4. Issue a Request for Proposal (RFP) to qualified professional parking management firms that serve similarly sized cities. The RFP can contain language requesting proposals to manage the Utility, while at the same time, not obligate the Utility to award an Agreement. Whether an Operator is contracted or not, the policies, procedures, proposed operating plans, and recommendations contained in the submittals will provide the Utility with in-depth industry knowledge of industry standards currently used to manage other similar municipal parking systems.
5. Consider implementing Multi-Space-Meter devices with Pay-by-Plate technology enforced with License Plate Recognition technology throughout the Utility system.
6. Review the current on-street meter rates and consider implementing a $1.00 per hour fee for parking in Downtown areas that consistently maintain high occupancy (e.g., Areas 2, 3, and 4).
7. Implement a pricing strategy that leverages the competitive advantages of high-value parking and maximizes parking revenue generation. Walker provided three pricing strategies for consideration by the Utility regarding the hourly parking fees, which are summarized as follows. *(*Projected financial impacts for Options 1 and 2 are presented in report Tables 24 and 25.)*
    a. Option-One affords free parking for the 1st hour, eliminates all $.50 rate categories and effectively increases rates by $1.00 per hour, reaching the maximum daily rate after a parker exceeds 6 hours of parking.
    b. Option-Two eliminates all $.50 rate categories and effectively increases rates by $1.00 per hour, reaching the maximum daily rate after a parker exceeds five (5) hours of parking.
    c. Option-Three charges $1.00 for the 1st hour, eliminates all $.50 rate categories and effectively increases rates by $1.00 per hour reaching the maximum daily rate after a parker exceeds 4 hours of parking, and increases the daily maximum rate to $7.00.
    d. At a minimum, implement a policy that requires Utility management to regularly survey pricing within other comparable markets (semi-annually or annually).
8. Consider implementing those technologies deemed appropriate by the Utility to enhance management practices. Several of the following technologies discussed in detail in Section Two of this report. These technologies are currently used by professional parking management firms and should be considered by the Utility:
    a. Continue working toward implementing gate arms in Utility garages;
    b. Custom Parking Website;
    c. Map Presence;
    d. WAZE;
    e. Partnerships;
    f. Social Media;
    g. Parking Guidance Systems;
    h. Remote Parking Management;
    i. Customer Amenities;
    j. Custom Graphics and Wayfinding;
    k. Data Analytics;

PARKING RESERVATIONS

As previously discussed in the baseline review, once the gated systems within the garages are fully functional, customers will have the ability to use the ParkMobile application and select "Reserve Parking" to locate and purchase parking in any available Utility garage. Furthermore, based upon our discussion with Utility staff, the ParkMobile reservation system will be interfaced with the PARCS equipment, and the reserve parking application will allow customers to reserve a space within a Utility garage by paying in advance to obtain a mobile credential or QR code.

Upon entering the desired facility, the customer will present their QR code at an entry station, and once the QR code is identified as valid by the PARCS, the barrier gate will raise allowing the customer to enter the facility and park within the garage. Upon exiting, the customer will present their QR code to an exit-station, and if the payment parameters are satisfied for the customer's duration of stay, the barrier gate will raise allowing the customer to exit the facility.

In summary, the ParkMobile reservation system is an acceptable form of technology that if properly implemented, will enhance customer service for those customers that frequent Utility facilities.

ON-STREET PARKING/SINGLE-SPACE AND MULTI-SPACE METERS

In this section, we provide an overview of the various on-street parking technologies available in the parking industry. The Utility has already embraced some of these technologies; however, we offer the following information for consideration and possible implementation predicted upon informed decisions made after considering these potential upgrades; both for now and in the future.

The SSM was invented in 1935 and today represents a universal device that is so common anyone reading this report most likely knows what it is and how it works. However, technological improvements that continue to evolve may make the conventional SSM obsolete. Newer 'smart' parking meters afford users three key technologies that never existed with earlier SSM. These technologies include 1) computing power, 2) solar power, and 3) wireless communication. These innovations allow customers to pay via credit card, for cities to set complex fee structures, and provide meters with the ability to communicate wirelessly via a central management system, which provides remarkable audit control and more effective maintenance capabilities.

CREDIT CARD ACCEPTANCE

Benefits associated with implementing smart meters can include but are not limited to the following:

- Enhanced Customer Convenience: Most motorists do not carry coins or keep enough coins in their vehicle to pay for metered parking. Conversely, most motorists do carry credit cards, enabling them to pay for parking at metered locations.
- Enhanced Compliance: The added customer convenience of payment via credit card results in a higher level of meter compliance, as most motorists will pay the parking fees when they can but may risk receiving a ticket once they've parked and do not have the ability to pay via coin.
- Increased Revenue: Motorists tend to purchase more time when paying via credit card, as they are no longer limited to the number of coins carried on their person or in their car. Furthermore, credit card-accepting meters typically offer a "max" button that enables the motorist to purchase the maximum time allowed at the push of one button, rather than predicting how long they will

be parked. Industry practices reveal that most people would rather leave unused time on a meter rather than risk getting a ticket for expired-time.

- Fewer Collections: Credit card payments reduce the number of payments made via coin, effectively reducing the frequency of coin collections, as typical meter vaults hold approximately $30 in quarters, which requires coin collection at least once weekly and more frequently in busy areas.
- Fewer Coins to Process: Payment via credit card reduces the number of coins processed and limits transporting, counting, and rolling coins and depositing them into the bank. Credit card transactions typically account for up to 70% to 90% of all transactions, replacing higher-priced coin transactions. Finally, the higher the hourly parking rate, the higher the percentage of credit card use.
- Fewer Staff Injuries: Coin processing is a common cause of staff injuries, as coins are heavy in mass volumes. Many cities report frequent coin-related staff injuries that lead to reduced productivity, time off from work, and worker's compensation claims.
- PCI Certification: The Payment Card Industry (PCI) sets rigorous security standards for credit card processing. When paying via credit card is considered for implementation, industry-standard best practices include contracting with a PCI-certified vendor. This will provide the Utility with the assurance that credit card processing protocols are adhered to, such as credit card data being encrypted and not stored.

COMPLEX RATE STRUCTURES

Conventional parking meters have limited rate setting capabilities; often limiting meters to a fixed rate for one fixed time frame. Newer computer software programs now enable smart meters (single space or multi-space) to create a variety of rate structures. Hourly rates can change from hour to hour, or by time of day, or day of week. Flat rates can also be programmed for any duration of time, and the current rate structure can also be changed remotely, while conventional meters require a trip to each meter for programming.

If desired, new meter technologies can enable cities with the ability to implement demand-based pricing, a relatively new concept that has garnered attention since Donald Shoup, Professor of Urban Planning at UCLA authored The High Cost of Free Parking[3]". Shoup cites motorists contributing to traffic congestion and air pollution while circling blocks cruising for a parking space. Shoup feels that demand based (a.k.a. market rate) pricing will eliminate cruising and that cruising occurs because on-street parking is priced below market value (e.g., off-street parking is typically more expensive, because there are more costs related to building and maintaining a parking structure); however, most people prefer to park on-street near their desired destination.

Shoup theorizes that if on-street prices were higher, more people would opt to park in parking structures. Furthermore, if on-street parking rates were more expensive in the high demand areas and less expensive a block or two away, some people would opt to pay more, while others would choose to save money by parking farther away and walking a block or two. Shoup suggests that Cities should raise and lower rates on a block by block basis based on the occupancy to reach a "sweet spot" whereby rates are "not too high, not too low, but just right" resulting in maximum on-street occupancy levels.

[3] *The High Cost of Free Parking by Donald Shoup, 2005*

Demand-based pricing is beneficial when and if the parking demand exceeds the available parking supply, causing motorists to spend more time cruising to find an open on-street parking space. This can cause frustration, create traffic congestion, and release air polluting gas emissions. Reducing cruising for parking addresses the commitment to environmental sustainability.

MMS and SSM devices enable a City to implement demand-based pricing. Not only can the meters handle complex rate structures and rate changes, but they also help provide the baseline data needed to determine which blocks are candidates for rate increases, and which blocks are candidates for reduced rates. The system software provides reports showing transaction details such as when motorists paid, where they paid and how much time they purchased, and the effectiveness of the pricing. We note that meter reports cannot identify when cars come and go or the duration of stay. Payment data is typically consistent with motorists' parking habits, but does not account for unpaid or overtime parking, and does not track the actual duration of stay. Other technologies, such as vehicle sensors and/or license plate recognition systems that can track actual vehicle activity rather than payment data, are discussed later in our report.

DEMAND BASED PRICING

The Utility has already implemented a form of demand-based pricing on-street, having created "high occupancy zones" within Area 6 (refer to Figure 6) where $1.00 per hour meter rates are enforced, compared to $.60 per hour in the Downtown areas, and $.50 per hour in the garages.

Based upon our review, meters located within some Downtown areas also experience high occupancy regularly. Given this fact, we recommend that the Utility conduct on-street occupancy counts every six months to determine occupancy levels on individual streets within the Downtown areas to determine whether these areas should also be considered for demand-pricing like the pricing in Area 6. If blocks exist within some Downtown areas that consistently exhibit occupancy above 85% to 90%, consideration should be given to increasing the on-street rates in these areas. Likewise, if occupancy is consistently below 60% in some Downtown areas, the on-street rates should remain unchanged; to attract parkers unwilling to pay the fee charged in the higher occupancy areas of Downtown. It is important to continue offering a lower-cost alternative if fees are increased so that no one is priced out of coming Downtown.

ENHANCED AUDIT CONTROLS

Conventional SSM systems have minimal audit control, and the collection staff never knows how much money is inside an SSM until the device is collected. If for some reason meter collection is delayed, or an area experiences unusually higher occupancy and the SSM devices are not collected, vaults can become full and therefore rendered inoperable because the device can no longer accept payment; resulting in lost revenue. Furthermore, when a vault fills, the coin slot to the vault closes, but the coin slot to the meter remains open. Under these conditions, coins can still be inserted into the device, but they land on top of (or on the side of) the vault. The collector needs to pick these individual coins up by hand, and if any coins are left, dropped, misplaced, lost, forgotten, or taken, this can also result in lost revenue.

Table 22: Survey of the University of Missouri – Parking Fees

University of Missouri - 2018/2019 Parking Rates			
Student Parking - Fall/Spring Permits		*Student Parking - Summer Permits*	
Structure	$168.00	Surface Lot	$54.00
Surfact Lot	$144.00	Structure	$63.00
Top Floor/Structure	$144.00		
Motorcycle	$100.00		
Visitor Parking		*Employee*	
Single Day Permit	$5.00	Assigned	$18.00 -$31.00/month
Meters (1-hour minimum)	$1.00/hour		
Football Gameday			
Most Garages			Free
Parking Structure #7			$30.00
RV Parking			$200.00

Source: Walker Consultants

PARKING PERMITS

Based upon our understanding of the Utility operation, a City employee (percentage of annual salary allocated and paid by the Utility) currently maintains a waiting list for monthly, quarterly and annual permits that exceeds 700± people (Table 9 on page 16), and the waiting list is updated periodically when space becomes available in a desired garage or lot.

Whether there are 700± people waiting to obtain a permit, or whether the waiting-list is comprised of people that simply desire to obtain a permit to park in one of the more desired facilities such as the 10th and Cherry garage, 8th and Cherry garage or the Short Street garage where the waiting lists exceed 130± people at each location, is unknown.

Industry standard best practices regarding supply/demand economics in parking suggest that if a waiting-list exists, the permit parking fees are set too low; moreover, best practices dictate that a waiting-list for permit parking should not exist if ample parking supply is present within the assets that comprise Utility.

Over 150± of the permits currently sold are for reserved parking. This management policy effectively takes the parking supply designated for reserved parking out of the available parking inventory during all operating hours; a practice that is not representative of industry standard best practices used in parking management. Finally, based upon our review, 11.06% of the annual permit revenue generated from the garages and lots in FY 2018 was derived from reserved permit parking sales.

On the Survey day, total occupancy in the garages ranged from a low of 41.5% in the Short Street garage to a high of 70.8% at the 6th and Cherry garage. Moreover, the occupancy levels observed in spaces designated for non-reserved permit parking ranged from a low of 41% in the Short Street garage to a high of 70% in the 8th and Walnut garage, while occupancy in spaces designated for reserved parking ranged from a low of 21% at Short Street to a high of 58% at 5th and Walnut. Based on our assessment of occupancy levels on the Survey Day, the concept of maintaining a waiting list for permits is not justified.

Unlike SSM devices, smart meters equipped with computer software track every payment made by date and time, logging how much time was purchased, and how it was paid for (coins by denominations, credit card types, etc.). This advanced technology allows the meter auditor to better track revenue and determine whether any monies are unaccounted for after the collection process is completed. Additionally, Utility staff can see how much money is in a meter vault at any time by simply logging into the password protected meter software remotely.

MAINTENANCE

Smart meters are constructed with self-diagnostic software that enables them to 'report' maintenance issues via wireless communication. If implemented, this feature will enable Utility staff to respond immediately when maintenance issues arise. Conversely, conventional SSM like those in place throughout the City can be out of service for days before the collector or enforcement personnel notices the problem and rectifies the situation.

MULTI-SPACE VS. SINGLE SPACE TECHNOLOGY

New technology does not come without a price, but if one meter can cover multiple spaces, the cost of upgrading on-street meter technology within the City may be affordable. The development of multi-space meter (MSM) devices has enhanced metered parking and currently represents a viable option for controlling revenue generated from multiple on-street spaces with far fewer devices than a system that requires one meter for each on-street parking space. Moreover, MSM devices can typically manage eight to fifteen spaces.

Each MSM device is equipped with graphical and LED displays that are used 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 and/or a keypad. MSM devices contain computer software that allows end-users to implement variable rate structures, as well as strong audit and enforcement trails.

Typical installations are networked, allowing transaction and revenue data to be consolidated to a central server and viewed remotely; a practice that allows the Utility to remotely generate reports and other useful data necessary to manage their parking assets. Depending on the specific application and manufacturer, most MSM devices can be configured for use in one of three modes of operation: 1) Pay and Display, 2) Pay-by-Space, or 3) Pay-by-Plate. Most manufacturers make one device that is capable of being programmed for all three payment modes by simply changing the user interface (face plate) and system software (rather than replacing the device).

PAY BY PLATE

As discussed in Walker's Baseline Review, historically, an increasing amount of the on-street meter revenue is now processed through the ParkMobile application, and this technology and payment methodology has been well accepted by the public. Furthermore, the Utility currently services and collects coins from over 1,900 on-street SSM devices. When the current methodology is evaluated from a labor perspective, it represents a painstaking redundant task that risks injury to the staff and possible worker's compensation liabilities, as well as relegating the end-users to carry a pocket full of coins.

Pay by Plate mode does not require the end-user to remember their parking space number or return to their vehicle with a receipt. Instead, the patron simply enters the vehicle's license plate number and selects the desired amount of parking time. No receipt is required for enforcement, but a receipt can be printed by the customer for proof of transaction. Pay-by-Plate can also allow the user to relocate their vehicle to another spot within the City without having to pay again; provided time remained on the original purchase, and the customer is not in violation of any posted time restrictions. Metered parking spaces do not need to be identified (striped), a practice that has proven to allow more cars to park on each block, depending on the size of the cars parked at different times and length of uninterrupted spaces. Finally, another key component to pay-by-license plate is the fact that enforcement can be facilitated using a vehicle-mounted license plate recognition (LPR) system that scans the license plates of all parked cars, or with hand held units that either scan or require staff to manually entering license plate numbers.

MOBILE LICENSE PLATE RECOGNITION

Mobile LPR technology has made the enforcement of Pay by Plate and license plate permit parking remarkably efficient and cost-effective. The technology entails the use of vehicle-mounted cameras that read and record license plate numbers as an enforcement vehicle is driven throughout the on-street system. The cameras use a series of algorithms to convert the photographic image of license plates into text data that is compared with lists or databases of paid or permitted license plates obtained from the MSM devices, to determine whether a vehicle has the right to park in real-time.

The LPR software can integrate multi-space meter software, pay-by-cell software (ParkMobile), permit software, and other databases such as law enforcement agencies to not only identify paid and unpaid parkers, but also stolen or otherwise significant license plates. When the LPR camera reads a plate that is not recorded as registered or paid or has been otherwise identified as searchable, an audible alarm sounds to alert the enforcement staff, who can then take appropriate action. Mobile LPR can also be used to enforce time restricted parking, as the software time-stamps every image, and the software can be programmed to identify license plates that are captured beyond the time limits of that particular zone.

Another benefit of LPR enforcement is the ability to use license plates as employee permits, residential, business, or monthly permits. This not only eliminates the need for paper, hang tag, or decal permits since all drivers are required to have a valid license plate, it also adds efficiency to the enforcement process.

If LPR is used to enforce permit parking at the off-street lots, license plate registration can typically be completed through an on-line process whereby permit holders enter their license plate and other required data, which can save significant time now spent by a Utility staff member. License plate numbers are a regulated credential that affords a higher level of integrity and less opportunity for the misuse or fraud sometimes associated with counterfeit permits or real permits or hang-tags being given, loaned or sold to unauthorized users. The permit software allows individuals to register more than one vehicle (for owners with multiple cars), while enforcement can restrict usage to one or more vehicle at a time. Permit parking can also be restricted to days of the week, timeframes and even locations; moreover, an LPR system also includes GPS monitoring to enable it to identify and segregate designated parking zones within a City system.

At a driving speed of just 15 MPH mobile, LPR is approximately seven times more efficient than foot-patrol, as the average foot patrol speed is approximately two MPH. This means that one vehicle can cover the same territory as five to seven enforcement officers on foot-patrol. Another benefit of mobile LPR enforcement is the ability to post-process parking citations. Rather than placing citations on vehicle windshields, system software integrates with state motor vehicle registries to ascertain mailing addresses associated with vehicle license plates, and citations are sent via U.S. mail. The ability to mail citations rather than place them on vehicles is remarkably efficient, as the enforcement officer doesn't need to stop or get out of the enforcement vehicle, which is safer for staff and the public, as it reduces the possibility of a negative exchange or altercation resulting from the issuance of the citation.

Mobile LPR technology is not perfect, as accuracy can vary (75%-95% accuracy) due to several factors and variables. However, the five to seven times efficiency in coverage afforded with LPR would enable the Utility to increase effectiveness, even at a lower accuracy rate.

Figure 9: Photos of Mobile LPR Enforcement Cameras and Software

Source: Walker Consultants

Walker's opinion of probable cost for one LPR vehicle-mounted system is $35,000 - $45,000, plus the cost of the vehicle. LPR systems can be deployed on most regular passenger vehicles, and pick-up trucks and even specialized golf cart sized enforcement vehicles. In addition to the initial cost, there are on-going fees for cloud-based services, software updates, and database support.

A second option to LPR is to use handheld electronic devices to manually scan each plate and allow the user to verify the plate number. In some cases, the handheld devices can be augmented by using a smart phone as the enforcement device. While not as rugged or efficient as the actual handheld device, smart phones can be a lower priced option to increase the number of units available for enforcement purposes. Handheld systems typically cost about $5,000 per unit, plus an on-going fee for cloud-based services and software updates. Leasing this type of system may be an option that could reduce the initial investment. Lease costs are typically based on the number of units in purchased by the end-user.

Given Walker's positive opinion on MSM devices with pay-by plate technology, accompanied with LPR technology, we recommend that the Utility consider implementing MSM with Pay-by-Plate technology enforced with LPR technology throughout the Utility system.

PAYMENT OPTIONS

As on-street rates increase, payment with coins becomes impractical and/or inconvenient. Most meter manufacturers offer the following payment options for MSM devices.

- Coins and tokens**:** All the meters described accept standard coins for payment and with most a token program can be added as a validation incentive from merchants to encourage repeat business. Some municipalities offer merchants the opportunity to purchase parking tokens at a discount for merchants to provide their customers to park free of charge as an incentive to generated repeat business.
- Bank Notes**:** Adding payment by banknote capabilities allows patrons to pay with paper currency in addition to coins, and most MSM manufacturers offer this as an added feature. Additional equipment (bank note acceptor, bank note vault, etc.) is required, as well as additional instructions for the end-user, MSM cannot provide change (e.g. a patron that remits payment with a $5.00 bill for a $3.00 parking fee will not receive any change). Moreover, in a damp environment bills can jam on a regular basis. The best manufacturers tout a 98% acceptance rate overall, meaning 2% of the time bills may jam (even in dry weather). While bills are easily removed by maintenance staff, it does require a trip to the device to rectify the bill jam, and the bank note acceptor is typically the most expensive meter parts to replace.
- Credit Cards**:** Paying for parking via credit card has increased in popularity as cities increase the cost to park on-street and install more credit card-enabled meters. Credit card acceptance is an essential component to meter installations where rates exceed $1.00, as most people don't carry enough quarters to feed a meter for the length of time they desire to park.
- Smart Cards**:** Smart cards allow for the payment of parking through a pre-paid stored value memory card with an embedded microchip, comparable to a credit card (like the EZ Park card used by the Utility). The card is pre-loaded with a dollar value, and when inserted into the MSM device, the parking fee is deducted from the card. Most cards can be replenished either at the meter, at a re-loading station or via the internet. In many cities, the smart cards can be used for multiple purchases, most commonly for parking and transit.
- Cell Phone Payments**:** Technological improvements in the cell phone industry have extended to the parking industry; however, Pay by Cell (PBC) or in the case of the Utility ParkMobile bypasses the meter completely using the following steps:
    - The cell-by-phone vendor sets up an account with the Utility, identifying all parking spaces and/or zones;
    - Potential end-users register their cellphones and provide credit card payment information for the pay-by-cell vendor via their cell phone;
    - Upon parking, the end-user calls the pay-by-cell vendor's automated payment line and enters the appropriate location codes for the Utility, zone, meter number, space number, or their license plate number, and their desired parking time;
    - The pay-by-cell vendor may charge a convenience fee, typically ($.25 to $.35 cents per transaction);
    - Enforcement is done by the enforcement officer who views a web-based portal report of paid transactions provided by the pay-by-cell vendor; and

- The pay-by-cell vendor deposits the parking fees into a pre-established bank account designated by the Utility; keeping the convenience fees.
- Benefits and features of Pay by Cell afforded to customers include the following:
  - No need to worry about coin availability;
  - After registering your phone, license plate and credit card information once, the information is stored for fast and efficient use in the future; including in other municipalities that use the same vendor;
  - Receive a text message when parking time is about to expire;
  - Extend parking remotely (within the maximum time limit);
  - Pay for time parked only (in selected locations) by stopping a parking session manually via the cell phone;
  - Simple and user-friendly option; and
  - View/maintain parking transactions and receipts online.
- Benefits and features of pay-by-cell to the Utility include the following:
  - Can be implemented quickly, for minimal cost and with minimal infrastructure;
  - Lower operating costs due to reduced cash handling;
  - Provide real-time statistical data;
  - Enhanced convenience, which leads to greater customer/voter satisfaction;
  - Supports green initiatives and flexible rate models; and
  - Promotes the image of innovative modern City and/or Utility.

Pay-by-cell can add a layer of enforcement when used in conjunction with MSM devices, as the enforcement officer needs to view a web-based report of paid vehicles in addition to checking the meter reports; however, most meter vendors can integrate their software systems to enable the Utility to view combined payment data on one single report.

PROBABLE COST ESTIMATE TO PROCURE MULTI-SPACE METERS

The cost to procure and install MSM devices can vary greatly depending on the number of options added to each device. Walker's opinion of probable cost ranges from $8,500 to $11,000 for Pay by Plate, including installation on an existing sidewalk. Furthermore, adding a banknote acceptor can add $1,500 to $2,000 per device; prices will vary based on volume, features, and manufacturer, and prices can also fluctuate based on the competitive environment in which the MSM are procured.

In addition to equipment costs, monthly connectivity fees of $45.00 to $65.00 per unit are required to maintain real-time wireless connectivity and to host the data. Maintenance costs of about $20 to $30 per month per device include battery replacement and paper receipts, and the above fees exclude the cost of credit card merchant fees. The following lists summarize some advantages and disadvantages attributed to the use of MSM devices.

ADVANTAGES

- Increase annual revenue (10% to 30%) without increasing parking rates; due to improved compliance, higher operability, alternative forms of payment, no piggy-backing, and parkers purchasing the maximum time when paying via credit card;
- Flexibility and user convenience attributed to multiple forms of payment including credit cards, smart cards, coin, and banknotes;
- Fewer devices in the field, which requires fewer collections and less coin processing;
- Variable fee structure capabilities that encourage turnover and discourage long-term parkers;
- Flat rate fees can be set for special event periods;
- Strong audit trail since every transaction is tracked and reported and a full range of revenue and statistical reports are available;
- MSM devices communicate to a central server and can notify maintenance when coin vaults are full or if a device is out-of-service;
- In Pay by Plate mode stall marking is not required; therefore, additional cars can fit on-street;
- Fewer devices in the field, resulting in less maintenance and fewer spare parts.

DISADVANTAGES

- Higher initial investment when compared to SSM devices;
- Pay-by-Plate devices require the patron to enter a plate number at the meter, and input errors or faulty memory can result in user frustration or fines;
- Requires additional customer education and supplemental signage;
- A marketing campaign is most likely needed to promote, educate, and encourage acceptance of a new payment technology;
- On-going monthly costs for online access, receipt paper, and processing credit card payments;
- Procedures associated with reserving on-street spaces are less convenient, as there are no SSM devices at every space for bagging.

BENCHMARKING

To assess the current pricing structure at Utility locations both on and off street, we completed a survey of several cities with similar demographic characteristics to Columbia. These cities include Rochester, Minnesota, population of over 215,000 and home to the world-renown Mayo Clinic, Lincoln, Nebraska with a population of over 285,000 and home to the University of Nebraska, Annapolis, Maryland, population over 38,000 and home to the United States Naval Academy, Ann Arbor, Michigan, a city with almost 114,000 people and home to the University of Michigan, Bloomington, Indiana, population over 84,000 and home to Indiana University and Iowa City, Iowa, population over 75,000 and home to the University of Iowa. All the cities surveyed except for Rochester serve major universities, and each city contains a diverse population like Columbia.

For each city, we surveyed both the on-street meter rates and the rates charged for daily and monthly parking. Furthermore, we surveyed the University of Missouri campus, which resides in Columbia to ascertain the rates charged for permit and visitor parking locally. The following Tables depict the fees charged to park on a daily and monthly basis as well as the cost of metered on-street parking at the comparable cities surveyed in comparison to the rates charged by the Utility.

Table 19: Survey of Comparable Cities – Off-Street (Hourly or Daily)

Rate Survey - Summary of Other Comparable City Garages - Off Street				
Hourly or Daily Transient Rate Survey				
City	**1 Hour**	**3 Hours**	**8 Hours**	**Daily Maximum**
Rochester, MN [1]	$3.00	$4.00	$14.00	$16.00
Lincoln, NE [1]	$0.00	$2.50	$8.75	$11.25
Annapolis, MD [1]	$2.00	$8.00	$20.00	$20.00
Ann Arbor, MI [1]	$1.20	$3.60	$9.60	$35.80
Bloomington, IN [2]	$1.00	$3.00	$8.00	$13.00
Iowa City, IA [2]	Free	$2.00	$7.00	$23.00
Columbia, MO	$0.50	$2.00	$4.50	$5.00

Notes:

(1) City parking system managed by a third-party Operator.

(2) City parking system is self-managed by City staff members.

Table 20: Survey of Comparable Cities – Off-Street (Monthly)

Monthly Permit Rate Survey of Comparable Cities				
	Regular	Reserved	Lots	Lots
Rochester, MN [1]	$125.00	$190.00	$110.00	$115.00
Lincoln, NE [1]	$75.00	$90.00	$60.00	
Annapolis, MD [1]	$110.00	$250.00	$160.00	
Ann Arbor, MI [1]	$170.00	$240.00	$130.00	$105.00
Bloomington, IN [2]	$98.00	$113.00	$98.00	$113.00
Iowa City, IA [2]	$85.00		N/A	N/A
Columbia, MO	$80.00 to $100.00	$120.00 to $140.00	$75.00	

Notes:

(1) City parking system managed by a third-party Operator.

(2) City parking system is self-managed by City staff members.

Table 21: Survey of Comparable Cities – On-Street (Meter Rates)

On-Street Metered Parking Rate Survey					
City	Mobile App	1 hour	2 hours	3 hours	Time Limits
Rochester, MN	ParkMobile	$1.00	$1.40	$1.20	As Posted
Lincoln, NE	Park & Go	$1.25	$2.50	$3.75	As Posted
Annapolis, MD	ParkMobile	$2.00	$4.00	N/A	2-hour max
Ann Arbor, MI	ePark	$1.80	$3.60	$5.40	As Posted
Bloomington, IN	ParkMobile	$1.00	$2.00	$3.00	As Posted
Iowa City, IA	Passport	$1.20	$2.40	$3.60	As Posted
Columbia, MO	***ParkMobile***	***$ .60 to $1.00***	***$1.20 to $2.00***	***$2.40 to $3.00***	***As Posted***