



**AUDIT OF**

**STREET MAINTENANCE AND CONSTRUCTION**

Exit Conference Date: June 12, 2007

Release Date: July 06, 2007

Report No. 07-14

CITY OF ORLANDO

OFFICE OF AUDIT SERVICES AND MANAGEMENT SUPPORT

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# CITY OF ORLANDO

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## MEMORANDUM

To: Richard M. Howard, City Engineer

From: Beryl H. Davis, CPA, CGFM, Director  
Office of Audit Services and Management Support

Date: Exit Conference: June 12, 2007                      Release: July 06, 2007

Subject: Street Maintenance and Construction Audit (Report No. 07-14)

In accordance with our annual operations plan, the Office of Audit Services and Management Support has performed an audit of the Street Maintenance and Construction program. Our objectives were to determine: how personnel identify what repairs and maintenance need to be done; if the work is being done timely; and if repairs and maintenance are cost-effective.

Our audit was conducted in accordance with generally accepted government auditing standards. We reviewed City Policies and Procedures regarding Street Maintenance and Construction and data from the City's financial system, interviewed Street Maintenance and Construction program and other personnel, and performed such other audit procedures as we considered necessary. The audit period was fiscal year 2005 -06.

We determined that, in general, the Street Maintenance and Construction program personnel are in compliance with policies, and procedures are being performed systematically and adequately. This report identifies several recommendations to improve these processes.

The City received a Pavement Management Report prepared by a consultant that evaluated current road conditions and made long-term recommendations regarding major rehabilitation requirements for City roads. The report suggests an annual rehabilitation cost of \$2.5 million per year, which exceeds the current budget for rehabilitation. This activity is not a Street Maintenance function, and therefore is outside the scope of this audit. However, delays in rehabilitation of City roads may increase the repair volume and cost demands on Street Maintenance operations.

We acknowledge the valuable experience of the Street Maintenance and Construction program officials and employees with whom we worked, and their efforts to reduce the work order backlogs and to improve processes. We would like to express our appreciation to them for their courtesy and cooperation during this audit.

BHD/am

c: **Honorable Buddy Dyer, Mayor**  
**Byron W. Brooks, Chief Administrative Officer**  
**Joseph M. Robinson, Chief of Staff**  
**Mayanne Downs, City Attorney**  
**Alan R. Oyler, Public Works Department Director**  
**Rebecca W. Sutton, Chief Financial Officer**  
**Kevin J. Edmonds, General Administration Department Director**  
**Conrad Cross, Chief Information Officer**  
**David Sloan, Environmental Services Division Director**  
**Michael Carroll, Solid Waste Division Manager**

## EXECUTIVE SUMMARY

### **Objectives, Scope, Methodology and Results**

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We have performed an audit of the Street Maintenance and Construction (Street Maintenance) program, which is within the Streets and Stormwater Services Division. Our objectives were to determine: how personnel identify what repairs and maintenance need to be done; if the work is being done timely; and if repairs and maintenance are cost-effective.

Our methodology included: interviews of personnel from Street Maintenance; a limited visual examination of City street and sidewalk damages; and review of electronic information regarding Street Maintenance work orders from Easy Streets, software data from the City's budget book, and JD Edwards software. The audit period was FY 2005-06. We did not test the accuracy of the electronic data, but utilized the information to obtain an understanding of Street Maintenance processes.

We determined that, in general, Street Maintenance is effectively using its current resources; 96% of the streets work orders that were entered into Easy Streets during FY 2005-06 were completed, excluding the seven open brick work orders; personnel are in compliance with policies; and procedures are being performed systematically.

### **Update City Policies and Procedures for Street Maintenance and Construction**

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City Policies and Procedures for Streets and Stormwater Services have not been substantially updated since 1993. An update should include Street Maintenance's current practices as well as new procedures recommended in this report, in order to fully support the operation's goals.

**Adopt Internal Policies and Procedures for Street Maintenance and Construction**  
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The Streets and Stormwater Services Division should adopt internal policies and procedures for daily operations guidance, to include Street Maintenance goals, objectives, inputs and outputs and the procedures for accomplishing these.

**Improve Customer Access and Data for Better Public Relations**  
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The Street Maintenance program provides a service of great importance to the public, and it is responsible for being courteous and responsive to Orlando's citizens. Street Maintenance relies primarily on notifications from the public as well as City employees through telephone calls and emails to identify and track the work to be done.

Citizens can also call Street Maintenance to receive additional information about their work orders, but, in some cases, the citizen may not reach a Street Maintenance employee knowledgeable about their concern. Street Maintenance should improve its current public relations through enabling better telephone and Internet access and through periodically evaluating customer satisfaction data.

**Properly Complete Work Orders and Provide Periodic Summary Reports to Management**  
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A work order system was developed in Easy Streets to record Street Maintenance work orders. All staff members of Street Maintenance are authorized to enter data reported by customers into work orders. During our review, we discovered that some data about customers, assigned personnel, and job completion were missing in the work order system.

When data is missing, the information is not as useful for Street Maintenance management reports. We recommend that Street Maintenance complete the work orders properly

and provide useful summary reports to management.

**Develop a  
Work Order Aging  
Report in Easy  
Streets**

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We found that Easy Streets can help Street Maintenance monitor outstanding work orders monthly to prevent growth of work order backlogs.

For example, in 2004, Street Maintenance management determined that there was a two-year sidewalk work order backlog. The backlog had accumulated without an adequate method to monitor and respond to the sidewalk damages timely. Within the last year, Street Maintenance, with the help of two contractors, reduced its sidewalk backlog from two years to approximately one and a half months.

To analyze and prevent future pavement backlogs, Streets and Stormwater Services Division management should develop a work order aging report in Easy Streets and periodically obtain reports to control the open work order backlog.

**Obtain Periodic  
Claim Information  
from Risk  
Management**

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Streets and Stormwater Services Division should periodically obtain Street Maintenance's liability and property damage claim information. From 2003 to 2006, Risk Management received 352 claims associated with Street Maintenance, totaling City payments of \$151,475 for incidents such as potholes and persons injured because of sidewalks in disrepair. Obtaining these reports will help Street Maintenance to improve prevention of such incidents.

**Evaluate and Report Feasibility and Funding to Address Brick Street Repairs**

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There is not enough staff to respond to brick street work orders in a timely manner. Management has determined that there are 55 miles of brick streets in the City; 35% of the brick streets have an “F” rating, needing major repairs, 55% have a “C” rating, and 10% are at an “A” rating. The City Engineer’s data indicates that approximately 24 miles of brick streets need repairs at this time. Replacement and rejuvenation of ½ mile of City brick streets would cost approximately \$400,000 a year, if contracted out. Street Maintenance management estimates that a five man brick crew would cost the City \$290,000 annually in salary, benefits and equipment. To make progress on the brick street work order backlog, Street Maintenance should evaluate the needs and report the available options, feasibility and funding opportunities to Public Works management.

**Prioritize Work Orders to Increase Efficiency**

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Street Maintenance has one criterion to make roadways safe within four hours if an incident has occurred, and another criterion to repair hazardous roadways within 1 to 6 months. However, for better efficiency and control we recommend that Street Maintenance develop a priority system with more particular criteria and timeframes, and assign the priorities to work orders in the Easy Streets database.

**Request Wastewater to Input Work Orders in Advance**

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The Wastewater Division provides services under City streets, often by cutting street pavements to perform their work. Once Wastewater completes its work, Street Maintenance is requested to repair the damaged street. Not receiving this information on planned repair work in advance affects Street Maintenance’s responsiveness. To increase efficiency,

Wastewater should be requested to input work orders into Easy Streets requesting this repair work before performing any work that will require Street Maintenance resources.

**Consult with  
Solid Waste and  
Reduce Damage  
to Pavements**

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We observed that several City sidewalks are damaged near Solid Waste dumpsters. Solid Waste stated that City garbage trucks weigh approximately 32.5 ton when full. According to City Code Section 54.39, the sidewalks must be at least four inches thick when constructed, but apparently this is not thick enough to accommodate the weight of City garbage trucks. We recommend that Streets and Stormwater Services Division request data about damaged areas detected during Solid Waste's regular inspection of dumpster sites. Streets and Stormwater Services Division has begun to use an alternative and thicker pavement material for repairs near City dumpsters. We also recommend this provision be added to the City's Engineering Standards Manual, so that new sidewalks are constructed to these revised standards.

**Address Right-  
of-Way Damages  
Caused by  
Property Owners**

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City Policy Section 1111.4 states that any damages caused by property owners to sidewalks, curbs and gutters must be repaired by the property owner and that the City should notify, bill and place liens for City repairs of such damages. We interviewed management of both Street Maintenance and Permitting Services and discovered that City Policy 1111.4 is not being enforced by either party. We were told that property owners are not being billed for repairs to pavement damage caused by them. The City Engineer believes existing policy is sound and should be effectively enforced by the Streets and Stormwater Services Division. We recommend that the

Division develop written internal procedures to ensure that the policy is properly enforced and work with Permitting Services to identify such damages.

## BACKGROUND

The City of Orlando's (City) Street Maintenance and Construction (Street Maintenance) program is operated through the Streets and Stormwater Services Division, within the Public Works Department. The division's mission statement is to "Maintain and operate the City's transportation infrastructure and stormwater facilities in order to achieve maximum design life; preserve water quality in the City's lake system."

Street Maintenance is responsible for the routine repairs to all the streets within City limits. There are approximately 679 total miles of City jurisdictional streets. Street Maintenance's function includes, but is not limited to, repairing and maintaining the City's streets, sidewalks, curbs and driveway aprons that could contribute to unsafe vehicular and pedestrian travel if allowed to deteriorate. Street Maintenance also repairs potholes, new and old utility cuts, and brick and dirt street hazards.

The budget for Street Maintenance for FY 2006-07 is \$1,747,909, representing approximately 22% of Streets and Stormwater Services Division's total general fund budget. Compared to the Street Maintenance FY 2005-06 budget, this was a decrease of \$44,182 or 2.47%. From FY 2004-05 through FY 2006-07, the number of Street Maintenance positions has remained stable at 27 positions, which includes a Program Manager, an Assistant Supervisor and a Field Supervisor. This is 33% of the total positions in the Streets and Stormwater Services Division.

Street Maintenance uses Easy Streets software, a geographic information system, to record and manage its work orders. Street Maintenance mainly operates based on citizens' complaints, and City personnel identify some damages. In FY 2005-06, 1,372 work orders were entered into Easy Streets; 1,319 of the work orders were completed; 31 were inspected and assigned a date for completion; and 22 were referred to others. Referral occurs when Street Maintenance needs assistance from another program within the City, to complete the work order properly.

In December 2006, the Public Works Department received a Pavement Management Report conducted by a consultant. The report reviewed all of the City's roads and forecast the City budget needed for major maintenance and rehabilitation of the asphalt and concrete roads for FY 2006-07 through 2010-11. To provide an understanding of the relationship of the Street Maintenance program examined in this audit to the City's long-term pavement management function, we include the following summary.

The Pavement Management Report concerns the overall condition of the City's roads, which is an issue controlled by management separately from the Street Maintenance activities. Decisions about funding and execution of long-term improvements of City roads affect Street Maintenance, but are not part of Street Maintenance operations; thus, the conclusions in that report were not evaluated within the present audit scope.

The purpose of the recommendations made by the Pavement Management Report is to help the City achieve its maximum design life objective and thus minimize the overall costs associated with the City streets. Without an adequate long-term investment in rehabilitation, the engineering professionals have indicated that premature deterioration occurs. This condition directly affects the Street Maintenance operations by increasing the costs for repairs when temporary solutions are used in an attempt to address longer-term needs.

Using the Pavement Condition Index score for roads, the consultant indicated that 17.2% of the current City roads are in fair or poor condition; 37.3% are satisfactory and 44.6% are in good condition. Per the consultant, the City should budget at least \$2.5 million annually to rehabilitate the City streets properly on a rotating basis. This budget is in addition to the current Street Maintenance program budget. The consultant also recommended that Public Works invest in the PAVER software, which would help the City create a multi-year pavement rehabilitation program and help estimate the effect of implementation of the maintenance.

## SUMMARY OF RECOMMENDATIONS AND RESPONSES

### RECOMMENDATIONS

### RESPONSES

Each recommendation is classified with a “Criticality Factor”, defined as:

- HIGH** represents a control risk or needed improvement requiring immediate attention.
- MEDIUM** represents a control risk or needed improvement requiring attention in the next year.
- LOW** represents a process improvement that can be addressed at management’s discretion.

The Streets and Stormwater Services Division should:

- |    |  |        |
|----|--|--------|
| 1. | Update City Policies and Procedures for Street Maintenance and Construction, and include procedures recommended in this report. (HIGH)                           | Concur |
| 2. | Adopt an internal policies and procedures document for guidance to Street Maintenance and Construction daily operations. (MEDIUM)                                | Concur |
| 3. | Print on its public relations door hanger the titles and telephone numbers of the employees that customers can contact to inquire about a streets project. (LOW) | Concur |
| 4. | Consult with the Office of Communications on the possibility of adding a link on the City’s Website for citizens to submit complaints. (MEDIUM)                  | Concur |
| 5. | Develop a process to measure customer satisfaction. (MEDIUM)   | Concur |
| 6. | Complete the data fields of work orders in Easy Streets. (HIGH)  | Concur |
| 7. | Use the Easy Streets work order data to provide summary reports to management on a regular basis. (HIGH)   | Concur |
| 8. | Request the Technology Management Division to assist in developing a work order aging report in Easy Streets. (HIGH)   | Concur |
| 9. | Obtain periodic reports of the work order backlog status and monitor   | Concur |

RECOMMENDATIONS	RESPONSES
this information to control the current backlog. (HIGH)	
10. Obtain periodic Street Maintenance claim information from Risk Management, to encourage timely completion of work orders and improve claim prevention. (MEDIUM)	Concur
11. Evaluate the need and report the available options, feasibility and funding opportunities to address the current backlog of needed brick repairs. (HIGH)	Concur
12. Develop a system of identifying priorities for and documenting activities related to work orders in Easy Streets, with assistance from Technology Management. (MEDIUM)	Concur
13. Request the Wastewater Division to input into Easy Streets any work orders that will require Street Maintenance resources for street repairs, before Wastewater begins its work on the streets. (MEDIUM)	Concur
14. Request Solid Waste to provide information about damaged areas around City dumpsters. (MEDIUM)	Concur
15. Add to the Engineering Standards Manual a more durable alternative pavement material for new pavement construction around City dumpsters. (MEDIUM)	Concur
16. Work with Permitting Services to detect pavement damages caused by property owners. (MEDIUM)	Concur
17. Ensure notifications, bills, and liens regarding property owners' responsibilities for damages are properly executed, and develop written internal procedures to guide this process. (HIGH)	Concur

## ISSUES AND RECOMMENDATIONS

### Objectives, Scope, Methodology and Results

We have performed an audit of the Street Maintenance and Construction (Street Maintenance) program, which is within the Streets and Stormwater Services Division. Our objectives were to determine: how personnel identify what repairs and maintenance need to be done; if the work is being done timely; and if repairs and maintenance are cost-effective.

The audit data reviewed was from October 1, 2005 through September 30, 2006.

Our methodology included: interviews of personnel from Street Maintenance; a limited visual examination of a few City street and sidewalk damages in Metro West and Downtown Orlando area; and review of electronic information regarding Street Maintenance work orders from Easy Streets Software, budget data from the City's budget book and the JD Edwards general ledger for the audit period. We did not test the accuracy of the electronic data, but utilized the information to obtain an understanding of Street Maintenance processes.

We determined that, in general, Street Maintenance is effectively using its current resources; 96% of the streets work orders that were entered into Easy Streets during FY 2005-06 were completed, excluding the seven open brick work orders; personnel are in compliance with policies; and procedures are being performed systematically.

We make several recommendations for improvement in Policies and Procedures, strategic planning, citizen communication, completion of work orders, monitoring and

collecting data and reporting to management, as follows.

**Update City Policies and Procedures for Street Maintenance and Construction**

City Policies and Procedures Section 1111.4, Repair and Maintenance of Sidewalks, Curbs and Gutters, has not been substantially amended since 1993. Undocumented practices have been put in place and new software tools are used by Street Maintenance, but these have not been reflected in City Policies and Procedures. For example, Street Maintenance depends upon cooperation from other departments to effectively identify and properly schedule Street Maintenance work, and has new data management and reporting practices that should be included in City Policies and Procedures to ensure the appropriate parties carry out their responsibilities. Thus, the Policies and Procedures for Street Maintenance do not fully support the operation's goals to perform effectively and efficiently.

The Streets and Stormwater Services Division should update the City Policies and Procedures to eliminate any outdated procedures and to add key existing and new procedures recommended in this report.

**Recommendation 1.** We recommend that the Streets and Stormwater Services Division update City Policies and Procedures for Street Maintenance and Construction, and include procedures recommended in this report.

**Response** Concur. Section 1111.4, Repair and Maintenance of Sidewalks, Curbs and Gutters has been edited and changes have been submitted to Technology Management for incorporation to City Policy and Procedures

**Adopt Internal Policies and Procedures for Street Maintenance and Construction**

The Streets and Stormwater Services Division has not adopted internal policies and procedures for the Street Maintenance and Construction program. During this audit two documents were reviewed: "Street Surface Maintenance"

and “Concrete Maintenance,” which list the mission statements of Public Works Department programs and divisions (i.e. Street, Drainage, Stormwater, etc.). The documents also include goals and objectives, inputs, outputs and performance measures for Street Maintenance. The documents have not been updated since 2002 and do not include any internal policies and procedures.

The Streets and Stormwater Services Division should adopt internal policies and procedures document to include all significant Street Maintenance and Construction processes, including the review procedures and documentation required of supervisors and managers and other similar controls, such as those included in this report.

**Recommendation 2.** We recommend that the Streets and Stormwater Services Division adopt an internal policies and procedures document for guidance to Street Maintenance and Construction daily operations.

**Response** Concur. This document is being reviewed and will be incorporated into an internal policy document that describes our operations and methods.

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**Improve Customer  
Access and Data for  
Better Public  
Relations**

Street Maintenance relies on reports from citizens and City employees through telephone calls and emails to identify Street Maintenance work. To make a report, a citizen generally locates the telephone number or email address of the Street Maintenance office by searching the Internet. We found that contact information for Street Maintenance is not easily accessible on the City’s Website and can only be located if the citizen is proficient in using the Internet.

When a customer calls about pavement needing repair, any Street Maintenance employee can receive the call and create a new work order in the Easy Streets software. At that time, customers are given an estimated time when the project will be completed.

The Street Maintenance Program Manager visits the complaint site and identifies what needs to be repaired. Before leaving the site, the Program Manager places a City of Orlando door hanger sign on the citizen's front door. The door hanger has a line for the Program Manager to write the date the site was visited. There is also a telephone number for the Street Maintenance main telephone line, if they have any questions or concerns. The purpose of the door hanger is to inform the citizens that Street Maintenance was in their vicinity and will return to complete a project.

We noted that citizens can call Street Maintenance to receive additional information about the project but may not reach an employee knowledgeable about their concern.

To improve customer satisfaction, we believe that citizens should have the ability to contact a specific person about their concerns. Therefore, the door hanger should include the direct number for the Streets employee most knowledgeable about the complaint and one or more alternate employees who could also assist. Also, Street Maintenance should consider adding a link on the City's Website, to direct customers to the Street Maintenance complaint form, providing customers ease in reporting street damage.

The condition and repairs of City streets and other pavements are an important matter to the public. Although the Easy Streets work order system already has some customer data, it is not utilized to gauge customer satisfaction. Street Maintenance should determine a method that will use the customer data in Easy Streets to evaluate customer satisfaction on a periodic basis.

**Recommendation 3.** We recommend that the Streets and Stormwater Services Division print on its public relations door hanger the titles and telephone numbers of the employees that customers can contact to inquire about a streets project.

**Response** Concur. Current policy incorporates this recommendation. The responding supervisor now writes his name and contact information on the door hanger.

**Recommendation 4.** We recommend that the Streets and Stormwater Services Division consult with the Office of Communications on the possibility of adding a link on the City’s Website for citizens to submit complaints.

**Response** Concur. With the assistance of the Office of Communications, a link will be created for information on how to request services.

**Recommendation 5.** We recommend that the Streets and Stormwater Services Division develop a process to measure customer satisfaction.

**Response** Concur. With the support of Technology Management, Streets and Stormwater will implement a follow-up survey from citizen complaint generated work orders. Office Administrative Staff will follow up after work is complete.

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**Properly Complete Work Orders and Provide Periodic Summary Reports to Management**

Street Maintenance uses Easy Streets to input and monitor its work orders. The work order form collects data of three different types: (1) call data (including the citizen’s information); (2) assigned to data and (3) completion data. These Easy Streets data fields are important to show what, when and to whom the job was assigned, as well as the completion date and who completed the job.

Currently, Street Maintenance is not using all the information fields on the form. We tested two work orders from each month during the audit period and we found that 17 of the 24 work orders were missing data about who reports the needed repairs, the individual assigned to the job, and/or when the work was completed.

Street Maintenance needs complete information in order to determine the specific location of the damage reported and to update customers about when the repairs will be

performed. Further, incomplete data makes it difficult for Street Maintenance to accurately monitor and evaluate the progress of its work orders.

In addition, we found that Street Maintenance is not providing summary status reports to management on a regular basis. An example of a useful status report would be one that determines the turnaround time to complete various types of Street Maintenance jobs.

One apparent reason for this missing data is that not all Street Maintenance staff are fully trained in opening a work order in Easy Streets. Also, in some cases, the customer sometimes does not share personal information. If a customer does not want to share personal information with Street Maintenance, we believe that the individual recording the work order should note this fact in Easy Streets.

In order to provide useful reports, we believe that the work orders should be complete. Street Maintenance should complete as much information as possible in each work order by collecting all available customer data and activity until completion of the work order, for analysis and reporting purposes. Also, a report should be created that summarizes key information for management.

**Recommendation 6.** We recommend that the Streets and Stormwater Services Division complete the data fields of work orders in Easy Streets.

**Response** Concur. Already implemented.

**Recommendation 7.** We recommend that the Streets and Stormwater Services Division use the Easy Streets work order data to provide summary reports to management on a regular basis.

**Response** Concur. Quarterly reports are generated with summaries of all the work performed, the quality of the work, and materials expended.

**Develop a Work  
Order Aging Report  
in Easy Streets**

Street Maintenance lacks the proper data to accurately “age” work orders. This hinders Street Maintenance from measuring the work order backlog and analyzing the time frame needed to complete it. Therefore, we observed that backlogs for some types of work orders have not been accurately determined or resolved.

For example, in 2004 the management of Street Maintenance estimated that the backlogged work orders to repair damaged sidewalks comprised two years of work. We were informed that sidewalk repairs take an extensive amount of time to complete, compared to asphalt road repairs. The sidewalk backlog had accumulated without an accurate method to calculate and report the extent of the problem. Although many sidewalk work orders had been completed each year, more work orders were reported to Street Maintenance, causing the sidewalk backlog to increase.

Because of the extent of this problem, Street Maintenance focused more attention on the sidewalk work order backlog. This led to a management decision to devote enough funding to divide the sidewalk repair work between existing Street Management personnel and two outside contractors. As a result of the combined efforts and extensive work within the last year, management indicates that the sidewalk backlog has been reduced from two years to approximately one and a half months.

We are aware that some other cities have a Pavement Management System that, among other features, produces estimated costs to repair the work orders on backlog and indicates whether the maintenance is on schedule or not. However, as this is a relatively costly solution, Street Maintenance should utilize an alternative solution in the interim.

We believe that Street Maintenance should obtain an automated report within Easy Streets, showing the age of all

the outstanding work orders monthly. This report should include, but not be limited to: the work order location, complaint date, and number of days since the complaint date.

An aged work order backlog report such as this would help Street Maintenance to more effectively understand the backlog and make efforts to prevent additional backlog growth. Street Maintenance should request the assistance of Technology Management to create a backlog report in Easy Streets.

**Recommendation 8.** We recommend that the Streets and Stormwater Services Division request the Technology Management Division to assist in developing a work order aging report in Easy Streets.

**Response** Concur. The ability already exists from present reporting.

**Recommendation 9.** We recommend that the Streets and Stormwater Services Division management obtain periodic reports of the work order backlog status and monitor this information to control the current backlog.

**Response** Concur. This procedure has been implemented.

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**Obtain Periodic  
Claim Information  
from Risk  
Management**

Liability claims filed with the City of Orlando, due to sidewalk and street conditions resulting in citizen injury and property loss, occur on a regular basis. According to the Streets and Drainage Sidewalk Repair Study in January 2003, 100 cases were processed in Risk Management during the time period of October 1996 to September 2002, which resulted in payments to complainants totaling \$237,145.

From 2003 to 2006, Risk Management received a total of 352 claims associated with Street Maintenance, such as potholes or sidewalk “trip and fall” incidents. The City paid \$151,475 in total for these claims.

Risk Management informed us that claims usually take two

to three years to settle. State statute gives municipalities four years to settle liability claims. This means that a claim reported in 2000 may not settle until 2003 or 2004.

As a result, the City of Orlando may be paying thousands of dollars for liability claims that could be prevented by timelier street and sidewalk repairs. It is possible that dedicating additional dollars to maintenance could prevent or reduce injury, damages and related liability costs.

According to Street Maintenance management, Street Maintenance addresses liability by giving street potholes first priority for repairs, to avoid citizens' vehicle damage. We suggest that Street Maintenance request a liability claim report from Risk Management periodically, to become more knowledgeable of these occurrences in order to improve claim prevention. This information can help determine problem areas of the City that may need additional maintenance attention. Monitoring the liability claims being filed with Risk Management should encourage timely work order completion to avoid additional claims.

**Recommendation 10.** We recommend that the Streets and Stormwater Services Division obtain periodic Street Maintenance claim information from Risk Management, to encourage timely completion of work orders and improve claim prevention.

**Response** Concur. Random meetings with Risk Management already occur. We will encourage meetings on a more frequent basis.

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**Evaluate and Report Feasibility and Funding to Address Brick Street Repairs**

The brick street maintenance and repair backlog has increased over the last several years. This is because Street Maintenance does not have enough staffing to respond to brick work orders in a timely manner. A brick crew once existed back in 2002, but became obsolete due to the high demand in street and sidewalk repairs.

Brick streets are an amenity that have become more prized in recent years for esthetic and property value, as well as traffic

calming purposes. The City has a program to share the capital costs for stripping asphalt from original brick streets with property owners who desire this improvement.

There are approximately 55 miles of brick streets within the City, which represents 8.2% of the City's total street inventory. According to the Public Works Engineering Project Coordinator, 35% of the brick streets are at an "F" rating, with major repairs needed; 55% are at a "C" rating, with lesser repairs needed; and 10% are at an "A" rating, with no repairs needed. The City Engineer's data indicates that approximately 24 miles of brick streets need repairs at this time.

As a result, Street Maintenance has a backlog of approximately 7 open brick street work orders as of January 2007. We were informed that most of the existing brick work orders are for major jobs stretching for blocks. Some of these work orders date back to 2004 and 2005.

According to management, Street Maintenance's main focus is on asphalt and concrete complaints and not brick street work orders because they constitute only 8% of City streets. Brick streets are usually repaired by the pothole crew during the weekend, using overtime, or when a pothole truck is being repaired. The technique to rejuvenate brick streets requires each brick to be manually removed and set aside while the road bed is restored, then precisely replaced by hand in the roadbed.

Street Maintenance has determined that repair of the brick streets is so expensive to contract out that performing the repairs in-house would be more cost-effective. For example, Street Maintenance management received a contractor's quote of \$80,000 to repair a brick street 650 feet in length by 24 feet in width. Street Maintenance management also determined that contracting out the rejuvenation of ½ mile of City brick streets would cost approximately \$400,000 a year. On the other hand, Street Maintenance has calculated

that a 5-man brick would cost the City \$290,000 annually, including salary, benefits and equipment. Based upon these figures, having a brick crew appears to be the most cost-effective solution.

Street Maintenance management is concerned that the brick street backlog will continue to increase. The estimated repair cost for the present brick street work orders is approximately \$11.5 million at the current \$34 per square yard contract price, according to Street Maintenance management. It estimates that a delay of three years could increase the cost to \$15 million, based on historical contract price increases of approximately 10% to 15% annually.

We believe the cost estimates for future brick street repairs, along with similar data for other repair categories, should be reported regularly to the Public Works Director. These facts can assist the department in setting its goals to address citizens' needs. In addition, it is important to ensure that the brick street maintenance costs and backlog are communicated periodically to those who are involved in the decisions to add brick street enhancements throughout the City.

In order to be more effective, Street Maintenance should regularly evaluate the City's needs regarding brick street repairs, consider the available options, and determine if funding opportunities are available for addressing the current backlog in brick street repairs.

**Recommendation 11.**

We recommend that the Streets and Stormwater Services Division evaluate the need and report the available options, feasibility and funding opportunities to address the current backlog of needed brick repairs.

**Response**

Concur. This analysis has occurred and the recommendation has been made through the budgeting process. The most efficient method of addressing this need is to employ a new brick crew and accomplish this backlog.

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**Prioritize Work  
Orders to Increase  
Efficiency**

Street Maintenance work orders are not categorized as regular or emergency work orders, but each work order is prioritized by importance using management discretion. The Street Maintenance Program Manager stated that hazardous street and sidewalk damages are immediately handled, especially if they are located in community areas like parks and high traffic sidewalks and roads.

The Program Manager indicated that Street Maintenance is complying with its criteria, which state that they should:

1. Investigate and make safe within four hours of notification roadways where a reported vehicle incident has occurred due to potholes, failed utility cuts or poor brick and dirt street conditions.
2. Repair roadway safety hazards within 1 to 6 months depending on their severity and scheduling demands.

We believe that Streets and Stormwater Services Division should adopt a priority system beyond these two criteria, in order to manage the work orders. A field should be created in the current Easy Streets work order form, to indicate the assigned priority level and the estimated date to complete the work order. A work order priority document could also be created to assist Street Maintenance in their daily operations. Some criteria we think are important to consider in establishing priorities include: (1) type of repair (pothole, sidewalk, etc.); (2) location of repair; (3) anticipated total cost to repair the work order; and (4) the time it will take to complete the work order. Street Maintenance should seek assistance from Technology Management, if needed, to accomplish this enhancement.

**Recommendation 12.**

We recommend that the Streets and Stormwater Services Division develop a system of identifying priorities for and documenting activities related to work orders in Easy

Streets, with assistance from Technology Management.

**Response**

Concur. Although this process happens already through a less formal process, Technology Management will be contacted and requested to incorporate this ability in the present system.

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**Request  
Wastewater to  
Input Work Orders  
in Advance**

Street Maintenance is not the only program conducting maintenance on the City right of way. The Wastewater Division provides wastewater collection and treatment and often performs street cuts and causes other damages to streets. The Street Maintenance Program Manager stated that Street Maintenance usually learns about Wastewater's work after it is completed. At that time, Street Maintenance is contacted to repair any damages to the streets or sidewalks. As a result, Street Maintenance must adjust its work order schedule to accommodate Wastewater's request. This delays Street Maintenance's responses to other customer complaints throughout the City.

In order for Street Maintenance to be more effective, it should request Wastewater to inform them of anticipated repairs related to future wastewater construction. It should also ask Wastewater to open Street Maintenance work orders directly in Easy Streets before Wastewater starts any jobs that will require Street Maintenance resources. When these work orders are recorded, any Street Maintenance work order report from Easy Streets will include all upcoming work orders, including those caused by Wastewater. Then, Street Maintenance management can effectively plan for this work in conjunction with its regularly scheduled work.

**Recommendation 13.**

We recommend that the Streets and Stormwater Services Division request the Wastewater Division to input into Easy Streets any work orders that will require Street Maintenance resources for street repairs, before Wastewater begins its work on the streets.

**Response** Concur. We will encourage Wastewater’s use of this system although they have implemented another proprietary work order system that is not compatible with our system.

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**Consult with Solid Waste and Reduce Damage to Pavements**

During an observation of the City’s streets, we found several instances of sidewalk damages located near Solid Waste dumpsters. Damage consisted of broken and scattered cement and asphalt, which we believe create hazards for vehicles and pedestrians.

In some cases, this damage occurs when Solid Waste garbage trucks take shortcuts to empty business dumpsters. If a vehicle is blocking the direct path of a dumpster, a garbage truck may drive over sidewalks and curbs to reach it. Garbage trucks weigh approximately 17.5 tons when empty and 32.5 tons when full. Thus, when these trucks drive over sidewalks and curbs it results in cracking and breakage. To more readily assess the conditions at dumpster locations, Street Maintenance should request Solid Waste Management to systematically report broken pavement when it occurs, so that repairs of these areas can be scheduled based upon Solid Waste personnel’s regular visits to the dumpster sites.

City Code Section 54.39, titled Concrete Sidewalks, states that “sidewalks shall be at least four inches thick and shall be constructed according to the standard specifications of the City.” Street Maintenance management informed us that the sidewalk damage does not occur because of substandard construction.

Street Maintenance management has determined that it is more cost-effective to use an alternative pavement material consisting of concrete and fiberglass, laid eight to ten inches thick in areas of traffic by heavy equipment. If sidewalks near garbage dumpsters were constructed or repaired with this material, the durability and lifespan of the pavement would increase.

If use of this alternative pavement material were the

standard for new construction, this would reduce the damage and the number of repairs Street Maintenance must make annually. Upon discussion with the City Engineer, we determined that it would not be difficult to add this provision to the City's Engineering Standards Manual. The City Engineer believes this change would not meet resistance from contractors required to use the new materials.

**Recommendation 14.** We recommend that the Streets and Stormwater Services Division request Solid Waste to provide information about damaged areas around City dumpsters.

**Response** Concur. We have requested this information on several occasions, our crews will continue to monitor these locations and replace or repair these areas as necessary.

**Recommendation 15.** We recommend that the Streets and Stormwater Services Division add to the Engineering Standards Manual a more durable alternative pavement material for new pavement construction around City dumpsters.

**Response** Concur. Thicker sections and large turnout areas will be recommended and included in the Engineering Standards Manual.

**Address Right-of-Way Damages Caused by Property Owners** We discussed City Policies and Procedure Section 1111.4 "Repair and Maintenance of Sidewalks, Curbs and Gutters," with Street Maintenance and determined that the policy is not being enforced, resulting in noncompliance by Street Maintenance.

The policy states that the Public Works Department will send an initial notice to property owners, instructing them to repair any sidewalk, curb or gutter it discovers is damaged by the owner. The policy states that if the property owner refuses to repair the damaged property within 20 days after the first notice, a second notice will be sent. If no action occurs within ten days of the second notice date, the City Engineer will send a third notice as a "Notice of Lien." The

Notice of Lien informs the property owner that the City will complete the repairs and place a lien against the property.

In addition, when contractors obtain permits on behalf of property owners, they sign a document agreeing to be responsible for all repairs of damages that occur to the City right-of-way, including sidewalks, curbs and gutters, during the construction. Permitting Services has employees who inspect construction sites for code compliance but we learned that Permitting Services does not have a procedure to proactively note or report damages of City sidewalks, curbs or gutters to Street Maintenance.

Instead, Permitting Services relies on the document that contractors sign that requires them to report all damages to Permitting Services in order for the City to send an inspector to examine the damage. Street Maintenance informed us that it seldom receives notifications from Permitting Services about damages caused by property owners or contractors.

Further, we found that Street Maintenance does not have a process in place to notify property owners of pavement damages for which they are responsible, to inform them of their responsibility to repair the damages, or to bill for and place liens against properties associated with such damages that the City repairs.

Street Maintenance should work with Permitting Services to develop a procedure to detect such damages during inspections and to report them to Street Maintenance. Also, Street Maintenance should notify such property owners and bill, collect and place liens on property in connection with the costs of repairs performed by the City, in accordance with City Policy.

**Recommendation 16.** We recommend that the Streets and Stormwater Services Division work with Permitting Services to detect pavement damages caused by property owners.

**Response** Concur. Although each time damage is found that is the

result of obvious utility or private interest work, Permitting Services is contacted to ascertain the responsible party. If the work is permitted, Streets and Stormwater requests the offending party to replace or repair the damaged areas.

**Recommendation 17.** We recommend that the Streets and Stormwater Services Division ensure notifications, bills, and liens regarding property owners' responsibilities for damages are properly executed, and develop written internal procedures to guide this process.

**Response** Concur. Through the process as described above, most areas are repaired. The Office of Legal Affairs will be contacted to assist in locations where we receive no response.

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