENT OF METHODOLOGY

Government Auditing Standards require auditors to determine if computer processed data are sufficiently reliable to be used in the audit process. This audit used information produced by the Micro Paver system. Based on a review of the controls over access to data in the system, information produced from Micro Paver was deemed reliable.

The sample size and selection were statistically generated using a desired confidence level of 90%, expected error rate of 10% and a desired precision of +/- 10%. Statistical sampling was used in order to infer the conclusions of test work performed on a sample to the population from which it was drawn and to obtain estimates of sampling error involved. When appropriate, judgmental sampling was used to improve the overall efficiency of the audit.

STATEMENT OF AUDITING STANDARDS

We conducted our audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to afford a reasonable basis for our judgments and conclusions regarding the organization, program, activity or function under audit. An audit also includes assessments of applicable internal controls and compliance with requirements of laws and regulations when necessary to satisfy the audit objectives. We believe that our audit provides a reasonable basis for our conclusions.

AUDIT CONCLUSIONS

Based upon the test work performed and the audit findings noted below, we conclude that:

1. The Pavement Management Program was not administered in an effective manner and there were no written policies and procedures; and
2. The data entered into the Micro Paver system appeared accurate; however, the interface with an external City maintained database needs improvement to ensure street segment information was accurately updated.

While the findings discussed below may not, individually or in the aggregate, significantly impair the operations of the Transportation Division, they do present operational activities that can be more effectively controlled.

PAVEMENT MANAGEMENT PROGRAM

The Pavement Management Program is not operating as effectively or methodically as it could. Transportation Division Management represented that there were no written policies or procedures that documented the annual process to select street segments for paving.

Micro Paver System

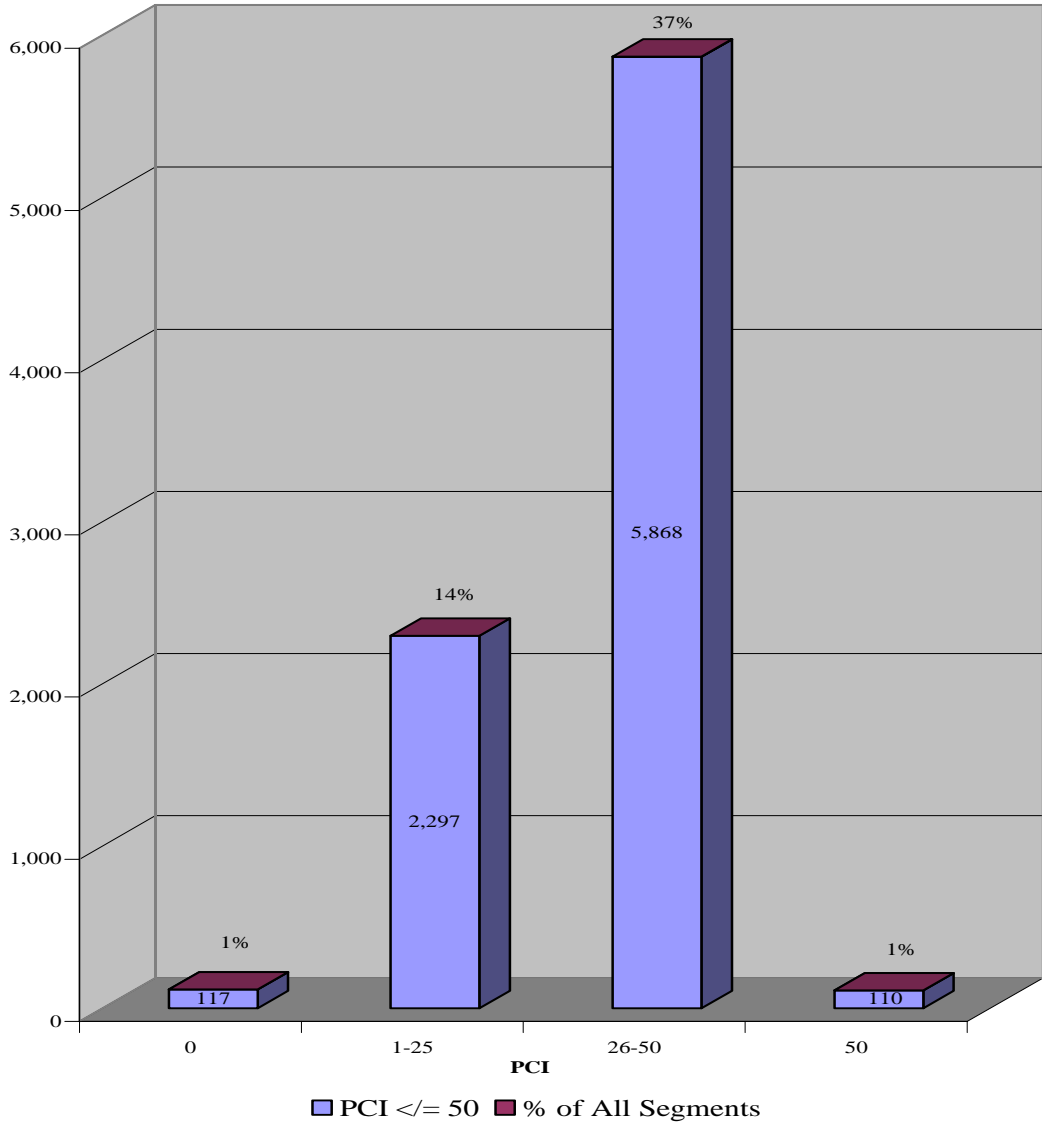
As mentioned in the Introduction, the Micro Paver system was installed to track maintenance of street segments and develop appropriate strategies for repair or replacement; but, the system is not being used as intended. Micro Paver uses information known as the Pavement Condition Index or PCI as one method for evaluating a street segment. The PCI is obtained from the information that is recorded on surveys performed by the Technical Services Technicians (Technicians). The surveys are based on a Technician's observations of distresses identified on a street segment that is considered to be representative of the block. Management represented that the Technicians were not performing surveys on a routine basis, instead their primary responsibility was right of way inspections; surveys were being assigned and completed as time allowed.

Currently, street segments selected for paving activity are based on suggestions from Technicians using PCI information obtained from a survey performed in 2000. The information for a street segment the Technician considers a "candidate" is placed in a binder. During the annual planning phase, the Technician's suggestions along with citizen complaints and instructions from the City's Administration are reviewed. Selections are made based on the dollars budgeted and the length of the suggested segments.

It was represented that the current street segment inventory is approximately 16,000. The calculated PCI will range from 100 (newly paved segment) to 0 (inadequate for travel). Using information from Micro Paver, more than 8,000 segments (approximately 50%) have a PCI of 50 (deteriorating) or less. Relatively speaking, over half of the city's street network is in need of repair (see **EXHIBIT ONE** on the next page).

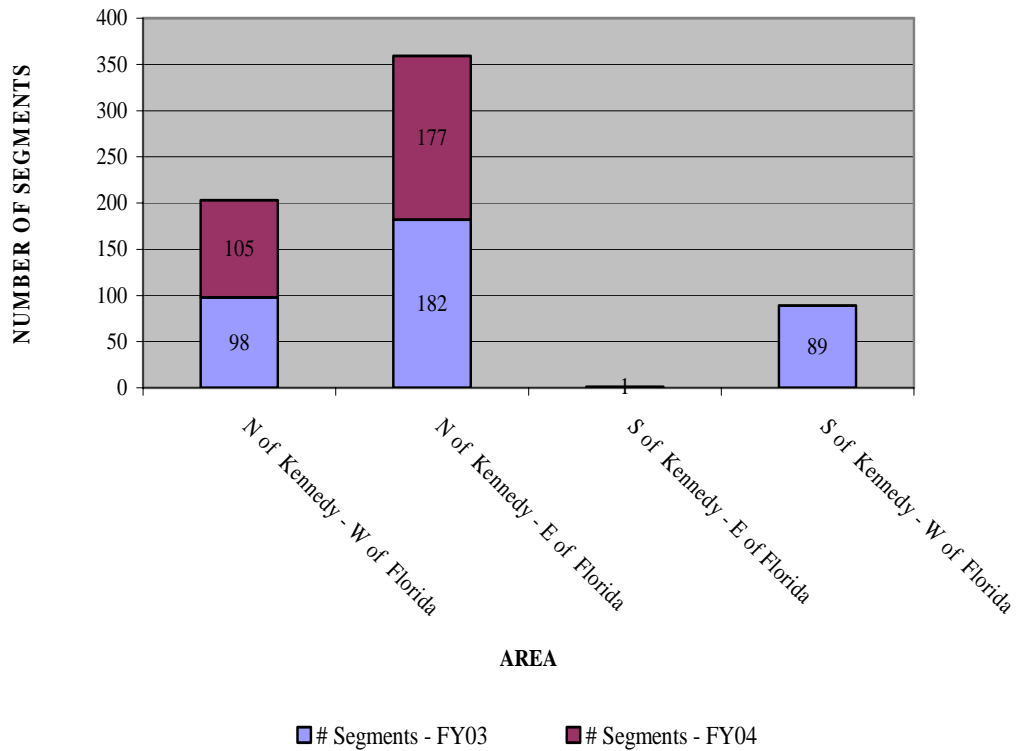
EXHIBIT ONE

PCI ≤ 50 AS A % OF ALL STREET SEGMENTS



As an example of the disparity that resulted from paving that occurred during the last two years, the following graph depicts the street segments that were selected for testing during this review, classified by areas of the city, with Kennedy and Florida being the dividing streets:

PAVING - FY03 AND FY04



Without a written policy or use of Micro Paver, as intended, in the selection of paving activity, Management’s selections do not represent that city resources were equitably distributed.

Clearances from Utilities and City Departments

A review was performed to determine if written clearance was obtained from major city departments or external utility agencies prior to paving. Management disclosed that written clearance is not always received and when there is no response by the deadline given, it is understood that a clearance is “implied.” A discussion with Management disclosed no known instances where a paved area was immediately effected by a project from a different

department. However, it was reported that because of not being informed of the STAR project in South Tampa, a planned paving project had to be re-scheduled at the last minute.

Utility and city departmental clearances are intended to avoid duplication of paving, thereby avoiding the inefficient use of city resources. Therefore, unless clearances are documented, the possibility of duplication of efforts, as well as wasted resources due to delayed projects or “idle” employee time, is increased.

RECOMMENDATION 1

Management should evaluate the Micro Paver system and determine if it is a viable tool for the Pavement Management program. If the determination is that Micro Paver would be an effective tool, then the needed resources should be dedicated to ensure the system is properly maintained.

AUDITEE RESPONSE

We agree that there “appears” to be an unequal distribution of resurfacing activity throughout the city over the two years analyzed; however, a map showing the resurfaced streets over the last 10 years shows the distribution is much more equally distributed throughout the city. We think the longer analysis period is more appropriate.

We also agree that the Pavement Management team should review the use of MICRO PAVER to ensure that it is a viable tool for managing the city’s street maintenance program. As part of this review we will analyze and recommend additional resources where needed.

RECOMMENDATION 2

Management should develop a policy that would identify the method to be used when selecting street segments annually for paving activity. Upon development of a policy, procedures should be written that would include ensuring that documentation is obtained from the applicable city departments and utilities indicating clearance to pave.

AUDITEE RESPONSE

We agree and will update the city’s pavement management policy and procedures.