# DOWNTOWN SMARTMETERS:
## Most goals met, but cost-benefits and reliability need further review

A REPORT FROM THE CITY AUDITOR
July 2008

Office of the City Auditor
Portland, Oregon

CITY OF

**PORTLAND, OREGON**

OFFICE OF THE CITY AUDITOR
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TO: Tom Potter, Mayor
Sam Adams, Commissioner
Nick Fish, Commissioner
Randy Leonard, Commissioner
Dan Saltzman, Commissioner
Sue Keil, Director, Portland Office of Transportation

SUBJECT: Audit – Downtown SmartMeters: Most goals met, but long term analysis of cost-benefits and reliability needed (Report #352B)

Attached is Report #352B containing the results of our audit of the downtown parking meters pay stations, called SmartMeters. This is the second in a series of two audit reports on parking meters downtown. The first audit focused on the function and operation of all meter machines downtown. This report focuses on the goals and results of the purchase and adoption of new electronic SmartMeter parking meters in 2002.

As we were preparing to issue this report, we learned about a proposal to sell and lease-back many of the SmartMeter parking meters. This report includes our review of the recent SmartMeter sale and lease-back proposal in Appendix A. A written response to the audit from Transportation Director Susan Keil is included at the back of the report.

We make several recommendations in the report, and as a result we ask the Office of Transportation, through its commissioner in charge, to provide a status report on implementation of those recommendations within one year.

We appreciate the cooperation and assistance we received from the Portland Office of Transportation as we conducted this audit.

GARY BLACKMER
City Auditor

Audit Team: Drummond Kahn, Fiona Earle, Kari Guy, Doug Norman, Beth Woodward, Ken Gavette, Scott Stewart, Kristin Johnson

Attachment

# DOWNTOWN SMARTMETERS:
## Most goals met, but cost-benefits and reliability need further review

**Summary** The Portland Office of Transportation (PDOT) spent $7.8 million to buy and install 900 new parking meter pay stations (called SmartMeters) in downtown Portland from 2002 to 2004. PDOT has met several goals using SmartMeters. They have:

- Increased parking meter revenues by over $2 million in fiscal year 2004-05
- Improved customer service by providing multiple payment options (bank cards in addition to coins), although some customers continue to find SmartMeters hard to use
- Reduced meter maintenance costs
- Improved the appearance of City sidewalks
- Improved the operational capacity of the parking meter system
- Improved security of meter receipts

However, PDOT has not met other goals using SmartMeters:

- SmartMeters did not reduce collection costs as planned, due to bank card fees. These fees overshadowed the reduction in the cost of using contractors to collect coins from meters.
- PDOT told City Council the 900 SmartMeters could pay for their purchase in five years through increased parking revenues. The increased revenues could have taken longer than five years to cover all the 900 SmartMeters' costs. PDOT has not performed a comprehensive analysis of SmartMeters' costs and revenues, including installation costs
- Although an important goal was to eliminate jamming and meter out-of-service time, PDOT has not tracked these performance indicators.

We encourage PDOT to complete a thorough analysis of all downtown parking meters' costs and revenues to determine if and when the 900 SmartMeters paid for themselves. In addition, PDOT needs to conduct further analysis to demonstrate that SmartMeters are more reliable than the single-space meters. PDOT has not tracked maintenance costs or out-of-service calls for the SmartMeters. We make two further recommendations at the end of this report for PDOT to improve how it monitors customer satisfaction and how it processes bank card transactions.

As we were preparing to issue this audit report in May, we learned that PDOT was working on a plan to sell and lease back many of its SmartMeter parking meters. At the City Auditor's request, Council delayed its consideration of the sale and lease-back agreements to give the Audit Services Division an opportunity to review the proposal. This review is contained in Appendix A of this report.

## Background

Until 2002, Portland had about 7,100 coin-operated single-space meters. These meters were aging and breaking down frequently. The old meters jammed with coins, and many parts were no longer available from vendors. The Portland Office of Transportation (PDOT), which manages the City's parking meters, recommended the purchase of SmartMeter pay stations. SmartMeters are solar-powered, multi-space parking meters that accept bank cards, coins, or pre-paid parking cards. City Council approved the purchase in January 2002 at a cost of $6.8 million over five years ($5.5 million for the meters and $1.3 million for support services).

PDOT told Council that SmartMeters would:

- Improve revenue recovery by eliminating jamming and out of service time
- Increase customer service
- Improve the aesthetic appearance of City blocks
- Reduce maintenance and collection costs
- Improve the operational capacity of parking meters
- Improve security through cashless transactions

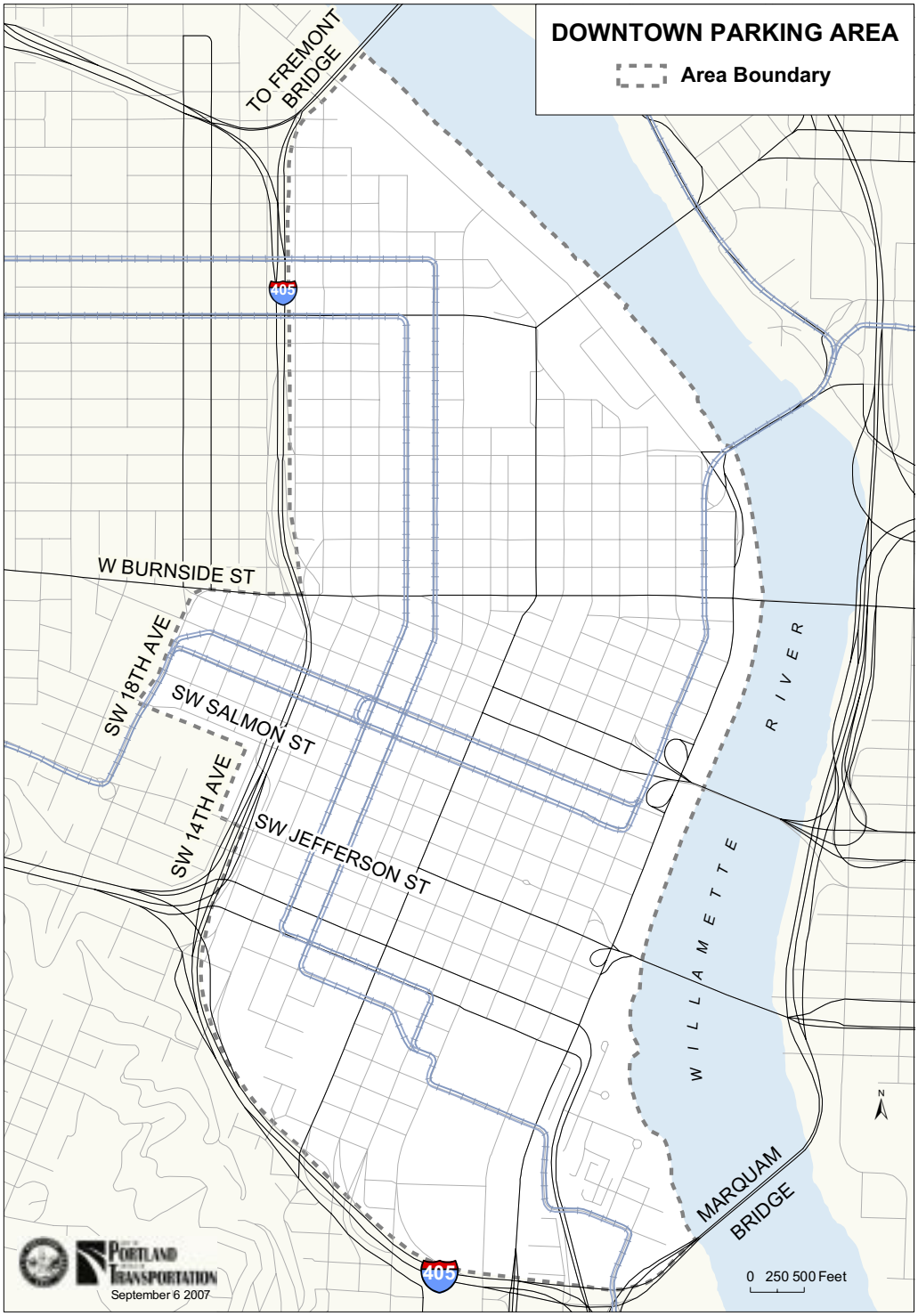
Moreover, PDOT told Council that the increased revenues from SmartMeters could cover the cost of the meters in the first five years.

Between the summer of 2002 and the end of September 2003, PDOT installed nearly 900 SmartMeters in downtown Portland, as defined in Figure 1. Most of the single-space meters were replaced with one SmartMeter per block "face".

The initial installation schedule was shortened from five years to less than two years due to the increase in meter revenue from SmartMeters. There was no change to the on-street parking rates when the first SmartMeters were installed.

In February 2004, PDOT reported to Council that the 900 SmartMeters had been successfully launched, and PDOT sought and received Council approval for a further investment of $3.9 million in additional SmartMeters.

**Figure 1 Downtown Parking Area map**




Source: Portland Office of Transportation

## Objectives, Scope, and Methodology

The objective of this audit was to determine whether the City's investment in downtown SmartMeters has generated the outcomes expected by Council. To achieve this objective, we reviewed Ordinance No. 176191, which authorized the adoption of parking pay stations as the city-wide standard and approved $6.8 million to be invested in SmartMeters. We reviewed the documents presented to City Council in 2002 and interviewed PDOT management to determine which benefits were promised and expected when PDOT sought approval to purchase SmartMeters.

We interviewed PDOT managers and staff and reviewed PDOT's post-implementation analysis of the City's investment in SmartMeters. City Charter and Code do not require City managers to review the outcome of large investments of public funds in a formal cost-benefit analysis. Since PDOT's analysis of the initial SmartMeter program results did not include all costs, such as bank card fees, we performed our own limited assessment of SmartMeters' cost effectiveness.

We compared the operating costs and revenues of downtown parking meters in fiscal year (FY) 2000-01, before the installation of SmartMeters began, to the costs and revenues in FY 2004-05, the year after all 900 SmartMeters were installed. FY 2004-05 was prior to the extension of paid parking time and the increase in parking rates. We adjusted costs for inflation and adjusted both costs and revenue for changes in the number of parking spaces, to make the data comparable. In FY 2004-05, 270 single-space meters still remained downtown.

We tested the reliability of a sample of SmartMeters to determine whether they jammed with coins. We also randomly surveyed SmartMeter users downtown about SmartMeters' impact on the appearance of city streets.

We focused our review on parking meters downtown, and did not include meters in the Lloyd District in our analysis.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

## Figure 2 Goals versus actual results for 900 SmartMeters

**Many goals were largely met**

| Goal in January 2002 | Actual Results | Comment |
|---|---|---|
| To increase Meter Revenues | Goal met. Meter revenues increased by 40% from FY 2000-01 to FY 2004-05; more than claimed by PDOT. | PDOT's analysis showed meter revenue increased by 15% to 20% by January 2004. Additional analysis by Audit Services showed 40% increase in meters' revenue from FY 2000-01 to FY 2004-05, attributable to increased payment by bank cards. |
| To improve Operational Capacity | Goal met. SmartMeter technology enabled increase in parking rates and hours to be implemented on July 1, 2005 without each individual meter needing to be manually reprogrammed. | PDOT told us that the single-space meters could not have physically held the additional daily revenue generated by the change in parking rate. PDOT would have needed to collect coins from single-space meters more than once a day to handle the 2005 rate increase. Smart-Meters ccept payment by bank cards. The 2005 rate change increased the number of SmartMeter transactions made with bank cards instead of coins. |
| To reduce Maintenance Costs | Goal met. Total meter maintenance and repair costs fell 31% from FY 2000-01 to FY 2004-05. | Reduction in maintenance costs not tracked by PDOT. Documented in Audit Services' analysis of PDOT's financial statements. |
| To improve Appearance of City Blocks | Goal probably met. | PDOT management claims that removing "picket-fence" barrier from single-space meters was an improvement. |
| To improve Customer Service by offering more ways to pay for parking and ease of use | Goal mainly met. Increasing numbers of customers use new payment methods.<br><br>In December 2005, PDOT documented no drop in calls to SmartMeter customer service hotline (15 to 20 calls a day), most reporting SmartMeter not producing a receipt and perceived loss of cards. | SmartMeters offer more ways to pay. Number of transactions paid by credit cards climbed to 49% by December 2006 for all SmartMeters.<br><br>PDOT logged customer calls during pay station rollout but did not do post-installation survey.<br><br>Audit Services' 2007 Report #352A on Downtown Parking Meters found meters could be hard to use. |
| To improve Security | Goal met. Meter coin receipts fell by 26% from $5.9 million to $4.4 million from FY 2000-01 to FY 2004-05. An alarm is sent wirelessly to PDOT whenever a SmartMeter door is opened. | SmartMeters improved security by providing the option for cashless transactions that reduced the need for coin collection and handling. |

| Some goals were not met | | |
|---|---|---|
| **Goal in January 2002** | **Actual Results** | **Comment** |
| To reduce Collection Costs | Goal met for reducing coin collection costs, but offset by bank card fees. Total meter collection costs rose by 85% from FY 2000-01 to FY 2004-05, due to impact of bank card fees for this method of parking payment. Third-party coin collection costs (unadjusted) fell by 66% from FY 2000-01 to FY 2004-05. | PDOT management calculated that coin collection and processing costs reduced by 65% by January 2004. However, PDOT only counted contract cost of external collectors, and did not include bank card fees for this form of SmartMeter payment. |
| No Budget Impact | Goal not met. SmartMeters were purchased using ending fund balance on the Transportation Fund #112 for FY 2002-03. In FY 2002-03, PDOT Director's Team approved the $1.6 million over-expenditures for SmartMeter implementation; the budget was not increased to reflect this expenditure. | SmartMeter installations occurred from July 2002 through March 2004 instead of over 5 years, but PDOT's line of credit not used until June 2005.<br><br>PDOT says underspending on programs like street preservation and traffic maintenance in FY 2002-03 provided the fund balance to pay for SmartMeters. |
| **Further analysis needed to demonstrate that SmartMeters met some goals** | | |
| Increased revenues would pay the SmartMeter purchase costs through servicing the associated debt. | Unknown. PDOT has not done a complete analysis of the increased net revenues attributable to the SmartMeters in all the fiscal years since their installation, so they cannot demonstrate that the SmartMeters have paid for their purchase costs. This goal did not consider the installation costs. | Audit Services calculated a $1.8 million increase in meter revenues net of costs for one year with SmartMeters, FY 2004-05 compared to the base year FY 2000-01. Cost to buy the 900 SmartMeters was $5.5 million. Installation costs are estimated at an additional $2.3 million. So $1.8 million is 23% of the total $7.8 million investment but may not be representative of other years. |
| To eliminate Meter Jamming | Extent unknown. Not documented for SmartMeters, although our testing with coins found no jams. Repair and maintenance calls for SmartMeter not tracked for the population as a whole. | PDOT management believes that jamming was virtually eliminated by January 2004, but evidence is largely anecdotal. |
| To eliminate Out-of-service Time | Extent unknown. SmartMeter out-of-service time is not tracked or documented. Approximately 50% of all downtown meter maintenance and repair costs in FY 2004-05 related to trouble calls for SmartMeters that did not work. | PDOT Management believes that out-of-service time was virtually eliminated by January 2004. However, out-of-service time for SmartMeters is not tracked.<br><br>Customers can use another SmartMeter to buy parking if the SmartMeter near parking space is not working. |

Source: Audit Services' analysis of *City of Portland Ordinance No. 176191*, passed by City Council January 9, 2002, data provided by Portland Office of Tranportation and City Treasury, and information posted on PDOT's website, including PDOT Parking Management Plan of December 2005.

## SmartMeters have been largely successful

With the initial downtown SmartMeters, PDOT met the goals of increasing meter revenues, improving the appearance of City blocks, and generally improving customer service.

### SmartMeters increased parking revenues

In January 2004, PDOT management calculated that parking meter revenues had increased by 15 to 20 percent since the installation of SmartMeters, and that 45 percent of customers were making payment by bank card. PDOT managers wrote that meter revenues were above historical highs even though the economy had impacted the demand for parking.

We found from our own analysis that downtown parking meter receipts increased from $5.9 million in FY 2000-01 to $8.3 million in FY 2004-05 (about 40 percent). This increase in total revenue was due to SmartMeters accepting payment by bank cards, which single-space meters cannot. The increased meter revenue was specifically due to:

1. the larger dollar amount paid per transaction by bank card, and
2. the increasing use of bank cards by customers, from 28 percent of SmartMeter transactions in December 2003 to 49 percent in December 2006.

By December 2006, the average SmartMeter bank card transaction was $2.11, compared to only $1.00 per coin transaction.

PDOT calculates that SmartMeters' revenue per space per day in FY 2004-05 was $4.80, which was 24 percent higher than that measure for single-space meters before SmartMeters were installed. This calculation appears reasonable and accurate. SmartMeters are used to pay for longer parking times, which generate more revenue.

Our analysis confirms PDOT management's conclusion that the installation of the downtown SmartMeters increased parking meter revenues, even before the increase in parking rates.

### SmartMeters improved operational capacity

In addition, SmartMeters' technology enabled PDOT to implement an increase in parking rates and parking hours on July 1, 2005 without

needing to manually re-program each individual meter. SmartMeters can be programmed for varying rates and times, which improves the operating capacity of the parking operations system. The July 1, 2005 rate change increased the number of SmartMeter transactions made with bank cards instead of coins.

**SmartMeters reduced maintenance costs**

We found a decrease of 31 percent in maintenance and repair costs for all meters from FY 2000-01 to FY 2004-05, after adjusting for inflation and the number of meters. PDOT spent 27 percent of the reduced meter maintenance and repair costs in FY 2004-05 on preventative maintenance to keep SmartMeters working smoothly.

**SmartMeters improved sidewalks' appearance**

The responses to our random survey of on-street parking customers in downtown Portland were mostly positive. Most customers we surveyed agreed that "replacing the old single-space meters with the SmartMeters has improved the appearance of the downtown sidewalks".

**SmartMeters improved customer service**

SmartMeters improved customer service by accepting coins, bank cards, and smart cards. This gives the customer a choice of payment method and makes it easier to pay for longer parking times without needing a large number of coins. An increasing number of customers are using bank cards, as stated earlier.

PDOT reported internally in December 2005, however, that the frequency of calls from the SmartMeters' customer service hotline had not improved over time. Most of the 15 to 20 calls per day involved SmartMeters not producing a receipt for customers or customers who believed their bank card was lost in the meter.

We found in an earlier report that SmartMeters could be complex and difficult for some customers to use (see our report #352A, Downtown Parking Meters: Meters and pay stations are working, but certain transactions can be challenging, issued in October 2007).

Click the link below to go to the 2007 Parking Meter report: (http://www.portlandonline.com/shared/cfm/image.cfm?id=172768).

**SmartMeters improved security**
By providing the option for cashless transactions that reduced the need for coin collection and handling, SmartMeters improved security. Meter coin receipts fell by 26 percent from $5.9 million to $4.4 million from FY 2000-01 to FY 2004-05. A SmartMeter sends a wireless alarm to PDOT whenever its door is opened, giving information about the cause of the alarm.

## PDOT did not meet some goals using SmartMeters

**Coin collection cost savings overshadowed by new bankcard fees**
Although PDOT expected SmartMeters to reduce the costs to collect and handle coins by providing the option for bank card transactions, total meter collection costs increased by 85 percent, from $221,000 to $408,000 between FY 2000-01 and FY 2004-05. This increase was due to the addition of bank card fees. These fees overshadowed the reduction in the cost of using contractors to collect coins from meters.

Not only did the number of bank card transactions increase over time, but the amount charged for the use of bank cards also increased, from an average of 6 percent to 12 percent of the transaction's value.

PDOT has recognized the impact of bank card fees on meter collection costs. By upgrading some SmartMeters to real-time bank card processing, PDOT reduced bank card fees last summer from an average 12 percent to 5 percent of transaction value.

**Reduced spending in other areas financed the SmartMeter project**
PDOT said that SmartMeters would have no budget impact because a line of credit (a debt) would be used to finance the upfront costs of the new meters, and the increased parking revenue would pay the debt.

However, despite Council approving the use of debt to fund the 900 SmartMeters, PDOT did not use debt to finance the purchase of SmartMeters. Instead, PDOT used internal staff to install the meters and used budget savings from various service areas within PDOT to finance the $5,490,000 purchase costs. For example, in FY 2002-03,

PDOT used $2.4 million in savings from the street preservation program, and $1.1 million from greater-than-expected gas tax revenues to defray the costs of the new meters. PDOT management stated that they used the operating funds in the Transportation Fund instead of using debt to pay for SmartMeters, in order to avoid paying interest.

However, this does not mean that SmartMeters cost less or had no impact on PDOT's approved budget. It appears that the SmartMeters' purchase was funded by reduced spending in other areas of PDOT's operations.

## Further analysis needed to demonstrate that PDOT met some goals using SmartMeters

**PDOT has not done a comprehensive analysis to demonstrate that SmartMeters recovered their purchase costs**

PDOT told Council that the $5.5 million cost to purchase 900 SmartMeters over a five year installation period could be paid for through increased parking revenues generated by the new meters. We found that PDOT has not performed a comprehensive analysis of the combined costs and revenues associated with SmartMeters. For example, PDOT's analysis did not include $2.3 million in installation costs or the new bank card fees.

Since PDOT's analysis of the financial impact of SmartMeters was incomplete, we conducted a limited analysis of the net change in meter revenue and operating costs between FY 2004-05 and the base year, FY 2000-01. As shown in Figure 3, we found a $1.8 million increase in downtown parking meter revenues over costs, which represents 23 percent of the $7.8 million spent to purchase and install 900 SmartMeters.

**Figure 3 Comparison of net meter revenue before and after SmartMeters**

| | FY 2000-01 single-space Meters only | FY 2004-05 900 SmartMeters downtown | Difference due to SmartMeters |
|---|---|---|---|
| Revenue | $5,940,000 | $8,305,000 | $2,365,000 |
| Maintenance Costs | $502,000 | $347,000 | - $155,000 |
| Coin Collection Costs | $221,000 | $113,000 | - $108,000 |
| Bank Card Fees | $0 | $295,000 | $295,000 |
| Monthly Service | $0 | $522,000 | $522,000 |
| Total Operating Costs | $723,000 | $1,277,000 | $554,000 |
| Increased Net Revenue | $5,217,000 | $7,028,000 | $1,811,000 |

Source: Audit Services' analysis of data provided by PDOT, adjusting the costs for inflation. The revenues from both FY 2000-01 and FY 2004-05 were at the same rates per hour, so were not ajusted for inflation.

Based on our analysis of a single-year to single-year comparison, it appears possible that increased revenues generated by SmartMeters did not pay for the initial investment of $7.8 million within five years. FY 2004-05 was the first year all 900 new SmartMeters were fully operational. During the two preceding years, SmartMeters generated far less revenue per year than in FY 2004-05, and the monthly service fee was higher until there were more than 900 SmartMeters in service. The increased revenues could have taken longer than five years to cover all the 900 SmartMeters' costs.

PDOT officials told us that the $1.8 million increase in meter revenues shown in Figure 3, together with improving economic conditions during FY 2005-06 and the 24 percent increase in SmartMeters' revenue per space per day, made it likely that the 900 SmartMeters have paid for themselves within the five year period originally planned. However, we believe that PDOT should do a more comprehensive cost-benefit analysis to determine if and when SmartMeters fully paid for themselves through increased revenues. Such an analysis would prove PDOT's claim of success to Council and would provide data Council needs to make informed decisions about further pay station investments.

**PDOT has not tracked meter reliability trends**

PDOT has not documented trends in meter failures, and has not tracked the number or types of SmartMeter repairs since installation. Meter reliability is indicated by jamming incidents and out-of-service time.

In our October 2007 audit report on parking meters, we found that downtown SmartMeters were working accurately and did not jam with coins. PDOT spent $94,500 in FY 2004-05 on preventive maintenance on SmartMeters to minimize out-of-service problems. However, PDOT spent $174,000 in FY 2004-05 on reactive maintenance and repairs on SmartMeters, suggesting there was some out-of-service time with SmartMeters.

Compared to an out-of-service single-space meter in the period before SmartMeters, an out-of-service SmartMeter may have less impact on PDOT parking revenues, although with greater inconvenience to customers. SmartMeter customers are required to walk across the street or around the corner to obtain a parking receipt/sticker from another SmartMeter if the one nearest their parking space is not working.

Since SmartMeters were adopted, City Code makes it unlawful to park in any parking meter space without paying. Single-space meter customers now either have to move their car if the meter is out-of-service, or will need to obtain a parking receipt from a SmartMeter.

PDOT states that many of the out-of-service calls regarding SmartMeters are resolved within a few minutes. However, PDOT needs to track the incidence of SmartMeter jamming and out-of-service calls to demonstrate increased meter reliability.

PDOT's records for FY 2005-06 and FY 2006-07 indicate that single-space meters have become more reliable. Although jammed single-space meters have not been eliminated, there was a 96 percent reduction in jammed single-space meters from FY 2000-01 to FY 2005-06. In FY 2005-06 the remaining single-space meters were jamming about twice a year, instead of about four times a year. PDOT increased the size of the coin canisters in the remaining single-space meters during the initial SmartMeter installation.

## Recommendations

We recommend that the Commissioner-in-Charge direct the Portland Office of Transportation to:

1. **Conduct a comprehensive cost-benefit analysis of SmartMeters, for money spent *so far* including bank card fees, installation costs and the impact of the funding method on other services. This analysis should determine if and when the investment in the original 900 was fully recovered through increased revenues net of operating costs.**

2. **Track trends in repair and maintenance calls and out-of-service time for SmartMeters.**

3. **Monitor trends in customer satisfaction with SmartMeters and regularly offer clear instruction to the parking public, including new and infrequent users, on how to use the meters.**

4. **Consider the cost/benefit of upgrading all remaining SmartMeters to real-time bank card processing to further reduce bank fees. Consider the *future* impact of bank card fees when analyzing parking meter costs, rates and purchases.**

An additional recommendation is included at the end of Appendix A: Meter sale and lease-back proposal needs further justification.

# APPENDIX A
# Meter sale and lease-back proposal needs further justification

# APPENDIX A:
## Meter sale and lease-back proposal needs further justification

As we were preparing to issue this audit report in May, we learned from PDOT and local media that PDOT was working on a plan to sell and lease-back many of its SmartMeter parking meters. PDOT proposes to sell the City's 1,137 Stelio parking meters – meters the City already owns – to Fovere Capital Management, Inc., a mortgage broker based in Canada, for approximately $9.4 million. PDOT would then enter into a five-year lease agreement with Fovere and lease back the meters. Under the lease agreement, PDOT would make semi-annual payments of $1.2 million, or a total of about $12 million over the five-year lease. Although the meters would remain on Portland streets, and the City would keep the parking revenues they generate, the meters would become the property of the mortgage broker and would no longer be owned by the City.

PDOT told Council that it saw benefit from the proposed sale and lease-back in terms of managing the risk of technological change.

The lease agreement with Fovere would also require PDOT to enter into an agreement with a second contractor, Precise Parklink (USA) Inc., for an asset protection and renewal program to provide ongoing parts replacement for the meters over the same five-year period. Under this agreement, PDOT would pay approximately $591,000 per year to Precise Parklink for providing new or rebuilt components needed to keep the meters operating properly. The City would thus be making nearly a $3 million investment in parts for the leased meters. PDOT management said that City employees would continue to perform routine meter maintenance, such as replacing the sticker/receipt paper and inserting replacement meter parts supplied by Precise Parklink.

PDOT's proposal is significant because of the dollar amounts involved and because of the sale and lease-back concept's uniqueness – we know of no other city that uses this method to finance parking meters. While leasing instead of purchasing is an appropriate financial tool to obtain assets like parking meters, the notion of selling and then leasing back meters the City already owns is unusual. At the City Auditor's request, Council delayed its consideration of the sale and lease-back agreements to give the Audit Services Division an opportunity to review the proposal.

## Auditor review of PDOT's proposal

To evaluate the sale and lease-back proposal, we interviewed PDOT Parking managers, PDOT Finance managers, the City's Debt Service Manager, and managers from other jurisdictions which use parking meters made by the same manufacturer. We reviewed the proposed agreements to sell and lease-back the meters, and the proposed agreement to purchase part replacement services. We also reviewed PDOT's analysis of the cash flow from the sale and lease-back with the part replacement contract, compared to the cash flow from continued ownership without the part replacement contract, and other related documents.

Based on our review of PDOT's proposal, we have identified the following areas where PDOT needs additional analysis:

- Need to conduct a complete financial analysis
- Need to weigh the benefits of maintaining meter ownership versus leasing
- Need to consider a more traditional debt service tool
- Need to evaluate cost of parts replacement separately

**Need to conduct a complete financial analysis**

We believe PDOT's analysis of the proposed sale and lease-back of the parking meters is incomplete and fails to demonstrate that the proposal would be cost effective for the City. PDOT'S preliminary cash flow analysis prepared in February 2008 needs to be revised and updated. The analysis did not consider a security deposit of

approximately $600,000 that was included by Fovere in a May 2008 draft of the lease agreement. It also did not analyze possible financial arrangements after the initial five-year lease. In addition, the preliminary cash flow analysis did not convert future costs to present value dollars to make the sale and lease-back plan directly comparable to continued ownership of the meters over the term of the lease.

**Need to weigh the benefits of maintaining meter ownership versus leasing**

Under PDOT's proposal, the City would sell the 1,137 meters it already owns, yet would continue to pay for maintenance and parts replacement as it would if it continued to own the meters, PDOT said. The City would still bear the entire risk of loss and damage to the meters, and remain liable for all costs and expenses arising from the possession and use of the equipment, including nearly $3 million it would be investing in parts replacement. Because it would no longer own the meters, PDOT would be unable to sell the meters at the end of the five-year lease, and could not continue using them after the five years without making further lease payments or re-purchasing them. PDOT management told us the City would not be able to sell the Stelio meters because the manufacturer controls the proprietary software needed to operate them. We believe PDOT needs to conduct further research and speak with the manufacturer and potential buyers.

While PDOT believes the sale and lease-back arrangement would provide flexibility to shift to new technology in the future, we believe continued ownership of the meters could actually provide PDOT with even greater flexibility. By owning the meters, PDOT could continue to use the meters for as long as they are cost effective, without having to make lease payments. This could minimize the costs associated with selling or disposing of the old meters, or buying or leasing new ones. In addition, keeping the same meters as long as possible would reduce the frequency with which the public must be re-trained on how to operate the City's latest parking meter technology.

**Need to consider a more traditional debt service tool**

We believe PDOT should consider using a more traditional debt service tool if it needs money to buy future assets or improve existing ones, rather than use the sale and lease-back proposal for this purpose. PDOT proposes to use the sale of the meters to generate funds to pay for over $1.3 million in meter upgrades it performed in the past year, which provide real-time bankcard processing. PDOT managers also stated that they could use the meter sale proceeds to help address other PDOT needs, such as the backlog of needed street repairs.

As shown in a supporting lease document, the proposed lease payment is based on approximately an eight percent rate of return to the company purchasing the meters. This cost of money to the City appears to be higher than rates the City could obtain from more traditional financing sources, such as bonds and lines of credit. The cost of money from the sale and lease-back arrangement should be compared to the City's cost of simply borrowing the money it needs.

**Need to evaluate cost of parts replacement separately**

PDOT's plan for ongoing meter parts replacement could be handled separately from the proposed sale and lease-back arrangement. Among other proposed services, Precise Parklink would replace or rebuild all the main components in 80 percent of the Stelio meters during the five-year lease period. The $591,000 per year cost for meter part replacement would equate to about $519 per year per meter.

We believe that PDOT should analyze the cost of maintaining the meters separately from the sale and lease-back arrangement, and should consider the age and condition of the meters. The meters are three to nearly six years old and would be about eight to 11 years old when the five-year lease agreement would end. PDOT should evaluate the option of purchasing parts directly, on an as-needed basis, in addition to the option of entering into a parts replacement agreement. PDOT should also consider the costs that other jurisdictions have experienced in maintaining similar meter models.

## Recommendation

PDOT needs to adequately justify its proposal to sell the City-owned Stelio meters and then enter into a lease-back arrangement. We have significant concerns about the rationale it has provided, as detailed above. We believe that additional work is needed to provide a more thorough picture of available options.

Before City Council formally considers PDOT's proposal for the Stelio meters, we recommend that the Commissioner-in-charge direct PDOT to:

**Improve and update its financial analysis of the proposal. PDOT's analysis should:**

a) **Include information from the most recent contract proposals and an evaluation of the net present value (of future dollars at today's value) of available options, including both the sale and lease-back proposal and continued ownership of the meters.**

b) **Consider the cost of disposal, potential for resale, and the cost of continuing to use the meters after the five-year lease.**

c) **Evaluate different financing mechanisms, including a separate line of credit and other traditional loan types, as well as the sale and lease-back proposal, to ensure the City receives the best possible rate for borrowing money.**

d) **Consider multiple options for parts replacement at least cost, including the option of PDOT purchasing parts on its own, as it needs them.**

After we completed our audit work and a final draft of this report, the Commissioner-in-charge provided us with a July 16 memorandum prepared by an outside consultant that contains an updated cash flow analysis. In the memorandum, the consultant concluded that, according to PDOT's cash flow, the primary benefit of the proposed transaction would be the parts replacement agreement rather than the sale and lease-back proposal.

The consultant's memorandum states, "Under a scenario in which PDOT maintains ownership of the meters and secures an APRP [i.e. parts replacement agreement] for the same price as currently proposed by the Lessor, PDOT's fund balance at the end of five years is substantially higher than the projected fund balances under a full lease-back and APRP arrangement, or under any scenario in which PDOT maintains responsibility for repair and replacement of the meters."

We reviewed the consultant's analysis and found that it provides a good first step towards addressing our recommendations. The new analysis contains some updated cost and revenue data, and evaluates a number of alternatives to PDOT's sale and lease-back proposal, including the option of entering into a parts replacement agreement while maintaining ownership of the meters. However, the consultant's analysis does not consider net present value of the various alternatives, which would make the cash flows comparable over the years. In addition, the consultant's analysis indicates that PDOT still lacks some critical information, including specific costs associated with meter disposal, resale, and the continued use of the meters after the five-year term of the lease-back agreement.

As it continues to implement our recommendation, PDOT should clearly state the intended source of funds to pay for whatever option(s) PDOT selects to take forward for Council's consideration.

Once PDOT has completed its revised analysis, PDOT should present it to the Office of Management and Finance for review and comment, prior to submission to City Council for its consideration.

# RESPONSES TO THE AUDIT

CITY OF
PORTLAND
OFFICE OF
TRANSPORTATION

Sam Adams
Commissioner

Susan D. Keil
Director

Don Gardner
Engineering & Development

Lavinia Gordon
System Management

Suzanne Kahn & Eric Peterson
Maintenance

John Rist
Business Services

Paul Smith
Planning

July 15, 2008

**TO:** **Gary Blackmer, City Auditor**

**FROM:** **Susan Keil, Director, Portland Office of Transportation**

**SUBJECT:** **Final Draft III of Audit Report #352B – Downtown SmartMeters**

I appreciate your review and recommendations on our downtown SmartMeter program. Revenue generated from this program supports essential city transportation services and recommendations that improve overall operations are important to me. Your audit report includes two sections with accompanying recommendations.

Part I: Most goals met, but cost-benefits and reliability need further review

I am pleased by your finding that PDOT achieved 6 out of 9 program goals that were outlined to City Council. We believe this is a strong indicator of program success.

Of the 3 goals you believe we did not achieve, we respectfully disagree with your conclusion that we failed to meet the No Budget Impact goal for FY 2002-03. Using savings from our ending fund balance was a discretionary decision to pay off SmartMeters instead of incurring debt. This decision reduced PDOT's overall costs with no impact to other services.

The four recommendations you have made to the Commissioner-in-Charge are all well underway or already complete. I have included additional feedback on your recommendations in numbered order.

1. ***Conduct a comprehensive cost-benefit analysis of SmartMeters, for money spent so far including bank card fees, installation costs and the impact of funding method on other services. This analysis should determine if and when the investment in the original 900 was fully recovered through increased revenues net of operating costs.***

A cost-benefit analysis is underway and will be completed shortly. It should be noted that many outside factors impact parking revenues. During the first 4 years of SmartMeter operations, the City experienced a decline in downtown business activity, and during that same period, Visa and MasterCard imposed a substantial increase to bank card transaction fees. Both of these factors reduced the growth of revenues, which impacted our ability to pay off the SmartMeter capital investment in the shortest possible time period. Business activity did pick up in 2005 and since that time net revenues have steadily increased.

**2. *Track trends in repair and maintenance calls and out-of-service time for SmartMeters.***

We are developing a model to track long-term trends in SmartMeter repair, maintenance and out-of-service time. The analysis will be complete within a few months. Although we have not yet established long-term trends, daily repair and maintenance calls are tracked and logged through an automated advance alarm system. Our experience shows that, on any given day, 98 to 100 percent of SmartMeters will be operating free of coin jamming or any other out-of-service condition.

**3. *Monitor trends in customer satisfaction with SmartMeters and regularly offer clear instruction to the parking public, including new and infrequent users, on how to use the meters.***

We have been operating a customer feedback and issue tracking system since 2002. Our recent work to upgrade all SmartMeters to real time bank card authorization has included designing and installing new customer instructions and providing additional customer phone support systems. This work is complete and is showing positive results. We will continue to monitor feedback and implement changes that are warranted to insure customer satisfaction.

**4. *Consider the cost/benefit of upgrading all remaining SmartMeters to real-time bank card processing to further reduce bank fees. Consider the future impact of bank card fees when analyzing parking meter costs, rates and purchases.***

We began a program to analyze operating costs and define cost reduction measures about 3 years ago. This program is ongoing and all operating costs are central to the program analysis. We have already upgraded all SmartMeters to real time bank card authorization, and PDOT is now experiencing cost savings from this initiative.

Part II - Appendix A: Meter sale and lease-back proposal needs further justification

PDOT's history of interest in leasing pay station technology began in 2001 with its first pay station request for proposal (RFP). Subsequent pay station RFP's have included a leasing option. Your report states that the purpose of the sale lease back is to sell the SmartMeters because PDOT "needs money to buy future assets or improve existing ones" and "to generate funds to pay for over $1.3 million in meter upgrades." PDOT strongly disagrees with this assertion.

The City of Portland was the first city in North America to adopt the SmartMeter pay station model and we now have the oldest SmartMeter system in operation. PDOT must now determine how to manage the system long-term. There are several factors that lead PDOT to perform the cost-benefit analysis that includes the sale lease-back:

1. PDOT's five-year SmartMeter warranty has expired and we must forecast long term maintenance costs.
2. PDOT has older pay station technology and parking technology is rapidly changing and improving in cost and effectiveness.

3. The SmartMeters use proprietary systems and there is substantial risk of cost increases and lack of control with proprietary technology.
4. Exclusive contracts with vendors for parts exposes PDOT to a highly fluctuating market for parts that have recently demonstrated a significant increase in cost
5. PDOT must guard against the risk of cascading parts failure that could interrupt the parking revenue stream.
6. Opportunities exist to reduce overall operating costs and improve customer service by using other technologies.

Recognizing the importance of fiscal responsibility and the constraints in the market, PDOT developed a 5-year business case analysis that compared continuing an ownership model with converting to a lease option.

Under the original sale lease-back option, the City would receive value for the meters (approximately $10 million) that included the original 2001 contract price plus the value of recent upgrades. The analysis shows that funds received from the sale are dedicated to pay off the lease with any remaining funds earning interest. The analysis does not show funds being used to buy or improve other PDOT assets. PDOT is not evaluating a sale lease back as a way to generate money to pay for upgrades. PDOT is currently funding the cost of the SmartMeter upgrade with a line of credit. If the sale of SmartMeters is approved, PDOT would use part of the funds to retire the debt from the upgrades. The sale price includes the value of future upgrades and PDOT views this as the only responsible way to value the asset. We disagree that this amounts to generating money to pay for the upgrade.

The purpose of the sale lease-back option is to use the potential benefits to improve the parking program. PDOT believes those benefits include:

- Providing flexibility and time to evaluate and take advantage of less proprietary technologies that can reduce PDOT's overall operating and maintenance cost and improve customer services.
- Eliminating any uncertainty around resale of SmartMeters when the technology is even older and possibly obsolete.
- Eliminating the risk of escalating costs and service control from proprietary systems and pricing,
- Ensuring against the potential for cascading failures that could interrupt the revenue stream.

PDOT is continuing its financial evaluation of the sale lease back and continued ownership scenarios. The version of the analysis provided to your staff represented a point in time. Council Resolution 36579, passed on February 27, 2008, served as a non-binding letter of intent, requested by the potential financing bank, with acknowledgement of business terms that included "payment shall be adjusted in proportion to the final determination of value/cost" and "Both Lessor & Lessee shall be satisfied with the Final Lease Agreement prior to the final execution of same". No final recommendation will be developed until our financial evaluation is complete.

The Audit includes four recommendations regarding the sale and lease-back proposal. I have included feedback on each recommendation in numbered order.

1. ***Include information from the most recent contract proposals and an evaluation of the net present value (of future dollars at today's value) of available options, including both the sale and lease-back proposal and continued ownership of the meters.***

The analysis provided to your staff included the option of continued ownership. Updates to that the analyses are ongoing and an evaluation of net present value will be included. Our updated analyses include multiple ownership scenarios which provide a range of cost and risk assumptions for maintenance. PDOT has been working with the Office of Management and Finance (OMF) to analyze the costs and benefits associated with the sale and leaseback option. OMF recently retained the Public Financial Management firm, PFM, to review the analyses. PFM's report, which is enclosed and made a part of our response, finds the underlying assumptions in the PDOT analysis "generally reasonable" and concludes that " that the primary benefit of the proposed transaction would be the APRP rather than the purchase and lease arrangement". The report acknowledges PDOT's strategy to monetize the SmartMeters up-front based on their year 2001 values and points out that the invested proceeds from the sale of the SmartMeters would likely not keep pace with the lease payments. The report also acknowledges PDOT's concern that due to proprietary technology not owned by PDOT "SmartMeters may be difficult to monetize in a resale".

As to the matter of the cost of parts, PDOT reasonably expects that investment in parts under an ownership model would exceed the $3 million investment under the APRP. This is demonstrated in the updated analysis and discussed in concept in the PFM report. The APRP service includes rebuilding Portland's parts on an exchange basis with the guarantee of completely refurbishing more than 80 percent of all machines over the 5-year period. The parts are rebuilt at a lower cost than we can achieve through the purchase of new parts.

In considering the benefits of ownership, the common sense notion of the value of building equity with ownership may not be reality. Experience has shown that there is little or no market for older parking technology where the city does not control the rights to the software that operates the technology. The enclosed report from PFM also touches on this subject. PDOT does not control the SmartMeter operating software and has recently inquired about directing the manufacturer to provide software services to any city that PDOT chooses to sell its pay stations to. The manufacturer indicated it was unwilling to make such a commitment.

During the planning for the real time bank card authorization upgrade, PDOT evaluated the ability to have other companies perform the software changes and PDOT inquired about selling SmartMeters to other cities. PDOT found that the proprietary software prevented other companies from performing the work and the city that was contacted about buying our meters choose to purchase the newer version of pay station technology. We understand the view that a City should be able to recoup part of their capital investment by selling assets when they have exceeded their useful life, but the technology field provides examples where

recouping the value of used hardware and soft ware does not hold and purchasing the newest version is the most cost effective approach. Computers and cell phones are examples that quickly come to mind.

2. ***Consider the cost of disposal, potential for resale, and the cost of continuing to use the meters after the five-year lease.***

Our updated analyses will include an estimate of these scenarios of ownership plus continuing to use the meters after the five-year lease. The report from PFM made a similar suggestion. Prior to asking council to act on the sale and lease back proposal, they will have detailed information that compares the cost of disposal, potential for resale, and the cost of continuing to use the meters after the five-year period.

3. ***Evaluate different financing mechanisms, including a separate line of credit and other traditional loan types, as well as the sale and lease-back proposal, to ensure the City receives the best possible rate for borrowing money.***

PDOT always looks for the best possible rate when borrowing money. We are currently using a line of credit to pay for the work to upgrade our meters to real time bank card authorization and we believe we received the best possible rate. Once again, the purpose of the sale and lease-back option was not to generate money to improve other assets, but to improve the parking program.

4. ***Consider multiple options for parts replacement at least cost, including the option of PDOT purchasing parts on its own, as it needs them.***

PDOT agrees with this recommendation and has already updated its analysis to include multiple parts replacement scenarios including costing APRP services without the Sale and Lease-back agreement. The potential provider of APRP services has stated they would be willing to contract with the City for those services without the Sale Lease-back agreement. The attached report from PFM presents a case that supports continuing ownership of SmartMeters with APRP services.

In closing, thank you for your time and attention to these matters.

Sincerely,

Susan D. Keil

Susan D. Keil
Director, Portland Office of Transportation

cc: Sam Adams, Commissioner of Public Utilities

enclosure

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July 16, 2008

# Memorandum

**To:** Eric Johansen, *City of Portland*

**From:** John Bonow and Duncan Brown, *Public Financial Management*

**Re:** Portland DOT Parking Meter "Lease-back" Transaction Review

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Several months ago, the Portland Department of Transportation ("PDOT") was approached by a Canadian leasing firm (Fovere Capital Management, Inc., or the "Lessor") with a proposed arrangement through which the Lessor would purchase 1,137 Stelio parking meters from PDOT and lease them back to PDOT at predefined rates for a minimum period of five years. After five years, PDOT would have then have the option to continue the lease at a discounted rate, repurchase the meters at a substantial discount from the price paid by the Lessor, or have the meters removed at no cost to PDOT. PDOT would simultaneously enter into an arrangement (the "APRP") with the Lessor to maintain the meters to a high standard, including fully reconditioning 80% of the meters within five years, as well as providing 15-20 new machines over the same period.

PFM's review of this proposal focused on the underlying quantitative assumptions surrounding PDOT's cash flow analysis, the results of PDOT's analysis, as well as "what if" questions surrounding the objectives, potential benefits, and out-year scenarios of the proposed transaction.

**Underlying Assumptions**

While we are not specialists in parking meter technology, maintenance, or operation, we do find PDOT's underlying assumptions regarding costs, interest rates, and other quantitative factors to be generally reasonable. In analyzing the lease cash flows and comparing the transaction to a situation where it would maintain ownership and operation/maintenance responsibilities for the meters, PDOT assumed an annual 10% escalation in the cost of replacement equipment for cost projections. Were costs to increase at a level closer to average inflation (i.e., a long-term CPI average of about 3%), this could make a difference of several hundred thousand dollars over the course of five years. Based on information provided by PDOT, many replacement parts have increased in cost by 10% or more annually since the meters were installed in 2000; however, given the current state of the economy, it is unclear whether this trend will continue.

Additionally, as PDOT has noted, its projections for meter fee revenue are substantially the same under any scenario in which PDOT retains ownership of the meters, regardless of the level of continued investment in their maintenance. PDOT acknowledges that this revenue may decline under "low-maintenance" scenarios; however, this is not reflected in its cash flow analysis.

**Analysis Results**

Irrespective of ownership of the meters, PDOT's cash flow analysis clearly shows that the primary benefit of the proposed transaction would be the APRP rather than the purchase and lease arrangement. Under a scenario in which PDOT maintains ownership of the meters and secures an APRP for the same price as currently proposed by the Lessor, PDOT's fund balance at the end of five years is substantially higher than the projected fund balances under a full lease-back and APRP arrangement, or under any scenario in which PDOT maintains responsibility for repair and replacement of the meters.

Under this hypothetical scenario, PDOT would appear to meet its objectives of guarding against depreciation of the meters and unforeseen technological changes; additionally, it would maintain ownership of the assets. (We do note, however, that the meters may be difficult to monetize in a re-sale, as the software is proprietary and not owned by PDOT; further, the warranty for PDOT's existing meters has expired. Additionally, neither PFM nor PDOT is aware of any successful resale of Stelio meters elsewhere.) At present, this scenario is merely hypothetical, though we estimate that the cost of an APRP could increase as much as 58% without an attached leaseback arrangement and result in the same projected fund balance after five years as the proposed lease-back and APRP arrangement.

PDOT's analysis of the proposal on the table shows a resulting positive fund balance after five years, compared to negative fund balances at the same point under any scenario of continued PDOT ownership. The proposal would allow PDOT to monetize the meters up-front based on their year 2000 (new) values rather than current values. However, because the resulting lease payments are based on these values, the invested proceeds from the sale of the assets would likely not keep pace with the lease payments. (PDOT assumes a rate of return of 3.63% on its invested funds, whereas the lease payments would approximate a 10% annual rate on the assets' year 2000 value. Further, any lease termination payment would be discounted at a rate of 6%.)

**What If?**

We note two significant items that are not currently addressed by PDOT's analysis. First, the analysis does not contemplate the addition of any future parking meters to the current 1,137, beyond what is provided for by the Lessor. Should PDOT wish to expand its current stable of meters beyond that contemplated by the APRP, the lease-back arrangement may necessitate management of two administratively separate systems: the meters owned by the Lessor and those owned by PDOT.

Second, the analysis does not extend beyond the initial five-year term of the proposed lease, when proposed lease payments would be reduced to 60% of their initial level. Given the relative newness of Stelio technology, it is difficult to quantify the costs and useful lives of the parking meters even over five years. However, while under the proposed lease-back scenario, PDOT would fund lease payments at least partially by the invested proceeds from the sale, it is not clear if PDOT would have the capacity to fund future lease payments after five years, or where such funds would come from. The same holds true if PDOT wished to repurchase the assets at the end of the initial lease term.

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*Downtown SmartMeters: Most goals met, but cost-benefits and reliability need further review*

Report #352B, July 2008

Audit Team Members: Fiona Earle, Kari Guy, Doug Norman, Beth Woodward, Ken Gavette, Scott Stewart, Kristin Johnson

Gary Blackmer, City Auditor
Drummond Kahn, Director of Audit Services

**Other recent audit reports:**

*Housing Tax Abatements: Oversight inadequate to ensure program goals (#362, July 2008)*

*Office of Neighborhood Involvement: Clearer goals and more comprehensive measures needed to improve accountability (#363, June 2008)*

*Public Participation in Capital Projects: Bureau processes align with best practices but should be formalized and available to residents (#347, March 2008)*

*Mandatory Supervisory Training: Not cost-effective and should be streamlined (#354, March 2008)*