



**CITY OF BURLINGTON  
DEPARTMENT OF PUBLIC WORKS**

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**Chapin Spencer**  
*DIRECTOR OF PUBLIC WORKS*

## **M E M O R A N D U M**

To: Tenzin Chokden, Clerks Office  
From: Chapin Spencer, Director  
Date: January 10, 2019  
Re: Public Works Commission Agenda

Please find information below regarding the next Commission Meeting.

Date: **January 16, 2019**  
Time: 6:30 – 9:00 p.m.  
Place: **645 Pine St – Main Conference Room**

## **A G E N D A**

### ITEM

- 1 Call to Order – Welcome – Chair Comments
- 2 5 Min Agenda
- 3 10 Min Public Forum (3 minute per person time limit)
- 4 5 Min Consent Agenda
  - A 531 South Union Street Crosswalk Parking Prohibition

### Non-Discrimination

The City of Burlington will not tolerate unlawful harassment or discrimination on the basis of political or religious affiliation, race, color, national origin, place of birth, ancestry, age, sex, sexual orientation, gender identity, marital status, veteran status, disability, HIV positive status or genetic information. The City is also committed to providing proper access to services, facilities, and employment opportunities. For accessibility information or alternative formats, please contact Human Resources Department at 865-7145.

- 5 40 Min Stormwater Billing Appeal – 403 College St  
A Oral Presentation, Appellant  
B Communication, J. Olson & N Lopez  
C Commissioner Discussion  
D Public Comment  
E Action Requested – Vote
- 6 10 Min Semi-Annual Traffic Request Status Report  
A Communication, P. Peterson  
B Commissioner Discussion  
C Public Comment  
D Action Requested – None
- 7 20 Min State of Downtown Parking System  
A Presentation, P. Mulligan & A. Bunten  
B Commissioner Discussion  
C Public Comment  
D Action Requested –None
- 8 5 Min Approval of Draft Minutes of 12-19-18
- 9 10 Min Director's Report
- 10 10 Min Commissioner Communications
- 11 **Adjournment & Next Meeting Date – February 20, 2019**



# Memo

*Date:* January 09, 2018  
*To:* Public Works Commission  
*From:* Phillip Peterson, Associate Engineer *PMP 1/9/19*  
*CC:* Norm Baldwin P.E., City Engineer  
*Subject:* 531 South Union Street Crosswalk Parking Prohibition

## Recommendations to the DPW Commission:

### 7 No-parking area.

*No person shall park any vehicle at any time in the following locations:*

- On the west side of South Union Street for 20 feet north and south of the midblock crosswalk at 531 South Union Street.

### Purpose & Need:

The purpose of the recommended traffic regulation amendment is to be in compliance with the Vermont Agency of Transportation (VTrans) guidelines. The 20-foot parking prohibition adjacent to crosswalks is based on the VTrans "Guidelines for Pedestrian Crossing Treatments." The need is to improve sight lines between pedestrians and motorists, increasing safety for those using the crosswalk.

### Project Checklist:

	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?		X		Vermont Agency of Transportation "Guidelines for Pedestrian Crossing Treatments"
Aligns with City plans?		X		Vermont Agency of Transportation "Guidelines for Pedestrian Crossing Treatments"
Followed Public Engagement Plan?		X		These Traffic Regulation changes are defined as an INVOLVE project in the Public Engagement Plan (PEP).

**Summary and Conclusion:**

Staff received a request (see Attachment-1) in November 2017 from Brendan Hogan, local resident, asking staff to restrict parking near the crosswalk on South Union Street adjacent to 531 South Union Street. Staff conducted a site visit and found the crosswalk on South Union Street adjacent to 531 South Union Street requires a 20-foot (see Attachment-2) parking prohibition on the west side of South Union Street. The configuration of the driveways adjacent to this crosswalk on the east side of South Union Street prevents vehicles from parking within the 20-foot buffer of the crosswalk; given this, Staff believe it is unnecessary to create a 20-foot parking prohibition on the east side of South Union Street for the crosswalk adjacent to 531 South Union Street.

**Public Engagement:**

In preparation for the 01/16/19 DPW Commission Meeting, Staff placed flyers at each property along the block adjacent to 531 South Union Street. Staff received (see Attachment-3) two (2) emails, and two (2) phone calls in regards to this matter. One email does not support Staff's recommendation, while both of the phone calls and the second email support Staff's recommendation.

**Attachments:**

1. Initial request.
  2. Site map.
  3. Public correspondence.
-

SECLICKFIX ID  
3871697

PRIORITY  
Normal

REQUEST TYPE  
Other

ADDRESS  
527 S Union St Burlington, VT 05401, USA

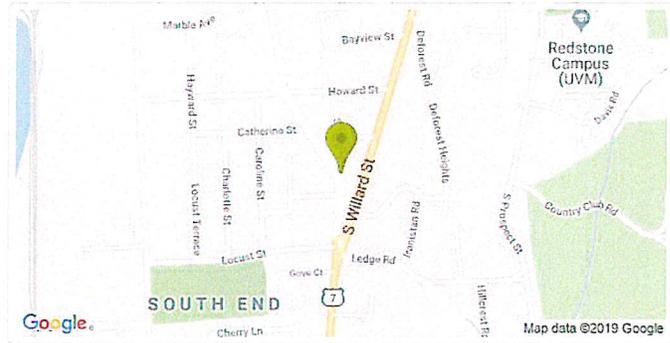
ASSIGNEE  
DPW Engineering PP

SLA EXPIRES  
12/04/2017 - 08:36AM  
about 1 year late

REPORTED  
11/13/2017 - 08:36AM

SECONDARY QUESTIONS

LOCATION



SUMMARY & DESCRIPTION

**Pedestrian sight distance**

There is very poor visibility as a pedestrian crossing S Union Street to southbound traffic, especially as the street curves behind the parked cars. This would be a good candidate for curb extension and/or restricted parking.

Reported by: Brendan 11/13/2017 - 08:36AM

MEDIA



TIMESTAMP	INTERNAL COMMENT	COMMENTER
11/13/2017 08:37AM	Code Enforcement assigned this issue to Bill Ward Director of Code Enforcement	Code Enforcement
11/13/2017 08:37AM	Another person wants this fixed!	Brendan
11/13/2017 08:45AM	RFS 19432 assigned. If received outside of normal business hours, we will investigate this issue on the next business day.	IT Department
11/13/2017 08:45AM	Another person wants this fixed!	Kathlin
11/13/2017 08:46AM	Another person wants this fixed!	OldVtr
11/13/2017 08:51AM	Issue acknowledged.	Bill Ward Director of Code Enforcement

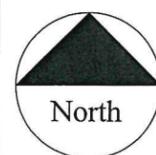
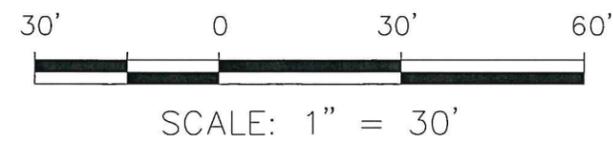


NOTES:

Staff recommends amendment of the following ordinance:

Appendix C: Rules and Regulations of the Traffic Commission

7 No-parking areas. No person shall park any vehicle at any time in the following locations: On the west side of South Union Street for 20 feet north and south of the midblock crosswalk at 531 South Union Street.



SOUTH UNION STREET  
PROPOSED CROSSWALK PARKING  
PROHIBITION



**BURLINGTON  
PUBLIC WORKS  
ENGINEERING DIV.**  
645 PINE STREET  
BURLINGTON, VT 05401  
(802) 863-9094  
(802) 863-0466 (Fax)

DESIGNED PMP	SCF NO. 3871697
DRAWN PMP	SCALE 1"=30'
CHECKED LW	DRAWING NO.
DATE 01/12/19	SHEET 1 OF 1

## Attachment 3

### Public input correspondence emails

Wed 12/26/2018

Hello,

Thanks for your inquiry into the crosswalk near 531 South Union Street. We absolutely agree that sightlines around that crosswalk need to improve. Many drivers on South Union especially those coming off Shelburne Street are moving much too fast to anticipate braking for that only partially visible crosswalk. Those drivers often don't slow down until the stop sign at Howard and South Union. Traffic quieting and increased visibility measures are both much needed there. Otherwise some unwitting pedestrian is sure to be seriously hurt.

Thanks for your efforts.

Greg and Elaine Larsen

Thu 12/26/2018

Dear Mr. Peterson,

My name my name is Terrance McGrath. Along with my brother, we own 4 Shelburne Road, our residence, which is across the street from 531 South Union Street and one house south. My brother also owns 522 South Union Street, a rental property which is across the street from 531 South Union and one house to the north.

I am writing to you in regards to your plan to ban parking within 20 feet of the crosswalk in front of 531 South Union Street. I'm not sure if you're aware of this, but 531 South Union Street is a 5 apartment building that has absolutely no off-street parking. And the house to the north of 531 South Union Street, 515 South Union Street, is currently being rented to four adults, yet the house only has off-street parking for two vehicles. The duplex immediately north of our residence and directly across the street from 531 South Union Street only has off-street parking for one vehicle, yet there are 3 cars there. In other words, parking spaces are at a premium in this neighborhood.

I would like I would like to request that you consider a plan to ban parking within 10 feet of either side of the crosswalk, rather than 20 feet. That will mean that we're losing just one parking space in front of 531 South Union Street instead of two. Please believe me when I tell you that even one saved parking space will make a difference in this neighborhood.

Thank you for reaching out to the neighborhood before implementing your ban. I appreciate the opportunity to comment on your plan before it becomes reality. I hope that you will soften your approach and go with the 10-foot no parking zone on either side of the crosswalk.

Sincerely,

Terrance McGrath

# Public input correspondence phone calls

Thu 12/31/2018

Associate Engineer Phillip Peterson had a phone conversation with Brendan Hogan, a Burlington resident. Mr. Hogan is in favor of Staff's recommendations.

Thu 12/27/2018

Associate Engineer Phillip Peterson received a phone call from Juan Mier, a South Union Street resident. Mr. Mier supports Staff's recommendations.



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**Chapin Spencer**  
*DIRECTOR OF PUBLIC WORKS*

**Megan Moir**  
*WATER RESOURCES DIVISION HEAD*

**Memorandum**

**To:** Public Works Commission  
**From:** Department of Public Works Storm Water Program  
**Date:** January 9, 2019  
**RE:** Pre-Hearing Summary Memo – Appeal

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This memo summarizes the factual background and the City of Burlington’s (“City”) legal position relating to an appeal of the City’s determination that certain gravel surfaces located at 403 College Street, Burlington, VT constitute impervious surfaces for purposes of assessing storm water user fees.

**FACTUAL BACKGROUND**

*Adoption of Chapter 26*

In 2009, the City of Burlington adopted Chapter 26 of the Burlington City Ordinances which established a storm water utility for the City. These ordinances provide that all owners of non-exempt developed property within the City are assessed a storm water system user fee. B.C.O. § 26-171(a).

The storm water user fee is based on the number of impervious surface units (“ISUs”) allocated to the property. B.C.O. § 26-171(a). ISUs are assessed based on the total square feet of impervious surface located on the property. B.C.O. § 26-172(b). Impervious surface is defined as “those surfaces that can not effectively infiltrate rainfall (e.g. building rooftops, pavement, sidewalks, driveways, whether such surfaces are gravel, dirt or paved etc.)” B.C.O. § 26-2. Under the ordinance, 1 ISU is equal to 1,000 square feet of impervious surface. B.C.O. § 26-171(a). For example, a commercial property with 4,780 square feet of impervious surface would have 4.78 ISUs.

The Burlington City Council establishes the monthly rate for each ISU. B.C.O. § 26-171(c). The monthly storm water user fee is determined by multiplying the ISU rate by the number of ISUs on the property. B.C.O. § 26-171(c).

*ISU Assessments*

After the adoption of Chapter 26, the City conducted an assessment on applicable properties to

determine the number of ISU's for each property using GIS mapping technology that existed at the time. No other assessments were completed until 2018.

Since 2009, GIS mapping technology has developed more precise and accurate measurement capabilities. As a result, in 2018, the DPW water resources unit reassessed all properties based on the updated technology. As a result of this new mapping analysis, some properties experienced a decline in their total ISU assessment, while others experienced an increase in their ISU assessment.

*Assessment of Mr. Johnson's Property*

Michael Johnson owns non-exempt property in the City, which contains a gravel parking lot and driveway. Under the 2009 ISU assessment completed by the City, Mr. Johnson's property was assessed to include a 750 square foot gravel parking lot resulting in 2.42 ISU's for the property with a user fee assessment of \$5.98 per month or \$71.76 per year. This assessment was based on remotely sensed data, which was calculated based on parcel boundaries. Although this data was collected using technology that was advanced at the time, the resulting data included interference from tree cover, which casts large shadows over the property. A copy of the 2009 Impervious Assessment Map is included with this Memorandum as Attachment A.

In light of those challenges, City staff have been working since 2009 to improve the available impervious data, by digitizing impervious boundaries directly over the most updated orthophotos available. In 2018, the City conducted another assessment of Mr. Johnson's property based upon this improved technology. The new assessment identified a total of approximately 3,714 square feet of gravel driveways and parking lots on site, with an additional 1,920.22 square feet consisting of building rooftops. A copy of the 2018 Impervious Assessment Map is include with this Memorandum as Attachment B. Given the increase, City staff visited Mr. Johnson's property on two separate occasions to confirm that accuracy of the impervious surfaces mapped by the City. Those impervious surface calculations were confirmed. After the City performed the 2018 assessment, the total calculated ISUs on Mr. Johnson's property increased to 5.63 ISUs. This resulted in a new user fee of \$13.91 per month or \$166.87 per year. In total, the new assessment resulted in a total increase of \$8.22 per month or \$95.14 per year. The increase is shown in table 1 below:

Table 1			
	2009 Assessment	2018 Assessment	Total Increase
Number of ISU's	2.42	5.63	3.21
User Fee (Monthly)*	\$5.98	\$13.91	\$8.22
User Fee (Annually)*	\$71.73	\$166.87	\$95.14

\*Based on current fee rate of \$2.47 per ISU.

Mr. Johnson has appealed the City's new assessment. Mr. Johnson does not dispute the mapping or calculations performed by the City. Rather, Mr. Johnson disputes that his gravel parking lot and driveway constitute impervious surfaces and believes that the square footage from those surfaces should not be included in the total ISU calculation for his property.

## ISSUE

1. Does a gravel parking lot and driveway constitute an impervious surface for the determination of applicable storm water user fees?

### SUMMARY OF ARGUMENT

It is well-established that gravel and dirt travel surfaces—like driveways and lots—constitute impervious surfaces. The Burlington City Ordinances define impervious surfaces as “those surfaces that can not effectively infiltrate rainfall (e.g. building rooftops, pavement, sidewalks, driveways, whether such surfaces are *gravel, dirt* or paved etc.)” B.C.O. § 26-2 (emphasis added). As is made clear in the plain text of the ordinance, the definition clearly applies to gravel and dirt surfaces.

In this instance, the 2018 assessment identified a total of 5,634.22 square feet of Mr. Johnson’s property as impervious surface. Of that total, approximately 3,714 square feet comes from a gravel driveway and a parking lot, with the remaining 1,920.22 square feet consisting of building rooftops. These surfaces do not effectively infiltrate rainfall. For instances, travel surfaces such as parking lots, walkways, and driveways are typically compacted during the installation process to ensure they can structurally support the traffic above. Following installation, these surfaces are further compacted by foot and vehicle traffic in a relatively short period of time. Once compacted, these surfaces function effectively as impervious surfaces, with infiltration rates comparable to that of asphalt or concrete. In addition to a low infiltrative capacity, these surfaces also erode dirt and gravel material into storm drains – material which carries known stormwater pollutants such as phosphorous, nitrogen, heavy metals, and hydrocarbons.

These conclusions were confirmed by City staff during two site inspections at Mr. Johnson’s property. Visual observations by City staff confirmed that the gravel driveway and parking lot were compact and did not effectively infiltrate rainfall. In particular, some portions of the driveway actually consisted of deteriorated concrete slabs interspersed with compacted dirt and gravel. The remainder of the driveway and parking lot represented typical compact surface conditions, which replicate asphalt and concrete during rainfall. These observed conditions clearly establish Mr. Johnson’s driveway and parking lot as falling within the City ordinance defining impervious surfaces.

Notably, both the State of Vermont and the federal government treat gravel and dirt surfaces in a consistent manner. The State of Vermont expressly defines an impervious surface to include both paved and unpaved roads, parking areas, roofs, driveways, and walkways.” 10 V.S.A. § 1264(b)(6); Vermont Stormwater General Permit 3-9010; Vermont Stormwater General Permit 9015. Further, the Environmental Protection Agency (“EPA”) has also identified the pollutant load of unpaved roads as a contributor to stormwater runoff in Lake Champlain. For example, when instituting the total maximum daily load for Phosphorus relative to Lake Champlain, the EPA specifically references the pollutant load to the Lake from unpaved roads. To address this issue, the EPA requires the State of Vermont to administer a Municipal Roads General Permit to address stormwater discharges from unpaved surfaces. This treatment is notable because if unpaved surfaces, like gravel roads, were infiltrating water, they would be functioning as stormwater treatment. Instead, they are counted by the federal government as a contributor to the problem.

To claim that Mr. Johnson’s compacted gravel surfaces do not constitute impervious surfaces would ignore the clear language of the Burlington City Ordinance, disregard how similar gravel surfaces have been traditionally treated in this State, and depart from well-established standards for handling wastewater. The ordinance is clear; gravel driveways and parking lots—like the ones identified on Mr. Johnson’s property—unequivocally constitute impervious surfaces.

## APPLICABLE ORDINANCES

For the convenience of the Commission, the applicable ordinances at issue are recited below.

**B.C.O. § 26-2:** *Impervious surface* shall mean those surfaces that can not effectively infiltrate rainfall (e.g., building rooftops, pavement, sidewalks, driveways, whether such surfaces are gravel, dirt or paved etc.).

**B.C.O. § 26-172(b):** The ISUs allocated to all other property types shall be determined as follows:

- (1) The amount of impervious surface on each parcel shall be calculated in square feet. That total shall be converted to ISUs for every one thousand (1,000) square feet and rounded to the nearest hundred (i.e. a commercial property with four thousand seven hundred eighty (4,780) square feet would have 4.78 ISUs).
- (2) The user fee would be based on the number of ISUs (i.e. commercial property with 4.78 ISUs would pay the monthly user fee times 4.78).
- (3) Owners of property subject to this subsection shall have the right to contest, in writing to the director, the number of ISUs allocated to their property. In such event, an onsite inspection and calculation of impervious surface shall be conducted jointly by the property owner (or representative) and the director to determine the number of ISUs. Such determination shall be made by the director, and such decision may be appealed to the public works commission within fifteen (15) days of the determination.

## ATTACHMENTS

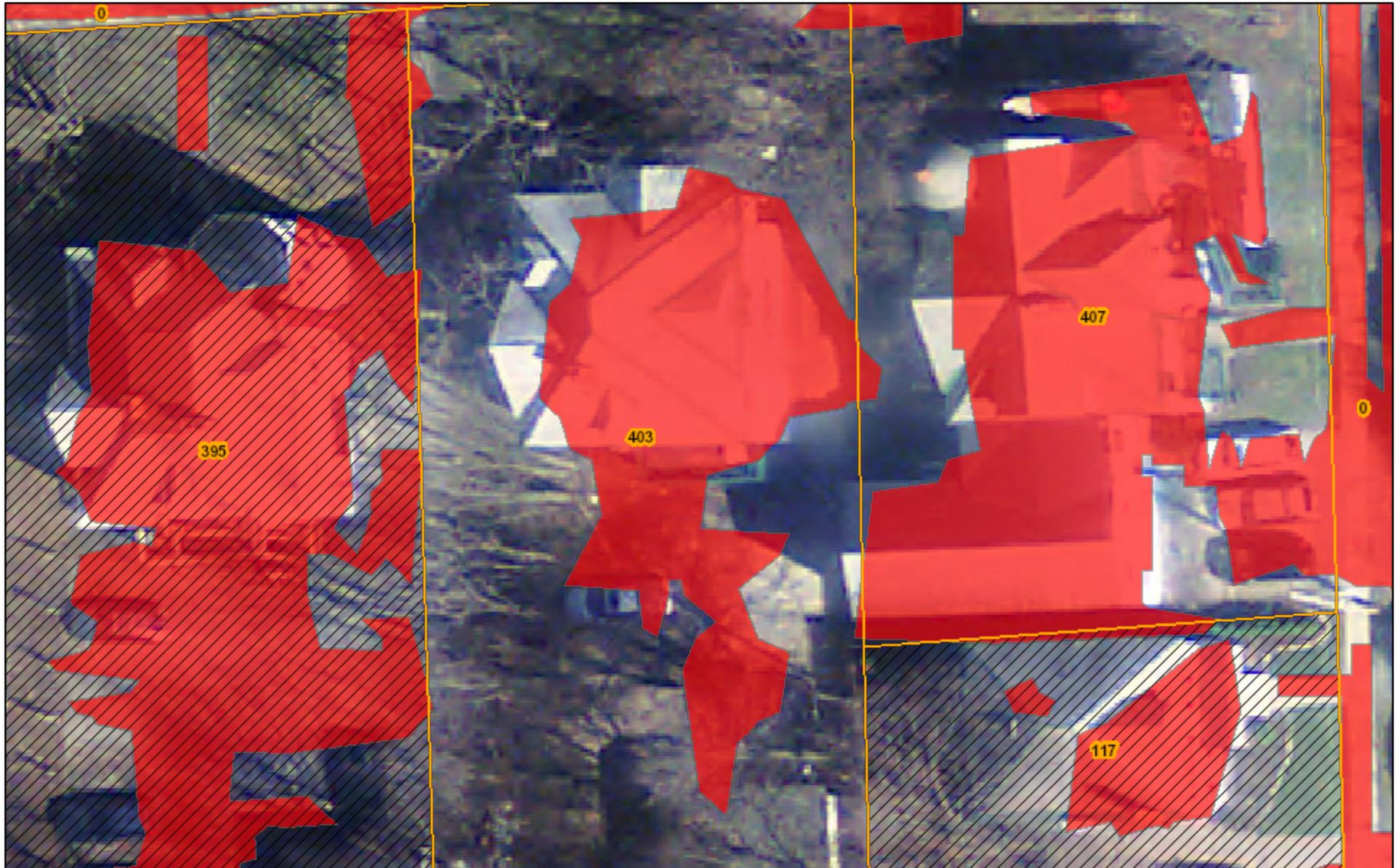
**Attachment A—2009 Impervious Assessment Map:** This represents the GIS data collected and utilized by the City for Mr. Johnson’s property (403 College Street) during the 2009 assessment.

**Attachment B—2018 Impervious Assessment Map:** This represents the data collected and utilized by the City for Mr. Johnson’s property during the 2018 assessment.

# **ATTACHMENT A**

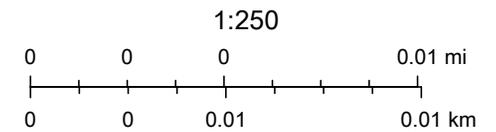
2009 Impervious Surface Area Assessment

# 403 College Street - 2009 Impervious Assessment



1/8/2019, 12:18:14 PM

- BTV Impervious (2009) BTV Parcels
- ▨ Flat Fee
- Streets
- Directly Assessed



# **ATTACHMENT B**

2018 Impervious Surface Area Assessment

# 403 College Street - 2018



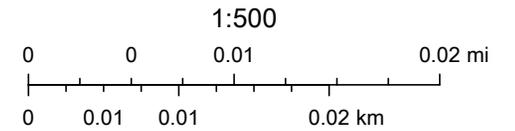
1/9/2019, 10:34:07 AM

Streets BTV Parcels

Directly Assessed

Flat Fee

Directly Assessed





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# Memo

*Date:* January 09, 2019  
*To:* Public Works Commission  
*From:* Phillip Peterson, Associate Engineer *PMP 1/9/19*  
*CC:* Norm Baldwin P.E., City Engineer  
*Subject:* Semiannual Traffic Request Status Report

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## TRAFFIC REQUEST BREAKDOWN BY TYPE

<i>As of January Commission Date:</i>	1/16/19	1/11/18	1/10/17	1/14/16
Accessible Space:	0	3	5	8
Resident Only Parking:	4	4	13	10
Crosswalks:	18	22	19	16
Driveway Encroachments:	0	2	1	14
Signage:	3	10	13	20
Loading Zone:	0	3	5	1
Area/Intersection Study:	3	2	6	6
Parking Prohibition:	2	5	11	12
Bus Stop:	0	1	0	2
Geometric Issues:	3	2	4	4
Parking Meters:	0	1	3	1
Other:	0	0	0	5
<b>TOTAL:</b>	<b>33</b>	<b>55</b>	<b>80</b>	<b>99</b>

### **Overview:**

This document is a semiannual report on remaining traffic requests. The Traffic Request Program has been managed by the Department of Public Works since the mid-1980s with one member of staff receiving, evaluating, and presenting requests from the public to the Department of Public Works Commission. We are submitting this memo to the DPW Commission for their review.

**Summary:**

We seek opportunities to make feasible modifications to rules, policies, practices, and services in order to best serve the community. In developing traffic rules and regulations, Staff are required to follow established State and Federal guidelines. For instance, the Manual on Uniform Traffic Control Devices (MUTCD) – governed by the FHWA - is recognized as the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel.

DPW Staff have worked hard streamlining the traffic request program to provide residents a more transparent and responsive experience. DPW Staff have employed existing technologies to expedite the process, all while engaging the public in several meaningful ways. This includes close adherence to the DPW Public Engagement Plan, being able to respond to any questions or concerns with knowledge and confidence, and presenting information to the appointed Commission. Occasionally, preparing traffic regulation recommendations has included setting up neighborhood meetings on complex and controversial topics. This process empowers residents; while DPW Staff use the appropriate regulations for guidance through the traffic request.

**Crosswalk Requests:**

Safety is paramount to everything we do at Public Works. While Burlington remains a safe city for pedestrians, we are actively planning and designing more safety projects for the coming years. We are extremely saddened by the recent pedestrian fatality on North Avenue, and in light of that tragedy, this conversation takes on more resonance.

There are currently eighteen (18) resident initiated crosswalk traffic requests in queue. Crosswalk requests represent the majority of unresolved traffic requests at this time. The Department of Public Works' pedestrian safety projects are informed by resident input, available funding, intergovernmental coordination, State & Federal Policy and the City's adopted plans, including:

- planBTV Walk Bike: Burlington's first pedestrian and bike master-plan which engaged hundreds of Burlingtonians and outlines extensive strategies to improve safety, including the adoption of Vision Zero.
- Sustainable Infrastructure Plan: With overwhelming voter approval in 2016 for the funding component, this plan outlines key strategies to rebuild sidewalks, build curbs and add a preventative maintenance program for sidewalk cutting – all to enhance accessibility and pedestrian safety.
- The American's with Disabilities Act (ADA) provides standards for our project designs and for safety in construction zones.
- The Vermont Agency of Transportation's (VTrans) Crosswalk Guidelines provide the foundation for consideration of new and enhanced crosswalk requests.
- Improved coordination with Burlington Electric Department and Green Mountain Transit ensure adequate lighting and crosswalks and improved access to transit stops.
- The city's sidewalk assessment plan and facilities assessment plan identify the ADA deficiencies on our streets, sidewalks, signals, and buildings and help us prioritize improvements.
- Corridor and intersection scoping studies, identifying improvements to Colchester Avenue, North Avenue, and Pearl Street, among others.

Our team consists of engineers, planners, crews, contractors and consultants whose focus is to build a balanced transportation system, improve safety, build facilities for all ages, connect our

facilities, and use quick-build strategies for widespread rapid implementation. The team gives careful attention to critical details on each project – meeting regulatory obligations, incorporating community input and always working with public safety in mind. For instance, mid-season we installed a crosswalk at North Ave and Pennington due to existing ramps, existing street light and lower traffic volumes on this stretch of road. However, simply adding crosswalks on higher-volume streets without proper design could increase danger by encouraging unsafe crossings – and would be out of compliance with regulations. Therefore, funding, design, review and construction are all critical steps in building a safe city.

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# **Downtown Parking & Transportation Management Plan**

***FY'18: State of the System Report  
July 2018***

# Table of Contents

<b>Executive Summary</b>	2
<b>Data Partnerships</b>	3
University of Vermont Transportation & Research Center	3
Unified Parking Partners	3
<b>On-Street</b>	3
2015-2017 Parking Data & Enforcement Changes	4
Enforcement Change Impact Analysis	9
2018 Utilization Data	10
2018 Transactional Data	16
<b>Off-Street</b>	19
2018 Utilization Data	20
2018 Transactional Data	22
<b>Enforcement</b>	26
<b>Conclusion</b>	27



## Executive Summary

The Burlington Business Association and Burlington's Department of Public Works, along with local partners, continue to spearhead improvements to our downtown parking and transportation system. Our work is driven by the Downtown Parking & Transportation Management Plan and places an emphasis on gathering and analyzing data to inform our work and policy change recommendations. All of our work is centered on three primary goals:

1. **A Vibrant Downtown** – The downtown parking and transportation system resources must be maximized to ensure the continued vitality of downtown Burlington
2. **Great Customer Service** – The parking system is often the first and last impression for people driving downtown. These experiences should be consistently positive and dependable.
3. **A Sustainable System** – The parking system must minimally generate sufficient revenues to meet its operational and maintenance needs while aiming to also support downtown infrastructure and marketing.

Parking is emotional. Our team works hard to engage the public and our downtown stakeholders on how our downtown system needs to improve. As you can expect, many suggestions are made and everyone doesn't always agree. This makes data a crucial piece to a healthy downtown system. Combining the feedback we receive with our expanding set of data allows us to push forward positive change for downtown in an educated manner.

This report will be completed annually to detail the data that we're gathering in our publicly and privately run parking facilities in downtown Burlington. It highlights exciting policy and operational changes and their impacts. We look at revenue data and how expanding payment options is changing behavior in a positive way. We touch on the partnerships that made this report possible. Fiscal year 2018 has set the stage for an even more comprehensive data-set next year, once new City Garage equipment is installed and once more data flows in through strategic partnerships with private operators and the University of Vermont.

As noted throughout this report, more data is needed and is being collected as we write this. Our downtown is experiencing an exciting period of change, with major construction and redevelopment having a short-term impact on our system, but leading to a long-term vibrancy that will keep Burlington a top destination and case-study for all cities nationwide. Data will help us make sure our system is thriving along the way and ensuring we're ready for a world that's in a constant state of change technologically, environmentally and politically.

Please be sure to visit [www.parkburlington.com](http://www.parkburlington.com) for more updates on our team's work and follow us on social media: @ParkBurlington. We also have a [contact form](#) on the website for any questions you may have.



## Data Partnerships

### University of Vermont Transportation & Research Center

After our Parking Team reduced enforcement hours and started to enact meter restructuring changes, detailed in the next section, it was important that we continued to collect data to ensure we understood the impacts of our changes. However, DPW staff hours that were previously being put towards data collection were shifting gears in December 2017. The DPW team is tasked with keeping the roads and sidewalks safe and clear during our long winter months. These shifting priorities, along with a lack of staffing at private facilities to collect data, convinced us it was time to look at subcontracting our data collection duties.

The University of Vermont (UVM) offers aspiring Transportation Engineers opportunities to get real-life experience helping local initiatives like ours to gain more data and insight into our policies and practices. Our Parking Team approached James “Jim” Sullivan, Research Projects Director at UVM, about a paid internship for engineering students focused on collecting data in both publicly and privately run public parking facilities across downtown Burlington.

Our teams came together in February 2018 and came to terms on a six month agreement to collect parking data Citywide. Jim gathered a group of about six students and BBA created schedules, maps and Google Sheets documents to guide the students to the various facilities and to enable them to record the data in real-time. Thus far, the partnership has produced months of data and insight to track parking usage during a period of transition for downtown. The data has helped track the impact of recent enforcement changes and helped us determine parking demand while the Burlington Town Center Garage and its’ 550+ spaces is closed for redevelopment. View a more detailed recap of this data in both the “On-Street” and “Off-Street” sections of this report.

### Unified Parking Partners

While the UVM team collects data in most of our publicly and privately run public parking facilities, the BBA team has also brokered an agreement with Unified Parking Partners (UPP) to gain insight into their various lots and garage in downtown. UPP, through their enforcement vendor, Park Select, provides monthly counts of all their facilities. Count times align with the dates and times we’re counting other facilities, with a particular focus on weeknights and weekends. Data collection is ongoing and we now have data dating back to September 2017.

# On-Street

## 2015-2017 Parking Data & Enforcement Changes

In 2017, we used over two years of data to analyze utilization rates of on-street parking usage and policy in Burlington. This came after major parking changes in 2014, which implemented smart meters in our Downtown Core, increased enforcement hours to 8am-10 in the Core and 8am-6pm in the Non-Core, and increased the per hour rate from \$1 to \$1.50 and removed time limits.

### Approach

Following the data collection strategies set forth in the DPTM plan, DPW's team collected on-street meter counts in both the [DPTM Study Area](#) and separately in the [Downtown Core](#) only. Data was collected between February and September of 2016 and between June and October of 2017. Due to staffing challenges and changing priorities, our schedule had minor variances. The schedule for on-street meter counts was primarily:

- **2nd Thursday of Month**
  - Morning (~8am start time)
  - Afternoon (~12pm start time)
  - Evening
    - 6-7pm start time
    - 8-9pm start time
- **2nd Saturday of Month**
  - Morning (~8am start time)
  - Afternoon (~12pm start time)
  - Evening
    - 6-7pm start time
    - 8-9pm start time
- **2nd Sunday of Month**
  - Afternoon (1pm start time)
  - Evening (5pm start time)

Our smart meters connect to an online portal (IPS), which collects data and allowed us to supplement our data; transaction data from Parkmobile was also utilized.

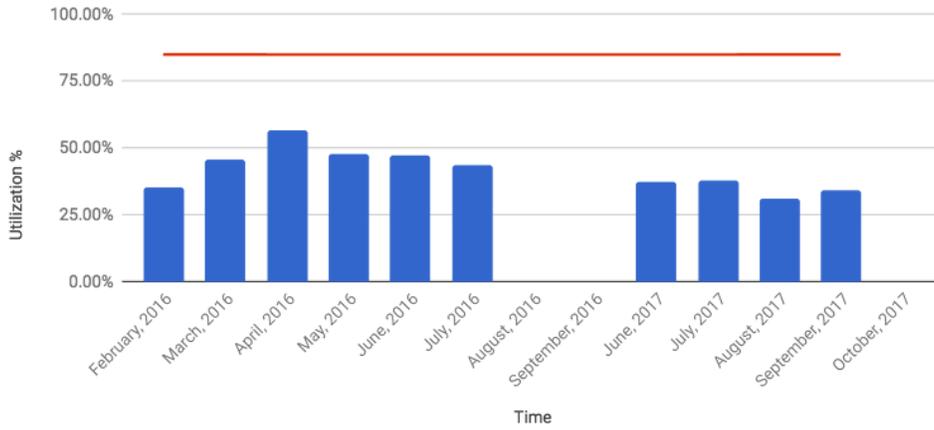
### Data

The below charts highlight key utilization data which is categorized by the data collection start time. Each month where data has been collected is represented as a separate bar within each chart and the industry standard goal of 85% utilization is represented as a red line. All of these charts represent data from our smart meters in the Downtown Core; the exception are charts that show morning utilization data for all meters outside of the Core.



**8am On-Street Utilization Data - Downtown Core:**

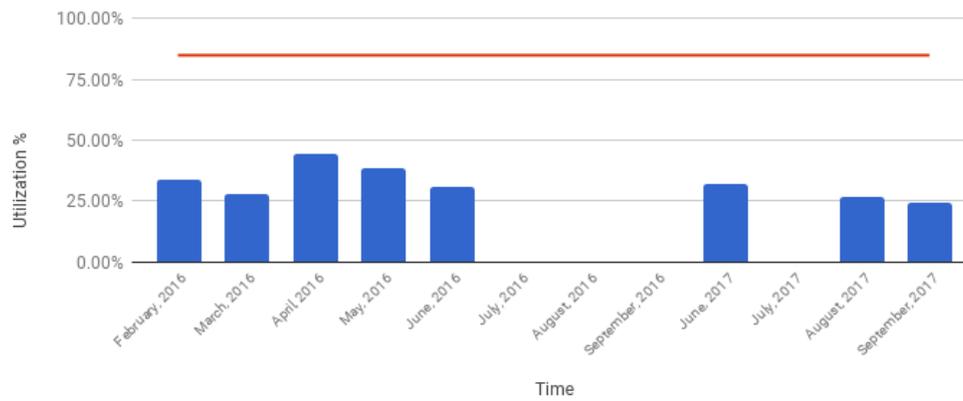
**Thursday, 8am: On-Street Utilization**



**8am On-Street Utilization Data - DPTM Study Area, Excluding Core:**

**Thursday, 8am: On-Street Utilization**

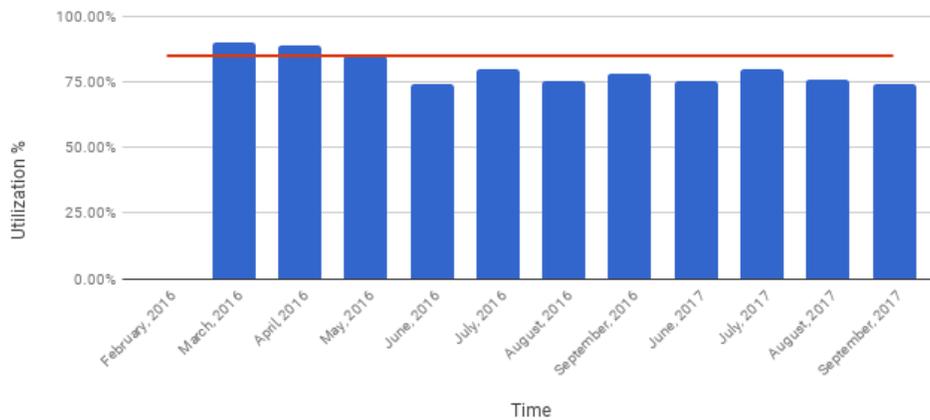
DPTM Study Area, Excluding Downtown-Core



**12-1pm On-Street Utilization Data - Downtown Core:**

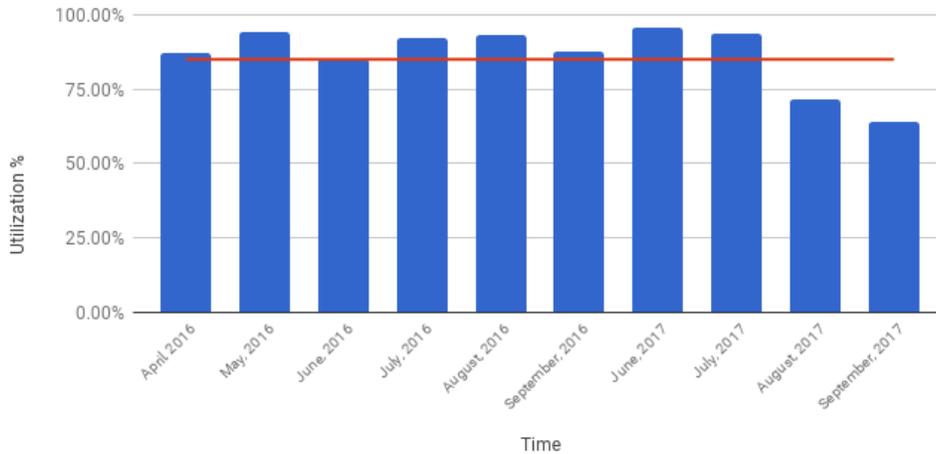
**Saturday, 12pm: On-Street Utilization**

August & September 2017: 1pm Counts



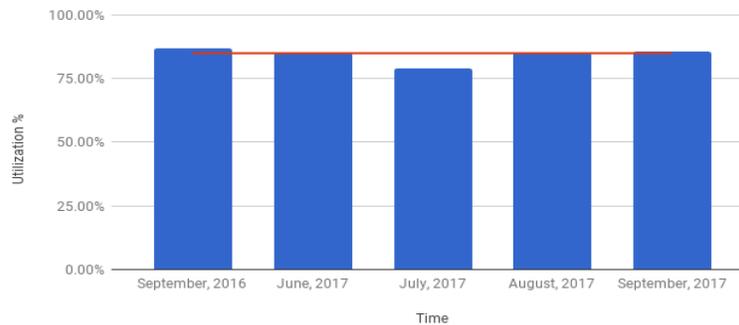
## 7-7:30pm On-Street Utilization Data - Downtown Core:

Saturday, 7-7:30pm: On-Street Utilization



## 8-9pm On-Street Utilization Data - Downtown Core

Saturday, 8-9pm: On-Street Utilization



### Short-Term Meter Utilization:

The charts above show data for the majority of our meter supply in the Downtown Core, our smart meters. We excluded our short-term meters (15-minute and 30-minute meters) as their enforcement is inherently different. These meters allow for limited parking duration and have a different rate structure. We analyzed the data for the Downtown Core short-term meters separately, using the same methods as we used for the smart meters, and found the following statistics:

- 8am Average Utilization: 28.62%
- 12-1pm Average Utilization: 70.64%
- 6-7:30pm Average Utilization: 70.12%
- 8-9pm Average Utilization: 65.48%

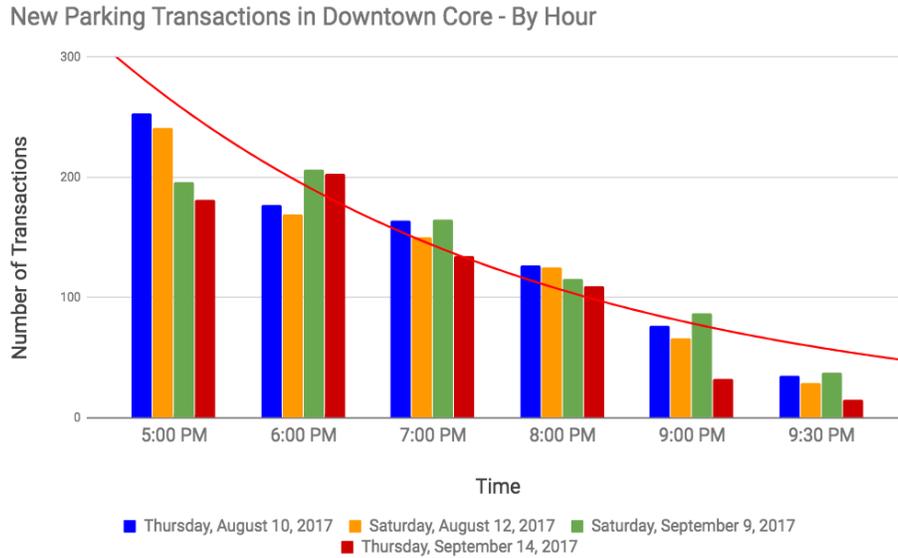
The data indicates a lower than 85% occupancy throughout the day. The DPTM Plan recommended extending the maximum time limit to increase utilization of these meters.

### Smart Meter Data Analysis:

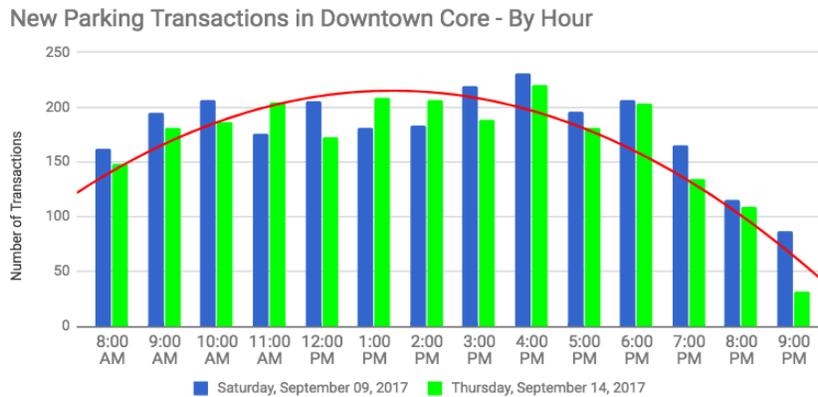
The 8-9pm charts above show near or above 85% utilization rates. However, we wanted to look into how many parkers are initiating new parking sessions from 9-10pm in the Downtown Core to understand the need for turnover and enforcement after 9pm. We also received stakeholder feedback to take a closer look at parking data in the evenings. Utilizing the smart meter's IPS Software, we gathered data on Thursdays and Saturdays in August and September of 2017. The chart below displays the number of new



parking transactions, by hour, in the Core:



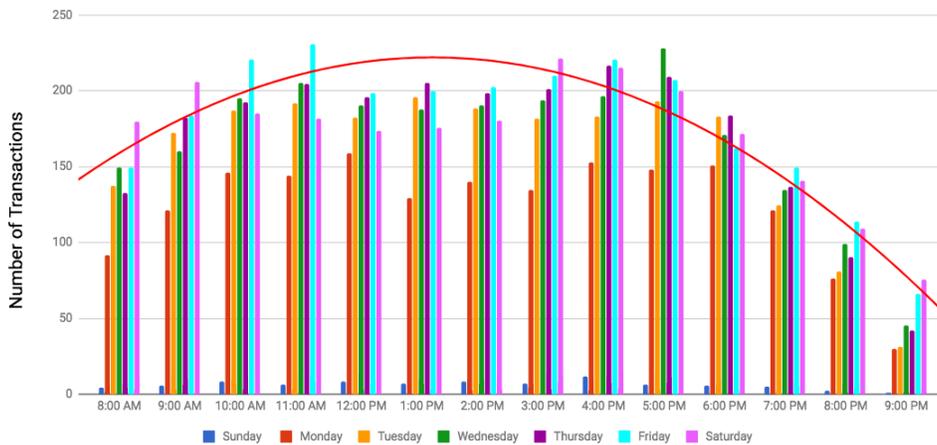
The data in the above chart shows a significant drop-off in new parking transactions after 9pm. By averaging the number of transactions in the 6-9pm hours and comparing it to transaction data after 9pm, we found an average of a 76.56% drop-off across all days. If we look at new parking transactions in the Core, by hour, across an entire Thursday and Saturday in September 2017, we see a familiar trend:



Furthermore, to account for any events that could affect particular Thursdays and Saturdays, we looked at Core transaction data for every day of the week during the month of September 2017. See our findings in the chart below:



## New Parking Transactions - Daily Averages: September, 2017



The above charts mirror what we've discerned from our meter count data: parking demand rises steadily throughout the day and into the evening, demand declines steadily after 7pm and drops off significantly after 9pm. When looking at the larger data set for all days in September, we saw a 71.63% decrease in new transactions in the 9pm hour, compared to the average number of new transactions in all previous hours. In the 8pm hour, we saw a 46.57% decrease; in the 7pm hour we saw a 25.79% decrease.

### December 2017 Recommendations:

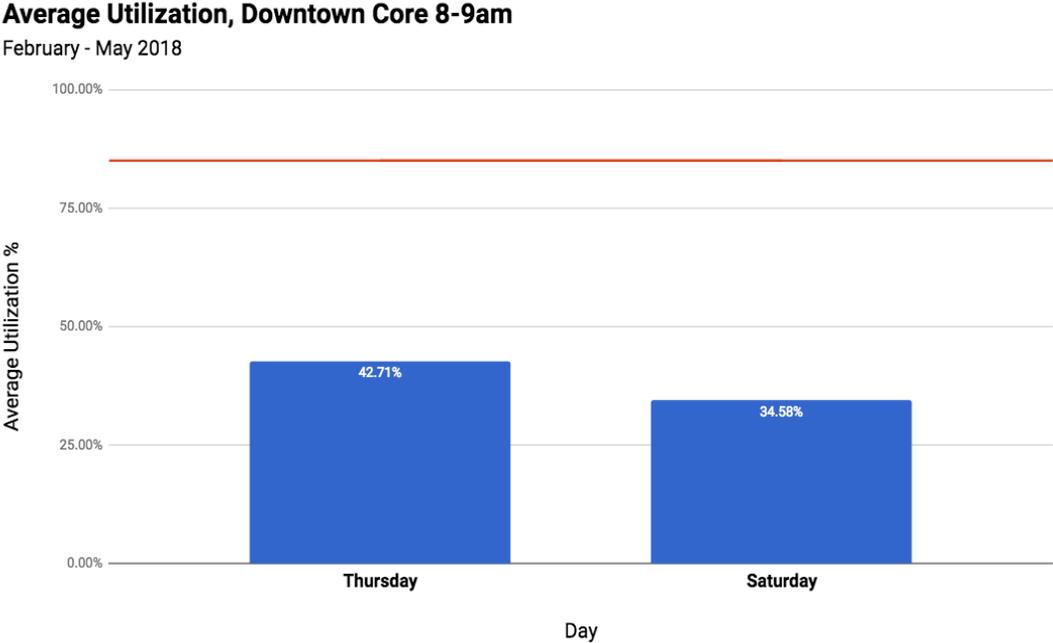
1. **Delay Morning On-Street Enforcement Until 9am** - both our smart and short-term meters are significantly underutilized at 8am; this is true both within and outside the Downtown Core. By moving the enforcement start-time to 9am for all of Burlington, we will better serve downtown residents parking overnight and early arrivals to downtown when parking demand in the day has not significantly increased.
2. **Move Back Evening On-Street Enforcement to 9pm** - the data shows high demand in the early evening when afternoon parkers are still in Burlington and evening patrons are traveling downtown; this data demonstrates our need to enforce beyond 6pm in the Downtown Core. The utilization data shows strong occupancy rates in the 8-9pm hour; however, there is a significant drop in new parking sessions in the Core after 9pm. This indicates turnover after the 9pm hour is not frequent and enforcement is not required.
3. **Convert 15-minute Meters to 30-minute Meters** - occupancy at these meters has consistently fallen short of the 85% benchmark. As a result, we recommend making all short-term meters 30-minute meters.

Our goal with these changes was two-fold: improve the experience for people living, working or playing downtown and ensure our policy is smart and data-driven. The above recommendations were passed and piloted on December 1, 2017 and formally changed to City policy on December 21, 2017.

# Enforcement Change Impact Analysis

The DPTM plan recommends we continue to gather data, especially after enacting policy changes, to track the changes' impact to our downtown system. As mentioned previously, our Parking Team partnered with the University of Vermont Transportation Research Center (UVM TRC) in February 2018 to support our data collection efforts.

First, we wanted to look at utilization in the Core between 8-9am. This time period is no longer enforced, so we looked to see if utilization had risen and if it had risen, did it rise up so dramatically that enforcement would need to be reinstated? Below is a chart which recaps data from February - May 2018:



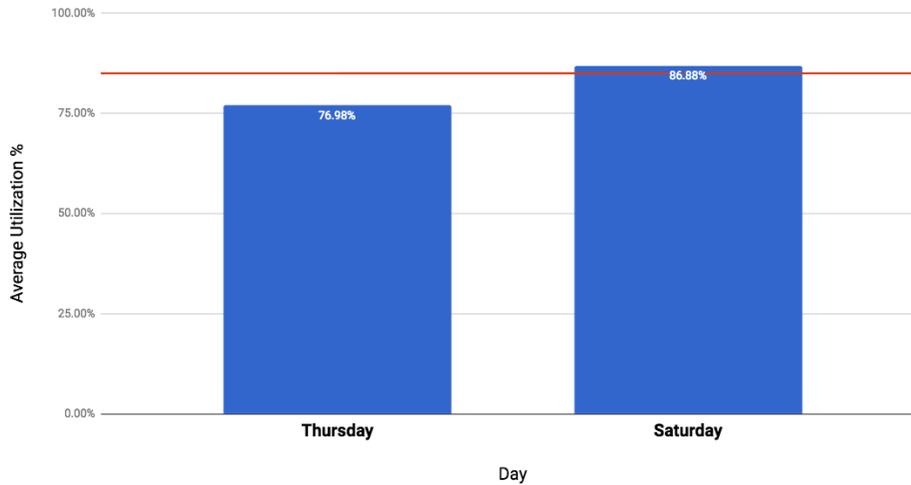
As you can see, utilization remains low at 8am. On one hand, this is encouraging. Our enforcement rollback did not result in over-utilization during the 8am hour. However, utilization is still well below 85%; our team will continue to analyze this time period to determine additional ways to increase utilization.

Next, we looked at utilization in the Core between 9-10pm. Similar to 8am, we are no longer enforcing during this hour and need to look at where utilization stands against our 85% goal. Below is a chart which shows data from February - May 2018:



### Average Utilization, Downtown Core 9-10pm

February - May 2018



Thus far, average utilization across all Thursdays and Saturdays is in-line with our 85% goal. Data collection is ongoing and this summer's data will be critical to showcase utilization during a peak season. As you'll see in the "2018 Utilization Data" section, May's data is already showcasing how seasonality impacts demand. We will be posting at least quarterly updates on this data via [www.parkburlington.com](http://www.parkburlington.com).

The change from 8am enforcement to 9am enforcement outside of our Core did not result in any dramatic utilization increases. Our counts were focused on the 9-10am hour outside the Core due to staffing constraints, but data in this hour currently shows an average of 50.15% utilization during Thursdays and Saturdays from February - May 2018. Utilizing the average stay at our downtown meters of an hour and a half, we can assume most parkers in the 8-9am hour were also parked during the 9-10am hour. Utilization prior to our enforcement changes during the 8-9am hour, outside of our Core, was 30%; assuming utilization in the 8-9am hour is now closer to the 50% utilization mark during the 9-10am hour, our policy change has encouraged a healthy bump in parking usage.

Short-term utilization both inside our Core in the 8-9am hour was very low prior to our changes, averaging around 29% usage. Since changing all short-term meters in the Core to 30-min meters, usage in the morning (8-9am) remains low at around 22% usage across Thursdays and Saturdays from February - May 2018. However, over the same days and timeframe, utilization during the 9-10pm hour has increased from around 65% to around 73% usage. The minimal number of these meters and their specific use can result in significant variability in usage; just like the rest of our meters, we'll continue to analyze utilization and make further policy changes as necessary.

Overall, four months of data is showing us that rolling back enforcement hours has not resulted in a surge of parking usage, while also allowing for visitors and residents alike more free street parking. Our evening and morning usage has remained steady in the Core. As noted, it'll be important to continue analyzing impacts during our busy summer season; stay tuned on further analysis on [www.parkburlington.com](http://www.parkburlington.com).

#### 2018 Utilization Data

Thanks to our partnership with UVM TRC, we have consistent utilization data for all publicly accessible parking in downtown Burlington. We've referenced some of this on-street data as it related to our 2017 enforcement changes. Thus far, we have data from February through May of 2018. To help display the data in a different way, we've created "heat maps" to show you how on-street parking usage varies by geographic area.



There are four downtown zones defined in the DPTM Plan's study. There are also two primary downtown geographic areas related to our street parking the Downtown Core and the area outside the Core, referenced as "Non-Core" in our data-sets. View the study area and zone breakdown [here](#), and the Downtown Core area [here](#). The primary difference, from a meter perspective, between these geographic breakdowns is that our Core has all 300+ of our smart meters which have no time limits and charge \$1.50 per hour. The Core is also a much heavier trafficked area and more densely populated with retail and restaurants. The "Non-Core" area is comprised of various meter types, including:

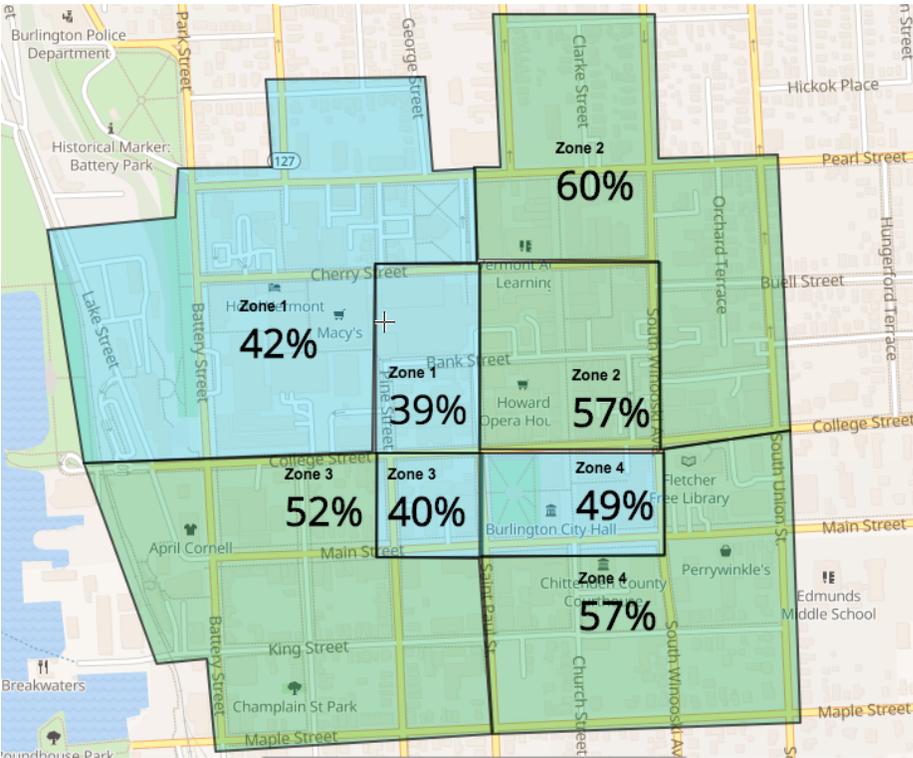
- "Brown Top" Meter – 9 hour time limit, \$0.40/HR
- "Blue Top" Meter – 3 hour time limit, \$1/HR
- "Yellow Top" Meter – 30 minute time limit, \$1/HR

The Core does include a small number of "Yellow Top" meters as well. These geographic and meter inventory differences are important to know when taking a look at the heat maps below. The maps are color coded to help display usage levels as follows:

- **Blue** – 0 to 50% utilization
- **Green** – 51 to 84% utilization
- **Red** – 85 to 100% utilization

As a reminder, the industry goal and our team's goal for utilization is 85%, especially for hours that align with higher levels of visitorship to downtown. The maps below are broken down by day and time and average the data for that day and time across the February to May months that we currently have data.

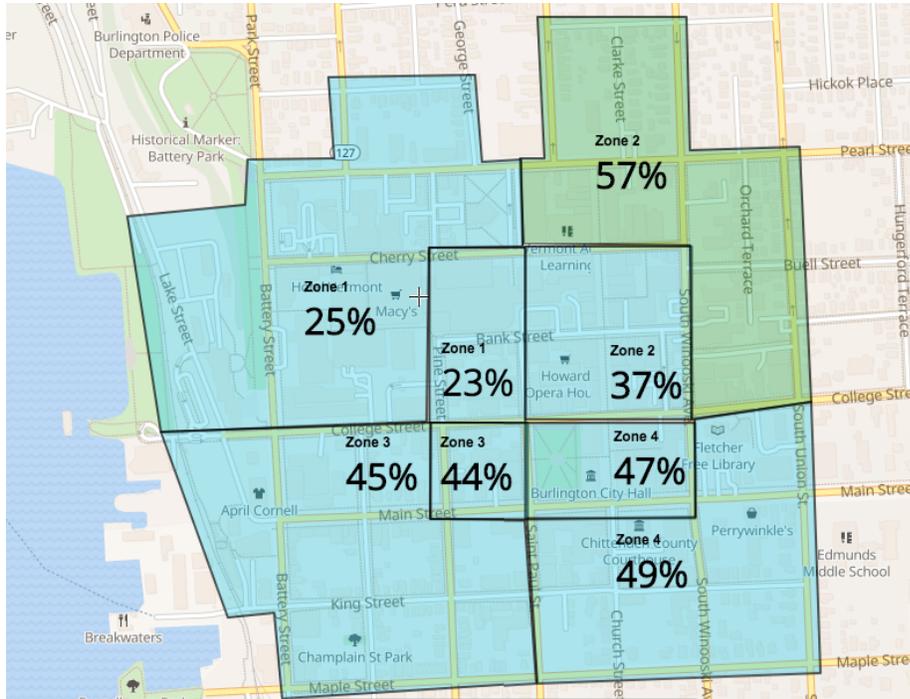
**Thursday 8-10AM**



One of our team's goals, and a goal of many of the surveyed businesses downtown in 2014/2015, was to encourage employees to park outside of our Core. Charging less per hour and allowing for more free parking hours outside the Core were some of the tactics we took in 2015 when changing over to smart meters in the Core. More data needs to be gathered, but the map above is showing us that our Non-Core area in the early working weekday hours is slightly more popular than our Core.

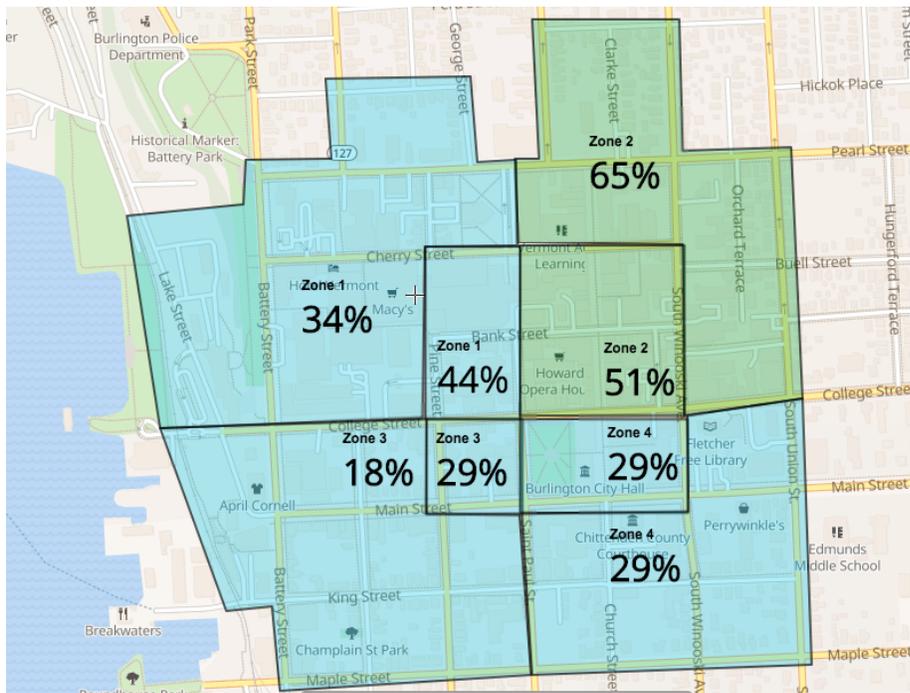


## Saturday 8-10AM



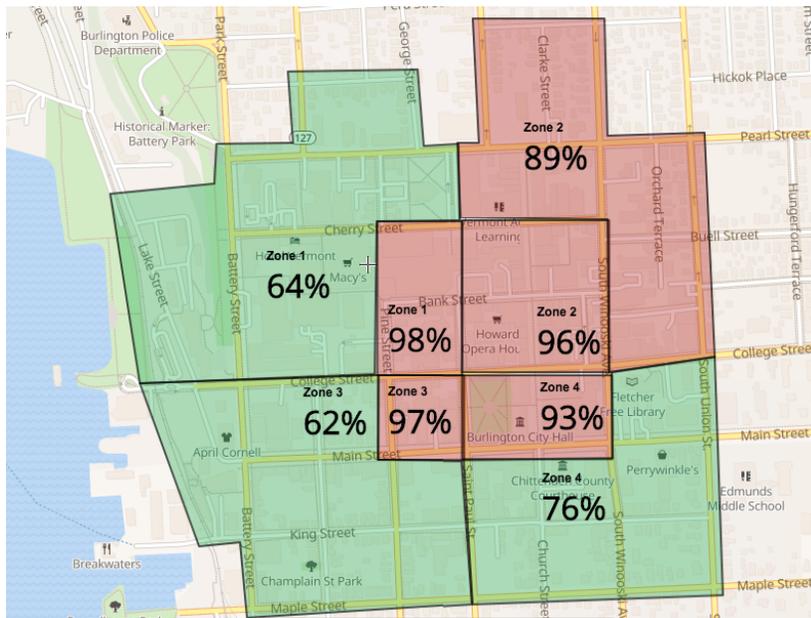
As mentioned previously, Saturday, both inside and outside the Core at 8am, is no longer enforced as of December 2017. This map is showing us that the enforcement change has not resulted in an unhealthy surge in usage. It's also showing a common theme throughout these maps: Zones 2 and 4 are on average, more popular than Zones 1 and 3.

## Sunday 8-10AM



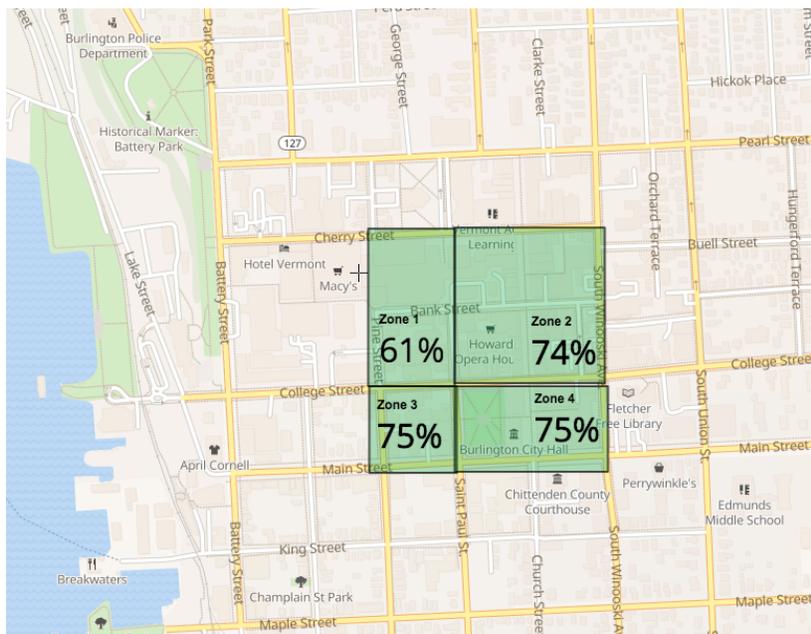
We don't currently enforce on Sundays. Tracking usage during periods of free parking is important to understand if enforcement is needed to free up parking spots. As shown above, Sunday mornings are showing fairly low usage across the board.

### Sunday 12-2PM



Sunday afternoons showed very high utilization rates during the afternoon. However, it's important to note: we only currently have data for March 2018 for all our Sunday counts. More Sunday data will be available by mid July 2018 and monthly Sunday counts will begin in August 2018. Consistently tracking data above 85% would motivate our team to start exploring approaches to free up parking for more users.

### Thursday 9-10PM

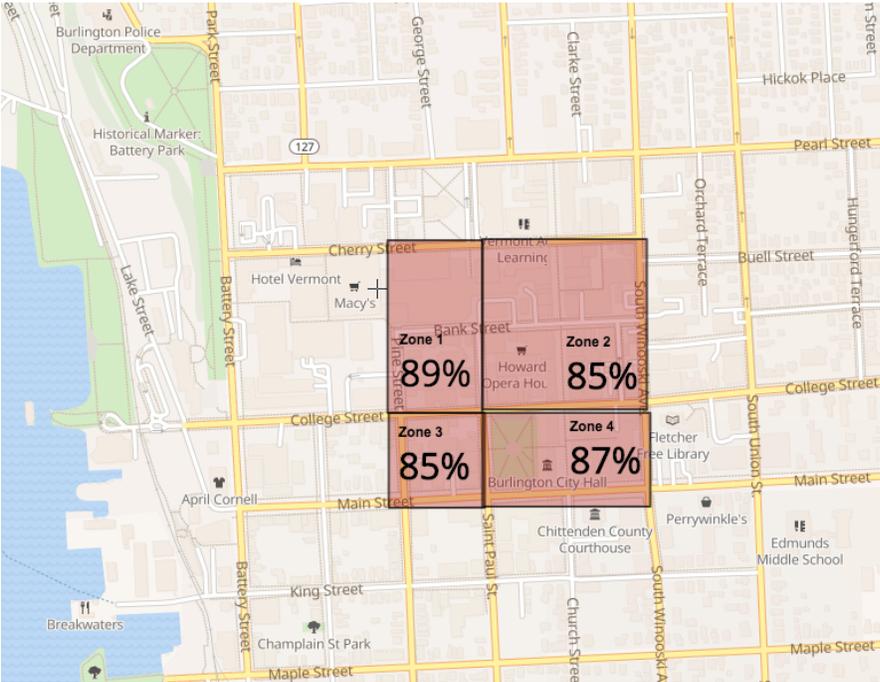


The above heat map shows another time period that was previously enforced prior to our December 2017 enforcement rollback. Utilization is fairly healthy, and again, rolling back enforcement has not yet caused



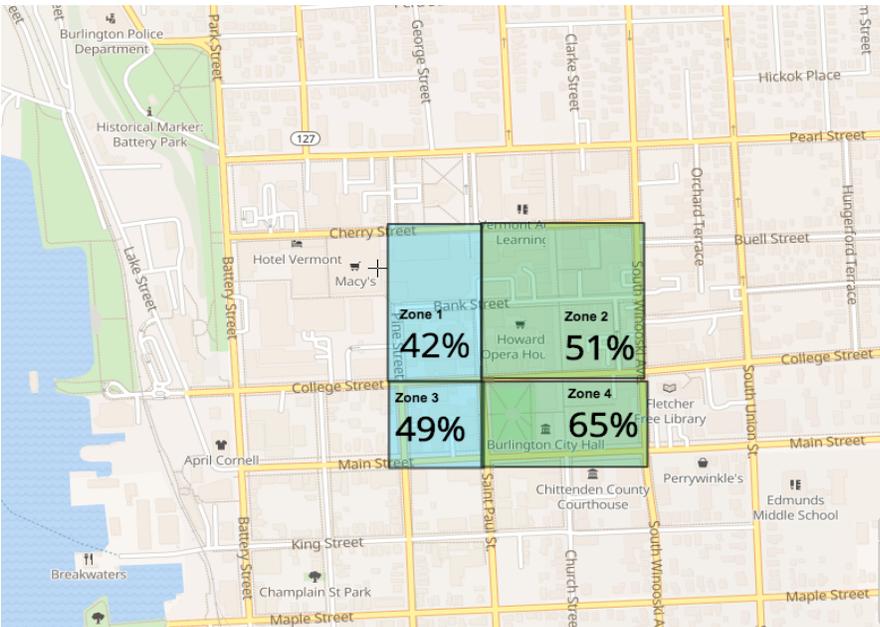
an unhealthy surge in parking demand in the Core during a popular weeknight.

**Saturday 9-10PM**



The red shading can be a bit deceiving, but taking the average of the four zones, our Saturday night Core utilization is tracking at 86.6% across February to May 2018. This equates to about one parking space open per block on a popular weekend night. May 2018 did show higher than 85% utilization and further data from summer 2018 data will be important to see how seasonality factors in.

**Sunday 9-10PM**

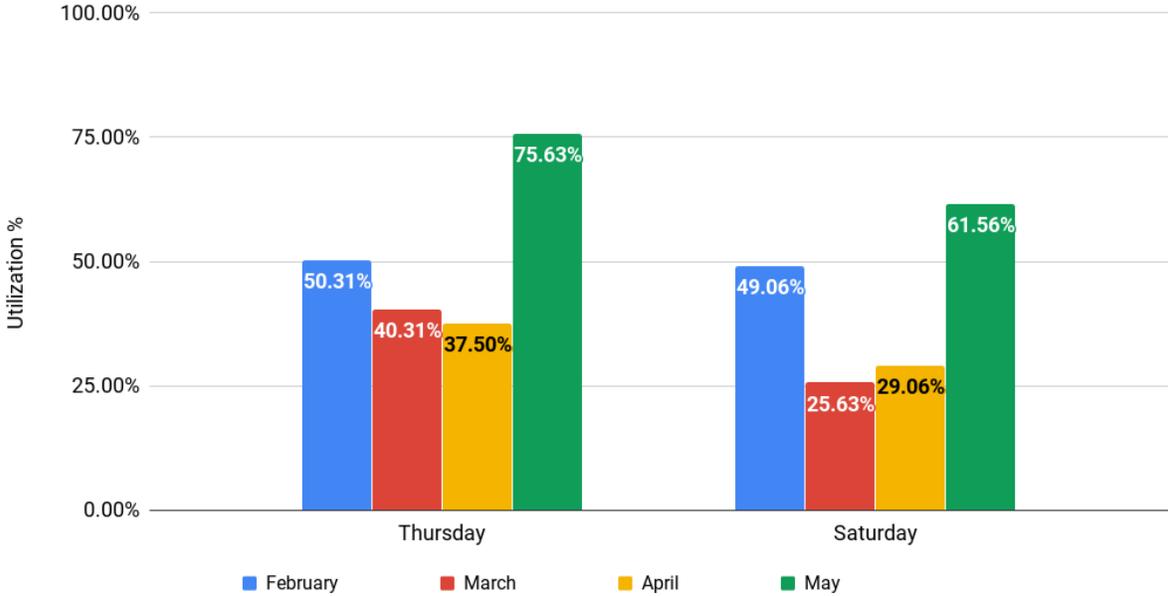


As expected, Sunday evenings saw less demand than Thursdays and Sundays. Our team plans to look at different evening hours for Sunday in August 2018 to dive deeper into when the high Sunday afternoon demand starts to decrease.

To start exploring how seasonality affects parking data, we created the below chart to shows the increase in parking demand in May versus February-April 2018.

**On-Street Utilization**

Downtown Core: 8-9am

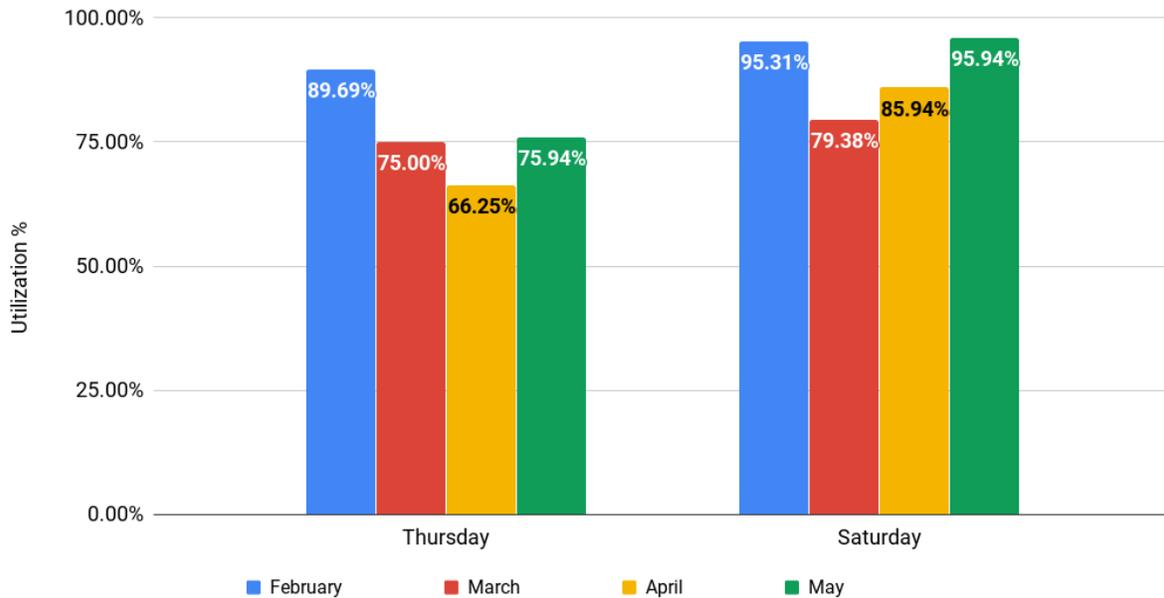


Clearly, seasonality affects parking demand and this makes it even more important to continue to update our findings once more summer months are tracked. Below is a chart which shows a similar demand surge in the Core during the evening. February’s data may be impacted by Valentine’s weekend where we ran a discounted parking promotion.



## On-Street Utilization

Downtown Core: 9-10pm



Overall, the heat maps above are showing us that parking is generally available at peak hours of the weekday and weekend and plentiful during non-peak hours. We'll need to track Saturday evenings and Sunday afternoons closely. More data is needed to determine if March 2018 was an outlier or an accurate representation of Sunday afternoon demand. More Sunday counts are needed to determine demand throughout the day and if enforcement or other tactics are needed to ensure parking is available as well. We will continue tracking parking demand both inside and outside our Core during Thursdays, Saturdays and Sundays and continue to update anyone interested via the Park Burlington website: [www.parkburlington.com](http://www.parkburlington.com).

### 2018 Transactional Data

Our Core is comprised of "smart meters" which allow us to collect data in real-time, including specifics related to revenue data. Furthermore, Parkmobile, Burlington's pay-by-cell app, allows us to dive into all 315,000+ Parkmobile transactions system-wide from the previous year.

Parkmobile also helps get more data from our older meter technology. The majority of our meter stock is comprised of traditional meter heads which do not track data. Parkmobile allows us to gather insight on Parkmobile-related transactions for these older meters; we also have macro data related to annual revenues for these meter types.

Below are revenue data highlights for all of the on-street meters in downtown Burlington, broken into various categories based on meter or transaction type.



**Parkmobile**

Parkmobile continued to grow in FY'18, with over 315,000 transactions and over \$700,000 in total revenue. Due to our complex meter setup in the City, we utilize a number of different "Parkmobile Zones" which help us program our different rate structures and metered lots. The below chart displays total transactions, parking amounts and total payment amounts (including transaction fees) for FY'18 by Zone:

Zone Code	Meter Description	SUM of Transaction Count	SUM of Parking Amount	SUM of Payment Amount
5801	3 Hour Limit, \$1/HR	129,932	\$199,738.50	\$241,411.95
5802	9 Hour Limit, \$0.40/HR	33,738	\$52,157.70	\$62,927.85
5803	Smart Meter, \$1.50/HR	111,740	\$287,824.50	\$322,960.50
5804	30 Min Limit, \$1/HR	4,557	\$1,927.25	\$3,399.70
5805	15 Min Limit, \$1/HR	746	\$183.25	\$444.35
5806	Pearl St Lot 10 Hour Limit, \$0.40/HR	1,645	\$2,949.40	\$3,475.85
5807	Pearl St Lot 3 Hour Limit, \$1/HR	807	\$1,303.75	\$1,564.45
5808	City Market Lot 3 Hour Limit, \$1/HR	6,194	\$14,377.50	\$16,369.65
5809	Fletcher Library Lot 10 Hour Limit, \$0.40/HR	5,559	\$9,780.10	\$11,554.45
5810	Fletcher Library Lot 3 Hour Limit, \$1/HR	6,432	\$11,998.00	\$14,030.95
5811	Main St. Lot, \$1.50/HR	6,791	\$19,716.50	\$21,883.40
5813	Browns Court Lot 10 Hour Limit, \$0.40/HR	5,887	\$2,700.00	\$4,594.45
5814	30 Min Limit, \$1/HR	2,448	\$609.25	\$1,466.05
<b>Grand Total</b>		<b>316,476</b>	<b>\$605,265.70</b>	<b>\$706,083.60</b>

Another metric we like to analyze is the average transaction amount. This total not only shows how much the average downtown visitor pays for street parking, but also can help quantify their average stay. The below chart displays the average transaction amount by zone. The average payment transaction includes transaction fees:



Zone Code	Meter Description	Average Parking Revenue/Transaction	Avg. Total Payment/Transaction
5801	3 Hour Limit, \$1/HR	\$1.40	\$1.72
5802	9 Hour Limit, \$0.40/HR	\$1.52	\$1.84
5803	Smart Meter, \$1.50/HR	\$2.39	\$2.71
5804	30 Min Limit, \$1/HR	\$0.41	\$0.74
5805	15 Min Limit, \$1/HR	\$0.24	\$0.59
5806	Pearl St Lot 10 Hour Limit, \$0.40/HR	\$1.87	\$2.20
5807	Pearl St Lot 3 Hour Limit, \$1/HR	\$1.64	\$1.96
5808	City Market Lot 3 Hour Limit, \$1/HR	\$2.26	\$2.59
5809	Fletcher Library Lot 10 Hour Limit, \$0.40/HR	\$1.83	\$2.16
5810	Fletcher Library Lot 3 Hour Limit, \$1/HR	\$1.98	\$2.31
5811	Main St. Lot, \$1.50/HR	\$2.91	\$3.23
5813	Browns Court Lot 10 Hour Limit, \$0.40/HR	\$0.45	\$0.78
5814	30 Min Limit, \$1/HR	\$0.25	\$0.60
<b>Average</b>		<b>\$1.65</b>	<b>\$1.98</b>

Taking the average parking transaction for our smart meters of \$2.39, we can say on average a visitor at this meter stays for just over an hour and a half. A chief concern with removing time limits from our 300+ smart meters was that people would never leave the meter, this average stay proves otherwise and aligns with the average meter stay prior to our smart meter implementation.

Another goal with our ongoing meter restructuring is to push longer-term street parkers, particularly downtown employees, further away from our Core. Taking the 9 Hour Limit meters as an example, we can calculate the average stay at a “Brown-Top” meter is 3.8 hours. A visit that long would be troubling in the Core, where turnover is needed, but it’s an encouraging sign for our longer-term meters.

Parkmobile’s percentage of all meter revenue grew significantly in FY’18, compared to FY’17: 30.9% in FY’18 vs 7.35% in FY’17. We expect this percentage to continue to increase. Parkmobile makes paying for parking easy and carefree and users are buying into that concept.

From a user-adoption perspective, Burlington’s Parkmobile base is still growing. Typically, user growth for a smartphone app like Parkmobile tails off after a year of implementation. Parkmobile launched in Burlington in November of 2015 and we’re still growing. We are awaiting an updated report from Parkmobile, but below are key highlights as of December 2017:

- Total Users Since Adoption: 39,078
- Active User Growth YOY: 33%
- New Users in December 2017: 1,461

One way our team has kept user growth trending upwards is via Parkmobile promotions. These promotions are typically sponsored through a local partner and provide a discount on street parking via a Parkmobile discount code. In total, we ran two promotions, covering twelve days in FY’18 and had over 700 visitors take advantage. The bigger of the two promotions was in December 2017 and contributed to



a particularly high new user rate detailed above. Special thanks to Church Street Marketplace for sponsoring both promotions in FY'18.

**Smart Meter Data**

We have approximately 315 smart meters in our Core. Of those 315 meters, there were over 640,000 transactions and just under \$1,000,000 in revenues collected in FY'18. Smart meters, besides tracking data, also accept credit/debit cards; this is an increasingly critical component of a successful parking system. Our world is becoming more reliant on credit/debit cards and the increase in credit/debit transactions, as well as, the increase in parking compliance due to increased payment options (decrease in tickets), helps drive this point home. Another benefit of having credit/debit capabilities is having to spend less public staff hours on coin collection. Below is a chart which displays the breakdown of smart meter transactions over FY'18:

Transaction Type	# of Transactions	% of Total Transactions	Total Revenue	% of Total Revenue
Coin	433,778	67.27%	\$363,104.55	37.30%
Credit	211,031	32.73%	\$610,313.00	62.70%
<b>Grand Total</b>	<b>644,809</b>	<b>100%</b>	<b>\$973,417.55</b>	<b>100%</b>

Quantitatively, coin is still leading the way in number of transactions. However, Parkmobile can be used to pay for our smart meters and if we add all Parkmobile credit/debit transactions from the smart meter zone, the transaction quantities are much closer: 433,778 coins vs. 322,771 credit/debit, a 57% vs. 43% split.

The other important data point is revenue totals and split. Clearly, when given the convenience of a credit/debit option, our system users are more willing to spend more per transaction; which in turn led to fewer total transactions. Again, when accounting for Parkmobile revenues in the “smart meter zone”, this split is even more dramatic: \$363,104.55 coin vs \$933,273.50 credit/debit. From a visitorship perspective, the willingness to stay longer means more opportunities for our downtown to thrive. Expanding our smart meter technology is a recommendation in the DPTM plan and data like his helps us justify the cost of transitioning to more smart technology.

**Non-Core Meters**

Our non-core meters do not currently have any smart technology to feed data back to us. Current financial reporting also does not clearly separate the non-core vs core meter revenue data. We do know that meter related revenues, both on-street and in City lots grew in FY'18 by over 11% (\$1.89M vs \$2.14M). Our teams plan to further refine our financial reporting in FY'19, as well as, explore expanding our smart meters’ footprint which will expand our data sets.



# Off-Street

## 2018 Utilization Data

Our City Garages are currently operating with outdated equipment which restricts our ability to collect data. However, our team will be implementing all new garage equipment by Fall 2018, which will enable us to collect more data, offer more products, increase automation and improve the overall customer experience for our garage users.

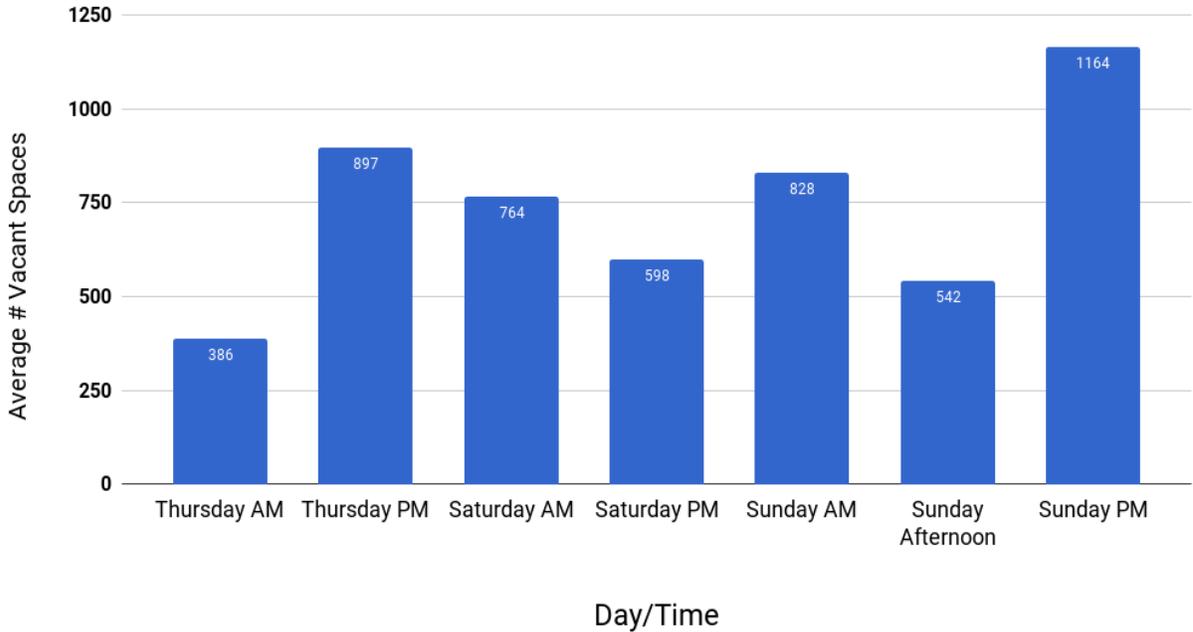
Thanks to our aforementioned partnership with UVM TRC, we now have consistent utilization data for all City Garages and privately-run facilities which offer public parking. The data was collected following strategies laid out in the DPTM plan and was aligned with our street counts: Thursday AM/PM, Saturday AM/PM and Sunday AM and 2 PM counts (afternoon and evening).

Below is a chart which highlights availability in our three City Garages: Marketplace, College Street and Lakeview garages. Throughout the data in this section, you may see the following acronyms:

- MPG: Marketplace Garage
- LVG: Lakeview Garage
- CSG: College Street Garage

### City Garage Availability

February - May 2018



As shown above, our City Garages have plenty of availability. Two important data points/impacts to note: Marketplace Garage, on average, makes up only around 11% of the above availability; also, the Burlington Town Center Garage and its 567 spaces were closed to the public during the entire study period. Having said that, this data is showing us we need to continue our signage improvements and communications to educate our visitors about the lesser-used Lakeview and College Street garages. We also can assume some of the parking crunch at Marketplace Garage will lessen once the new CityPlace Burlington Garage comes online. Our new garage equipment will also expand these data collection efforts to help us determine how else we can utilize the vacancy rates with various transient and lessee products.



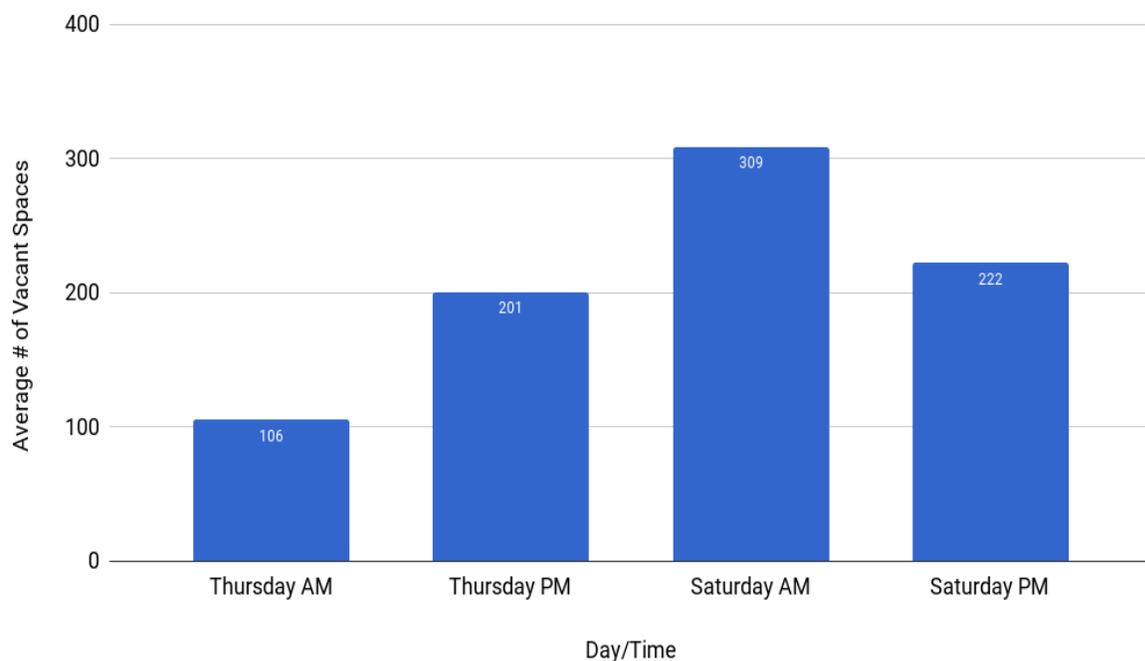
We also have a large number of off-street parking availability in privately-run facilities. Our UVM TRC team studied the following facilities, during the same day and time periods as our City-run street parking and garages:

- Corporate Plaza
- Park Plaza
- Investors Corporation of Vermont's Top Deck Lot
- Main Street Landing's Cornerstone Garage

All of these facilities are showing what our City Garages are showing, there's parking availability. Continuing to grow our communications and signage to better guide our visitors to all our off-street facilities will be important in FY'19. The below chart displays availability from during the same February to May 2018 period:

### Privately Owned Parking Availability

February - May 2018



It's important to note that the above data does not include availability at Unified Parking Partner (UPP) facilities around downtown Burlington. We've partnered with UPP to gather data and are utilizing their enforcement vendor, Park Select, to complete counts on weekdays, weeknights and weekends. On average, during Thursday AM/afternoon you can add around 80-90 vacant spaces, and on weeknights/weekends, you can add around 270 vacant spaces to the above chart.

When considering both City-run and all privately-run off-street facilities around downtown, we're averaging over 1,300 vacant spaces on Thursday evenings and over 1,000 vacant spaces on Saturday evenings. Our team will be releasing an RFP this fiscal year to bring in a design consultant which will help us improve signage in and around our City Garages; our hope is that these signage improvements and our continued Park Burlington communications growth will help more users find these spaces.



## 2018 Transactional Data

As mentioned, the age of our City Garage equipment restricts our ability to dive deeply into our data. Data in our FY'19 State of the System Report will improve immensely. We can only run revenue reports for our data on a calendar year basis, so the below data is from April 2017 – March 2018. The chart below highlights key transient revenue data from our three City Garages, revenues are currently programmed to be combined for Lakeview (LVG) and College Street (CSG) Garages:

Month	Total CSG/LVG Revenues	Total MPG Revenues	CSG/LVG % of Total Revenues	MPG % of Total Revenues	CSG/LVG Revenue per Space	MPG Revenue per Space
April 2017	\$13,639	\$56,078	19.56%	80.44%	\$12	\$144
May 2017	\$20,194	\$59,262	25.42%	74.58%	\$18	\$152
June 2017	\$21,004	\$63,749	24.78%	75.22%	\$18	\$164
July 2017	\$19,821	\$67,473	22.71%	77.29%	\$17	\$173
August 2017	\$17,562	\$63,902	21.56%	78.44%	\$15	\$164
September 2017	\$18,743	\$58,895	24.14%	75.86%	\$16	\$151
October 2017	\$19,396	\$61,637	23.94%	76.06%	\$17	\$158
November 2017	\$20,033	\$49,208	28.93%	71.07%	\$18	\$126
December 2017	\$19,044	\$69,391	21.53%	78.47%	\$17	\$178
January 2018	\$16,648	\$36,577	31.28%	68.72%	\$15	\$94
February 2018	\$17,604	\$53,556	24.74%	75.26%	\$15	\$138
March 2018	\$16,883	\$59,256	22.17%	77.83%	\$15	\$152
<b>Grand Total</b>	<b>\$220,571</b>	<b>\$698,984</b>				

Considering our highly utilized two-hour free program and the known availability in our College and Lakeview Garages, our facilities are still collecting significant revenues totalling \$919,555 from April 2017 – March 2018. As highlighted in the utilization section, Marketplace Garage leads the pack in all revenue statistics, despite having 749 fewer overall spaces.

Another metric we looked at was the average revenue per transaction for our City Garages:

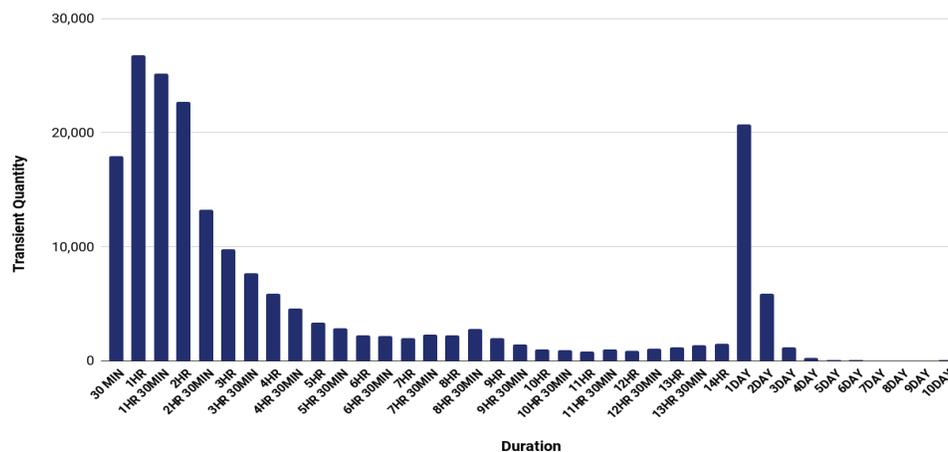


Month	CSG/LVG Average Revenue/Transaction	MPG Average Revenue/Transaction
April 2017	\$4.23	\$5.26
May 2017	\$4.61	\$5.31
June 2017	\$4.63	\$5.29
July 2017	\$4.52	\$5.29
August 2017	\$4.48	\$5.15
September 2017	\$4.80	\$5.28
October 2017	\$4.79	\$5.28
November 2017	\$4.67	\$5.30
December 2017	\$4.39	\$5.33
January 2018	\$4.85	\$5.67
February 2018	\$4.85	\$5.39
March 2018	\$4.64	\$5.45
<b>Overall Average</b>	<b>\$4.62</b>	<b>\$5.33</b>

As mentioned, our City Garages offer two-hours of free parking; anyone utilizing that discount wouldn't register as a transaction and we'll touch on that program's popularity shortly. However, for those actually paying for the stay at the garage, we can deduct the average stay at both garages is somewhere between 3-4 hours. The rate for a 3-4 hour stay at Lakeview or College Street Garage is between \$4-\$5 and for Marketplace Garage it's between \$5-\$6.

Though our garage equipment's data tracking is limited, it can tell us how long the average stay was for every transient visiting the garage, even if the transient stay didn't produce revenue for the City. The chart below details average transient stay for our Lakeview and College Street Garages from January 2017 to December 2017:

**Transient Duration: College Street & Lakeview Garages**  
January - December 2017

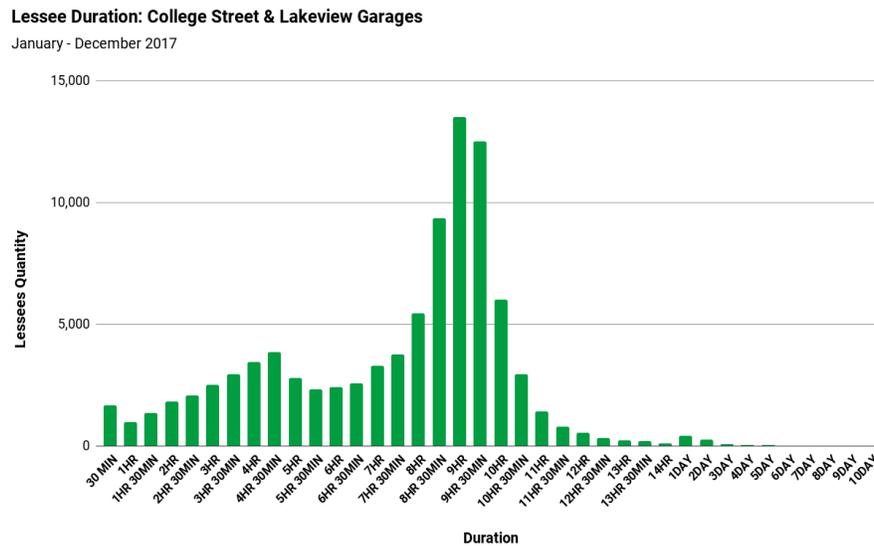


As you can see, the chart shows a clear trend, the majority of transients exit the garage in two hours or less. Overall, 92,629 transient stays lasted two hours or less, comprising 47.42% of transient stays. In terms of revenue, it equates to roughly half of these garage's customers leaving the garage for free. It's



important to note, many of the 1-3 day stays shown above are likely related to our downtown hotels who utilize these garages for their overnight guests. Unfortunately, due to our equipment limitations, this data is not available for Marketplace Garage; however, we know from the DPTM Plan that somewhere between 60-70% of transient visits at Marketplace Garage are less than two hours. Our new garage equipment will help us update this data.

Lakeview and College Street Garages house many of the City's lessees. We were also able to track the average stay for lessees below, for the same January 2017 to December 2017 period:



The chart above shows a healthy lessee average stay, with over 50% of stays in the 8-10 hour range. Another metric we looked at was what percentage of these lessees were staying longer than one day, which would cause issues with taking up space for transients and violate terms in their lease agreement. Stays longer than one day comprised only 0.95% of lessee stays.

When analyzing the user split between transient and lessees in the College Street and Lakeview Garages, we found the following:

Month	CSG/LVG Transients	CSG/LVG Lessees	% CSG/LVG Transients	% CSG/LVG Lessees
April 2017	24,067	6,676	78.28%	21.72%
May 2017	34,395	11,102	75.60%	24.40%
June 2017	35,295	10,812	76.55%	23.45%
July 2017	32,716	9,214	78.03%	21.97%
August 2017	33,611	10,325	76.50%	23.50%
September 2017	30,045	10,015	75.00%	25.00%
October 2017	32,092	10,839	74.75%	25.25%
November 2017	31,587	302	99.05%	0.95%
December 2017	36,338	12,323	74.68%	25.32%
January 2018	33,418	508	98.50%	1.50%
February 2018	32,775	4,831	87.15%	12.85%
March 2018	34,577	5,374	86.55%	13.45%
<b>Grand Total</b>	<b>390,916</b>	<b>92,321</b>	<b>80.90%</b>	<b>19.10%</b>

We don't have a clearly defined goal for this split, but certainly want to see transients outpacing lessees to ensure visitors to our downtown have space to park when they come down. The data is showing close to an 80/20 split, which will only improve with more awareness of these garages. We don't have the ability to accurately track the transient vs lessee split in Marketplace Garage. However, Marketplace averaged 38,500 transient visits per month and over 460,000 transient visits from April 2017 to March 2018. Again, Marketplace Garage outpaced both Lakeview and College Street Garages in terms of transient popularity despite over 700 fewer spaces.



# Enforcement

As mentioned, major changes to our downtown system were passed in late 2014. These changes implemented our smart meters and their credit/debit card capabilities, removed time limits in the Core and increased the smart meter rate to \$1.50 per hour. We also increased enforcement hours to be 8am-10pm in the Core and 8am-6pm in the Non-Core. As mentioned, these hours have since been reduced to 9am-9pm in the Core and 9am-6pm in the Non-Core. In 2015, Parkmobile was implemented, providing yet another way to pay and a way to extend your stay at the meter remotely via the app.

The Burlington Police Department (BPD) enforces our parking policies and issues tickets for violations. There were also changes to the BPD’s enforcement team in 2014 to upgrade their equipment and ensure the enforcement technology integrated with both our new smart meter technology and eventually our Parkmobile technology in 2015.

All of these changes required education and outreach to get our users up-to-speed on the new options and policies. Our team wanted to make sure we were tracking how many tickets were issued during this period of change. We expected a minimal increase in tickets immediately after the change, with a goal of reducing tickets issued long-term due to the increased payment options and convenience.

The table below displays annual tickets issued from calendar years 2015-2017 during the 8am-10am and 8pm-10pm hours:

Tickets Per Year			
Time	2015	2016	2017
8-10am	3,720	3,991	3,265
8-10pm	7,144	6,135	4,067

As expected, tickets increased during the transition period while users got used to the late 2014 and 2015 changes. However, once our education and communication efforts took effect, tickets decreased fairly significantly in 2017, compared to 2016:

- 8-10am - 18% decrease
- 8-10pm - 34% decrease

In total, during calendar year 2014 and previous to our enforcement and technology changes, BPD issued 41,006 tickets. As of calendar year 2017, that number has decreased to 36,162 or almost 12%. As our Parkmobile user base and payment options grow, we expect this number to continue decreasing.



## Conclusion

Exciting progress has been made in downtown Burlington. Technological, operational and policy changes have improved our system's financial health, and contributed to a more vibrant downtown with improved customer service and convenience. During a period of major construction and redevelopment, parking is still available in various locations in downtown on weekdays and weekends.

More work is still needed to collect more data, analyze seasonality and Sunday utilization, increase communication and awareness of the parking that is available and to continue engaging all stakeholders on how we can continue building momentum in FY'19. Our team recently presented our FY'19 Workplan to City Council, receiving unanimous approval. This report and its findings will help drive our work this next year and we'll publish a similar report in July 2019 to recap that progress.

In the interim, please check out our website [www.parkburlington.com](http://www.parkburlington.com) for updates, online tools like an interactive [car parking](#) and [bike parking map](#), and information on getting to and from Burlington's busy 2018 summer of events. Sign up for our monthly e-newsletter, [go!BURLINGTON](#), for a digest of all the previous month's parking and transportation news. We also have a Downtown Parking & Transportation Council (DPTC) which typically meets monthly and brings together downtown residents and local organizations in the parking and transportation industry to discuss impacts to the system, collaborate on issues and recap this project's progress. Read more about the DPTC [here](#).

Questions, comments or ideas from the report? Contact our Park Burlington team via our website at <https://parkburlington.com/contact/>



Burlington Department of Public Works Commission Meeting  
Draft Minutes 19, 2018  
645 Pine Street – Main Conference Room

Commissioners Present: Tiki Archambeau, Solveig Overby, Brendan Hogan,  
Bob Alberry, Justine Sears by phone.

Commissioners Absent: Jim Barr, Chris Gillman

**Item 1 – Call to Order – Welcome – Chair Comments**

Commissioner Archambeau called the meeting to order at 6:32 p.m.

**Item 2 – Agenda**

Commissioner Overby commented on consent Agenda Item 4(A). North Winooski Ave crosswalk has location issues that are challenging and would like them to be addressed as part of the parking update.

Director Spencer recommended switching items 5 and 6 to accommodate the residents that were here to speak at the Public Forum.

Commissioner Alberry makes a motion to approve the agenda with items 5 and 6 reversed.

Commissioner Hogan seconds.

Action taken: Roll call vote - motion approved;  
“Ayes” are unanimous.

**Item 3 – Public Forum**

Tony Redington, Ward 2, Andy Simon, Ward 5, Jack Daggitt, Ward 3, Charles Simpson, Ward 6 and Robert Herendeen, Ward 4 all speak regarding Agenda Item 6 – Roundabouts in Burlington.

**Item 4 – Consent Agenda**

- A. 30 Minute Parking on North Winooski Ave
- B. St. Paul Street Construction Parking

Commissioner Alberry made a motion to accept Consent Agenda  
Commissioner Hogan seconded

Action taken: Roll call vote - motion approved;

“Ayes” are unanimous

### **Item 5 – Roundabouts in Burlington**

A. Senior Planner Losch presented on roundabouts in Burlington. A description of Roundabouts and other circular intersections was provided. Planning studies and intersection projects that considered Roundabouts were discussed. Senior Engineer Wheelock answered questions regarding the Shelburne Street roundabout project.

B. Commissioner Discussion:

Commissioner Hogan – asked if Battery St & Maple St or Winooski Ave were considered for a roundabout.

Commission Overby – appreciates the Departments evaluation but encourages the City to proceed with roundabouts whenever possible.

Commissioner Alberry was supportive of staff's work.

Commissioner Archambeau – Appreciates all of this work and the Commission's discussion.

C. Public Comment – Andy Simon, Ward 5 & Charles Simpson, Ward 6 spoke in favor of more roundabouts.

### **Item 6 – 2018 Construction Season Recap**

A. Presentation by Director Spencer and Public Information Manager Rob Goulding – outlining the accomplishments of the team this year on City projects. Progress includes DPW hitting most of our production goals for this season, from tripling the amount of sidewalks that were replaced and adding pedestrian signals and crosswalks. Updates can be found on the BTV Construction Portal.

B. Commissioner Discussion:

Commissioner Archambeau asked for clarification on sidewalk cutting.

Commissioner Overby said it's great for people to be able to see accomplishments.

Commissioner Alberry – Great job everyone and wished everyone and their families Happy Holidays!

Commissioner Hogan – Asked if there was a budgetary or policy reason why bike measurements were on a separate page and not with the capital reinvestment metrics?

C. There were no public comments.

## **Item 7 – Approval of Draft Minutes of 11-28-18**

Commissioner Overby asked to have her comment regarding permit reform added to November minutes. Commissioner Overby provided proposed edits in writing.

Commissioner Alberry made a motion to accept minutes with Commissioner Overby's edits. Commissioner Hogan seconded.

Action taken: vote -motion approved;  
"Ayes" are unanimous

## **Item 8 – Director's Report**

Director Spencer stated that there are currently 46 Traffic requests in queue. Will be bringing a more extensive bi-annual report to the Commission early in 2019.

The Champlain Parkway compensation hearing with City Council went smoothly on December 17. The Council voted positively for compensation recommendations.

Permit reform – The City Council voted to advance language for the March Ballot to merge Zoning, Code Enforcement and Inspection Services. We are currently working with an architect on the redesign of the 645 Pine Street building to accommodate Permit Reform and other potential operational improvements.

Commissioner Overby asked if there were any outstanding lawsuits for the Champlain Parkway. Director Spencer answered yes.

## **Item 9 – Commissioner Communication**

Commissioner Overby shared a picture of a mother with her two little kids using the protected bike lane on South Union St and how it is working.

Commissioner Hogan – Great job for updates and hard work this year. Noticed a couple of open job descriptions. Do we have what we need?

## **Item 10 – Adjournment**

Commissioner Alberry motioned for adjournment  
Commissioner Hogan seconded  
All were in favor.

Meeting adjourned at 8:37 p.m.



**CITY OF BURLINGTON  
DEPARTMENT OF PUBLIC WORKS**

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To: DPW Commissioners  
Fr: Chapin Spencer, Director  
Re: **DPW Director's Report**  
Date: January 10, 2019

**CHAMPLAIN PARKWAY COMPENSATION HEARING:**

The City Council unanimously approved the City's Compensation Order for the Champlain Parkway at their January 7, 2019 meeting. This follows the Council's Compensation Hearing on December 17<sup>th</sup>. More information is at:

<http://www.boarddocs.com/vt/burlingtonvt/Board.nsf/goto?open&id=B83KMS5135C5>.

**HOLIDAY PARKING PROMOTION RECAP:**

Here is a quick recap on the holiday parking promotion we put together with Church St Marketplace and the Burlington Business Association, funded by CityPlace Burlington. The promotion ran from November 23 to December 31, 2018 and had the following utilization:

- ) 4-hr Free Parking in College St / Lakeview Garages: 7,100 uses
- ) 2-hr Free On-Street Parking through ParkMobile: 6,361 uses
- ) Free Daily Employee Parking in College St / Lakeview Garages: 359 uses

We also put up directional signs to parking facilities and educated the public about the promotion through various marketing channels. Of course, these promotional efforts were in addition to the standard 2-hr free parking in municipal garages every day. We were pleased with the utilization overall, but the free daily parking for downtown retail and restaurant employees was lower than expected. We will be interviewing downtown staff and employers to figure out how to better match the promotion to their needs in the future.

**TRAFFIC REQUESTS:**

We will be providing our bi-annual report on Traffic Requests at the January Commission meeting.

**PERMIT REFORM UPDATE:**

Our Permit Reform work continues. Today, staff from Inspection Services, Code Enforcement and Zoning, who will all be part of the proposed new Permitting & Inspections Department, began their work with a process consultant to map out process improvements for the City's permitting system. This behind-the-scenes work will enable us to develop the one-stop permitting shop called for by many over the years.

Feel free to reach out with any questions prior to Wednesday's Commission meeting. Thank you.