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# M E M O R A N D U M

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**DATE:** July 8, 2010  
**TO:** City Council Members  
**FROM:** Russell Weeks  
**RE:** Briefing: Proposal Regarding Electronic Parking Meters  
**CC:** Cindy Gust-Jenson, David Everitt, Frank Gray, Tim Harpst, Gordon Hoskins, Jennifer Bruno, Scott Vaterlaus

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This memorandum pertains to a briefing on a study done by Walker Parking Consultants about the potential to replace the City's 2,114 mechanical parking meters with 344 electronic "multi-space" meters. The study was published March 22, and the Transportation Division is scheduled to brief the City Council on the study and a City Committee's recommendations at the Council's work session July 13.

The impetus for the study is a series of recommendations in the *Downtown in Motion* plan which the City Council adopted as part of the *City's Transportation Master Plan* in November 2008. According to *Downtown in Motion*, "A key objective is to ensure adequate short-term parking for the next 25 years. Meeting this objective will involve a coordinated system of on-street and off-street parking open to the public on an hourly basis."<sup>1</sup> Among recommendations for short-term improvements to parking (between 2007 and 2010) is: "Identify types of meters that take a greater variety of payment media and begin to replace existing meters. Add new style of meters to unmetered areas of Downtown as warranted by parking demand."<sup>2</sup>

The Administration during the briefing would like to hear comment from the City Council on any features the Council would like to see in pay stations and their operation – or any features in electronic pay stations. The Administration also is seeking comment on any feature that the City Council would not like to see.

## **KEY POINTS**

- The study and the City Committee recommend that before the Administration issues a request for proposals to replace existing parking meters the City invite potential electronic pay station providers to demonstrate their products. The consultant also recommends that if a company is hired to provide new meters, that it install 50 meters to introduce the meters to the public and to determine if any issues need to be addressed. After a 90-day introductory period, the remaining 300 or so new units would be installed.<sup>3</sup>
- Clearly, the study and the committee recommend installing electronic meters where a number of people parking in on-street parking spaces could pay with a variety including credit cards, "smart cards," coins, and, possibly, for a higher cost to the City, cash bills.<sup>4</sup>

- The committee recommends that any request for proposals should seek bid options on items such as City ownership of the meters and systems versus leasing them; City maintenance versus contract maintenance; and single-space meters versus multi-space meters.<sup>5</sup> According to Transportation Division officials, any request for proposals will be “broad and open” to capture the full spectrum of potential providers.
- The consultant estimates that the total initial cost of changing from mechanical meters to electronic multi-space meters would be about \$7.1 million. The cost includes the pay stations, software, office support, and hardware for enforcement officers. In addition, annual operating costs are projected to increase as well. It is City Council staff’s understanding that the Administration is exploring various options to finance installing electronic pay stations.
- The City Committee estimates that net annual revenue from parking meters and parking fines (minus annual operating cost) might increase by about \$2 million a year more than the roughly \$3.2 million in actual net revenue the City realized from meters and fines in the year 2008. The consultant’s study estimates potential net revenue might increase by more than the City Committee estimate.<sup>6</sup>

### **ISSUES/QUESTIONS FOR CONSIDERATION**

- The Transmittal Memorandum indicates that any future increase or decrease in parking rates based on parking space locations and any change in the hours for any new parking meter system will require amendments to the *Salt Lake City Municipal Code*.<sup>7</sup>
- The study indicates that multi-space meters when used for spaces on streets handle one to 12 spaces. If 344 multi-space meters replace the existing 2,114 existing mechanical meters, the new meters would serve on average about six spaces.
- The key feature that appears to separate multi-space systems from single meters is the multi-space system’s ability to accept credit, debit and other magnetic-stripe cards, according to the study. However, the study indicates that a “third generation” of single-space meters can accept the same kind of cards.<sup>8</sup> According to the Transportation Division, single meters appear to have evolved quickly.
- Given the committee’s recommendation that any request for proposals seek bid options for “single-space meters versus multi-space meters,” and the study’s acknowledgement that pay-by-space meters “are typically used in off-street applications where spaces can be easily numbered using signs or surface paint,” has the committee actually reached any conclusion about what system it prefers? (It should be noted that the study indicates that multiple pay-by-space meters “are gaining popularity for on-street applications.”<sup>9</sup>
- What is the malfunction or breakdown rate of the electronic meters, and how does it compare to the malfunction or breakdown rate of mechanical meters?
- The study indicates that “electronic boots” can be used for parking enforcement. The boot, according to the study, can be released when a parking violator enters an access code provided by a call center onto an electronic keypad on the boot.<sup>10</sup> Would removing the boot be supervised by a parking enforcement officer? If not, how would the boot be made available for future use?

## **BACKGROUND**

As indicated earlier in this memorandum, the impetus for exploring the potential use of electronic pay stations stems from the Downtown in Motion study that later was adopted as part of the Salt Lake City Transportation Master Plan.

The City Committee exploring the potential use of pay stations involved about a dozen people from a variety of City departments and a representative from The Downtown Alliance.

The use of electronic pay stations as replacements for traditional mechanical pay stations appears to be spreading rapidly. A cursory Internet search showed electronic pay stations recently have been installed in municipalities ranging from Austin, Texas; to Seattle, to Charlotte, North Carolina; to Ann Arbor, Michigan. Council staff has attached information from news stories and Internet websites from a variety of cities including the ones listed above. The information from Ann Arbor includes several pages of public comment that the City Council may see in the future if electronic pay stations ultimately are installed.

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<sup>1</sup> *Downtown in Motion*, Page 35.

<sup>2</sup> *Ibid.* Page 41.

<sup>3</sup> *Administration Transmittal Memorandum*, June 22, 2010, Page 3.

<sup>4</sup> According to consultant's study, while multi-space electronic parking meters can be made to accept paper bills, "it should be noted that there are typically added expenses and service problems associated with accepting paper money." *Parking Pay Station Study*, March 22, 2010, Page 16.

<sup>5</sup> *Administration Transmittal Memorandum*, Page 3.

<sup>6</sup> *Ibid.* Page 2. *Parking Pay Station Study*, Page 27. It also should be noted that the study contains the following *caveat* on Page 31. "Estimates and projections ... have been premised in part upon assumption provided by our client and/or third party sources. ... As such (the consultant) makes no warranty or representation express or implied, as to the accuracy of the estimates or projections."

<sup>7</sup> *Administration Transmittal Memorandum*, Page 3.

<sup>8</sup> *Parking Pay Station Study*, Pages 5 and 11.

<sup>9</sup> *Parking Pay Station Study*, Page 7.

<sup>10</sup> *Ibid.* Page 10.

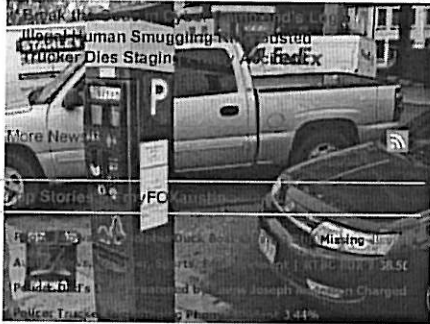


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### New Parking Pay Stations a Success

Updated: Wednesday, 24 Mar 2010, 5:38 PM CDT  
Published: Wednesday, 24 Mar 2010, 5:38 PM CDT

AUSTIN, TX - The City of Austin is calling the new solar powered parking pay stations a success. Austiniles have quickly adapted to the new pay station technology. 60 percent of the revenues are coming from credit and debit cards.

The city also says there has been a reduction in maintenance calls from the old meters. They used to get 1500 calls a month, that has dropped to 65.

One of the biggest changes is the drop in the number of parking citations from the previous year. The city has seen a 16 percent drop in parking citations. They hope to replace the rest of the single meters in the jurisdiction by late spring. The City has approximately 550 single space meters on shorter blocks where use of a full pay station would not be cost effective. The State still operates parking meters around the Capitol that are not part of the City of Austin system.

Initially, the City of Austin established a grace period for citizens unclear about the new process of placing parking stickers on the inside of their vehicle windshield. Now, with a solid 98 percent compliance rate among users, the City will issue final warnings for incorrect display of receipts. The City recently installed software to track violations by license plates and will now be able to cross reference any repeat offenses. A final written warning will be issued first for the incorrect display of receipt and the license plate will be recorded. Upon a subsequent offense, the violation will be ticketed. The City is committed to a pragmatic approach to parking enforcement that seeks to educate our customers as to the expectations but fully implements the enabling ordinance.

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#### Recommended Stories

## Parking pay stations to replace Civic Center meters

*Posted: May 13, 2010 12:33:55 PST*

Motorists visiting Bellingham's Civic Center will find easy-to-use pay stations replacing parking meters starting June 1, 2010. The change is designed to improve customer convenience, reduce maintenance costs and balance customer and merchant needs with the City's long-term goal of reducing vehicle travel.

Parking spaces in front of and beside Bellingham City Hall, the Bellingham Public Library, and on the east side of the Courthouse - including some that are now free - will be managed by pay stations, charging 75 cents per hour for up to two hours of parking. Free public spaces off-street directly behind City Hall will remain, and the pay stations will not accept payment on weekends and holidays when parking is free.

"Our challenge is always finding ways to improve customer service without increasing program costs. This change is another way we're using technology to meet both goals," said Opal Mahoney, Parking Services Manager. "Some think it's a little sad to see single-space meters being 'retired' across the country. They've been old work horses but they just can't offer the convenience that motorists have come to expect without increasing costs of administering them," said Mahoney.

Mahoney said the pay stations offer multiple payment options, including debit and credit card, U.S. currency and U.S. coin. Printed receipts stay with the motorist and provide both the parking space and expiration time. Parking time can be purchased or extended at any pay station in the network, including those in the Commercial Street Parkade or the 1100 block of Railroad. A variable-rate, extended-stay pilot program will test motorist interest in paying higher fees to stay past the current 2-hour time limit, she added.

Pay stations need service only twice a month, she said, while meters can require service up to three times a week. The Civic Center installation will eliminate nearly 21,000 individual meter collections each year. Remote administration allows all rates to be programmed from a central computer instead of manually adjusting each meter.

The \$153,352 budgeted for this project is provided by the Parking Enterprise Fund.

Additional information is available on the city web site,  
<http://www.cob.org/services/transportation/parking/hourly-parking.aspx>

###

### More information

- [Map of new pay station locations in Civic Center](#)

### Media Contact:

Opal Mahoney, Parking Services Manager  
Public Works Department  
778-7780  
[omahoney@cob.org](mailto:omahoney@cob.org)

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## Parking Pay Stations

### Charlotte's new "going green" Parking Pay Stations

Located in Center City, the new Parking Pay Stations offer payment versatility and improved functionality. It's so easy to use a parking pay station. You can even pay by VISA or MasterCard. Besides that, it improves the look of city streetscapes on sidewalks. The pay stations are not only energy efficient, most models are completely solar-powered. Beside that, it improves the look of city streetscapes on sidewalks.

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#### 1. Here's where it works:

(current and new locations)

- Gateway Village-West Trade St. & North Cedar St.
- North Tryon St. & South Tryon St.
- North College St. & South College St.
- North Davidson St.
- North Church St.
- East Trade St.
- East 3rd St.
- East 4th St.



#### 2. Here's how it works:

- Note your space number at the curb where you park.
- Pay at the nearest pay station by pressing any button to start, entering your space number, inserting money for time needed, using coins, credit card or Park It! tokens
- Take a receipt that shows your space number and when your parking time expires (you don't have to display it)

#### 3. Here's why it's a good thing:

- Accepts debit/credit card payments in addition to coins
- Allows you to pay for your space at any Parking Pay Station
- Improves streetscape on sidewalks
- Improves look over traditional parking meters with sleeker new design
- Reduces downtime with fewer meter malfunctions
- Returns non-valid coins
- Offers wireless real-time data transfer

#### Who can help with questions?

If you have any questions or concerns, contact Adam Isen, Park It! Manager, at 704.375.3177.

City of Charlotte  
Department of Transportation

# Raleigh to install 173 new parking pay stations

Posted: December 29, 2009

Raleigh will install 173 new pay stations for on-street parking beginning the week of Jan. 25, city officials announced Tuesday.

The new pay stations will be installed throughout the downtown core bounded by Edenton, South, Blount and Harrington streets. The pay stations also will be placed along Glenwood Avenue from Hillsborough Street to Peace Street in the Glenwood South area.

Installment of the pay stations is expected to be complete by mid-March. An additional 20 pay stations will be placed on Hillsborough Street between Oberlin Road and Gardner Street starting in the fall when the Hillsborough Street Roundabouts Project, Phase 1, is expected to be complete.

Duncan Solutions will provide the pay stations to Raleigh for at least eight years. The Duncan VM pay stations will accept nickels, dimes and quarters, and Visa and MasterCard credit card transactions.

Project managers from Duncan Solutions will be in Raleigh the week of Jan. 11 to visit the pay station locations along with city staff. Mounting pads for the pay stations will be installed before Jan. 25. The parking spaces also will be numbered, city officials said.

The city will have a two-week grace period with each installment of the pay stations during which parking enforcement officers will be made available to assist customers with operating the machines and answer any questions. Regular enforcement of other parking-related offenses will continue.

New blue metered parking signs will be put up at pay station locations to provide instructions on how to pay for parking. The signs will replace the current green time zone signs.

The new pay stations will allow downtown visitors to pay for parking time in 15-minute increments, from 15 minutes up to the maximum time allowed for a particular parking time zone. The minimum payment amount for credit card users will be \$1.

Parking time restrictions currently in place will not change when the pay stations are installed.

The pay stations generally will not accept payment in any form from 5 p.m. to 8 a.m. on weekdays and all day on weekends and holidays as complimentary parking is provided



during those times. However, the pay stations will allow visitors to prepay their parking time on weekdays only starting at 6 a.m. All prepaid time will take effect starting at 8 a.m.

Duncan Solutions VM pay stations use green cell zinc-air battery technology that contain no lead, creates no greenhouse gas and is classified as non-hazardous for disposal, city officials said. To save energy, down-time maintenance costs caused by mechanical failure and to reduce litter, VM pay stations do not print receipts.

Official Website of the City of San Antonio

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## News Release - Council approves purchase of parking pay stations

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*Release Date: **March 4, 2010***

*City of San Antonio Communications and Public Affairs Department: **207-7234***

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### City Council approves purchase of Parking Pay Stations

#### - Downtown parking goes high tech -

Parking in the downtown area will soon go "green." Today, City Council approved an ordinance to acquire 134 parking pay stations throughout downtown San Antonio. The new solar-powered pay stations, which are the size of a small kiosk, will replace the existing single-space, one-hour and two-hour meters primarily located in downtown's busiest zones.

With the installation of these pay stations, the City expects improved pedestrian mobility and reduced sidewalk clutter. The kiosks are in compliance with American with Disabilities Act guidelines for accessibility. The parking kiosks will allow motorists to pay either with coins, a debit or credit card at a single machine to park in designated spaces. The pay stations are equipped with solar panels and have the ability to fully operate with low energy consumption.

"These new parking pay stations not only demonstrate the City's ongoing efforts of implementing technologically advanced initiatives, but they are also customer-friendly and environmentally-friendly," said Paula X. Stallcup, director of Downtown Operations.

The first phase of installation of the new pay stations is scheduled for early May 2010. The City's Downtown Operations Department estimates complete installation of all 134 kiosks to be complete in June of this year. Prior to installation, the City will conduct an educational campaign to educate the public on the operation of the pay stations.

The City is acquiring the pay stations through Parkeon, Inc., a national company that has more than 14,000 parking pay stations installed in cities throughout the country.

In 2006, the City conducted a parking pay station pilot program which proved successful and found the pay stations to be a suitable alternative to standard meters. Some areas of downtown will continue to utilize the existing parking meters but may be upgraded to parking pay stations in the future.

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## Parking Pay Stations - More Arrive Every Day!

Updated May 9, 2005

[How to Use Pay Stations and Who to Call for Assistance](#)

[Parking Pay Station Neighborhoods: Where they're Coming and When](#)

Seattle's parking pay stations are popping up everywhere! In business districts large and small, customers are increasingly able to pay for their on-street parking by debit or credit card.

Seattle is almost half-way through a three-year plan to replace most of the City's aging single-space parking meters. This plan came out of the desire to expand payment options for customers, improve management of the parking environment, and to enhance the City's streetscape.



By the end of 2006, up to 1,600 parking pay stations will have been installed in all of the City's neighborhoods with parking meters. Additional pay stations will be placed in new areas where paid parking can help promote parking turnover for daytime business customers and visitors.

- Pay stations provide customers with the **convenience** of paying by credit and debit cards in addition to coins, as well as the convenient benefit of being able to take unexpired time with them to another spot!
- Pay stations provide improved **predictability** as block faces are standardized (with load zones moved to the end of the block), helping drivers and delivery people know what to expect.
- Pay stations provide improved **reliability** because they eliminate out-of-service times for parking spaces!



Customer using a parking pay station.



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## How to Use Parking Pay Stations & Who to Call for Assistance

Updated January 6, 2006

### [Pay Stations: Quick Instructions](#)

[▶ Parking Pay Stations Video from Seattle Channel](#)

### Follow These Steps to Use a Parking Pay Station

With the "pay and display" system, the customer pays for the desired amount of time at the pay station using a credit/debit card or coins and receives a receipt showing the amount paid and the expiration time. The customer then returns to their car to display the receipt inside the vehicle's curbside window before heading for their destination. The receipt has a sticky back that is used to adhere the receipt to the inside of the window, or on the driver's side window in angled parking spaces. Motorcycles should tape the receipt to their headlamp cover. If a customer doesn't use all of their paid time, they can take their time with them to another pay station or parking meter space, unless otherwise restricted.

When using coins to purchase parking, the steps are:

- Insert coins. The amount of time purchased will be displayed on the screen.
- Press the green button, once the proper amount of time is displayed on the screen
- Wait for the kiosk to print your ticket
- Return to your vehicle and display the receipt properly

When using a credit card, the steps are:

- Insert credit or debit card to begin transaction
- Use the blue buttons to select the desired amount of time (the "MAX" button will automatically give you two hours, unless you are at the Ballard Locks lot which has a three-hour time limit)
- Press the green button, once the proper amount of time is displayed on the screen
- Remove credit card quickly, and the pay station will contact your bank for authorization
- When approved, the kiosk will print your ticket
- Return to your vehicle and display the receipt properly
- If the transaction is not approved, or there are other technical issues, messages will be displayed on the screen

### Parking Pay Station Phone Numbers & Contact Information

- Questions or concerns about a credit card transaction? Please call 206.684.PARK
- Want to report a problem with a parking meter or pay station? Please call 206.684.5260
- Want to pay or contest a parking citation? Call the Seattle Municipal Court at 206.684.5600
- Have a general question about parking pay stations? Email us at [paystations@seattle.gov](mailto:paystations@seattle.gov) or call 206.684.ROAD

**PARK, PAY & DISPLAY**  
**Parking Pay Station Instructions**

Insert card and push **BLUE** button to buy time **OR** Insert coins to buy time

Push **GREEN** button to print receipt

Remove card quickly wait for receipt and display properly

Display one receipt only to park in any meter or pay station space until your time expires

Use the removable backing to tape receipt to **INSIDE** of a front-seat side window

**PARALLEL curbside**

**ANGLE**

driver's side

For **MOTORCYCLES**, tape to headlight cover

Questions? Call 684-ROAD (7623)  
 paystations@seattle.gov

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### Industry news

## Public outreach continues for new downtown parking pay stations

Posted by: Dana Brown <http://www.cityoftacoma.org/>  
From: City of Tacoma  
Date: 6/28/2010



City of Tacoma

Beginning today, City of Tacoma officials will provide a temporary pay station at the Broadway Farmers Market for visitors to learn more about a plan to install 150 electronic parking meters throughout downtown.

According to Public Works staffer Dana Brown, City representatives will be on-hand each Thursday during the Farmers Market season to "pass out instructions cards, show how to buy time, how to get a receipt, what to do with the receipt in terms of displaying it on their vehicle, direct people to the Web site, and talk about why Tacoma's gotten back into on-street parking business."

Brown spoke yesterday during Tacoma City Council's environment and public works committee meeting. He added that the city has hired a consultant to roll out a marketing plan to inform the public of the new parking system.

Last year, City Council authorized the implementation of a paid on-street parking program. The goal was to reduce the number of spots being used by "chain-parking" downtown employees and free those spaces up for customers who visit retailers and businesses on a short-term basis, thereby increasing the turnover of available parking.

A 12-member parking advisory task force was created to come up with a plan for collecting feedback from downtown stakeholders, communicating those comments back to City Hall, and rolling out the plan. A series of public meetings have been held over the past 12 months. The parking advisory task force includes Steph Farber, LeRoy Jewelers; Chelsea Levy, Tacoma-Pierce County Chamber of Commerce; Rollie Herman, Westpac Marine; Cliff Barnes, Vinum Coffee & Wine Lounge; Judee Encinas, DaVita; Gabriel Garcia, Broadway Center of the Performing Arts; Tilinda Grote, neighborhood resident; Judi Hyman, Two Koi; Blaine Johnson, Theater District Association; Natalie McNair-Huff, True Blue; Thomas O'Connor, O'Connor & Associates; and Jan Rutledge, University of Washington Tacoma.

On May 18, City Council approved a purchase resolution that authorized the execution of a \$4.185 million agreement between the City and Affiliated Computer Services (ACS), Inc. to begin the process of installing the pay stations. The contract will be paid through limited tax general obligation bonds and the city's pay station fund.

City officials say the pay stations will "improve the turnover of downtown on-street spaces making it easier for customers and visitors to conveniently find on-street parking to shop, dine and participate in other activities. Electronic pay stations will be installed in an area that stretches from South Seventh Street, Market Street, South 21st Street, and Dock Street. The first pay stations will be up-and-running in August near the University of Washington Tacoma. Remaining pay stations will be installed thereafter.

During the meeting yesterday, Brown said staff are working on a request to change an ordinance in order to modify the existing parking fund revenue account to accommodate pay stations and parking tickets in one enterprise fund location. Another ordinance change request is related to fines and enforcement. "[Under the existing ordinance], we could not write a citation for no-pay or an expired ticket issued out of machine," said Brown.

He also added that visitors downtown might notice portions of sidewalks have been spray-painted with white triangles to mark the locations where parking meters will be installed.

The next public meeting of the parking advisory committee will be held to discuss the issue will be held on Thurs., July 1 at 5 p.m. in the Tacoma Room on the University of Washington Tacoma campus.

Source: City of Tacoma

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STAFF  
By: Ryan J.  
Stanton  
AnnArbor.com Staff

## 150 new parking pay stations to be installed in downtown Ann Arbor

Posted: Jan 11, 2010 at 12:30 PM [Jan 11, 2010]

An additional 150 parking pay stations are scheduled to be installed in downtown Ann Arbor over the next three years, replacing current on-street parking meters.

The [Downtown Development Authority's](#) governing board unanimously approved the \$2.28 million expense at its monthly meeting last week, citing the popularity of the first 25 installed last summer.

"These are the little solar kiosks that go along with the little things that stick up with numbers on them," said DDA board member Leah Gunn, offering a report on behalf of the DDA Operations Committee. "We have found that everybody likes them."

Under a separate resolution, the DDA board also approved a new plan for net revenue uses at the public parking lot at 350 S. Fifth Ave., where the old YMCA once stood. The agreement calls for transferring a minimum of \$100,000 a year to the city's general fund.

The [Ann Arbor City Council](#) originally voted in November 2007 to demolish the former YMCA building.

And upon demolition, the council authorized the DDA to establish a temporary public parking lot. In 2008, that lot was built, but until now, the city and DDA hadn't spelled out a financial arrangement for the parking lot.

The DDA has done research that shows it cost about \$400,000 to build the parking lot, which included the cost to install permeable pavement.

Because it will be many years before the lot is paid off, the DDA is recommending that it provide the city with either a minimum \$100,000 a year from revenues generated at the site or the net revenues after installation costs and operational costs - whichever is greater. The payments would be made quarterly beginning later this spring, according to the DDA's proposed agreement.

DDA board member [Sandi Smith](#), also a City Council member, said the money will help offset the [installation of parking meters](#) in residential neighborhoods.

Gunn offered highlights of a monthly DDA parking report, pointing out revenues are up by 5.8 percent, and hourly patrons are up by 12.55 percent. She noted there are 200 fewer parking spaces downtown right now due to the temporary closure of the Library Lot for the DDA's underground parking structure project.

Upon approving the new parking pay stations, board members cited a 2007 report that recommended on-street parking meters be replaced with new multi-space pay stations to improve patron convenience. DDA officials said the new parking pay stations allow payment with credit cards, cash and cell phones.

Mayor [John Hieftje](#) said he still thinks the DDA needs to do a better job communicating information to residents about the great parking deals available downtown. For example, a pass



More of these are on the way to downtown Ann Arbor over the next three years.

Ryan J. Stanton | AnnArbor.com



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for \$30 a month allow s parking in any of the downtown structures after 3 p.m.

"People don't know about that," he said. "And so I would just ask that we have a better strategy to get that word out to people who work in the restaurants and the shops and ever ywhere in the downtown area, because that's really a very good parking deal, and it may help us with getting some of those employ ee cars out of the metered spaces."

Ryan J. Stanton covers government for AnnArbor.com. Reach him at [ryanstanton@annarbor.com](mailto:ryanstanton@annarbor.com) or 734-623-2529.

Tags: [Ann Arbor City Council](#), [DDA](#), [parking](#)

**82 Comments.** [Comment Now](#)

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Posted Jan 11



This stinks. Those parking kiosks are awful. I've had many clients come to my office and complain about the time it takes just to pay for 10 minutes of time. And those receipts are all over the street now. Being able to use a credit card may be a convenience for some but I don't think it outweighs the inconvenience for the rest of us.

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[millermple](#)  
Posted Jan 11



So the new pay stations cost \$15,200 each?

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[Vivienne Armentrout](#)  
Posted Jan 11



Question: how will the DDA "bag" the spaces being reserved for temporary use if there are no individual parking meters?

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[Snow](#)  
Posted Jan 11



Agreed. The only only purpose of this is to increase revenue for the city.

What is this "popularity" they speak of? How could they find that "everyone" likes them considering the unanimous negative opinions posted with these stories?

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[Jerome](#)  
Posted Jan 11



Because of these "New" meters, I make it a point NOT to visit any downtown merchants. I'm finding strip malls, etc. much more convenient, and much LESS TIME CONSUMING.

Way to go Council & DDA...another brilliant decision!!!!

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[aes](#)  
Posted Jan 11



Horribly unpopular and terribly inconvenient pay stations--lines of people standing in cold to pay at the station and then great frustration/confusion about how to pay. Let's make downtown MORE, not LESS inviting to the public!

[Report this comment to staff](#)

[Edward Vielmetti](#)  
AnnArbor.com Staff





Posted Jan 11

Vivienne, I called the DDA about procedures for bagging spaces for temporary use. They referred me to Republic Parking; the person who I talked to said that they were not authorized to talk to me (!) and referred me to the general manager, Mark Lyons. I'm awaiting a call back; you can call (734) 761-7235 to ask.

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**aes**  
Posted Jan 11



Horribly unpopular and terribly inconvenient with lines of people waiting in the cold to pay at these stations (that don't even take a dollar bill!); lots of confusion and frustration; nobody I know likes them. Let's make downtown MORE friendly, not more inconvenient to the public--or we won't have a downtown that the public wants to visit.

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**Ryan J. Stanton**  
AnnArbor.com Staff  
Posted Jan 11



DDA officials cited a study and evaluation conducted by the Operations Committee that obtained positive feedback about the pay stations.

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**ChrisW**  
Posted Jan 11



Using a credit card to pay for parking is great. The user interface of those kiosks is abysmal. They are slow, confusing, and annoying. I've had to wait behind people for 10 minutes while they figure them out. Not to mention that parking rates throughout the city can now be raised by flipping a switch.

I can't believe that someone would say that "We have found that everybody likes them" because nobody I know likes them.

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**Barb**  
Posted Jan 11



Wow, um, I really like them. I guess I'll have more options for parking spots since so many others will refuse to use them.

[Report this comment to staff](#)

**aes**  
Posted Jan 11



Did the DDA also conduct a study that revealed positive feedback about the huge, ugly blue "pathfinder" signs, some of which actually point in the wrong direction and provide mostly confusion as well as sign pollution downtown? I have not spoken anyone who likes those, either. The whole downtown is going in the WRONG DIRECTION lately, I fear.

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**millermapple**  
Posted Jan 11



and the \$900,000 "wayfinding signs" are making it more difficult to walk in the winter since snow & ice can't be removed under & around the signs.

[Report this comment to staff](#)

**Powergarden**  
Posted Jan 11



I agree that it's nice to be able to use a credit card but often with the kiosks you have to wait while someone is trying to figure out how to pay. One of my other concerns about the new parking set up is that the parking space markers are now dark blue at the top. It now is a lot more difficult to tell if a space is a handicapped spot. The city should have chosen colors with more contrast that would have been easier to distinguish.

[Report this comment to staff](#)

**Adam Jaskiewicz**  
Posted Jan 11



I haven't used one of these yet, so I'll withhold my judgment on the devices. Being able to pay for parking from my cell phone seems like a great idea. I don't have a problem paying for parking; I do have a problem remembering to run back to my car to shove another quarter into the meter if I decide to grab a cup of coffee instead of heading straight back to my car.

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**pegret**  
Posted Jan 11



"We have found that EVERYONE likes them!" Leah Gunn and the rest of the DDA, can you say "out of touch"?

[Report this comment to staff](#)

**Barb**  
Posted Jan 11



Yeah, the whole pay-by-cell-phone thing is a great idea. As usual, everyone complains when things are made easier for them. Heaven forbid we should a minute while someone learns how to use something new. Remember when self-scanners went into stores and it was slow at first? Not anymore.

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**John Galt**  
Posted Jan 11



Another city boondoggle. And another reason to continue to avoid downtown. Ann Arbor is a humorous city to observe. I wonder how many years it will take to recover the revenue that is to be spent on these devices? And how many customers have been lost to downtown business over the years to city "revenue" projects?

All to pay for fountains, art, wayfinding signs and "green belt" initiatives.

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**JAM**  
Posted Jan 11



So how do the meter enforcement people know if someone deserves a ticket for overstaying their welcome? There is no longer a flashing meter to alert them. And trying to figure out where the nearest kiosk is is not always intuitive, either.

[Report this comment to staff](#)

**Edward Vielmetti**  
AnnArbor.com Staff  
Posted Jan 11



@JAM - the meter enforcement people walk up to a kiosk, print a report, and use it to make their rounds.

[Report this comment to staff](#)

**djm12652**  
Posted Jan 11



I haven't found too many people happy with the kiosks. But my question is when did the parking rate go up? I parked on Saturday at a coin fed meter on 4th Ave. The meter cost used to be \$.25 for 15 minutes. Now, the first quarter gets you 13 minutes and the second gets you 12 minutes...what's the deal with this?

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**Mick52**  
Posted Jan 11



It appears that among readers they are not popular. Add me to that tally. They allow the city to double dip. If there is time left on a space from the previous parker, you do not get it, which you did with meters. Seems unfair, something that should be decided by residents. If you overpay, you should get a refund, or let the next car occupy the paid-for space. Also once I tried to add time by phone and found it complicated and the system would not accept my debit card. I called and spoke with a very nice young man w/parking or DDA who could

not understand what the problem was. Plenty of money on my account, but no luck. And my bank did not refuse it, I checked there too. On another occasion, I tried to add time from a different Kiosk for my car parked way down the street. Even though I was trying to pay before my time expired, per my receipt, the kiosk told me my time was zero. So I was paying twice for the same few minutes left simply trying to add time to my space. So to me its a bad project, lets the city double dip and does not work well. Parking should be free. We pay enough already in property tax and sales tax and for useless art projects. I like the DDA and I think Susan Pollay is great but I feel the city is putting too much pressure on the DDA. The DDA should be independent, members elected, and free of city council influence. Just to keep things ethical.

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**Adam Jaskiewicz**  
Posted Jan 11



JAM, I'm not sure how this system works, but since the kiosks are interconnected, it stands to reason that the actual info of what parking spaces are paid for is stored on a computer somewhere. A mobile device of some sort---a tablet PC or some sort of specialized device like the gizmos UPS drivers have for you to sign for your packages---could fairly trivially tap into that information. This could be combined with GPS data, highlighting parking spaces on a map on the attendant's dashboard even. Again, I have no idea how this system actually works, but being familiar with computers and what could easily be done with current technology, that's how I'd design it.

This just makes sense from a technological standpoint. Whether this particular system is well-implemented or not I can't say. None of this is exotic/difficult/expensive technology. The hard part is designing it in such a way that it is fast, convenient, and intuitive.

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**E G**  
Posted Jan 11



"We have found that everybody likes them"--how did Ms. Gunn find this out? I've "found" that everyone I talk to doesn't like them.

[Report this comment to staff](#)

**Edward Vielmetti**  
AnnArbor.com Staff  
Posted Jan 11



@Adam - here's the piece I wrote in August with all of the technical details about the systems, which are the the LUKE E-park meters from Digital Payment Technologies.

<http://www.annarbor.com/neighborhoods/downtown/luke-e-park-parking-meters-are-in-place-what-do-you-think/>

"The LUKE meter is named after the Paul Newman character in the movie Cool Hand Luke and the crime that sends him to prison."

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**Bob Needham**  
AnnArbor.com Staff  
Posted Jan 11



djm12652, the rate increase [went into effect July 1](#)

[Report this comment to staff](#)

**Mick52**  
Posted Jan 11



Interesting point JAM and Adam. I think Adam is correct, the space number could be punched into a handheld device that would report if a car is in a space with expired time. Hopefully the driver is not standing in line trying to pay when the officer produces a citation. Another potential problem with this system.

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**Mick52**  
Posted Jan 11



Edward, I don't think the enforcement is that simple. What could happen is that as the report

is printed a driver can go to a car drive away and another car can take the space. That car's driver then pays before the officer gets to the space which is now paid for. So I think there is another step, like after the printout is received the officer has to verify the car in each space is truly in an expired spot. So I think after getting a list of expired spots they have to record license plates and then get a new report to see if the space is still expired. This is important in that a driver could be paying just as the printout is made by phone or at another kiosk. I hope this makes sense, but use of parking kiosks adds the problem of a car leaving a space and another taking it after the printout is made but before the ticket is issued. An officer can't go by a single printout, particularly if s/he can't see all the cars in the spaces noted in the printout. I hope they have this covered.

[Report this comment to staff](#)

**treeetowncartel**  
Posted Jan 11



Downtown Hipsilanti it is then.

[Report this comment to staff](#)

**Ryan J. Stanton**  
AnnArbor.com Staff  
Posted Jan 11



We still don't have a copy of the survey that was cited, but I am told by one DDA official that it showed a 70 percent positive opinion regarding the pay stations. There were concerns discussed at last week's meeting that they may not be convenient for disabled people, but DDA officials said there's a phone number that can be used to pay by cell phone, so one could argue that actually makes it more convenient.

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**Macabre Sunset**  
Posted Jan 11



My first experience took me by surprise. Just poles sticking out of the ground where there used to be parking meters. Since I was only going to be there 15-20 minutes and I didn't see a kiosk anywhere, I just chanced it. No problem.

But now I find I'm avoiding downtown. Sure, it would be convenient to pay with a credit card. But when I'm shopping, I don't want to have to alter my trip to find a kiosk. I don't want to wait in line with people. I don't want the frustration of seeing someone struggle to use one. I don't want the uncertainty of worrying I'm getting a ticket while I'm waiting in line and my car is out of sight.

In other words, the slight convenience of no longer having to collect quarters is overshadowed by the major inconvenience of not being able to pay where I park my car.

I don't know who this woman surveyed, but when a change is such a major negative that it actually keeps people out of the area, reporting that everyone loves it seems a lot like fiddling while downtown is burning.

As for the revenue increase, have they factored in the closing of the library lot? I used to park there pretty much every time I went downtown. Seemed like a heavy-use short-term lot, and the closing forces you to look for street parking.

[Report this comment to staff](#)

**Adam Jaskiewicz**  
Posted Jan 11



Edward, thanks for the link. Interesting that these are so expensive; I wouldn't expect them to be so much pricier than the regular meters, at least once the infrastructure is in place.

Mick brings up a valid point, though this could be alleviated by adding more kiosks, and by encouraging people to pay via their cell phones.

This sounds like a great idea in theory. And the name (LUKE) is great.

[Report this comment to staff](#)

**tdw**  
Posted Jan 11



Boy I'm sooo glad that I've always avoided Ann Arbor whenever I could/can

[Report this comment to staff](#)

**mtlaurel**  
Posted Jan 11



Machine age seems to mean rip off as for as those are concerned. Really ridiculous that someones 8 or 10 minutes leftover can't pass to the next guy. GEEZ. Just had to do it that way didn't you? Can't you irritate people a little more?

[Report this comment to staff](#)

**Adam Jaskiewicz**  
Posted Jan 11



Macabre Sunset, if you're worried about finding a kiosk and waiting in line, pay from your cell phone.

[Report this comment to staff](#)

**MJC**  
Posted Jan 11



Did anyone ask us, the users of these things? Because no one really knows how to work them! Especially visitors from out of town.

[Report this comment to staff](#)

**Bonsai**  
Posted Jan 11



anyone ever notice that nobody in ann arbor likes any sort of change? wait a year or two and nobody will even remember the meters.  
Mick52 – the idea that a DDA completely independent of city council would be more ethical is ridiculous. this is a body that captures large amounts of tax dollars from the city and schools and can spend it for things like wayfinding signs. city councilors, representing the people from whom the revenue is collected, should have as much input as possible.

[Report this comment to staff](#)

**Adam Jaskiewicz**  
Posted Jan 11



Bonsai, I don't like change either. It's heavy, and clinks around in my pocket. I look forward to the day when I don't need to use it to pay for parking.

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**Paul the Malcontent**  
Posted Jan 11



"DDA board member Sandi Smith, also a City Council member, said the money will help offset the installation of parking meters in residential neighborhoods."

Does this mean that they are proceeding with the installation of the additional meters and this money will cover the \$87,000 estimated cost of those meters? Or should it actually say that the new revenue will "offset some of the projected shortfall from not installing meters in neighborhoods" as stated in the 12-22-2009 article that this sentence has a link to?

[Report this comment to staff](#)

**tdw**  
Posted Jan 11



Although I avoid Ann Arbor, does this mean that if I don't use a credit card (I've fired those crooks) I can't park with change?! really have no idea what these things are or whats going on. Can someone give a quick explanation?

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**Atticus F.**  
Posted Jan 11



To say "people should just use the ir credit cards" is a stupid statement that is out of touch with reality, and is the equivalent of saying 'let them eat cake'.

A)A lot of people have prepaid phones

B)Some people choose NOT to own a credit card

C)people have been already been complaining th at paying by phone is complicated, and doesn't work from some phones.

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**The Picker**  
Posted Jan 11



Is there a difference between City Council and the DDA?

[Report this comment to staff](#)

**a2phiggy**  
Posted Jan 11



At 2.28 Million, what is the estimated break even point, versus keeping meters that accept coins? Seems like an exorbitant amount of money, especially considering the fact that many residents' most basic needs remain unmet.

[Report this comment to staff](#)

**Regular Voter**  
Posted Jan 11



We're living through a post industrial economic calamity. From reading these posts it appears it is not true that "everybody likes" these devices. While it may only have caused eye rolling a few years ago, now people are worried and scared about their situations. Note to incumbents who feel entitled to reelection: be careful about showing voters how out of touch you are.

[Report this comment to staff](#)

**robra**  
Posted Jan 11



The new meters are horrible -- I hate them. You have to find the payment kiosk, and wait in line. I've missed an appointment waiting for the line in front of me to pay. I also miss the ability to find a full meter and add money to it. Now when you park, you must add money no matter how much was left on the meter.'

[Report this comment to staff](#)

**Macabre Sunset**  
Posted Jan 11



I just have a pre-paid cell for use only in emergencies. I doubt it has the sophistication necessary for the application.

Also, are these necessarily secure connections? I'd rather not send credit card information through a wireless link out in public like that.

Better just to avoid the meters. There's nothing all that important downtown any more. Liz Brater began a rather thorough retail exodus back in her day. This should just about finish the job.

[Report this comment to staff](#)

**Jake C**  
Posted Jan 11



@Atticus:

"To say "people should just use their credit cards" is a stupid statement that is out of touch with reality, and is the equivalent of saying 'let them eat cake'.

A) A lot of people have prepaid phones

B) Some people choose NOT to own a credit card"

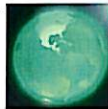
A) The majority of people have cell phones.

B) Some people choose NOT to carry around large amounts of change in their cars or wallets, and prefer to carry credit cards.

People who don't like a new system will complain. And complainers will always "out-voice" people who like a new system but don't make a bunch of noise about how they like it.

[Report this comment to staff](#)

oldgaffer  
Posted Jan 11



Leah Gunn is sorely misinformed and the DDA is out-of-touch with reality. The pay stations are uniformly hated by both the public and the cops who have to ticket those who either don't use them or can't use them-- and a lot fall into that second category. Before the kiosks I could feed the meter in 10 seconds. Now I have to queue up behind a bunch of people to feed the same pay station, and this can take several minutes when the folks in front of me are challenged in different ways and have trouble understanding the instructions, don't have plastic, or punch in the wrong numbers-- while we all suffer, often in the pouring rain or driving snow. The DDA has once again demonstrated its irrelevance to a workable downtown.

[Report this comment to staff](#)

The Picker  
Posted Jan 11



I understand that you can go over to city hall and have a chip implanted in your head (Pre-paid of course), to make your life, wonderfully easy. No change, no credit cards, no fuss, just bliss.

[Report this comment to staff](#)

MikeyP  
Posted Jan 11



I haven't used these meters, and as someone who rarely carries cash (or change, I need quarters for laundry so I don't want to use them for parking) they sound like a good idea in theory. Apparently they are not exactly ideal in practice, either due to a learning curve and/or an implementation issue.

Too bad there's no AVI-like device (the things that campus carpools read to lift/lower gate arms) that could register that the owner has parked in such-and-such a street space for X-minutes and simply charge them automatically or even send them a bill at the end of the month (obviously they'd have to have an account set up first.) That way regular users could skip the whole payment procedure, perhaps could pay a lower rate, etc.

I'm sure there will be detractors regardless of what system is implemented (you can never please everyone) but hopefully they can work out the bugs in this system (since we're obviously stuck with it) and it will work reasonably well in the end.

[Report this comment to staff](#)

aes  
Posted Jan 11



"I understand that you can go over to city hall and have a chip implanted in your head (pre-paid of course), to make your life, wonderfully easy. No change, no credit cards, no fuss, just bliss."

This is the best comment so far. And since apparently we are all expected to have cell phones and credit cards at the ready for use with these new parking stations without exception--maybe the requirement by the DDA for us to have an implanted chip in our

heads will not be far in the future. This DOES NOT make for a thriving downtown!

[Report this comment to staff](#)

**Lokalisierung**  
Posted Jan 11



"And since apparently we are all expected to have cell phones and credit cards at the ready for use with these new parking stations..."

Why do people keep inferring that you cannot use coins in the new kiosks when you can? You can use coins....get it? Again just complaining without even knowing anything about it; how Ann Arbor.

[Report this comment to staff](#)

**Snow**  
Posted Jan 11



Get a motorcycle and park for free like I do.

[Report this comment to staff](#)

**Macabre Sunset**  
Posted Jan 11



It just seems like the city paid a ton of money just to milk existing customers and annoy those of us who don't want to walk two blocks out of our way and wait in line ten minutes to do something that took 15 seconds in the past.

I'm sure the technology is easy to learn. That's not the issue. The issue is the extra hassle of having to think about it beforehand, wonder what in the world I will face when I get there. Will the system even work? Do the meter maids know their assets from their elbows? What cell number do I dial should I decide to embark on that adventure? Do I have enough time to find a kiosk and wait in line? Will it accept my slightly bent dollar bills?

To sum it up, it seems like a giant time tax on visitors for a city too lazy to collect its quarters one meter at a time, like everyone else.

[Report this comment to staff](#)

**Concerned Citizen**  
Posted Jan 11



The "Wayfinding signs" the "Parking Kiosks" and the "Art" bicycle parking stands are cluttering up Ann Arbor. They are the equivalent of Bollinger's Halo! The second "D" in DDA supposedly represents "Development" but more and more it seems to represent "Decoration". PLEASE, is there anyway to get rid of the wayfinding signs? ( Has anyone else noticed that those located west on Liberty from the Federal Building directing readers to the generic "Bus Station" send them off to the Greyhound station completely screwing them over if their intended destination was the AATA BUS STATION ??? ) These signs block commercial window displays, advertising on awnings, and are obstructive to pedestrians. It really seems that the DDA has too big a budget and too much time available at taxpayer's expense and as a result are coming up with "projects" that are NOT helpful to downtown commerce and rather than enriching Ann Arbor, they are cluttering it up.

[Report this comment to staff](#)

**E G**  
Posted Jan 11



I work downtown and a customer came in the other day saying the kiosk (on Main street, between William & Liberty) wasn't working because it wasn't sunny enough...Now I have no idea if that's the reason it wasn't working, but I wondered about it. That's an issue...one pay station not working makes a whole street of meters unusable.

[Report this comment to staff](#)

**Andy T**





SCANNED TO: *Mayan*  
SCANNED BY: *Rachel*  
DATE: *6-21-10*  
RALPH BECKER  
MAYOR

# SALT LAKE CITY CORPORATION

DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT  
OFFICE OF THE DIRECTOR

FRANK B. GRAY  
DIRECTOR

MARY DE LA MARE-SCHAEFER  
DEPUTY DIRECTOR

ROBERT FARRINGTON, JR.  
DEPUTY DIRECTOR

## CITY COUNCIL TRANSMITTAL



*[Signature]*  
\_\_\_\_\_  
David Everitt, Chief of Staff

Date Received: \_\_\_\_\_

Date Sent to City Council: *06/22/2010*

**TO:** Salt Lake City Council  
JT Martin, Chair

**DATE:** June 17, 2010

**FROM:** Frank Gray, Community & Economic  
Development Department Director

*[Signature]*  
\_\_\_\_\_

**RE:** Parking Pay Stations

**STAFF CONTACT:** Timothy P. Harpst, Transportation Director, at 801-535-6630 or  
[tim.harpst@slcgov.com](mailto:tim.harpst@slcgov.com)

Scott Vaterlaus, Traffic Engineer, at 801-535-6630 or  
[scott.vaterlaus@slcgov.com](mailto:scott.vaterlaus@slcgov.com)

**RECOMMENDATION:** That the City Council schedule a briefing

**DOCUMENT TYPE:** Briefing

**BUDGET IMPACT:** The City's consultant, Walker Parking Consultants, estimates the cost to convert the City's parking meters to electronic pay stations, including back office support and new enforcement hardware and software, to be \$7.1M. The annual operating costs will be higher than at present, as well, depending on how much of the processing and maintenance is done by City staff versus contractors; but the revenue estimate is also higher. The consultant estimates the net revenue increase to be \$3.3M annually. The City's steering committee of representatives from the various departments involved in parking, meters, enforcement and adjudication, believe the revenue increase would not likely be sustainable at this amount, but a net revenue increase of around \$2M annually could be possible. The consultant's revenue estimates are based on current meter rates and parking fine fees.



## **DISCUSSION:**

**Issue Origin:** Downtown In Motion, the Salt Lake City Downtown Transportation Master Plan, recommends converting parking meters to accommodate multiple forms of payment, such as credit, debit and smart cards. The City Council provided funding to analyze this recommendation.

**Analysis:** Walker Parking Consultants was hired to educate representatives from many of the City departments involved in parking meters, enforcement and adjudication on electronic pay station technology options, to prepare a recommendation best suited for our city's situation. City organizations that participated on the steering committee were Transportation, Parking Enforcement, IMS, Treasurer, Maintenance, Courts and the Downtown Alliance.

An electronic copy of the study report is contained in Attachment 1. The recommendation in the report is summarized below and is concurred on by the City's steering committee.

### Features

The recommended features of an electronic pay station system include:

1. Pay By Space (no need for user to return to car to display receipt)
2. Solar Powered with hard wire capability
3. Space Sensors under each parking stall to zero-out unused time when vehicles leave, alert enforcement of violators and provide parking usage data
4. Accept Visa/MasterCard credit and debit cards, coins and tokens
5. Capable of accepting paper currency and smartcards
6. Accept payment by cell phone and SMS text message via 3<sup>rd</sup> party provider
7. Issue a receipt on request
8. Networked with real-time communication among Courts, Enforcement, Maintenance
9. Handheld enforcement units print citations and communicate information real-time to Courts
10. Customizable record keeping on parking usage, payments, maintenance needs
11. Lockable cash vault
12. Variable rate capability (day of week and time of day)
13. Ability to host electric vehicle charging

### Costs & Revenue

The consultant estimates the total start-up cost to be \$7.1M and the annual net revenue increase to be \$3.3M annually. The City's steering committee believes the annual net revenue increase estimate is overly optimistic and unsustainable, but a net revenue increase of around \$2M annually could be possible.

### Timeframe

Implementation time is estimated to be approximately one year. It is proposed that the consultant and city committee invite product providers to attend a product demonstration before

a Request for Proposal is finalized and issued. This would clarify a number of specifics in the RFP and should lead to a better bid on this proposal which is new to everyone in the City. A supplier will be selected by competitive process. Contracts for purchase, installation and services will need to be prepared. The consultant also recommends a 90-day test with 50 units be conducted to introduce the system to the public and determine if there are any issues that need to be corrected before full deployment. The consultant believes it would then take up to 8 months to acquire and install the remaining 300 units.

#### Rates & Hours of Operation

It is recommended that the current hourly rates be maintained through the 3-month test period and then increased with full implementation to a tiered rate with the more expensive meters in the heart of downtown worth more per hour than meters located on the periphery of downtown. Ultimately, on-street parking rates should be set higher than off-street rates to promote long-term parking off-street and encourage short-term parking on-street. It is also recommended, based on the Downtown in Motion Master Plan, that the hours of operation be extended. Current hours of operation are 8 AM to 6 PM. Proposed hours of operation are 8 AM to 8 PM.

#### Equipment, Ownership, Operations Options

It is recommended that the RFP seek bid options on items such as City ownership versus leasing, City-run back room operations versus contract back room operations, City maintenance versus contract maintenance and single-space meters versus multi-space meters. Doing so should provide the best information for making an informed decision on the various components of the system to be implemented.

#### Other Related Issues

Converting to a new system will allow a lot of flexibility in how it functions and generate additional options and decisions to be made. For example, pay stations can offer the ability to pay parking fines at the station rather than by mail or in person. A discount of 15% could be offered to those who pay at a station within 24 hours of receiving the citation. This has resulted in higher collections and reduced use of the court system in other cities. The City may also wish to convert to electronic booting, which allows the driver to pay overdue fines electronically and have the boot released immediately rather than wait for someone to remove the boot.

***Master Plan Considerations:*** Downtown In Motion, the Salt Lake City Downtown Transportation Master Plan, recommends:

1. Modifying or replacing the City's parking meters with a system that allows a wide variety of payment options, such as credit, debit and smart cards, as well as coins and tokens.
2. Extending the hours of operation to 8:00 PM, which encourages late shift workers to park off-street, leaving more on-street parking for evening business patrons.
3. Increasing rates over time to be higher than off-street rates, to encourage long-term parkers to park off-street, resulting in a higher turnover of valuable on-street parking. This also includes the use of variable rates depending on meter location and time of day.

**PUBLIC PROCESS:**

This topic had considerable public discussion during the development and adoption of Downtown In Motion. The Downtown Alliance has been represented on the steering committee of the Parking Pay Station study.

**RELEVANT ORDINANCES:**

The definition of parking meters may need to be updated to include electronic pay stations. If meter rates or hours of operation are changed concurrent with the introduction of pay stations, the City ordinances reflecting these rates and operating hours will need to be revised.

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PARKING PAY STATION STUDY

**SALT LAKE CITY**  
SALT LAKE CITY, UTAH

Prepared for:  
SALT LAKE CITY  
TRANSPORTATION DIVISION

MARCH 22, 2010



**WALKER**  
PARKING CONSULTANTS



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March 22, 2010

Timothy P. Harpst P.E. PTOE  
Transportation Director  
City of Salt Lake City  
Community Development  
Division of Transportation  
349 South 200 East, Suite 450.  
Salt Lake City, Utah 84111

Re: *Parking Pay Station Study*  
*Walker Project # 23-7234.00*

Dear Mr. Harpst:

We are pleased to present this final report documenting the various equipment options available to manage your on-street parking program. We look forward to developing the specifications necessary to see this project to its conclusion.

Sincerely,

WALKER PARKING CONSULTANTS

Andrew J. Kapeghian, CPP  
Director of PARCS Services

AJK:ajk

cc: Larry Hofmockel

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## **EXECUTIVE SUMMARY**

In accordance with our proposal, Walker performed a Pay Station Study to determine the feasibility of replacing the approximate 2,000 single space meters currently used to manage the on-street parking spaces in downtown Salt Lake City.

To accomplish this we held several meetings, both individually and as a group, with members of the Salt Lake City steering committee. The committee was made up of staff members from the numerous city departments that have some involvement with parking and members of the local business community represented by members of the Downtown Alliance. During these meetings, we discussed all the various options available with multi-space meters, the impact of these options on each department and how these options may help increase revenue while making internal processes more efficient.

With the input of members of the steering committee, the following options were recommended for the multi space meter system:

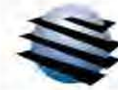
1. Multi Space Meters configured for a Pay by Space operation. Meters will accept coin, parking tokens, credit cards and smart cards for payment, and will also have the ability to accept payment via a cell phone or SMS text message.
2. The system will also incorporate the use of single space sensors that will detect and track occupancy in each space and send this information to the multi-space meter and to an enforcement officer's mobile enforcement handheld device. The information reported would include the status of each space, i.e. paid, un paid, expired or in violation of time restriction.
3. On-line real time mobile enforcement handheld ticket issuing devices and back end software that allow an enforcement officer to see in real time, all parking violations within a given area. This will allow the officer to be more productive and cover a greater area in less time.

We estimated the initial capital investment for this system, which includes all start up costs, installation, training and first year maintenance costs to be approximately \$6,905,250. Should SLC choose to amortize the cost of this equipment<sup>1</sup>, the yearly payment

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<sup>1</sup> Typically, equipment costs can be amortized over a three to seven year period.

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would be approximately \$2,100,000 assuming a 5 year loan at 8% cost of funds.

The projected net increase in meter and citation revenue attributed to this new technology after deducting the capital cost of equipment and the increased operating and maintenance costs is estimated at approximately \$3,600,000 for the first year and \$3,300,000 annually thereafter if the rate of compliance does not improve. This is a 114% increase in revenue without any increase to rates or hours of operation.

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Walker Parking Consultants (WPC) was commissioned by Salt Lake City (SLC) to provide parking consulting services to help the City evaluate the most appropriate on-street parking meter technology to replace the City's aging parking meters. Our analysis will include a cost versus benefit analysis of multi-space technology versus the current single-space system for SLC on-street parking.

A map of existing SLC metered parking is shown in Exhibit 1 of the Appendix.

## CURRENT OPERATIONS

SLC has five divisions: Compliance, Treasurers Office, Maintenance, Transportation, and Courts within the City that work together to manage the on-street parking program. In addition to these City departments, The Downtown Alliance, a nonprofit organization serving downtown SLC property owners, businesses and residents, administers the token validation program. A brief description of each department's involvement is discussed below.

### *PUBLIC SERVICES/COMPLIANCE*

The Public Services Compliance Division headed by Captain Carroll Mays is responsible for all on-street parking enforcement including all parking meters and timed parking zones. Parking Enforcement Officers (PEO) patrol SLC Monday through Saturday from 7:00 am to 12:30 am; however, parking meters are only enforced Monday through Friday from 8:00 am to 6:00 pm. The remaining hours are spent enforcing time restricted parking zones, bagging meters for the following day per requests received from Transportation and searching for stolen and scofflaw vehicles that require impounding. Currently, SLC has 14 full-time, 3 seasonal and 1 supervisor assigned to parking enforcement. See Table 1 on the following page for typical schedule.

## **INTRODUCTION AND BACKGROUND**

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Table 1: Current PEO Schedule

Officer ID	Work Schedule Days	Schedule - Hours		Work Beat	
		From:	To:	District	Section
P77	Monday - Friday	7:00 AM	4:00 PM	5	
P30	Monday - Friday	7:00 AM	4:00 PM	2	
P18	Monday - Friday	7:00 AM	4:00 PM	3	
P21	Monday - Friday	7:00 AM	4:00 PM	6	
P86	Sunday & Monday	7:00 AM	4:00 PM	4	E
	Thursday - Saturday				
P42	Tuesday - Saturday	3:30 PM	12:30 AM	Eve	
P87	Tuesday - Saturday	7:00 AM	4:00 PM	1	
P82	Tuesday - Saturday	3:30 PM	12:30 AM	Eve	
P22	Tuesday - Saturday	7:00 AM	4:00 PM	Dispatch	
P28	Monday - Friday	3:30 PM	12:30 AM	Eve	
P63	Monday - Friday	7:00 AM	4:00 PM	7	
P62	Monday - Friday	7:00 AM	4:00 PM	4	B
P55	Tuesday - Saturday	7:00 AM	4:00 PM	4	A
P34	Monday - Friday	7:00 AM	4:00 PM	4	D

**Seasonals:**

Officer ID	Work Schedule Days	Schedule - Hours		Work Beat	
		From:	To:	District	Section
P89	Monday			Relief	
	Wednesday - Saturday	Fills in as needed			
P90	Monday - Wednesday	Fills in as needed		Relief (4)	C
	Friday & Saturday				
P85	Monday	Fills in as needed (nights and Saturdays)		Relief (Eve)	
	Thursday - Saturday				

Note: Beats are rotated on a weekly basis on Thursdays and seasonal employees are used to fill in where shortages exist. Schedule provided by SLC Compliance division.

Based on the above schedule, we broke down the schedule to illustrate enforcement coverage by day and shift. See Table 2

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**Table 2: Enforcement Coverage by Day of Week**

Days	PEO's Assigned to Patrol		Man Hours
	AM Shift 7:00 am - 4:00 PM	PM Shift 3:30 pm - 12:30 am	
Monday	8	1	72
Tuesday	9	3	96
Wednesday	9	3	96
Thursday	10	3	104
Friday	10	3	104
Saturday	3	2	40
Sunday	1	0	8
		<b>Total Man Hours/Wk</b>	<b>520</b>

The total number of citations issued for fiscal year 2008-2009 was 126,000 or 4.66 citations per man hour of enforcement.

**FINANCE**

The Treasurer’s office is responsible for administering the meter collection process, financial reporting of all revenue collected and managing the vault keys for all the parking meters in the City. The current downtown meter rate is set at \$1.00 per hour, with most meters restricted by time to a maximum stay of two hours. Meter collection is currently contracted with the police department and utilizes off-duty police officers to collect revenue from the 2,114 parking meters located in SLC. The meter collection process takes 4 officers four hours, three times a week and costs the City approximately \$138,000 per year in overtime salary and related expenses.

**PUBLIC SERVICES/STREETS**

The Traffic Operations section headed by Cabot Jennings is responsible for the repair and replacement of all parking meters. Meters are repaired on a daily basis based on requests for repair received the previous day. According to Mr. Jennings, it requires one maintenance technician 8 hours per day to repair all the broken meters reported. The budget for meter replacement parts for the current year is \$100,000.

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### *TRANSPORTATION*

The Division of Transportation is responsible for issuing parking permits for approved requests for meter bagging,<sup>2</sup> and determining where parking meters are located and approving their designated time limits.

### *SALT LAKE CITY JUSTICE COURT*

The Civil Section is responsible for the administration and collection of all parking citations issued in SLC. The department currently employs 9 hearing officers that hear all disputed civil citations. Of the 126,000 parking citations issued last year, 17.8% required the use of a hearing officer to resolve (16,426 were disputed in person and another 5,874 were heard over the phone). Assuming an average time of 9 minutes to resolve each ticket, the equivalent of 2 full time hearing officers were required for parking related hearings.

### *DOWNTOWN ALLIANCE*

The Downtown Alliance is a nonprofit organization serving downtown SLC property owners, businesses, and residents and is responsible for administering the City's parking "token" validation program. Tokens were originally introduced as a means for area merchants to validate customer's transportation costs, and were to be used on buses, light rail and both on and off street parking; however, the tokens are currently only being used in a select number of off street garages and in parking meters. The tokens are valued at \$1.00 and sold to member merchants for \$0.25 each and member office tenants for \$0.50 each.

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<sup>2</sup> Contractors can reserve parking spaces next to their job site by paying \$25.00/day for the space in advance. Film crews pay \$10/day and qualified 501C organizations are exempt from the daily fee. Once the fee is paid, a request is sent to Public Services/Compliance with the meter number and date to be bagged. A bag is placed over the meter restricting parking by the public and only allowing parking to authorized vehicles displaying the proper permit.

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## METERS

### *SINGLE SPACE METERS*

The parking meter was invented over 50 years ago to provide a means of keeping employees out of prime spaces for visitors and customers. The basic theory is that short-term users are willing to pay for convenient parking and employees are theoretically not able to keep the meter current by leaving work every two hours to “feed” it. The hourly rate of the meter is intended to encourage space turnover in high use commercial and business environments and to cover the cost of collecting the fees and maintaining the meter. In some cases, a much lower rate is charged at spaces intended for long-term parkers. When used as intended, meters are quite effective.

Variations on the traditional meter have since been developed. Second generation electronic single-space meters appear quite similar to the old standard; however, the electronic workings require less maintenance and provide more audit information to detect and document theft. The cost of these meters is approximately 50% more than the conventional meters<sup>3</sup>.

To enforce metered parking, an enforcement officer would tour the on-street parking and issue “tickets” for vehicles parked at expired meters. They would be forced to tow repeat violators. It is recommended that the enforcement officer employ a hand-held ticket writing system that not only issues tickets, but is able to identify repeat violators for towing. The software at the management office provides a better paper trail for revenues collected; tickets issued, and repeat violators’ license plate numbers.

### *ADVANTAGES OF SINGLE-SPACE METERS*

- Most familiar form of metered fee collection. The majority of patrons are familiar with the operations of single-space meters; little to no customer education is needed.

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<sup>3</sup> A Third generation electronic single-space meters is now available from IPS Group that can communicate in real time to a back end management reporting system through a GPRS communication network. This feature also allows the meter to accept alternative forms of payment i.e. credit cards and smart cards, which were not possible prior to this development. The SLC committee reviewed this option; however, due to the limited number of current deployments across the US and the limited capabilities of other desired features, the SLC committee decided not to pursue this option.

## EQUIPMENT OPTIONS

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Figure 1: Single Space Meter

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- Meters can be configured to accept coin or tokens and in some cases City smart cards for payment.

### *DISADVANTAGES OF SINGLE-SPACE METERS*

- Little flexibility. Flat rate structure and ability to accept only coins and tokens reduce the flexibility of the operation.
- Intensive maintenance. Out of order conditions and individual meter repair can be labor intensive.
- Labor intensive collection process. Collections must be scheduled for every meter on a regular basis.
- System does not distinguish between users.
- Less accountability and revenue control. Single space meters provide very little revenue or statistical reports.
- A single-space meter at every space may be considered visually unappealing.

### **COST**

Certain single space meter models (i.e. Duncan Eagle 2000 or 2100) can be upgraded to include the ability to record and report revenue collected and meter malfunctions and with the addition of space sensors can also reset unused time on the meter when a vehicle departs. The cost to upgrade the existing meters with this capability is approximately \$175.00 per unit plus an ongoing monthly monitoring fee of \$8.00 per meter.

### **MULTI SPACE METER**

The development of the multi-space meter (MSM) enhances metered parking as a viable option for larger facilities or parking lots by controlling revenue from multiple spaces with fewer devices. For on-street applications, multi-space meters usually manage from one to twelve spaces. For surface lot or parking facility applications, a single multi-space meter can manage hundreds of parking spaces.

Each meter is equipped with: a display to instruct patrons; one or a combination of coin, token, banknote, credit card or smart card acceptors; a cashbox and/or bill vault to securely store money; and user interface buttons/keypad. Figures 2 and 3 illustrate examples of multi-space meters.

Figure 2: Sample Multi-Space Meter







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Multi-space meters are computerized, which allows complex variable fee structures virtually identical to those in gated systems and with strong audit and enforcement trails. The devices can accept coins and paper money as well as credit cards. While still requiring enforcement, some systems allow patrons to return to the machine and immediately pay the difference in fee rather than a fine for violation.

Many manufacturers' multi-space meters can be networked, allowing transaction and revenue data to be downloaded and consolidated to a central server. This allows the Owner to generate reports and other useful data necessary to manage the parking assets.

Depending on the specific application and manufacturer the multi-space meter can be configured for use in three modes of operation: *Pay & Display*, *Pay by Space* or *Pay by License Plate*.

#### **PAY & DISPLAY**

In *pay & display* mode, patrons park the vehicle in a space, approach the parking meter, pay a variable fee for a certain amount of time and receive a voucher. Somewhat less convenient for the patron than individual meters, in *pay & display* mode, the patron has to return to their vehicle to place the voucher on the dashboard. The voucher indicates the duration, location, machine number and end time for which the vehicle has paid for parking. The voucher is checked on every vehicle during enforcement procedures. *Pay & display* meters are typically used for on-street applications.

#### **PAY BY SPACE**

In *pay by space* mode, the patron is not required to return to the vehicle with a voucher. Instead each parking space in the parking area is numbered. Patrons approach the parking meter, enter the parking space number in which their vehicle is parked, and select the amount of time desired. No parking voucher is needed for this application, but there can be a receipt for proof of transaction. During the enforcement procedure, the unit prints a list of currently paid spaces for the enforcement officer to use during ticket writing. Alternatively, the meter can communicate which spaces are paid directly to a handheld device carried by enforcement officers. *Pay by space* meters are typically used in off-street applications where spaces can be easily numbered using signs or surface paint; however, they are also gaining popularity for on-street applications.

Figure 3: Sample Multi-Space Meter



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### *PAY BY LICENSE PLATE*

In pay by license plate mode, the patron is not required to remember their parking space or return to their vehicle with a voucher. Instead, they would approach any MSM, enter their vehicles license plate information, and select the amount of time desired. No parking voucher is required for this application, but there can be a receipt for proof of transaction. This system would allow a patron to move their vehicle to another spot within the same meter zone without having to pay for parking again, provided there was time still remaining on the original purchase, and they were not in violation of the posted time restrictions. During the enforcement procedure, the officers would enter the license plate information (or this information can be scanned using cameras mounted on the patrol vehicle) into the enforcement handheld device, the meter would communicate directly with the handheld device and prevent an officer from writing a ticket for a vehicle that had paid time remaining or alert the officer of a potential violation.

### *ADVANTAGES OF MULTI-SPACE METERS*

- Variable rate structure available to discourage long-term parkers.
- Strong audit trail. Because fewer personnel are handling the cash, there is less potential for theft.
- Flexible. The machines accept various forms of payment including credit/smart cards, coins and banknotes (banknotes only recommended with hardwired power).
- Increased revenue control. Multi-space systems provide a full range of revenue and statistical reports.
- Less maintenance needed. Fewer machines in the field require less maintenance and fewer spare parts.
- Decreased collections. Fewer machines in the field, in addition to increased electronic transactions (i.e. credit card) will require fewer burdens on collection personnel.
- Meters communicate to a central server. Communications can be configured to notify parking operator when the units are in need of collection, out-of-service conditions and alarms. This further decreases the operational burden while increasing control.

### *DISADVANTAGES OF MULTI-SPACE METERS*

- Negative customer service. If configured as Pay-and Display units because patron must pay for parking at meter and return to their vehicle to place the voucher on the vehicle's dashboard.
- Requires customer education program and appropriate signage.

### *SYSTEM ENHANCEMENT TECHNOLOGY*

"Additional services and technology can be added to the system to enhance both productivity and the overall customer experience. Some examples of add on technology is provided below."

#### *PAY BY CELL PHONE OR SMS TEXT*

Customers, after preregistering with the provider can pay for parking from their cell phone by calling a predetermined number and entering their space number and intended length of stay. Pay-by-SMS works on a similar concept, the customer once registered will key in their parking space number. Several providers use this type of technology that can easily be integrated with the selected multi-space meter system chosen by the city. This is a customer service/convenience feature.

#### *REAL TIME ENFORCEMENT HANDHELDS*

Enforcement handheld devices that have two way communications, allow the officer to receive data directly from the MSM, space sensors, and other software peripherals such as backend citation management and motor vehicle checks. All citation information is then sent in real time from the handheld to the courts and is available immediately as opposed to a batch mode process<sup>4</sup>. This is both a customer service and enforcement enhancement feature. Customers wishing to immediately dispute citations at the court will find their records already there. PEO's are able to work more efficiently because all violation data on handhelds is in real time.

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<sup>4</sup> Enforcement handhelds that do not communicate in real time store all citation information in the device, and download it to the server at the end of the officers' shift.

Figure 4: Enforcement Device



### *ELECTRONIC BOOTS*

As an alternative to using a traditional vehicle boot or towing and impounding a vehicle, an enforcement officer can place an electronic boot on scofflaw violators. Dubbed a “SmartBoot”, the device can only be released using an access code that a parking violator enters on a keypad on the boot. The code is supplied by representatives at a 24/7 Call Center — but only after collecting the appropriate fine. SmartBoots are made of military grade components and are tamper resistant. This is a customer service/convenience feature. The electronic boot is a stand alone device independent of pay stations.

### *SENSORS*

The use of sensor technology would allow SLC to monitor the true status of every parking space in the city 24 hour a day, 365 days a year and provide the live information necessary to help policy makers make the best decisions on time restrictions and pricing. This technology also offers the added benefit of increasing the overall efficiency of the parking enforcement staff by directing them directly to a potential violator. Recent study data indicates that citation volumes will increase nearly 3 times the current volume when using this technology<sup>5</sup>.

Sensors can also be used to help the public find available parking much more efficiently with the assistance of in car guidance devices. Customers would enter information regarding their intended destination into their in car guidance device and as they approached, sensors would display available parking in each block, allowing the driver to make an intelligent decision about what direction to seek a parking space. This not only reduces the stress of having to find an empty parking space, but also reduces green house gas emissions by reducing the driving and idling time of vehicles searching for parking.

Figure 5: Electronic Boot



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<sup>5</sup> A recent study in Los Angeles indicates the volume of citations in the study area increased 2.6 times the previous average with the use of sensors when compared to the same area without the use of sensors.

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In general, multi-space meter systems have advantages over single-space meters. These advantages are discussed in more detail below and are common in all of the viable multi-space meter systems on the market.

## **MULTI-SPACE/SINGLE SPACE METER COMPARISON**

### **FUNCTION**

Multi-space technology offers expanded functionality and multiple payment options. This functionality includes the ability to accommodate the following: multiple payment options, frequent parker programs, and variable rate zones. With the ability to accept coins, banknotes (with hardwired power), credit cards and/or smart cards, multi-space meters offer more options than the traditional single space meter.

One of the best features that separate multi-space systems from single space technology is the ability to accept credit, debit and other magnetic-stripe cards. Cashless transactions are the most secure means of collecting revenue. Credit cards and debit cards for example provide a pure electronic transaction without the manual intensive procedures needed to handle cash. Credit card data can be downloaded from each unit with a handheld device and then transferred to a clearing house, or if networked, the meter can automatically transfer the credit card data to a central server for real time, on-line processing.

The advanced functionality allows the City to configure the metering program to meet the ever-changing needs of the environment. The City can offer validations for heavy retail environments or resident programs for mixed-use environments. The City also has the ability to pull real time revenue and statistical reports from the multi-space system. The functional tools of the multi-space system enable the City to utilize the metered system to its fullest potential.

Options such as solar power and wireless communications (if networked) make the multi-space meter system easy to install. The machine is powered from the battery and the solar panel will constantly charge the battery. This will make for easier installation in the field. Alternatively, the machines can be powered from a hardwired connection. If hardwired, banknote acceptance and change dispensing become viable options; however, this is not recommended as it adds significant costs to the unit and presents additional maintenance challenges.

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## ENFORCEMENT

One of the disadvantages of any metered approach is that it is an "honor system"; avoidance of parking meter fees is generally considered a folk crime in the US – if they can get away with it, most people feel no guilt about not paying for parking. Therefore, honor systems require ticketing and enforcement in order to be effective. Enforcement officers have to tour the on-street parking and issue violation tickets to patrons who have not paid for parking. The use of a handheld ticket writing device will allow the entry of the license plate number or receipt of wireless electronic data to identify repeat violators for towing or booting.

One of the advantages of the multi-space meter is that the enforcement officers can issue a ticket that would instruct the patron to return to the machine, enter the ticket number and pay for the violation. This is a convenience feature for the violator. A small discount in fine could be offered as an incentive to pay the fine immediately at the meter and not use court staff time to hand process a violation payment. The likelihood of collecting the fine is much higher with this approach. The ticket would further warn the patron that vehicles found to be parked illegally (specified on the signs as well as on the tickets) will be towed or booted. It is anticipated that more of the costs of enforcement can be recovered with multi-space meters.

## AUDIT-ABILITY

One of the greatest benefits of a multi-space system is the ability to network the meters to a central server. Unlike conventional single space meters, (when a multi-space system can be networked) the entire metered system can be controlled from a central server. The City can determine which meters are in need of service, need to be emptied of money, or need to be refilled with paper. In addition, a complete set of reports and audit information from each meter can be viewed in real time from the central server. The networked system will be able to accurately report the number of parking transactions, type of transactions, and revenue associated from each meter on the networked system. Currency can be tracked from point of receipt to bank deposit which is not currently possible. This will also allow SLC to better manage and control the parking inventory.

Multi-space meters can either be hardwired or communicate wirelessly to a central server. Since a hardwired system would be very costly for an on-street system, wireless communications is recommended.

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Depending on the manufacturer several different wireless communication protocols can be utilized. To specifically name a few:

- Mobitex wireless communications (police and fire data only network);
- WiFi 802.11;
- GSM/GPRS.

Typically each meter is equipped with a wireless modem that communicates online and real-time to a server that is hosted by the manufacturer. The server is managed and maintained by the manufacturer. SLC can control and access the meter system via a secure dedicated web site. Secure HTML access to the dedicated web site is password protected and allows connection from any internet terminal. All data is encrypted during transfer. Online credit card authorization is possible with a networked system. Credit card data is transferred directly to the clearinghouse via the wireless network and authorizations are sent to the meter in seconds.

Multi-space meters provide increased revenue control with the ability to generate revenue reports and audit information to provide accountability for the revenue collected. Revenue and collection reports are easily printed and/or downloadable to handheld units from each meter to determine the amount of revenue collected. This function provides less opportunity for theft from collection personnel and greater control and accountability of the revenue.

Multi-space meters can also generate utilization reports that allow the City to build a database of user and length of stay data. This function allows SLC to determine if a different fee structure is appropriate for the area. Changes to the free parking period or the parking time limit may be considered using the data collection from the multi-space meters.

## **MAINTENANCE**

Maintenance is an integral part for parking operations that use meters. Out-of-service conditions for single-space metered parking can be a constant struggle. Stocking an inventory of meter heads to keep up with out-of-order conditions is sometimes impossible for a single-space operation. Countless revenue is lost daily from out-of-service meters.

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An extended period of time can go by with a bank of meters out of service.

With fewer units in the field, multi-space meters require less spare parts. The sub-assemblies of the multi-space meter are modular in construction to provide easy servicing through on site plug-in replacement of parts. An inventory of key spare parts can be kept and replaced as necessary. One of the most comforting aspects of modular construction is independent component failure. This does not apply to all components of the meter, but when components such as the coin acceptor fail, the credit card reader continues to operate. This keeps the meter in service and collecting revenue. A single failure does not debilitate the meter. SLC will notice an immediate reduction in out-of-service conditions with a multi-space system. Additionally, with a networked system, when there is a failure or maintenance issue, the unit will send an alarm to the server and notify maintenance personnel of service conditions.

## **THEFT/VANDALISM**

Theft in single-space meters can lead to several problems. Often theft or vandalism of meters leads to out-of-service conditions which lead to revenue loss. Almost all multi-space meters are equipped with a secure cash box reinforced with a larger housing that can be cemented to the ground. This alone makes it more difficult to vandalize. Multi-space meters are also equipped with vandalism alarms. As soon as the meter senses it is being vandalized or the cash box is compromised without going through the proper collection procedures, an audible alarm sounds or the alarm is sent to a central computer or other remote device. SLC personnel can be dispatched immediately to stop the theft and/or repair the meter. Most manufacturers' machines are made of steel and can withstand extreme environmental conditions. Some manufacturers have also taken care not to include exposed hinges or pry points on the units - this helps prevent vandalism and provides for a very secure unit in the field.

## **COLLECTION**

Collecting change from every single-space meter for every parking space takes longer than collecting money from only a few multi-space meters. Also, some transactions may have been with a credit/debit card and are cashless. This ultimately saves time and money for the City, as every meter does not have to be checked and emptied.





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Further, if networked to a central server, the multi-space meter can report current cash positions inside each terminal from the server. Thus, cash collection time is optimized. Analysis of the cost savings will be discussed in the cost benefit analysis section of this report.

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SLC posed 18 pay station related questions in the RFP document that Walker responded to in August 2009. We will address these questions in the section below.

## **RESPONSE TO SLC RFP QUESTIONS**

**Q:** What considerations need to be addressed and resolved to implement pay stations?

**A:** Work with Downtown Alliance to help roll out new program. Establish a comprehensive PR program with information on the new system. Invite the media to preview the system prior to deployment. Address infrastructure needs at installation sites. All signage for the new system should be designed and ordered.

**Q:** What methods of payment are to be allowed such as coin, token, paper money, credit card, debit card, and smart card?

**A:** Multi-space meters are capable of accepting coin, tokens, paper money, credit cards, debit cards, smart cards and payments via cell phone or SMS text messages. However it should be noted that there are typically added expenses and service problems associated with accepting paper money.

**Q:** What is the cost versus convenience for each of these methods?

**A:** Credit Cards cost 1.8% of Total plus \$.05 per transaction. Smart Cards have no cost associated. Cell phone payments are \$.35 per transaction and are charged to the consumer. The typical banking cost to process cash and coin can be up to \$.09 per dollar.

**Q:** What security standards does the payment card industry require?

**A:** All equipment that accepts credit cards for payment must be PCI level 2 compliant. We will require each manufacturer provide proof of certification during the bid process.

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**Q:** Can and should the electronic pay station system be coordinated and compatible technologies with UTA's fare collection system and UDOT's toll collection system?

**A:** Currently, there is no integration between any of the multi-space meter manufacturers and any of the fare collection systems; however, Siemens is working on an integration package with Cubic (manufacturer of fare and toll collection equipment) but this is still in the development stage and may be more than a year away from implementation.

**Q:** What impact will this have on the existing Downtown Parking Token program?

**A:** None, the multi-space meters can be programmed to accept tokens at whatever value the city decides.

**Q:** How can the Parking Token Program be modified to work with a pay station system?

**A:** This program can work with a pay station system; however, consideration should be given to eliminating tokens because the current system is ineffective, has very limited prioritizing and is costing the City due to subsidized parking.

**Q:** Will the parking enforcement process change?

**A:** The current parking enforcement process will not change in terms of personnel or duties; however, the additional tools will increase efficiencies and productivity of the current staff.

**Q:** Are there citation adjudication issues related to parking citations when using this technology?

**A:** None, if anything adjudication will be easier. Citations can have a digital picture and information regarding the status of the payment machine at the time the citation was issued attached so the hearing officer can make an informed decision.

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Q: Can pay stations accommodate variable rates?

A: Yes pay stations can accommodate multiple rate structures and multiple user groups.

Q: What impacts will there be to money collection procedures?

A: Since the machines now have the ability to report the amount of cash stored in the vault, collections can be scheduled less frequently. Also the ability to accept credit cards and smart cards will reduce the amount of cash by as much as 50%, further reducing the collection efforts.

Q: How are money processed and the finances transacted?

A: Every transaction for every machine is recorded and tracked allowing for a complete audit trail of the parking system.

Q: What records generation capability do pay stations have? Are they able to track parking occupancy?

A: Since all transactions are tracked and stored in a database, virtually any report can be customized by the end user. The MSM is able to track occupancy; however, only for those spaces that were paid for, unless single space sensors are used. Without the single space sensors, the MSM would not have any information on unpaid spaces that are occupied.

Q: What are the expectations for and of the general public?

A: The MSM are very easy to use and most are set up with easy to follow steps and/or visual prompts and instructions.

Q: Is a public education process needed for pay station use and what would one include?

A: To ensure the success of this new technology roll-out, we suggest a well thought out public relations campaign be formulated which might include:

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- A Sample MSM placed in City Hall or the Public Library with a narrative that explains how the machine will work, at least one month prior to installation.
- Invite the local media to see the new MSM and provide them with information they can air on the local news.
- Prepare information brochures describing the MSM's where they are located, what forms of payment are accepted and where the machines are located.

**Q:** What signing and marking is needed to facilitate pay stations?

**A:** Pay by space MSM's require a space number sign identifying the space so payment can be recorded. All MSMs should have strategically located signs directing customers to the pay stations and providing some instructions.

**Q:** How do electronic pay stations affect the ability to reserve stalls for a specific use (i.e., replace current meter bagging)?

**A:** The machine will have very little impact on the ability to reserve spaces. With pay by space MSM's, the space number signs can be bagged and the machine programmed to not accept payment for that space.

**Q:** What type of maintenance issues will there be for electronic pay stations?

**A:** Maintenance will be easier since the machines produce a self diagnostic report and all the internal components are plug\_and\_play. Maintenance staff can be directed to the specific machine and replace the troubled part very easily.

**Q:** How long are pay stations and their components expected to last and what is their reliability for our climate?

**A:** We expect the typical life cycle for this technology to be 15 years. Pay station technology is operating successfully in Canada and parts of the US where



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winter temperatures sometimes reach -20 degrees Fahrenheit. At these temperatures the LCD display slows, but the other components can still function.

**Q:** Is it viable for pay stations to be used as an electrical power source for holiday lighting or electric vehicle charging?

**A:** It is possible if the machines are direct wired to a power source; however, we do not recommend the machines be used in this manner because the machines were not designed for this purpose.

## MULTI-SPACE METER

Based on a review of available system features and consideration of the various factors in SLC, the consultant and SLC committee members recommend the following key features for a multi-space meter system:

1. The MSM should be configured in Pay-by-Space mode; however, should the City decide to change to a Pay-and-Display or Pay-by-License Plate mode in the future, the unit shall be easily configured by City with some minor programming changes.
2. The MSM should be DC powered with the capability of recharging the unit via an attached solar collector. Battery life shall be guaranteed for a minimum of 3 years from manufacturer.
3. The MSM's should be constructed of a high grade material such as stainless steel capable of withstanding the extreme climate variations in SLC.
4. The MSM should have a lockable cash vault that is located in a separate locked compartment.
5. The MSM should be networked and communicate in real time with the back end software, space sensors and enforcement handheld units.
6. The MSM's should accept coin in the following denominations: \$1.00 coin, Quarters, Dimes, Nickels and official SLC Tokens. The MSM should have the capability of being configured to accept paper currency; however, not implement this option at this time.
7. The MSM should accept major credit cards and debit cards containing the Visa or MasterCard logos and be capable of accepting a selected city smartcard (TBD).
8. The MSM should be PCI-CISP compliant.
9. The MSM should accept cell phone or SMS text message payment via a third party provider.
10. The MSM should accept payment, issue a receipt and post information to the court system and treasurer in real time for any parking citation issued.

## RECOMMENDED FEATURES



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11. Single Space Sensors should be located in all current metered parking spaces and used to reset meters to zero when customers leave.
12. Single Space Sensors should be a completely sealed unit that communicates wirelessly to the MSM, backend software and enforcement handhelds.
13. Single Space Sensors should monitor and communicate occupancy status of each parking space to all MSM's and enforcement handhelds in the network.
14. Handheld enforcement units will communicate in real time with the backend servers that will transmit the potential violation status of each parking space in the vicinity via GPRS coordinates transmitted from the handheld.



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To perform a cost benefit analysis, we must first determine the number of multi-space meters required to process on-street parking transactions. Then, we will compare the capital and operating costs against those of the existing single space meter system.

**COST BENEFIT ANALYSIS**

**MULTI-SPACE METER REQUIREMENTS**

Table 3 illustrates the number of multi-space meters we estimate would be required if replacing all the current single space meters. A summary of the locations of the multi-space meters is illustrated in Exhibits 2 through 5 of the Appendix. The number of meters for the on-street system is based on one multi-space meter for every ten or less parking spaces.

Table 3: On-Street Meter Requirements

Map Area	Meter Type		Total Spaces	Multi-Space Meters Required
	Dual	Single		
4A	278	112	668	124
4B	176	67	419	67
4C	427	115	969	142
4D	24	10	58	11
	905	304	2114	344

**HARDWARE COSTS**

Based on the information provided from Figure 1, it was determined that approximately 344 multi-space meters are needed to replace the existing 2,114 single-space meters that currently manage the short-term public parking spaces.

Table 4: Estimated Capital Costs

Equipment	Qty	Unit Cost	Total
Multi Space Meters <sup>(1)</sup>	344	\$12,500	\$4,300,000
Single Space Sensors	2114	\$300	\$634,200
Wireless Handhelds	20	\$7,500	\$150,000
			\$5,084,200

Note(1) Multi-Space Meters to be configured in pay by space mode, and equipped with solar panels, wireless modems and will accept coins, credit cards and smart cards.

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We then compare the costs (capital and operating) on an annual basis, we have to annualize the capital cost of the equipment and add it to the projected annual operating costs. To do this, we assume a 5-year amortized cost of equipment, 7 percent annual maintenance cost, and an 8 percent cost of funds.

**Table 5: Capital Cost Analysis**

		Multi-Space
Equipment		\$5,084,200
Spare Parts & Stock	5%	\$254,210
Installation, Documentation, Training & Warranty	20%	\$1,016,840
Subtotal Equipment		\$6,355,250
Signage		\$350,000
Startup Customer Service		\$50,000
Education/Marketing		\$150,000
Total		\$6,905,250
Annual Cost to Own Hardware		\$2,100,133
Amortized Loan	5 Years	
Cost of Funds	8%	
Annual Maintenance	7% of Equipment First Cost	

Also included in the capital cost are startup costs for signage, customer service representatives and marketing of a multi-space meter system.

**OPERATING COSTS**

Based on our experience, single space meters require more time to collect revenue than multi-space meters. Our opinion of the annual operating budget highlights the differences in operating costs.

**SOFTWARE COSTS**

If networked to a central server, multi-space meters have an ongoing monthly cost for the hosted server, financial/statistical reports and credit card functionality. The cost per meter is approximately \$50 per

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month, or \$600 per year. This is an ongoing cost for the life of the system. For the estimated number of multi-space meters, SLC would have to pay approximately \$206,400 per year for the multi-space system.

The monthly cost includes the ability to process credit card transactions<sup>6</sup> online, as well as a hosted data server housed and maintained by the manufacturer. The data server compiles and organizes all financial, transaction and statistical data from the system. SLC then has the ability to connect to the server via a secure website and download all revenue, transaction, and statistical reports.

The single space sensors are also networked to the central server, and have an ongoing monthly cost for the hosted server, which also covers the annual maintenance cost and replacement of the sensors when they fail. The cost per sensor is approximately \$8 per month, or \$202,944 per year.

## REVENUE COLLECTION

The cost to collect revenue from the revenue control devices can vary significantly, based on the type of revenue collection equipment. Key factors in estimating the time required to physically collect the revenue from the equipment include the number of collection points, number of times per week the revenue will actually be collected, and the type of payments the equipment will accept.

The number of visits required to collect the revenue depends on the type of technology. Smart cards and credit cards eliminate a portion of the actual cash involved, and some Cities have experienced as much as a 40% reduction in the use of coins when a credit card option is available. Smart cards allow the user to purchase a card with cash value that can work in either single space meters or multi-space meters. When this type of system is used, money is deducted from the card as it is used, thus the parking transaction is cash-less. Credit card systems are available on most multi-space meter systems. If this type of system is offered, it will further reduce the amount of cash that must be physically collected from the multi-space meter, and the times per week and time spent counting the revenue will be reduced. Multi-space meters can also send an alarm to the operational workstation

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<sup>6</sup> Bank charges for credit card processing are not included in this monthly fee and are typically 1.8% plus \$.05 per transaction.

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indicating that it needs to be collected. This increases the efficiency of the multi-space meter collections and reduces the collection effort.

Because each single space meter only controls one space, the amount of revenue will be much lower than that of a multi-space meter. Unless the single space meter is collected less than half as often as the multi-space meter, the multi-space meter will take less time and cost less to physically collect the revenue. The estimated man hours of labor and associated cost savings to collect revenue from the multi space meters is illustrated in Table 6 below.

**Table 6: Estimate Revenue Collection Labor Savings**

	Number of Officers Required	Number of Collections /Year	Hours Per Collection	Total Man Hours/ Year	Hourly Rate	Total Cost
Current	4	156	4	2,496	\$55.26	\$137,929
Projected	2	156	4	1,248	\$55.26	\$68,964
		Savings		1,248		\$68,964

**ENFORCEMENT**

Enforcement is a key factor for either type of operation to operate effectively. Single space meters offer a fairly straightforward enforcement method. The enforcement officer simply passes by each meter and visually checks for expired time. In the typical pay by-space system the enforcement officer would query the multi space meter for a list of paid spaces and compare that with the vehicles parked on that block. The enforcement officer would then issue tickets for violators either through an automatic ticket printer/handheld or through a manual ticket writing process. Enforcement time is estimated to be about the same for either type of revenue control equipment, with the variable being the number of times per day the block is checked, the numbers of days per week meters are enforced, and the number of violations that must be written. With the addition of single space sensors that are able to communicate wirelessly with the multi-space meter and the officers' handheld device, the enforcement officer can instantly check the violation status of each parking space within a four block radius, and proceed to the block with the most violations. Table 7 illustrates the potential increase in citation revenue based on the most current statistical data available.

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Table 7: Projected Citation Revenue

		Parking Citations Issued <sup>(1)</sup>	Average Citation Revenue	Total Citation Revenue
Current Equipment	2008	126,000	27.78	\$3,500,000
Recommended Equipment	Projected	327,600	27.78	\$9,100,728
Projected Increase		201,600		\$5,600,728

Note: <sup>(1)</sup> Based on the most recent data available, citations should increase by a factor of 2.6 using this new technology.

**ANNUAL OPERATING BUDGET**

Table 8, below, is our opinion of the annual operating budget for a multi space meter system for SLC. Since these projections are based on new technology with limited history and number of locations in use, we do not recommend using this information for financial funding or other financial projections.

Table 8: Opinion of Annual Operating Budget

	2008 <sup>(1)</sup>	Projected Year 1	Increase/(Decrease)	Year 2
5 year Amortized Equipment Cost <sup>(2)</sup>	\$0	\$2,100,133	\$2,100,133	\$2,100,133
Maintenance Costs <sup>(3)</sup>	\$100,000	\$0	(\$100,000)	\$355,894
Enforcement Costs <sup>(4)</sup>	\$1,155,100	\$1,155,100	\$0	\$1,155,100
Software/Data Communication Costs <sup>(5)</sup>	\$0	\$409,344	\$409,344	\$409,344
Revenue Collection Costs <sup>(6)</sup>	\$137,929	\$68,964	(\$68,965)	\$68,964
<b>Total Expenses</b>	<b>\$1,393,029</b>	<b>\$3,733,541</b>	<b>\$2,340,512</b>	<b>\$4,089,435</b>
<b>Annual Revenue</b>				
	2008 <sup>(1)</sup>	Projected	Increase/(Decrease)	Year 2
Meters <sup>(7)</sup>	\$1,100,000	\$1,485,000	\$385,000	\$1,485,000
Citations <sup>(8)</sup>	\$3,500,000	\$9,100,000	\$5,600,000	\$9,100,000
<b>Total Revenue</b>	<b>\$4,600,000</b>	<b>\$10,585,000</b>	<b>\$5,985,000</b>	<b>\$10,585,000</b>
<b>Net Revenue</b>				
Profit/Loss	\$3,206,971	\$6,851,459	\$3,644,488	\$6,495,565

Note:<sup>(1)</sup> Based on actual reported by SLC

<sup>(2)</sup> Based on estimated cost of equipment amortized for 5 years at 8% costs of funds. (See Table 5 for details)

<sup>(3)</sup> \$355,894 per year (7% of equipment first cost) beginning in year 2 for extended maintenance contract.

<sup>(4)</sup> Based on 2010 Budget supplied by SLC. No changes in enforcement personnel projected.

<sup>(5)</sup> Communications cost estimated at \$50 per month per Multi Space Meter (\$50\*12\*344), plus \$8 per month per single space sensor (\$8\*12\*2114)

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- <sup>(6)</sup> Based on reduction in required collections. (See Table 6 for detailed breakdown).
- <sup>(7)</sup> Projected 35% increase in revenue due to the ability to reset meters to zero when customers leave, and the introduction of additional payment options such as credit cards and smart cards. (Municipalities have reported as much as a 30% increase in revenue with the introduction of alternative payment methods)
- <sup>(8)</sup> Based on the most recent data provided from the Los Angeles study, we project citations will increase 2.6 times the current volume if single space sensors and an integrated enforcement system are used. These are rough estimates, based on information provided by an independent 3rd party and should not be relied upon to secure financing.

## RENT OR LEASE

Most equipment providers offer some sort of rental or lease option for their equipment. Terms are typically for a minimum of 3 years and can go for as long as 7 years. Terms can vary significantly depending on the creativity of the financier and what the final disposition of the equipment is at the end of the term. The lessee can opt to own the equipment outright, continue to pay for equipment or have the lessor take back the equipment.

## PUBLIC PRIVATE PARTNERSHIPS

A public private partnership, sometimes referred to as a P3, is a legally binding contract between government and business for the provision of assets and the delivery of services that allocates responsibilities and business risks among the various partners. In a P3 arrangement, government remains actively involved throughout the project's life cycle. The private sector is responsible for the more commercial functions such as project design, construction, finance and operations.

P3s take a variety of forms, with varying degrees of public and private sector involvement – and varying levels of public and private sector risk. In fact, risk transfer from the public to the private sector is a critical element of all P3s. The goal is to combine the best capabilities of the public and private sectors for mutual benefit. These transactions are typically 30 years or longer, and can be structured to include some form of revenue sharing, percentage or flat fee, or a large lump sum plus a small percentage revenue share. These transactions are complicated and should not be undertaken without seeking professional help.

## FINANCING OPTIONS

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We recommend a phased approach to ensure the ultimate success of the project:

## **IMPLEMENTATION PLAN**

### **PHASE 1**

- Develop a comprehensive PR campaign.
- Conduct community outreach meetings to introduce the new multi space meters to members of the business community and general public.
- Invite the media to attend the meetings.
- Install the first 50 to 75 units in a high profile area pre selected by the committee.
- Employ at least two parking ambassadors to patrol the area where the new meters are installed to help answer questions and help the public operate the machines.
- Conduct a 90 day testing and feedback period, where staff and members of the public can comment on concerns and issues with the new equipment.
- Meet with the vendor to address any issues identified during the 90 day test period.
- Incorporate any changes identified during the 90 day trial.

### **PHASE 2**

- Continue installation of remaining units. We estimate this process will take approximately 8 months to complete.



This report is subject to the following limiting conditions:

**STATEMENT OF LIMITING  
CONDITIONS**

1. Estimates and projections provided by Walker have been premised in part upon assumptions provided by our client and/or third party sources. Walker has not independently investigated the accuracy of the assumptions provided by the client, its agents, representatives, or others supplying information or data to Walker for its use in preparation of this report. Walker has also drawn certain assumptions from its past work on other projects of similar or like nature, and has done so in a manner consistent with the standard of care within the profession. Because of the inherent uncertainty and probable variation of the assumptions, actual results will vary from estimated or projected results. As such, Walker makes no warranty or representation, express or implied, as to the accuracy of the estimates or projections.
2. The results and conclusions presented in this report may be dependent on assumptions regarding the future local, national, or international economy. These assumptions and resultant conclusions may be invalid in the event of war, terrorism, economic recession, rationing, or other events that may cause a significant change in economic conditions.
3. Walker assumes no responsibility for any events or circumstances that take place or change subsequent to the date of our field observations and Walker possesses no duty to notify any party of any such events or circumstances.
4. Walker is not qualified to detect hazardous substances or environmental matters, has not considered such, and therefore urges the client to retain an expert in this field, if relevant to this report.
5. Sketches, photographs, maps and other exhibits included herein may not be of engineering quality or to a consistent scale, and should not be relied upon as such.
6. All mortgages, liens, encumbrances, leases, and servitudes have been disregarded unless specified otherwise. Unless noted, we assume that there are no encroachments, zoning violations, or building code violations affecting the subject properties.
7. Our agreement to allow any party to use and rely upon this report is expressly subject to and limited by such party's

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agreeing to and abiding by the same terms and conditions contained in that certain Consultancy Agreement between us and our client (the "Agreement"), including, but not limited to the following: (1) any limitations on warranty and consequential and other damages contained in the Agreement; (2) any limitations on the amount of damages for which we may be liable pursuant to the Agreement; (3) any exclusive remedy provisions contained in the Agreement; (4) any disclaimers, qualifications or scope limitations contained in this report; and (5) that such party make no further distribution of this report without our prior written consent. By relying on this report, you have agreed to be bound by the terms set forth in the Agreement.

8. This report is to be used and may only be relied on in whole and not in part. None of the contents of this report may be reproduced or disseminated in any form for external use by anyone other than our client without our express written permission, as prescribed in our agreement.
9. The projections presented in the analysis assume responsible ownership and competent management. Any departure from this assumption may have a negative impact on the conclusions.

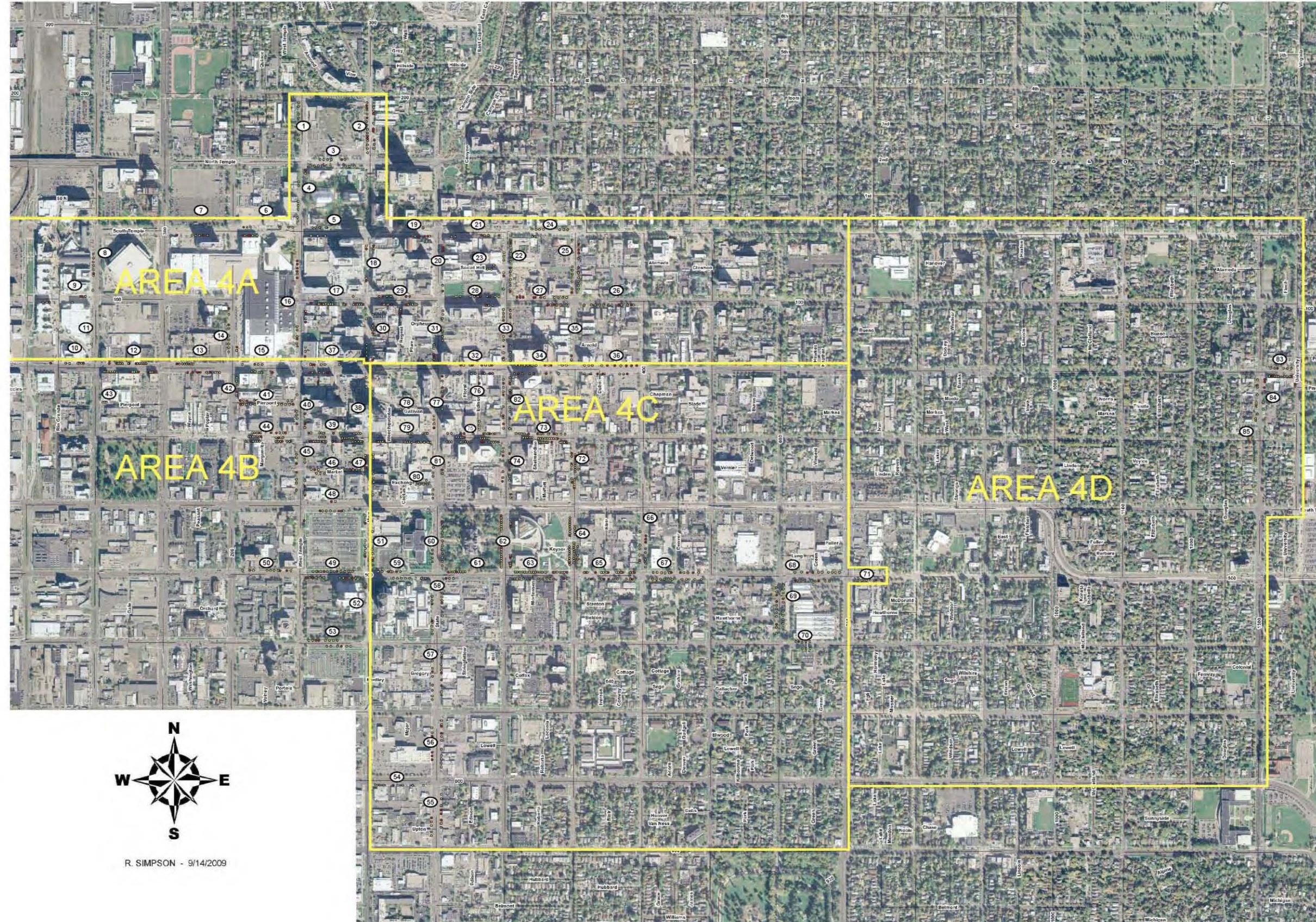
EXHIBITS



**WALKER**  
PARKING CONSULTANTS

# PARKING METER ANALYSIS

## SALT LAKE CITY, UTAH



R. SIMPSON - 9/14/2009

### EXHIBIT 1 EXISTING PARKING METERS

#### EXISTING PARKING METER COUNT PER AREA

<b>AREA 4A</b>			
112 SINGLE	=	112 SPACES	
278 DUPLEX	=	<u>556 SPACES</u>	
<b>TOTAL AREA 4A</b>	=	<b>668 SPACES</b>	
<b>ESTIMATED PAY STATIONS</b>	=	<b>124</b>	
<b>AREA 4B</b>			
67 SINGLE	=	67 SPACES	
176 DUPLEX	=	<u>352 SPACES</u>	
<b>TOTAL AREA 4B</b>	=	<b>419 SPACES</b>	
<b>ESTIMATED PAY STATIONS</b>	=	<b>67</b>	
<b>AREA 4C</b>			
115 SINGLE	=	115 SPACES	
427 DUPLEX	=	<u>854 SPACES</u>	
<b>TOTAL AREA 4C</b>	=	<b>969 SPACES</b>	
<b>ESTIMATED PAY STATIONS</b>	=	<b>142</b>	
<b>AREA 4D</b>			
10 SINGLE	=	10 SPACES	
24 DUPLEX	=	48 SPACES	
<b>TOTAL AREA 4D</b>	=	<u><b>58 SPACES</b></u>	
<b>ESTIMATED PAY STATIONS</b>	=	<b>11</b>	
<b>OVERALL TOTAL</b>	=	<b>2114 SPACES</b>	
<b>OVERALL TOTAL ESTIMATED PAY STATIONS</b>	=	<b>344</b>	

#### LEGEND

- EXISTING DUPLEX HEAD METER
- EXISTING SINGLE HEAD METER
- BLOCK NUMBER

MARCH 22, 2010

23-7234.00

**EXHIBIT 2 – METERED LOCATIONS IN AREA 4A**

Area 4A		Meter Type		Total Parking Spaces	Multi-Space Meters Required
Block #	Side of Street	Dual	Single		
1	West	7	0	14	2
2	West	11	5	27	3
2	East	5	4	14	3
3	North	5	1	11	2
3	South	9	0	18	3
4	West	7	0	14	3
4	East	1	1	3	1
5	North	4	1	9	2
5	South	3	0	6	1
6	North	5	1	11	2
6	South	3	3	9	2
7	South	5	0	10	2
8	West	7	1	15	2
9	North	1	2	4	1
9	South	3	1	7	2
10	North	5	2	12	2
11	West	1	0	2	1
12	North	9	4	22	3
13	North	7	1	15	2
14	West	7	2	16	3
14	East	1	1	3	1
15	North	3	1	7	2
16	West	6	6	18	3
16	East	4	4	12	3
17	North	1	0	2	1
17	South	12	6	30	3
18	West	2	2	6	2
18	East	1	1	3	1
19	North	1	0	2	1
19	South	2	3	7	1
20	East	2	4	8	2
21	South	4	2	10	2
22	West	5	1	11	2
22	East	10	4	24	3
23	North	1	0	2	1
23	South	2	0	4	1
24	North	7	0	14	2
24	South	2	0	4	1
25	West	8	1	17	3
25	East	6	4	16	3

**EXHIBIT 2 CONTINUED – METERED LOCATIONS IN AREA 4A**

26	South	10	2	22	3
27	North	5	6	16	3
27	South	4	2	10	2
28	North	8	2	18	3
28	South	2	1	5	1
29	North	3	3	9	2
29	South	5	3	13	3
30	West	6	1	13	3
30	East	4	2	10	3
31	West	3	2	8	2
31	East	6	0	12	2
32	North	4	4	12	2
33	West	7	3	17	3
33	East	7	2	16	3
34	North	9	2	20	3
35	West	1	1	3	1
36	North	5	5	15	3
37	North	4	2	10	2
Totals		278	112	668	124

**EXHIBIT 3 – METERED LOCATIONS IN AREA 4B**

Area 4B		Meter Type		Total Parking Spaces	Multi-Space Meters Required
Block #	Side of Street	Dual	Single		
12	South	12	4	28	3
13	South	5	5	15	3
37	South	3	3	9	2
38	West	2	0	4	1
39	North	8	3	19	3
39	Center	9	0	18	2
39	South	10	7	27	3
40	West	4	1	9	2
40	East	1	2	4	1
41	North	4	2	10	2
41	South	8	2	18	3
42	East	4	1	9	2
43	North	3	0	6	1
44	North	6	4	16	3
44	Center	10	2	22	2
44	South	10	3	23	3
45	West	5	2	12	3
45	East	5	3	13	3
46	North	10	2	22	3
46	South	3	0	6	1
47	West	2	2	6	1
48	North	1	1	3	1
48	South	5	3	13	2
49	North	12	2	26	3
49	South	9	4	22	3
50	North	7	3	17	3
51	West	6	2	14	3
52	West	1	1	3	1
53	North	6	2	14	2
53	South	5	1	11	2
Total		176	67	419	67

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**EXHIBIT 4 – METERED LOCATIONS IN AREA 4C**

Area 4C		Meter Type		Total Parking Spaces	Multi-Space Meters Required
Block #	Side of Street	Dual	Single		
54	South	6	1	13	3
55	West	4	1	9	2
55	East	5	3	13	2
56	West	2	4	8	2
56	East	9	2	20	3
57	West	7	1	15	2
57	East	6	4	16	3
58	West	6	2	14	2
58	East	6	1	13	2
59	North	5	2	12	2
59	South	7	0	14	2
51	East	4	1	9	2
47	East	6	0	12	2
60	West	4	0	8	1
60	East	11	1	23	3
61	North	7	2	16	2
61	South	2	1	5	1
62	West	16	2	34	3
62	East	5	4	14	3
63	North	20	2	42	3
63	South	10	1	21	3
64	West	16	2	34	3
64	Center	15	0	30	3
64	East	3	0	6	1
65	North	10	5	25	3
65	South	6	4	16	3
66	West	5	1	11	2
66	East	5	3	13	2
67	North	8	3	19	3
67	South	11	0	22	3
68	North	8	2	18	3
68	South	7	2	16	2
69	West	8	3	19	3
69	East	9	2	20	3
70	North	4	1	9	1
70	South	3	0	6	1
71	South	4	2	10	1
72	West	4	3	11	2
72	Center	13	1	27	3



**EXHIBIT 4 CONTINUED – METERED LOCATIONS IN AREA 4C**

Area 4C		Meter Type		Total Parking Spaces	Multi-Space Meters Required
Block #	Side of Street	Dual	Single		
72	East	1	0	2	1
73	North	11	3	25	3
73	Center	14	1	29	3
73	South	8	3	19	3
74	West	5	1	11	2
74	East	5	4	14	3
75	North	7	4	18	3
75	Center	9	1	19	2
75	South	12	3	27	3
76	East	5	1	11	2
77	West	3	1	7	1
77	East	4	3	11	2
78	North	1	0	2	1
79	North	5	0	10	1
79	South	12	4	28	3
80	North	1	0	2	1
80	South	4	0	8	1
81	West	6	0	12	2
81	East	1	1	3	1
82	West	6	4	16	3
82	East	6	4	16	3
32	South	5	2	12	2
34	South	4	3	11	3
36	South	5	3	13	3
		427	115	969	142

**EXHIBIT 5 – METERED LOCATIONS IN AREA 4D**

Area 4D		Meter Type		Total Parking Spaces	Multi-Space Meters Required
Block #	Side of Street	Dual	Single		
83	North	5	1	11	2
83	South	7	3	17	3
84	West	8	3	19	3
84	East	2	3	7	2
85	North	2	0	4	1
		24	10	58	11