Preliminary Assessment of the City's On-Street Parking Meters

Report #2018-03|April 2018

Multiple Factors Impacted the Number of Dismissed Citations Over the Last Three Years

Data Quality Could Be Improved to Better Identify Trends and Perform Analysis

Further Investigation is Needed to Evaluate the Cause and Effect of an Increase in "Meter Broken" Complaints to 311 During Winter Months

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Parking meter citations are dismissed for a variety of reasons. It is evident from the data that implementing new technology comes with a learning curve, for both the City's Parking Division and the Public. The figure below shows some of the most common reasons listed by Hearing Officers for dismissing citations over the last three years.
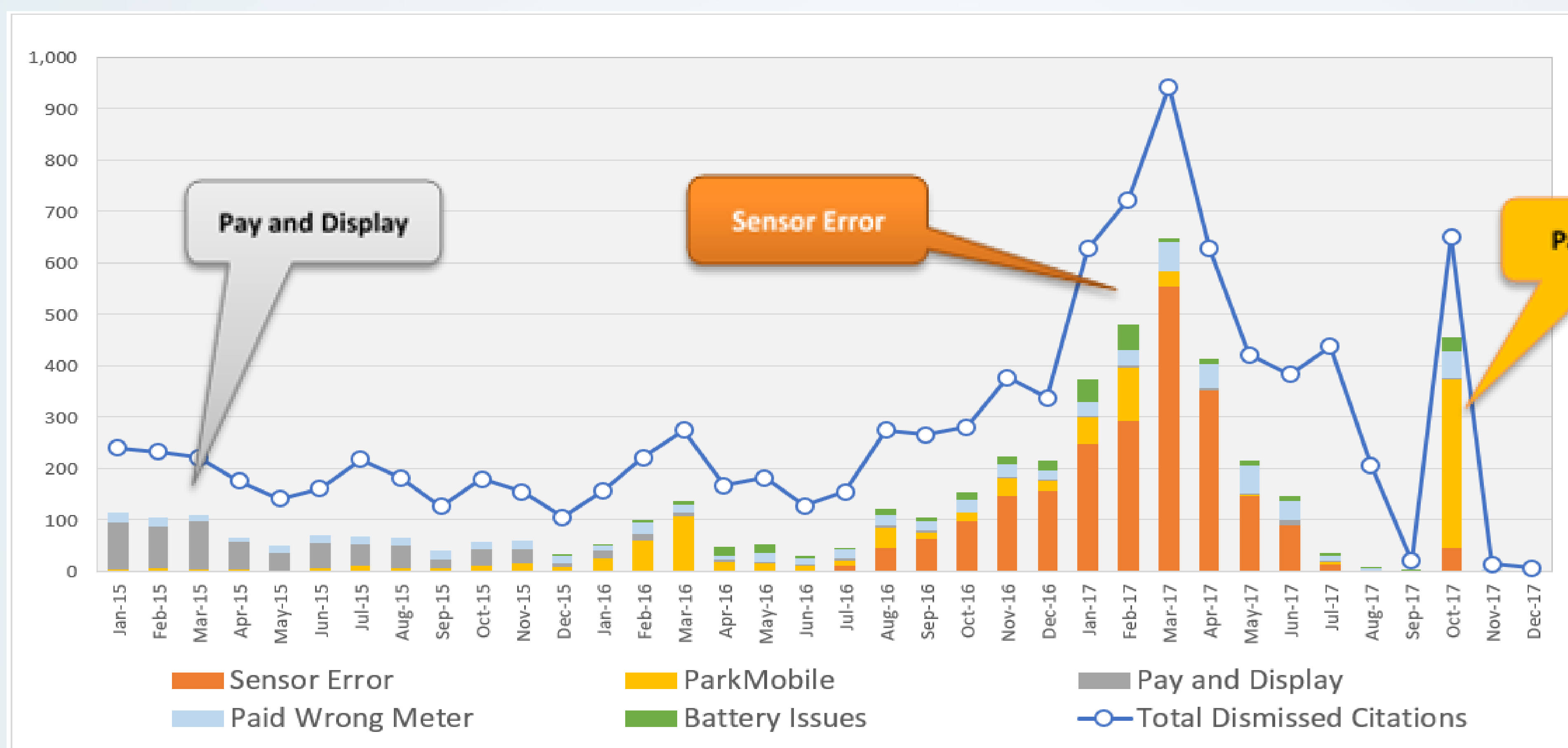
Finding 2: Data Quality Could Be Improved to Better Identify Trends and Perform Analysis

Contested citation data was inconsistent and contained gaps.

Contested citation processing is about six months behind.

Finding 3: Further Investigation is Needed to Research "Meter Broken" Calls to 311
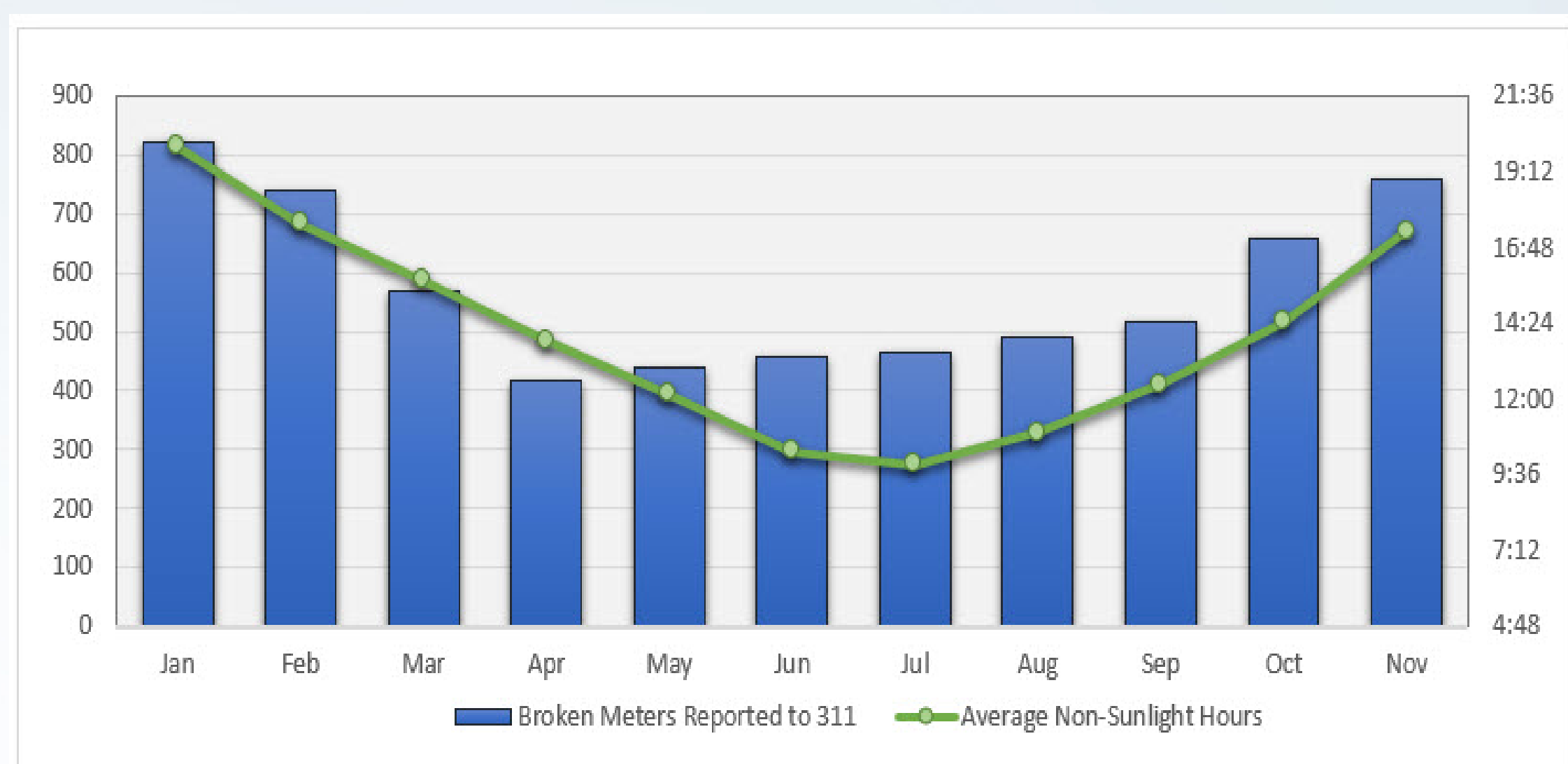
The Auditor's Office will continue to research the issues identified in this preliminary report during the Audit of On-Street Parking and will provide recommendations when the audit is complete.

Introduction

In accordance with Council's request, we have completed an *Assessment of the City's On-Street Parking Meters*. We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The City Auditor's Office would like to thank the Parking Services Division for their cooperation during the review process.

Background

The City's Parking Modernization Program

The City's parking modernization efforts began in mid-2012 and included plans to upgrade the City's single-space parking meters to new "smart" meters that accept credit card payments, are solar-powered, have pay-by-phone/texting capabilities, and can be equipped with vehicle-detecting sensors.

While not all of the objectives of the parking-modernization program have been fully realized, some of the goals specifically related to on-street parking include:

- ➢ Acquisition and deployment of new technology, including new parking meters with occupancy sensors and electronic locks, license plate recognition vehicles for enforcement, a "smart collections" system that eliminates counting and sorting of coins, and new citation and enforcement software.
- ➢ Launch of a mobile payment app to allow customers to initiate or extend parking sessions at select on-street and off-street locations.
- ➢ Extension of on-street enforcement hours in metered zones to allow greater control over on-street parking during evening events and to maintain sufficient short-term parking for merchants and restaurants until later in the evening.
- ➢ Extension of on-street restricted hours in residential parking permit zones to ensure residents will still be able to find parking near their homes even while events are in progress.
- ➢ Tiered parking prices that allow short-term parkers to pay a reasonable price for use of an on-street space, but allow people needing more time to continue their session at a higher rate, effectively eliminating on-street time limits in many areas.

IPS Group, Inc

In October 2013, the City's Parking Division entered into an agreement with IPS Group, Inc. (IPS) to install the new smart meters and to supply a software management system to assist with monitoring the new meters. The contract also included an option for IPS to obtain a mobile payment solution (mobile app) that would integrate with the new smart meters. IPS began installing the single-space smart meters in 2014.

On-Street Parking Meter Payment Options

IPS has since installed over 4,500 on-street "smart" parking meters in the City. In contrast to the old meters, many of the new "smart" meters accept multiple payment options including coins, credit card, and ParkMobile.

ParkMobile is a mobile phone app operated by third-party vendor ParkMobile, LLC. Consumers can use the mobile phone app to pay for parking sessions at select parking meters and lots within the City of Sacramento. ParkMobile generally charges a $0.35 per use transaction fee for meter payments initiated through the app. Parking meters that accept payments via the ParkMobile app have a green decal with a ParkMobile zone number affixed to the front. An example of a smart meter that accepts ParkMobile payments is shown in Figure 1.

Figure 1: Photo of a Smart Meter that Accepts ParkMobile Payments

Source: Photo taken by auditor.

On-Street Parking Meter Transactions

The number of on-street single-space smart meter transactions has increased from just over 4.3 million transactions in calendar year 2015 to over 5 million in calendar year 2017. Figure 2 shows the number of smart meter transactions per month and the linear trendline associated with the steady growth in the number of parking meter transactions over the last three years. November and December months do show a measurable decline in the number of transactions, likely due in part to the free holiday parking offered during this time of the year.

Figure 2: Number of Single-Space Smart Meter Transactions per Month
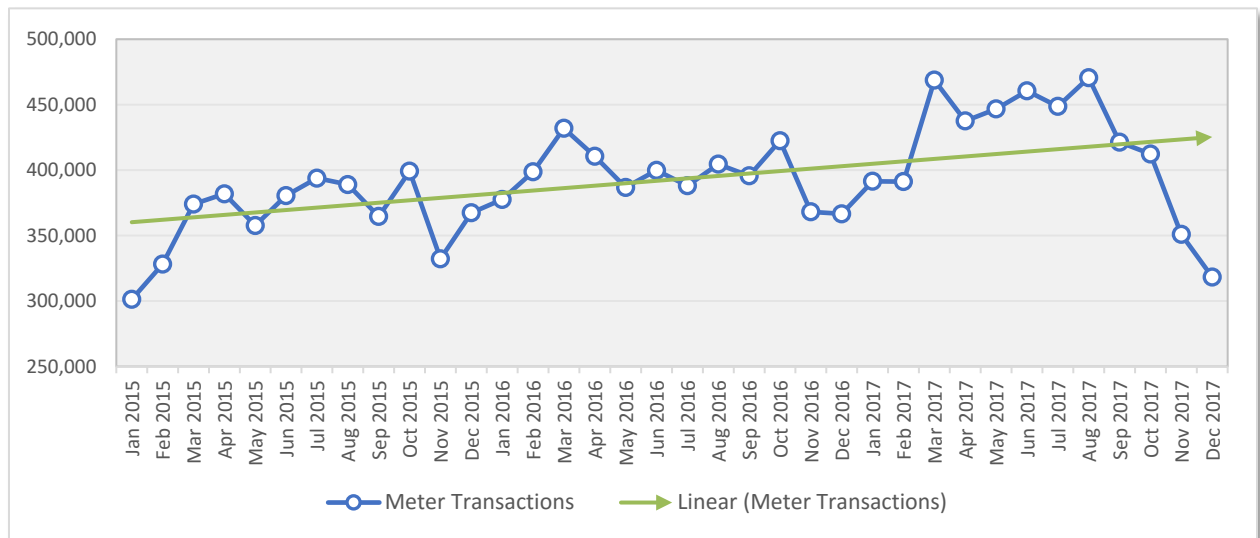
Source: IPS Meter Systems records.

## Citation and Adjudication Processes

Parking citations are issued by enforcement officers when they encounter a vehicle that does not appear to be in compliance with the City Code, such as a vehicle parked at an expired parking meter. However, City Code also allows for citations to be disputed (contested) when a driver believes they have been issued a citation in error. The process for contesting a citation is either completed online, by mail, or in-person, and provides an opportunity to explain why the driver believes the citation should be dismissed. A hearing officer then weighs the evidence provided and makes a determination on whether to uphold or dismiss the citation. Figure 3 shows the percentage of citations issued compared to the total number of single-space meter transactions.

Figure 3: Percentage of Citations Issued Compared to the Number of Single-Space Smart Meter Transactions
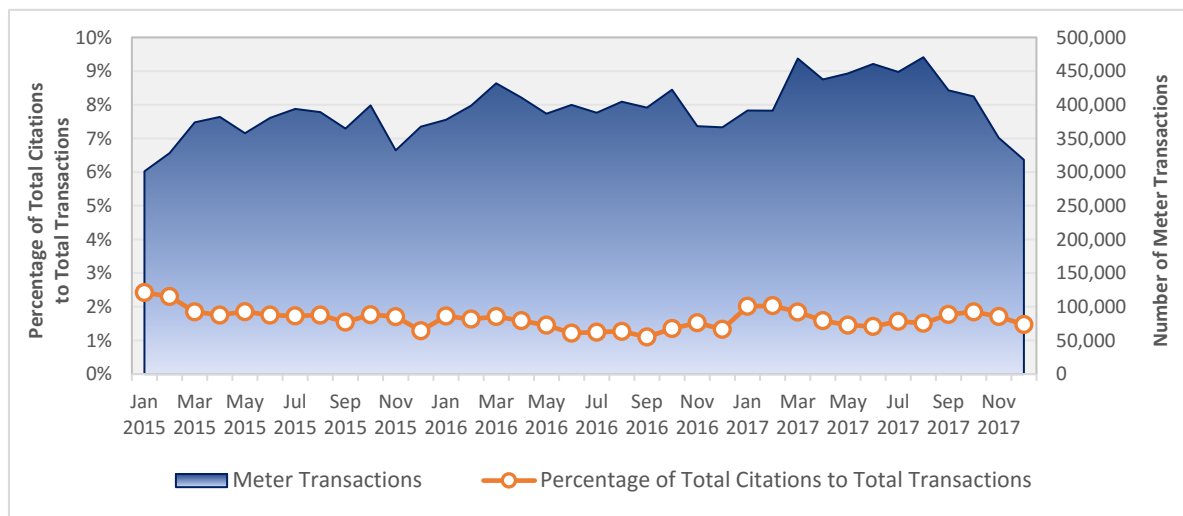
Source: IPS Meter Systems records and AutoProcess citation records.

As shown in Figure 3, the number of citations issued has not exceeded three percent of total meter transactions over the last three calendar years.

Allegations of Erroneous Citations

In November 2017, the City's Parking Division expedited and dismissed over 300 citations they determined were likely issued in error between October 10 and October 30, 2017. According to the Parking Services Division, the erroneous citations were primarily due to a T-Mobile service outage that prevented the parking meters from receiving the wireless payment signal. The parking meters affected by this issue did not receive the payment signals and the indicator lights did not turn green, resulting in enforcement officers issuing citations to vehicles parked at meters that appeared to be expired.

Shortly thereafter, the Sacramento Business Journal and the Sacramento Bee reported that the City was issuing erroneous parking citations. These articles alleged erroneous citations were the result of payments made through the ParkMobile app that failed to properly sync with the parking meters.

During a Council meeting on November 14, 2017, Councilmember Hansen requested that the Office of the City Auditor conduct an independent review of parking meters and citations to determine if there are systemic issues present that may be contributing to erroneous parking meter citations.

Objective, Scope, and Methodology

The objective of the *Preliminary Assessment of the City's On-Street Parking Meters* was to independently evaluate the on-street parking meter citations to determine possible causes of erroneous citations and to identify areas for improvement. The scope of our review included on-street parking meter transactions, citations data, and ParkMobile transactions between January 1, 2015 and December 31, 2017. We also reviewed 311 Call Center parking-related data for the period of December 1, 2016 through December 4, 2017. In performing our independent assessment, we reviewed policies, interviewed staff, researched industry best practices, contacted third-party vendors, and analyzed meter payment transactions and citation data.

Our analysis of the reasons for citation dismissal was limited due to the nondescript nature and inconsistent use of data fields by hearing officers when recording why citations were dismissed. If the reason for dismissal is not obvious based on the pre-populated field options, hearing officers may manually enter notes to provide an explanation for either upholding or dismissing a citation. While this "notes" field is a less precise way of analyzing the data, as it is not easily aggregated due to its manual nature, we relied on this data for some of our analysis as it was the best information available. This issue is explained further in Finding 2.

In an effort to be timely and responsive to Council's request, this is a preliminary assessment of the parking meter and citation data. Based on the information we have reviewed to date, we believe there are additional improvements that can be made in the On-Street Parking Division that require further analysis. As a result, the Office of the City Auditor has added an *Audit of the City's On-Street Parking* to its Fiscal Year 2018-19 Audit Plan.

Finding 1: Multiple Factors Impacted the Number of Dismissed Citations Over the Last Three Years

Hundreds of thousands of parking meter transactions are made in Sacramento each month. While it is expected that some errors will occur in such a high transaction environment, it is the responsibility of the Parking Division to work towards a positive customer experience for the public, which includes minimizing the frequency of citation errors. Based on our analysis of the parking meter and citation data we did not find evidence that the Parking Division was intentionally issuing erroneous citations. We found that changes in meter technology and parking hours contributed to an increase in parking citations, that citations were dismissed for a variety of reasons, and that the Parking Division responded to issues as they became aware of them.

Other cities that have implemented these changes have experienced a similar learning curve in their deployment of new parking meter technology. As the City's Parking Division continues to work towards completing the goals outlined in the Parking Modernization Program, additional unanticipated issues may arise that will require further corrective action.

On-Street Parking Meter Citations

Based on the data in the City's parking citation system, just over 230,000 on-street parking citations for expired meters were issued between January 1, 2015 and December 31, 2017. Figure 4 shows the number of on-street parking meter citations issued in calendar years 2015, 2016, and 2017.

Figure 4: On-Street Parking Meter Citations by Calendar Year

Year	Number of On-Street Parking Meter Citations		
2015	78,448		13%
2016	67,896		
2017	84,320		24%
Grand Total	230,664		

Source: AutoProcess citation records.

While there was a 13 percent decrease in the number of citations issued between calendar year 2015 and 2016, there was a 24 percent increase from calendar year 2016 to 2017. Figure 5 shows the number of parking meter citations issued per month. The figure also shows the timeline of some significant on-street parking changes that occurred during this time, along with the opening of the Golden1 Center.

Figure 5: On-Street Parking Meter Citations by Month and Timeline of Events
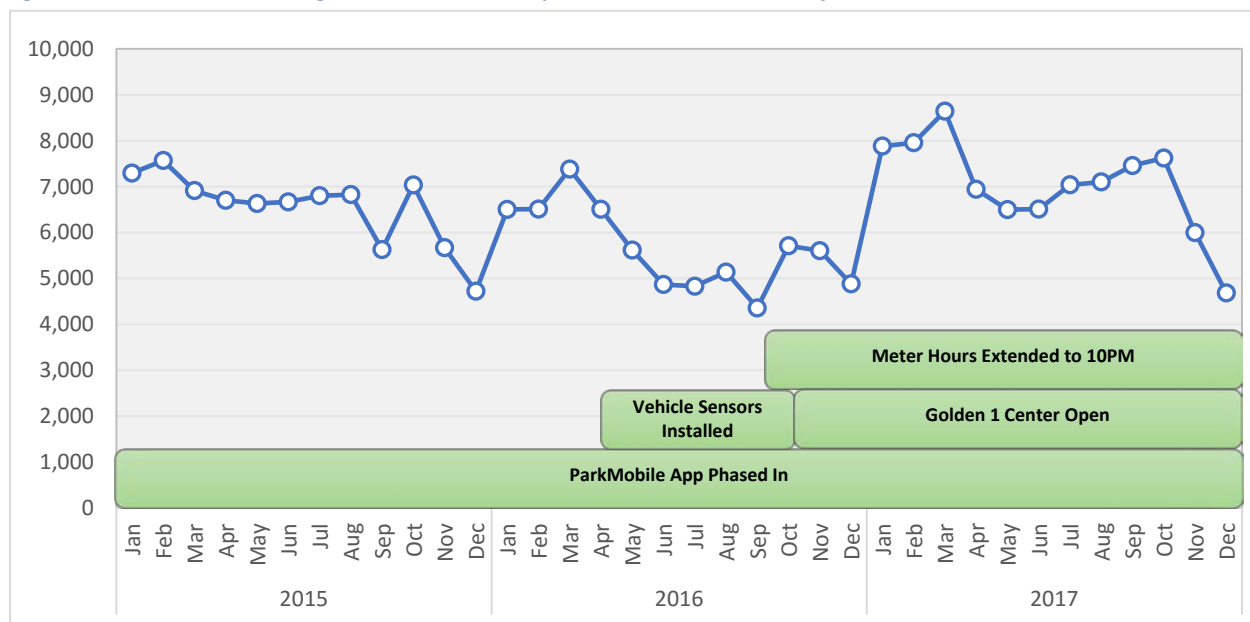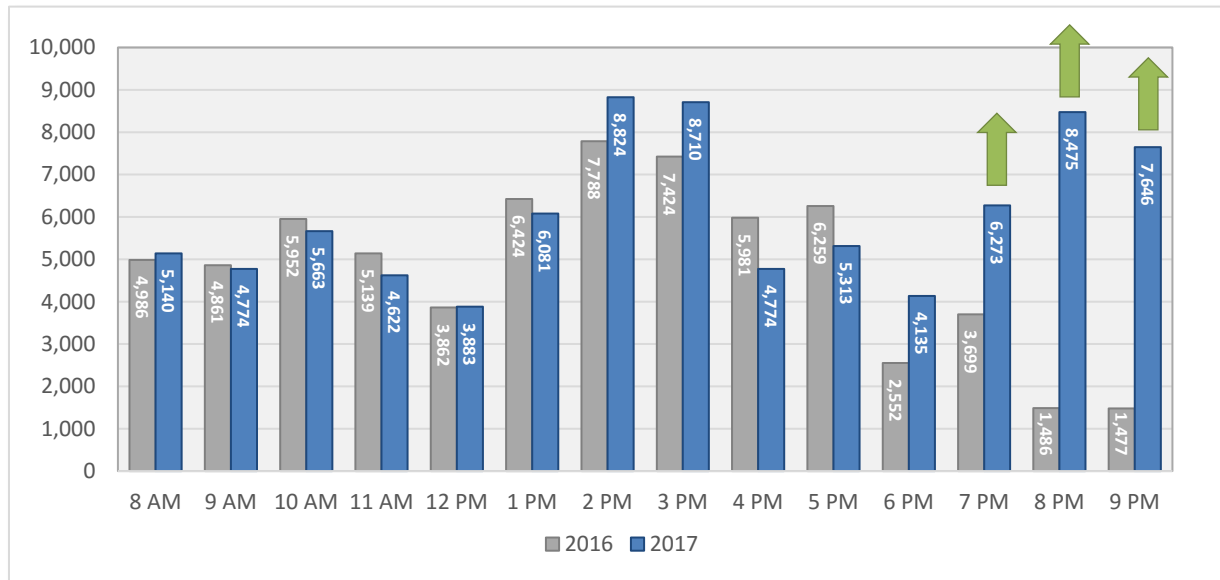

Source: AutoProcess citation records and Parking Division communications.

Some of the variation in the number of citations issued per month can be attributed to seasonal changes, such as declines in the November and December months due to the free holiday parking offered during this time of the year. However, other variations are more nuanced and are likely influenced by multiple contributing factors. In September 2016, the City extended meter hours from 6:00 pm to 10:00 pm in the Downtown area and from 6:00 pm to 8:00 pm in parts of the Midtown area. Informational notices and warning tickets, as opposed to citations, were issued for the first 60 days in an effort to inform motorists of the later hours. The change in meter hours coincided with the opening of the Golden 1 Center, which was also expected to influence parking patterns in the downtown area during evening events. The City also installed vehicle-detection sensors on some of the meters in the second half of 2016 that detect when a vehicle has left a parking space and, to support tier-based pricing, resets the paid time to zero. Any or all of these changes could very likely lead to an increase in citations as the Parking Division and the Public become accustomed to the new technology, adjusted parking patterns, and extended meter hours.

Figure 6 shows the number of on-street parking meter citations issued by hour of day for calendar years 2016 and 2017. The general increase in the number of citations issued between the hours of 2:00 pm and 3:00 pm is consistent from calendar year 2016 to 2017, and likely due to more parking enforcement officers being on duty during the overlap that occurs between shift changes. However, the significant rise in the number of citations issued after 6:00 pm appears to be primarily due to the extended meter hours in the Downtown and Midtown areas that began in late 2016, as most of the increase in the number of citations from calendar year 2016 to 2017 can be attributed to parking citations that were issued after 6:00 pm.

*Figure 6: On-Street Meter Citations by Hour of Day*

Source: AutoProcess citation records.

The difference in the number of citations issued after 6:00 pm appears to result from a change in parking rules or parking habits, rather than a systemic technological issue which would be more likely to present itself at all hours of the day.

Enforcement Staffing Levels

In our effort to pinpoint potential causes of fluctuations in the number of citations issued, and to identify trends, we compared the number of parking enforcement officers on staff to the number of citations issued over the last three calendar years. In order to get a more precise count of the number of regularly-staffed officers, we excluded enforcement officers that issued less than five citations in a given month. Figure 7 shows the number of citations issued compared to the number of enforcement officers on duty in the same month.

Figure 7: Enforcement Staffing Levels Compared to the Number of Parking Citations Issued
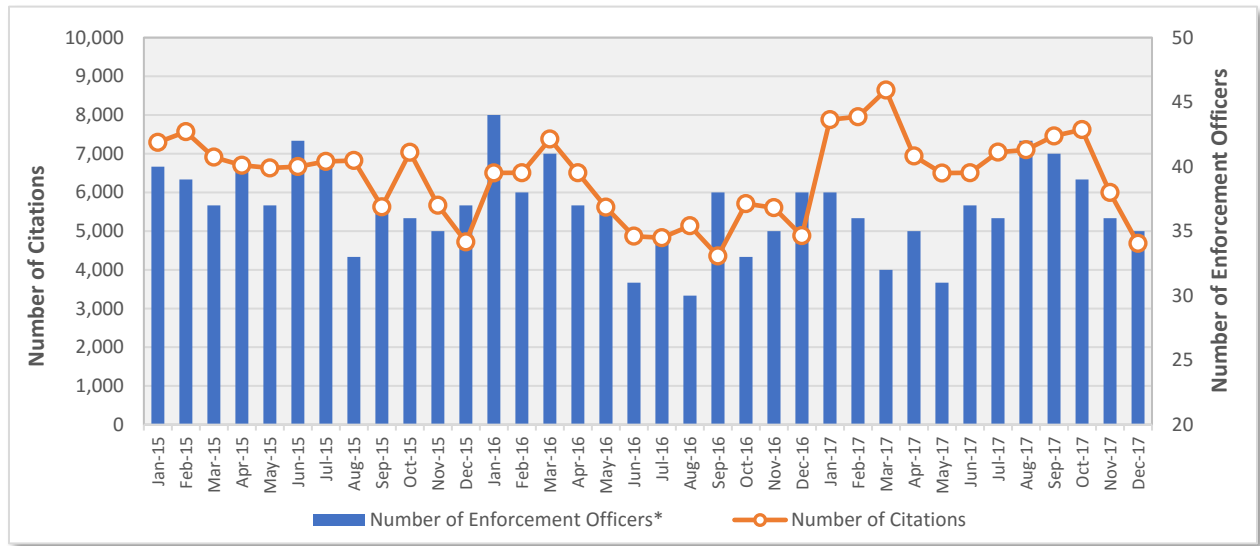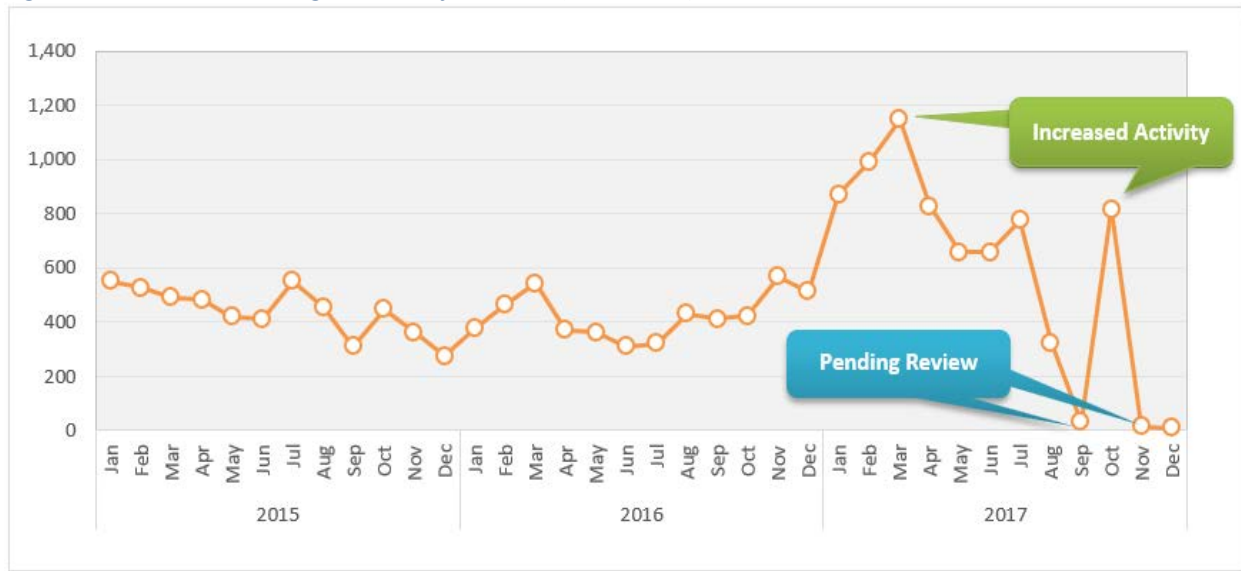

Source: AutoProcess citation records.
*Number of enforcement officers that issued more than 5 citations in the month.

These two data sets were only weakly correlated; it does not appear that overall enforcement staffing levels had a significant impact on the number of citations issued. However, it is important to note that we did not assess the number of hours worked by each officer or evaluate the department's use of overtime in instances where there were fewer officers on staff. It is possible that fewer employees simply worked more hours to make up the difference until the department could resume normal staffing.

Contested Parking Citations

Approximately 17,500 contested parking meter citations that were issued between January 1, 2015 and December 31, 2017 have been processed by hearing officers. Contested citations that have been processed are also referred to as "adjudicated" citations, meaning that a judgment has been rendered either upholding or dismissing the citation. Figure 8 includes all adjudicated citations as of the date the citations were issued and does not include pending citations that are still in the queue. For example, the months of September 2017, November 2017, and December 2017 reflect very small numbers of citations because most of the citations from these months have not been processed yet and are still pending review by a hearing officer.

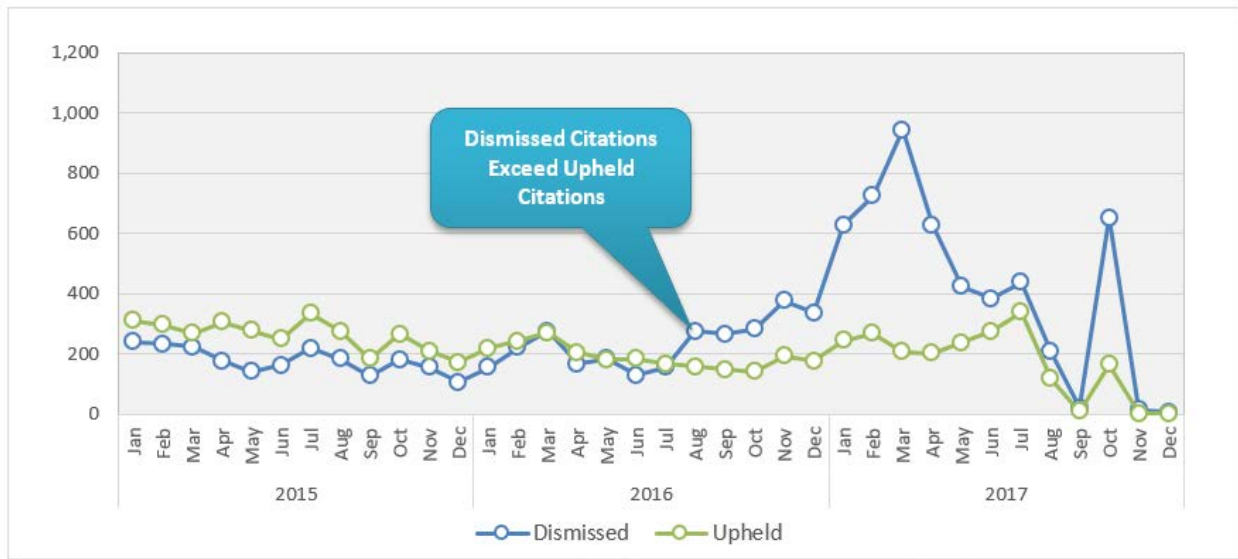*Figure 8: On-Street Parking Meter Adjudicated (Contested) Citations**

Source: AutoProcess citation records.
**Note: Not all contested citations for August 2017 through December 2017 have been processed yet.*

In reviewing this figure, we noted two distinct spikes in the number of citations adjudicated during this three-year time period. From January 2017 to March 2017 there was a surge in the number of citations adjudicated, with an 111 percent increase in the number of contested citations between March 2016 and March 2017. We also noted an increase in contested citation activity in October 2017. In order to investigate the causes of these increases, we separated out those citations that were dismissed from those that were upheld.

Figure 9 shows the number of dismissed citations compared to the number of upheld citations over the last three calendar years. Between calendar year 2015 and mid-2016, more citations were upheld than were dismissed. However, starting in August 2016, the Parking Division began dismissing more citations than they were upholding. From November 2016 through March 2017, there was a significant increase in the number of citations dismissed in comparison to prior years.

*Figure 9: On-Street Parking Meter Adjudicated Citations Dismissed and Upheld**

Source: AutoProcess citation records.
*Note: Not all contested citations for August 2017 through December 2017 have been processed yet.

As the figure above illustrates, the overall rise in adjudicated citations appears to be from citations that were dismissed, not citations that were upheld. The number of upheld citations has remained relatively steady over the last three years, when compared to the spikes in dismissed citations that occurred between August 2016 through April 2017 and again in October 2017. As the number of upheld citations has remained relatively consistent over the last three years, it does not appear that Parking enforcement officers were intentionally issuing erroneous citations, or that hearing officers were unfairly upholding citations, with the goal of generating more revenue.

To provide some context, Figure 10 shows the total number of on-street parking meter citations issued per month, compared to the number of citations contested and dismissed. On average, enforcement officers issued approximately 6,400 citations per month. The number of contested citations during this timeframe was approximately 525 per month, or about 8 percent of the total citations issued. Of the 525 contested per month, approximately 300 were upheld, or about 4 percent of the total citations issued.

Figure 10: Total Citations Compared to the Number of Adjudicated and Dismissed Citations
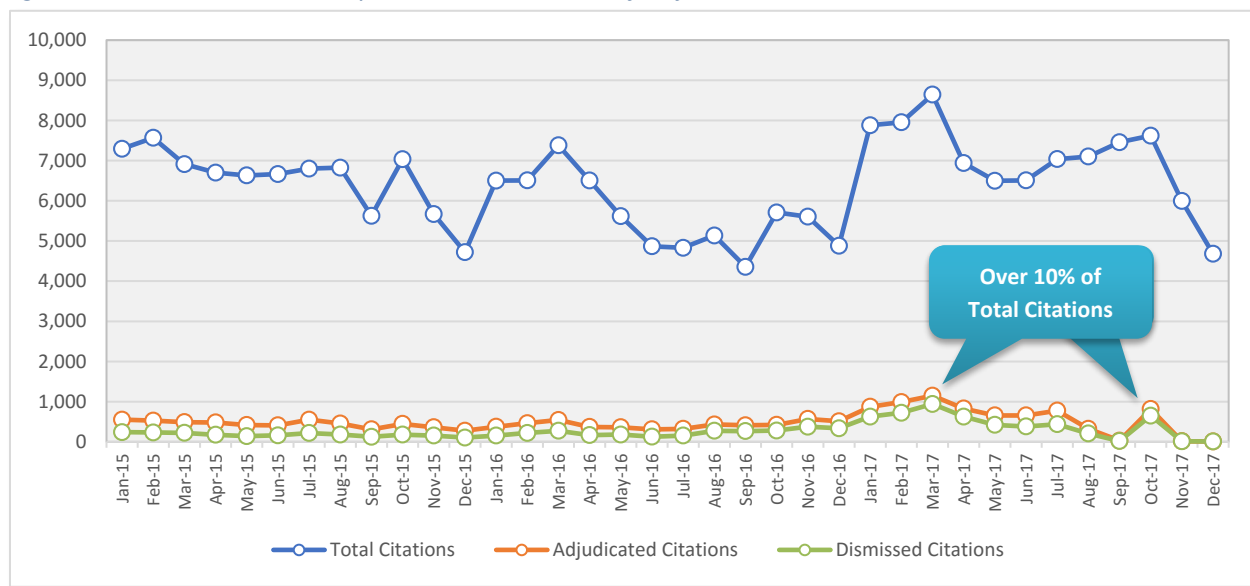
Source: AutoProcess citation records.

As mentioned previously, we noted two periods where there appeared to be a spike in the number of contested and dismissed citations; in March 2017 and October 2017. The number of contested citations rose to over 10 percent of total citations in both months. We investigated these instances further to determine why there was a measurable uptick in the number of citations issued and dismissed during these months.

## Reasons Why Citations Are Dismissed Or Upheld

When a parking citation is contested, it is reviewed by a hearing officer who weighs the evidence provided by the person who received the citation against the photo evidence that the parking enforcement officer recorded at the time the citation was issued, along with data from the meter, ParkMobile records, and other sources, to determine if the citation should be upheld or dismissed. Once the hearing officer has made a determination, they record their judgment in the citation system and issue a letter to that effect to the person who received the citation.

Contested citations may be dismissed for a variety of reasons. A dismissal does not necessarily mean that the enforcement officer made an error in issuing the citation. Some valid citations are dismissed as "warnings" and others may be dismissed when it is difficult for the hearing officer to make a conclusive determination based on the evidence they have available.

Figure 11 shows some of the most common reasons for citation dismissal based on the "notes" field used by the hearing officers to indicate why they dismissed a contested citation. As we discuss in the next section, the data contained gaps and inconsistencies; this explains why the total number of reasons for dismissal does not match the total number of dismissed citations. Additionally, not all citations had notes entered to indicate why they had been dismissed. However, we believe this data still provides

insight into why a number of citations were dismissed and the overall trends that appear as new meter and payment technology is implemented.

Figure 11: Common Reasons for Dismissal Compared to the Total Number of Dismissed Citations
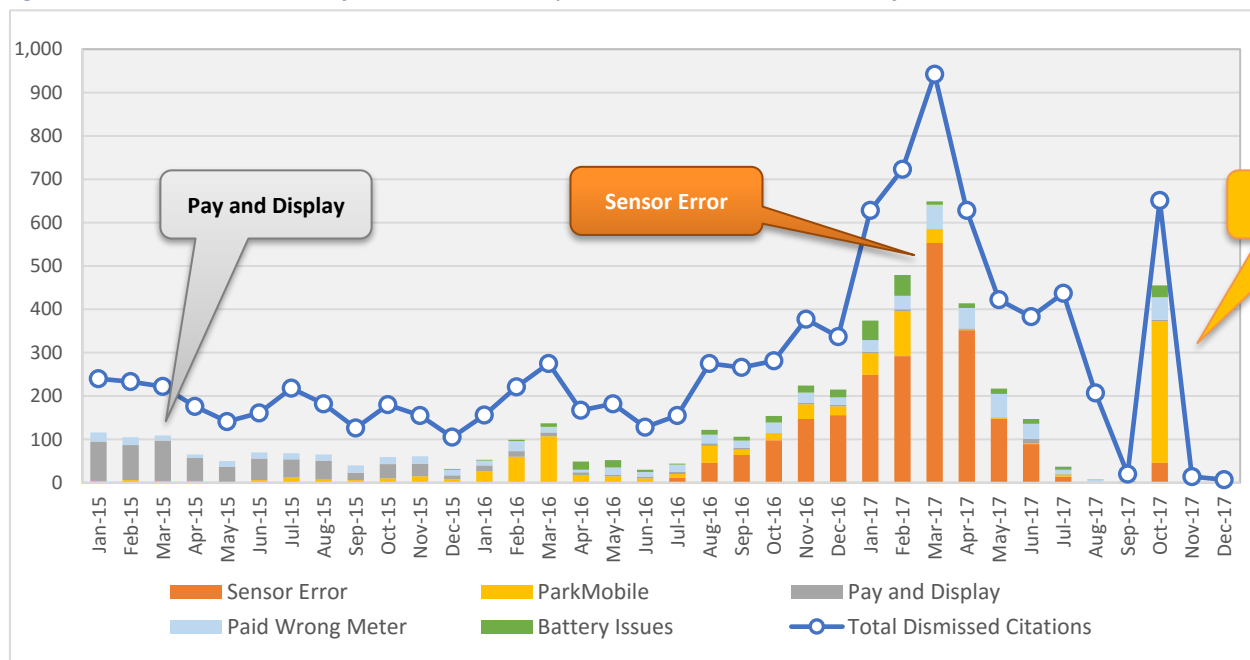
Source: Auditor generated based on AutoProcess records.

In calendar year 2015, the most common reason noted by hearing officers was "Pay and Display." This is in reference to multi-space meters where the user pays for parking at a kiosk that prints out a sticker (Pay), which is to be displayed on the vehicle window to indicate payment (Display). Smart meters were being installed during this time and it appears users were still paying at the kiosks they were accustomed to, and not paying the single-space meters. This data also provides a better picture of what was occurring during months of increased citation activity, from August 2016 through April 2017, and October 2017. Sensor errors were one of the most prevalent reasons noted by hearing officers for citation dismissals in the months surrounding March 2017 and ParkMobile was listed as one of the most prevalent reasons for dismissal in October 2017.

Vehicle-Detection Sensors

In 2016, IPS Group published a report on vehicle-detection sensors that provides an overview of sensor accuracy, challenges, and expectations[1]. This report outlines some of the benefits that vehicle-detection sensors bring to a City's parking program, including access to real-time occupancy data, promoting space turnover, and progressive rate structures. However, their report also acknowledges some of the challenges associated with vehicle-detection sensors operating on busy city streets, stating that:

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[1] IPS Group, LLC. Whitepaper | *Vehicle Detection Sensors: Accuracy & Testing* (2016). http://www.ipsgroupinc.com/free-white-paper-web_sawp/

"Vehicle detection sensors most commonly utilize magnetic or radar-based techniques to sense movement and objects. When installed on a city street, as opposed to remaining in a closed and controlled environment, the variables increase. On-street parking is far more complex than off-street because there is more activity to influence the sensor. Consider the life of a parking space. Within the course of an hour, multiple objects may pass through, including trucks, motorcycles, smart cars, bicycles, and even people. A car may drive through the space on route to an adjacent parking space. An individual may even park in such a way that two parking spaces are impacted. These are all considered "events." Which events should the vehicle detection sensor be registering? Ideally, only the events in which a car parks and leaves. However, with so many different events on the city street, how does the sensor know which events to log and which events to ignore?"

In order to develop sensors that will operate effectively in this type of ever-changing environment, sensors are tested and algorithms are refined by IPS to maximize the likelihood of an appropriate response. However, IPS Group goes on to state in their report that "accuracy percentages must always account for the unknown, making 99% the maximum possible percentage for vehicle detection sensors." This means that vehicle-detection sensors are not perfect; the sensors are only as accurate as the algorithms guiding them and the sensory input captured from the world around them.

Vehicle-detection sensors were installed by IPS in many of the City's smart meters in the second half of 2016. In February 2017, the City's Parking Division emailed IPS a list of meters that they believed were prematurely resetting, and requested IPS provide solutions to address this issue. As IPS and the Parking Division continued to troubleshoot vehicle-sensor issues during the next few months, their communications centered around improving sensor accuracy and updating firmware. Based on these communications and the information in the City's citation system, it appears that sensor issues primarily contributed to the increased citation activity in late 2016 through mid-2017.

ParkMobile Transactions

When a parking meter payment is made through the ParkMobile app, the information flows from ParkMobile to the credit card exchange for payment approval, then to the IPS software system for recording, and finally to the parking meter. The ParkMobile app controls the payment signal from the mobile app to the IPS software, where the payment is then recorded in the IPS software. IPS then forwards the signal to the meter and the meter displays the amount of paid time. The indicator light on the parking meter should then turn from red to green. The green light notifies enforcement officers that the meter has been paid. Enforcement officer's handheld citation units do not have wireless capability and cannot interface with the IPS meter payment system in real-time to verify if a meter has been paid; enforcement officers were primarily reliant on the meter display light to indicate whether or not a meter had been paid.

The figure below shows the general flow of information as a payment confirmation makes its way from a mobile phone to a parking meter. There are several steps along the way and a delay or error in any part of the process could adversely affect the transaction, resulting in the meter light not turning green.

Figure 12: Information Flow of a Mobile Payment to a Parking Meter
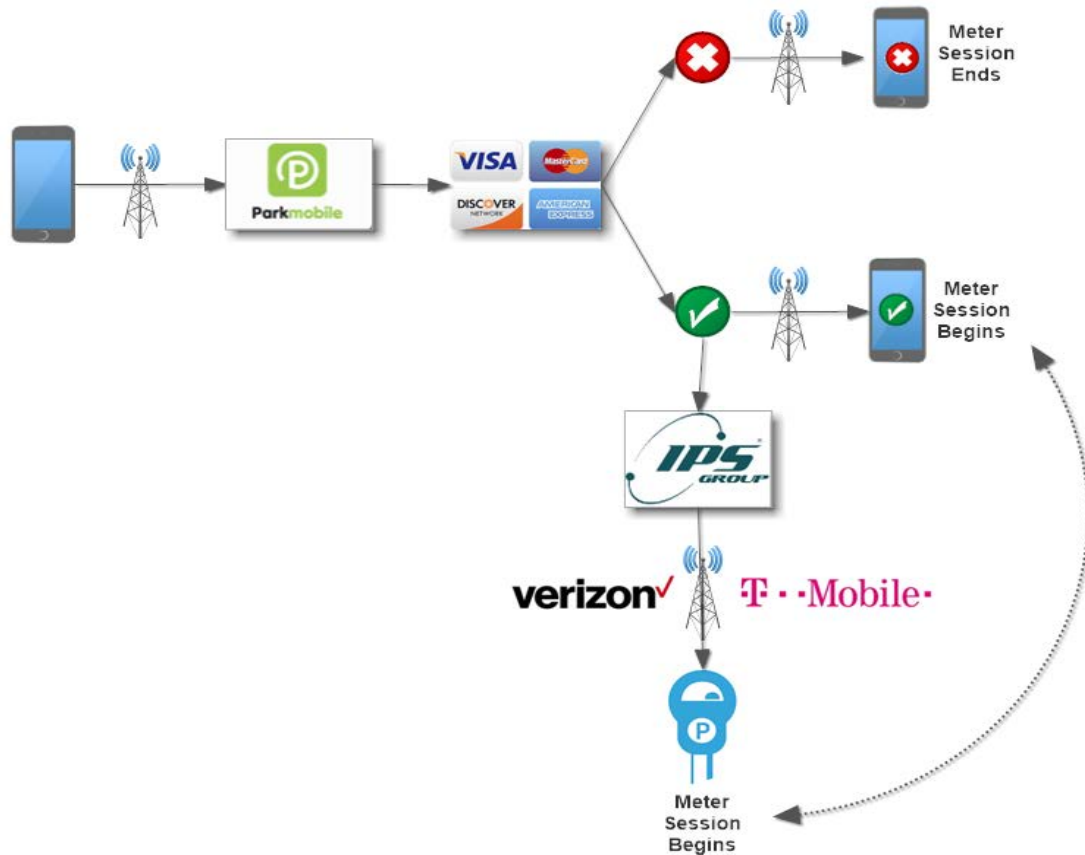
Source: Auditor generated.

One of the potential error points occurs when the meter does not immediately receive the signal that it has been paid and, as a result, its light fails to turn green. The meters rely on a wireless signal provided through either T-Mobile or Verizon to transmit and receive information. It appears that the delay in transmitting the signal to the meter was a known issue. On the ParkMobile support website, under the section for Sacramento's on-street parking, it states that:

> *"Parkmobile payments integrate with the meters for on-street parking in*
> *Sacramento, but there may be a delay. In other words, payments made through*
> *the Parkmobile service may not immediately reflect on the meter, but the City*
> *will have a record of your payment. However, Parking Enforcement Officers will*
> *be able to lookup the payment status of any parking space."*

This support note is dated May 3, 2017, which indicates that ParkMobile was aware at that time that mobile payments are not always immediately reflected at the meter.

In October 2017, the City's Parking Division began requiring enforcement officers to contact the City's 311 Call Center to verify if a meter had been paid before issuing a citation. The 311 Call Center is equipped with internet access and can look up payments in real-time to see if a meter has been paid through the ParkMobile app. The Parking Division is currently in the process of acquiring new citation units that can provide real-time data to enforcement officers, reducing the need to contact 311 in order to verify payment information.

The delay in requiring enforcement officers to look for ParkMobile payments prior to issuing a citation may have contributed to some erroneous citations. However, it is important to note that, with the exception of October 2017, the overall number of dismissed ParkMobile-related citations has remained relatively low over the last three years. Figure 13 shows the total number of ParkMobile transactions and the percentage of ParkMobile transactions that resulted in a dismissed citation, according to the City's citation data. In an effort to evaluate the frequency of communication issues that occurred from payments made through the ParkMobile app, we filtered out instances where the driver paid through ParkMobile but paid the wrong meter, or where "Driver Error" was listed as the cause.

Figure 13: Total ParkMobile Transactions Compared to the Number of Citations Dismissed for Communication Issues
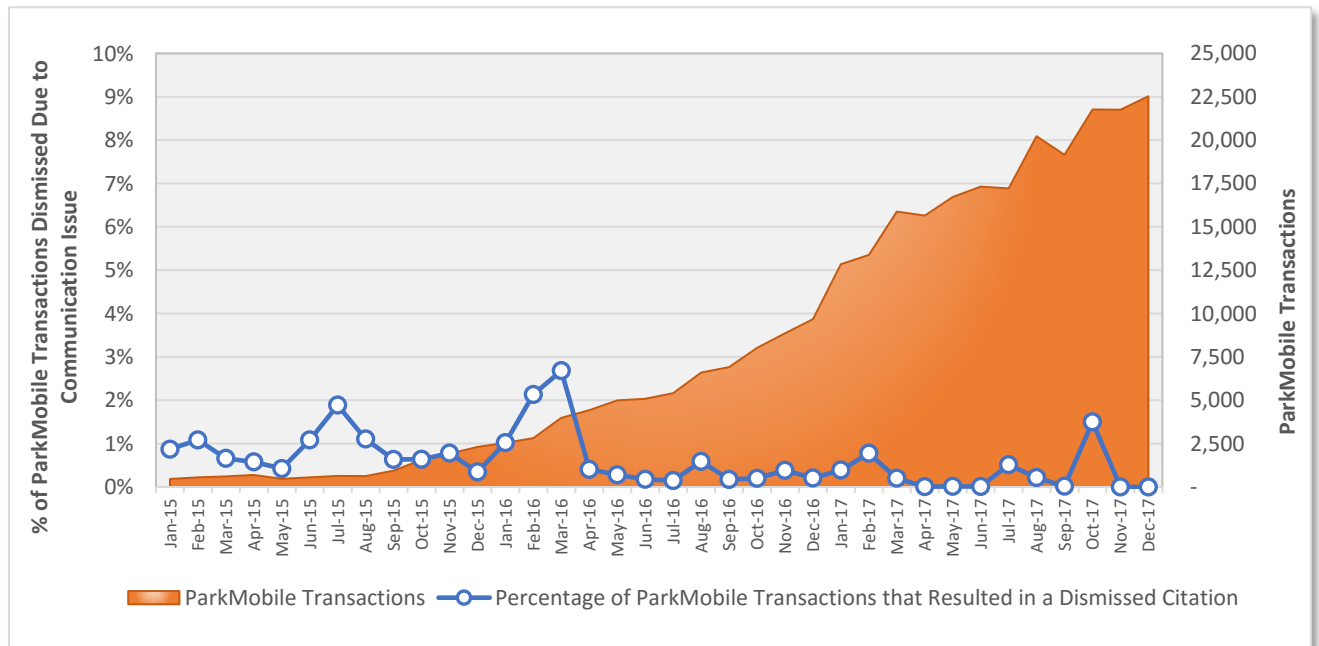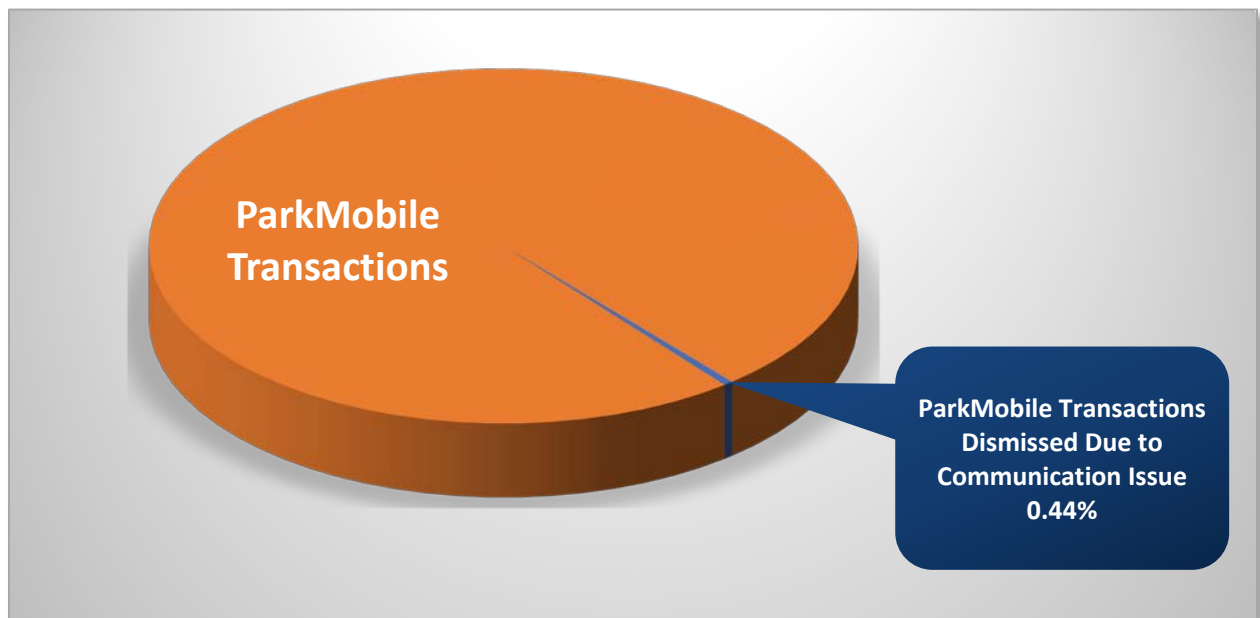

Source: Auditor generated based on AutoProcess citation records.

As Figure 13 shows, while the overall number of ParkMobile transactions has increased dramatically over the last three years, the number of dismissed citations due to a communication issue has not surpassed three percent of total ParkMobile transactions in any given month.

Using the hearing officer notes field in the citation system, we compared the overall number of ParkMobile transactions between January 1, 2015 through October 31, 2017, to the number of adjudicated citations that were dismissed during this same period. We calculated the percentage of ParkMobile transactions dismissed due to a communication issue was 0.44 percent of total transactions. Figure 14 shows the percentage of ParkMobile transactions that we estimate were dismissed due to a communication issue.

Figure 14: Percentage of ParkMobile Transactions Dismissed Compared to the Total Number of ParkMobile Transactions

Source: Auditor generated based on ParkMobile transaction data and AutoProcess citation records.

As the number of transactions dismissed for communication issues has averaged less than 1 percent of all ParkMobile transactions, this does not appear to be a widespread or systemic issue.

There are several reasons why citations are dismissed. However, it is evident from the data that implementing new technology comes with a learning curve, for both the City's Parking Division and the Public. The average number of dismissed citations was less than 5 percent of total citations for calendar years 2015 and 2016. While the average number of dismissed citations has increased to 8 percent of total citations in the first half of 2017, this is not unexpected as the Parking Division continues to work through issues that arise during implementation of the City's Parking Modernization Program. We did not find evidence of widespread citation issues related to the ParkMobile app or the parking meters. For example, the total number of dismissed citations compared to the overall number of on-street meter transactions is negligible, as the number of dismissed citations has not exceeded 0.20 percent of

total meter transactions over the last three calendar years. However, we will continue to evaluate potential reasons for erroneous citations during the *Audit of the City's On-Street Parking* added to the Auditor's FY 2018-19 audit plan. We recommend this audit be initiated immediately.

Finding 2: Data Quality Could Be Improved to Better Identify Trends and Perform Analysis

The Government Accountability Office's (GAO) *Standards for Internal Control in the Federal Government*[2] set internal control standards for federal entities. While these standards are primarily aimed at helping federal agencies operate more efficiently and effectively, their internal control guidance can also serve as best practices for other government agencies. The GAO standard states that "Management should use quality information to achieve the entity's objectives." The GAO considers information to be of "quality" if it is relevant, complete, accurate, accessible, and timely. Quality and timely data are important because they can help an entity achieve its objectives.

While the City's Parking Division has made measurable progress towards modernizing the City's on-street parking meters and infrastructure, citation processes have not kept pace. As mentioned previously, our analysis of the reasons for citation dismissal was limited due to the nondescript nature and inconsistent use of data fields used by the hearing officers to record why a citation was dismissed. If the reason for dismissal is not obvious based on the pre-populated field options, hearing officers may manually enter notes to provide an explanation for either upholding or dismissing a citation. However, manual notes are not consistent from employee to employee; even the same employee may enter different notes for citations with the same dismissal reason. Inconsistent coding makes it difficult to aggregate the data to identify problems and determine if there are trends in why citations are being dismissed.

Figure 15 shows the top five reasons recorded by hearing officers in the citation system for either dismissing or upholding contested citations over the last three calendar years. "Summary Dismissal" was the most frequent reason for citation dismissal in 2017, with 2,292 citations dismissed for this reason in calendar year 2017. "Meter Cite" was the most frequent reason for upholding a citation in 2017, with 1,385 upheld for this reason. Unfortunately, these are both generic fields that do not provide much detail to explain *why* the hearing officer dismissed or upheld the citation. Therefore, we had to rely on the manual notes fields to perform some of our analysis in evaluating why citations were being dismissed. The prepopulated field of "Summary Dismissal" was not sufficient to identify why citations were being dismissed.

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[2] United States Government Accountability Office. *Standards for Internal Control in the Federal Government*. (2014) Chapter 13. http://www.gao.gov/assets/670/665712.pdf.

Figure 15: Top 5 Reasons Citations were Dismissed or Upheld
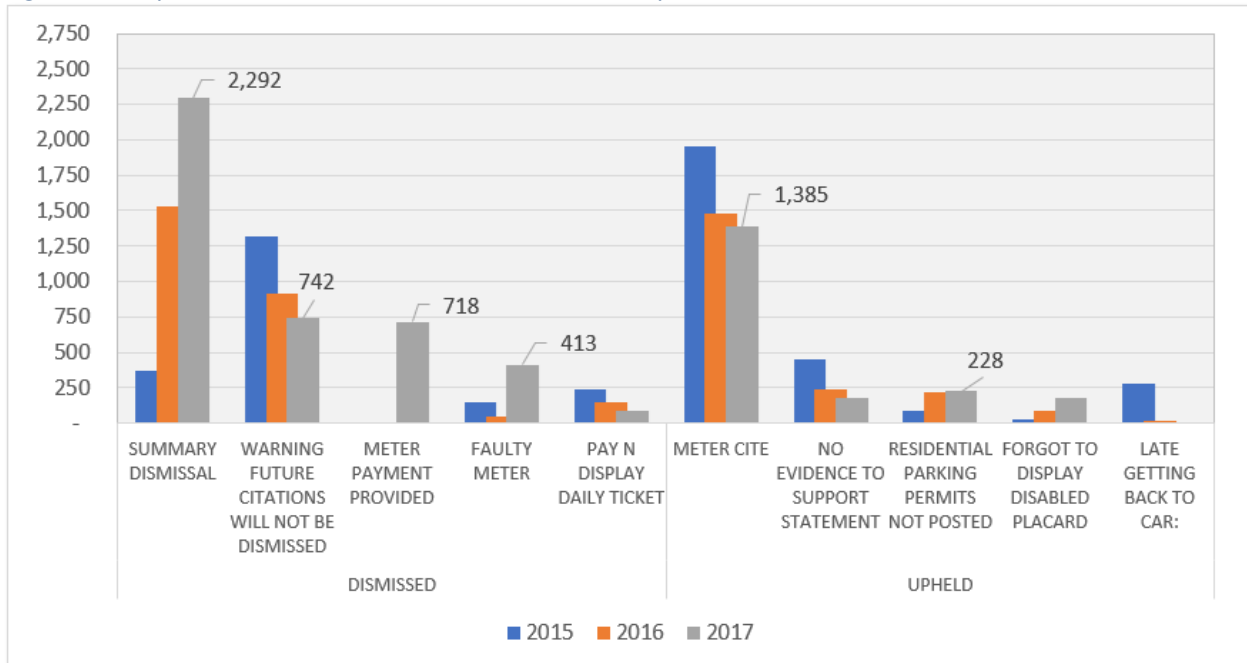
Source: AutoProcess citation records.

Similarly, the "Warning Future Citations Will Not Be Dismissed" field, with 742 instances in 2017, does not provide information on why these citations were dismissed; it simply indicates that future citations will not be. In our opinion, this is not an effective use of this data field as it does not lend itself to data aggregation or analysis to assist in identifying potential issues. More granular data on the reasons why citations are upheld or dismissed could allow the Parking Division to more quickly identify trends and respond to unanticipated events.

During our review of the citation data, we also noted that hearing officers did not use the data fields consistently. For example, in adjudicating contested citations where a Pay and Display ticket was not displayed properly, hearing officers did not consistently indicate the same reason for dismissal. As shown in Figure 16, a hearing officer used three different status reasons for the same type of dismissal. However, the actual reason listed in the manual notes field for dismissal was the same in all three instances: "CITIZEN SUBMITTED EVIDENCE OF VALID PAY AND DISPLAY…" This indicates that these were all dismissed for the same reason, but were coded differently in the system.

Figure 16: Comparison of Citation Notes Field and Status Field

CITATION NUMBER	NOTE COMMENT	STATUS REASON
604967738	CITIZEN SUBMITTED EVIDENCE OF VALID PAY AND DISPLAY	**SUMMARY DISMISSAL**
605305200	CITIZEN SUBMITTED EVIDENCE OF VALID PAY AND DISPLAY	**PAY N DISPLAY DAILY TICKET**
605258103	CITIZEN SUBMITTED EVIDENCE OF VALID PAY AND DISPLAY	**WARNING FUTURE CITATIONS WILL NOT BE DISMISSED**

Source: AutoProcess citation records.

Inconsistent use of adjudicated status reasons makes it unnecessarily difficult to identify trends, monitor ongoing issues, and perform in-depth data analysis.

We also noted that there is about a six-month delay in processing contested citations, meaning that the department is currently processing citations that were contested back in late 2017. Not only does this delay contribute to a poor customer service experience, it may also negatively affect the Parking Division's ability to identify problems quickly and perform timely analysis of citation data. The GAO's guidance on internal controls states that "Management obtains data on a timely basis so that they can be used for effective monitoring." A delay in processing citations not only impacts the customer experience, it also delays the Parking Division's ability to gather data on why citations are being contested and the results of the hearing officer's review. Having this data more quickly could provide for better monitoring and trend analysis. The *Audit of the City's On-Street Parking*, added to the Auditor's FY 2018-19 audit plan, will evaluate this delay and see if improvements can be made.

Finding 3: Further Investigation is Needed to Evaluate the Cause and Effect of an Increase in "Meter Broken" Complaints to 311 During Winter Months

311 is a phone number that Sacramento residents, businesses, and visitors can call while within the City limits to reach the City's centralized call center. Callers can request non-emergency services, report incidents, or get information on a variety of City services including building permits, stray animals, utilities billing, and parking meters. During our review we noted a significant number of calls logged by call center staff as "Meter Broken" calls. We believe further investigation is required in order to assess the root cause of these broken meter calls. When a customer encounters a broken meter, this leads to a poor customer experience and may prompt a call to the 311 Call Center. In addition, meters are limited in their ability to collect revenue while they are not in service. Minimizing instances of broken meters could improve the customer experience, reduce the number of incoming 311 calls, and increase revenue.

Broken Meters Prompt Calls for Service (311)

We contacted the City's 311 Call Center and requested all parking-related data for the period of December 1, 2016 through December 4, 2017. We grouped the data by call category and noted that there were nearly 7,000 calls coded as "Meter Broken". This equates to approximately 580 calls per month or 19 calls per day, on average. The figure below shows the parking-related calls by call category.

*Figure 17: Parking-Related 311 Calls by Category*

Call Category	Count	% of Total
Meter Broken	6,994	49.00%
Info	5,986	41.94%
How-To	44	0.31%
Escalation Form	1,250	8.76%
Grand Total	14,274	100.00%

Source: 311 Call Center logs.

In exploring potential causes for the number of calls related to broken meters, we plotted the "Meter Broken" data by month and noted that the trend appeared to be seasonal, with more calls during winter months and fewer calls during the summer.

The parking meters are primarily powered by a solar-charged battery. We theorized that fewer hours of sunlight in the winter months could potentially have an adverse effect on the solar batteries' ability to sustain a sufficient charge during these months. Figure 18 plots the call center data and the average non-sunlight hours in Sacramento on the same timeline.

Figure 18: Frequency of Broken Meter Calls Compared to the Average Number of Non-Sunlight Hours
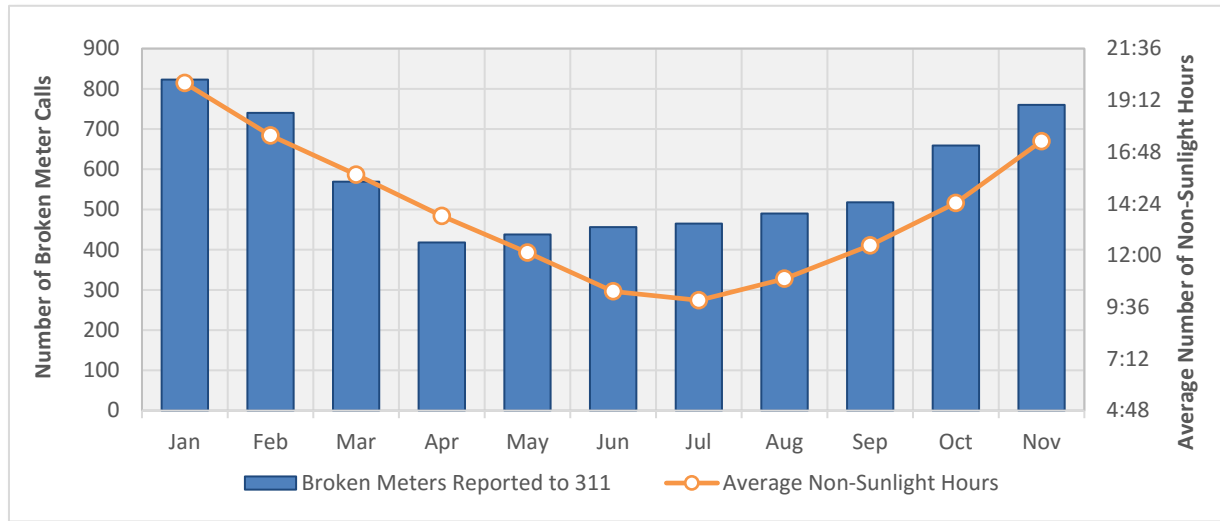
Source: Auditor generated based on AutoProcess citation records and Climatemps.com data.

There was a 0.88 correlation factor between the two data sets, indicating the number of calls received by 311 for broken meters is strongly correlated with the number of non-sunlight hours in the same month. While it is difficult at this early stage of the review to confirm causation, the correlation of these two events could potentially indicate an issue related to the ability of some parking meters to maintain a sufficient solar charge during months with fewer hours of sunlight.

Broken or inoperable parking meters contribute to a poor customer experience for those trying to pay for parking and could result in a loss of revenue for the City. We will further investigate the causes of broken meter complaints during the *Audit of the City's On-Street Parking* to determine if the customer experience can be improved and the number of meter-related calls to the 311 Call Center can be reduced.

MEMORANDUM

DATE: March 29, 2018

TO: Jorge Oseguera, City Auditor
Lynn Bashaw, Assistant City Auditor

FROM: Hector Barron, Director of Public Works

Cc: Francesca Lee Halbakken, Assistant City Manager
Matthew Eierman, Parking Services Manager

SUBJECT: Response to Assessment of the City's On-Street Parking Meters

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1. The Department of Public Works acknowledges receipt and concurs with the findings in the City Auditor's Assessment of the City's On-Street Parking Meters.

2. Although the Auditor's report does not state any specific recommendations, we will continue our efforts to modernize the parking system, including enhancing technologies, processes, gaining efficiencies and increasing service levels. This is consistent with the Department's mission to provide innovative and sustainable public infrastructure and services for Sacramento.

3. The Department of Public Works would like to take this opportunity to thank the City Auditor's Office for its efforts in reviewing the data and the Parking Services Division's operations, and looks forward to cooperating with the Auditor's Office on the forthcoming Audit of the City's On-Street Parking Meters.

4. Below, please find the Department's responses to the three findings identified in the assessment report.

Finding 1: Multiple Factors Impacted the Number of Dismissed Citations Over the Last Three Years

- The Auditor's report noted that the number of citations issued declined by 13% between 2015 and 2016. This is attributed to the fact that more payment options were available to drivers. Before 2014, at single space meters, customers' limited options for payment were quarters and meter cards that could be obtained only through a visit to City Hall. When the new meters and mobile payments were phased in, customers had additional payment options, including other coin denominations and credit cards, leading to a higher level of compliance, as evidenced by more transactions at meters and a reduction in the number of citations issued.

- Our experience showed that overall, the push of Parkmobile payments to meters was reliable, so we did not require officers to check for mobile payments at every expired meter. When an unanticipated issue

outside our control occurred in October 2017, Parking Services changed its protocol to require officers to obtain the status of every expired meter to confirm there were no mobile payments currently registered. The Division is pursuing new technology that will provide real-time payment data to officers through their handheld equipment.

Finding 2: Data Quality Could Be Improved to Better Identify Trends and Perform Analysis

- As stated in the Auditor's report, Parking Services has been working on a parking modernization program. One of the expectations of the new technology is a considerable wealth of usable data from the new systems, which will be used to create real-time dashboards, along with better detail reporting.
- In 2016, Parking Services undertook an evaluation of the modern technology available to process parking citations. Parking Services started developing its requirements for a comprehensive system that would integrate with the Division's array of systems, add efficiency, and provide better reporting and metrics. Parking Services currently is finalizing an RFP for its next generation citation processing system.
- The Department acknowledges that it can improve customer service by reducing the time for reviewing a contested citation. The future integrated citation processing system will introduce efficiencies that will decrease the review time.

Finding 3: Further Investigation is Needed to Evaluate the Cause and Effect of an Increase in "Broken Meter" Complaints to 311 During Winter Months

- The Parking Services Division recognizes that 7,000 calls classified as "broken meter" were received in a year. We are actively working to restructure the classifications within the Division to provide flexibility and allow reassignments to meet increased workloads, which will better allow us to address issues before calls are placed to 311.
- Battery degradation is normal with any rechargeable electronic mechanism. We are working with our vendor to develop a comprehensive plan to manage battery inventory, predict replacement cycles, and report on device health.
- During the period when the "broken meter" calls were received, 5,587,985 transactions were completed at the meters, and, as shown below, the uptime figures for the single-space meter system was greater than 99%.
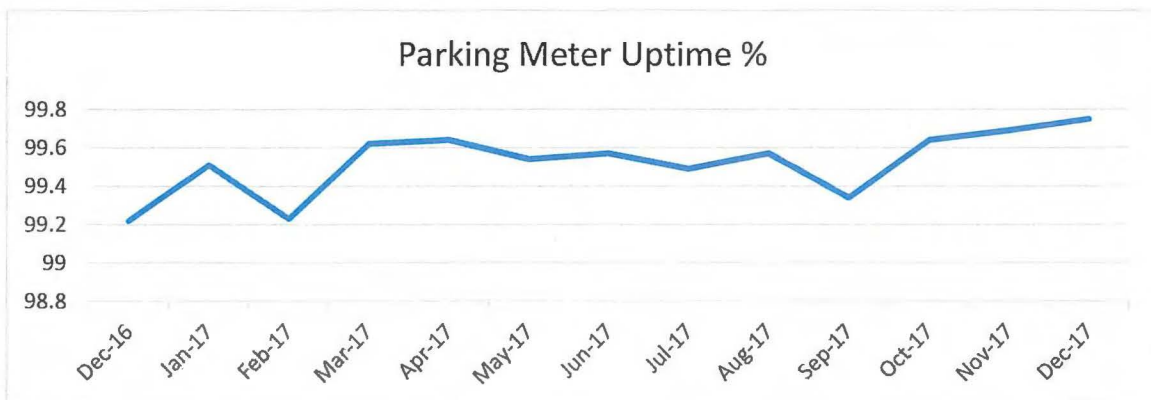
Source: IPS Meter Systems Software