



Ahead of the Curve
in creative parking solutions

COMPREHENSIVE PARKING STUDY

**CITY OF STAUNTON
PARKING OPERATIONS
& MANAGEMENT PLAN**
STAUNTON, VA

Prepared for:
CITY OF STAUNTON

NOVEMBER 20, 2017



WALKER
PARKING CONSULTANTS

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EXECUTIVE SUMMARY

Parking can be many things to many people. For retail shops and restaurants, parking is economic opportunity where the demand for convenient short-term parking is satisfied by highly visible, high turnover curbside and off-street parking spaces. For residents, parking offers accessibility for them, their visitors, and the various service activities that support their needs. From a municipal perspective, parking is infrastructure that must be effectively operated and maintained so as to benefit the land uses its supports. But, as public infrastructure, the public parking system has to compete with a wide variety of other government responsibilities. Public schools, parks and recreational facilities, roads and sewers, police and fire service, and other municipal obligations also demand fiscal and operational attention. A municipality's parking system, as a lower priority, is unable to compete with the needs/obligations of these other responsibilities. As a result, the curbside spaces, parking lots, and parking structures often operate at less than ideal levels and the maintenance of these facilities is often ignored and/or deferred. Such is the case in historic downtown Staunton.

However, parking, unlike most government services, has the potential to generate revenue. Customers, employees, and residents all value parking that is within close proximity of their destination. Therefore, a parking space close to their "front door" is more valuable than a space that is around the corner or around the block. Like the seats to a baseball game where the view behind home plate is more valuable than the view from the bleachers, many municipalities can and do price parking accordingly. Furthermore, given the value of curbside parking to retail business, many municipalities attempt to have the curbside space serve as many users during the course of a day as possible by limiting parked duration. Like the tables at a restaurant where the owners want to serve as many patrons as possible, curbside parking needs turnover. While Staunton does have two-hour restrictions on most of its on-street spaces within its commercial district, there are few parking meters and enforcement appears generally ineffective. As a result, long term parkers like employees are monopolizing these valuable parking assets.

Given the fact that public parking infrastructure is unable to compete with the financial demands of other public services, that parking has unique and variable value, and that short-term and long-term (employee) parking could be managed through duration and variable pricing, many municipalities create an enterprise fund so that the parking system can be financially self-supporting. Under this financial structure, the cost to plan, fund, operate, and maintain on- and off-street parking would be covered through parking user fees. There is a certain egalitarianism to this approach as the parking program is funded by those who choose to drive and park a car. Those who do not frequent the downtown's parking facilities or who don't even own a car are not subject to financing the parking system through property taxes or other revenue sources derived from the municipality's General Fund. Wisely, the City of Staunton did create a Parking Enterprise Fund, but it does not recognize long-term maintenance and durability of its lots and structures, nor does it generate sufficient revenue to cover daily operating costs. As a result, the City's General Fund, and therefore its taxpayers, are obligated to transfer money to the parking program that would normally have gone to school, parks, or other public services. Furthermore, because the City and Parking Enterprise Fund did not include a sinking fund for long-term durability, Staunton must now spend \$2.5 million to repair its Johnson Street Garage.

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While the City of Staunton, its political leadership, and taxpayers could choose to disregard some or all of the operational and management recommendations in this report, the responsibility to fund and maintain its parking infrastructure is not negotiable. By providing the various lots and parking structures to serve the downtown's economic and access needs, the City and its stakeholder have committed to funding their maintenance and operation during their useful lifecycle, which for parking structures could be 40 to 50 years. Staunton could choose to provide free, aka, complimentary parking, but without parking user fees that would simply transfer the financial responsibility from those who choose to park to all taxpayers, including those who don't have a property/business downtown and to those who don't own a car.

The following summary recommendations outline the tasks required to improve efficiency of parking operations, improve accessibility for short-term and long-term parkers, and, over time, generate sufficient revenue to cover parking system costs, without having a negative impact on the downtown economy or quality of life for its residents.

PARKING MANAGER AND PARKING TASK FORCE

The ability to effectively execute policy and management changes and, equally important, monitor and respond to the actual results of policy changes, depends in large part on the structure of parking organizational management within City government. There is no one person responsible for parking, nor is parking the central focus of any one department, with the results being that the parking operation and its policies are challenged from the lack of a unified vision.

- ***It is recommended that the City create a champion of parking.*** One person should have responsibility for leading the City's parking mission, comprehensively overseeing all elements of the parking system, promoting the maintenance and financial soundness of the parking infrastructure, and addressing the concerns and requests of the stakeholders who rely on the system. This position should exist within the City Manager's office.
- It is recommended that the salary for this position be in the \$55,000 to \$75,000 range, and using an average of \$65,000 with benefits equaling 35%, the resulting cost for the purposes of a financial analysis is \$87,775 annually.
- Parking management needs to constantly evolve in response to changes in the land uses that the parking system supports. To better "hear" the voices of change and to build political leverage, ***it is recommended that the City create a parking task force.*** This body need not function as a commission, but should nonetheless include representation from downtown and impacted residents, business owners, property owners, Mary Baldwin University, the County, and the parking manager as a staff liaison.

OFF-STREET OPERATIONS

Given the age and condition of the access and revenue control equipment in the Johnson Street Garage, New Street Garage, and Wharf lot, and the aging and "mixed bag" of approaches the used in its other off-street lots, the City cannot with confidence make proactive decisions regarding the parking system's role in economic development. A more consistent approach to the parking operations is recommended including, more on-line equipment which will provide better reporting through automatic data generation.

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- Recommend **replacing the Johnson Street Garage, New Street Garage and Wharf Lot PARCS equipment with a pay-on-foot (POF) system.** This would be in conjunction with a City wide improvement plan to be discussed later in this report. Costs, including installation, servers, software, licenses, and contingency, but not including cost, if any, to redesign/realign the actual lanes, are estimated at \$339,000.
- The **Augusta, Hardy and RMA lots should have new parking meters installed, and it is recommended that the City install pay-and-display technology.** The Digital Paytech "Shelby" machine on the Augusta Lot has been discontinued and is no longer supported by the manufacturer. Therefore, it must be replaced. Including server, system software, training/orientation, installation, and licensing, the total cost for one installation in each of the three lots is estimated to cost \$131,250, plus \$15,000 for shelters.
- This program would require an individual or individuals who would have immediate access to downtown parking facilities. This level of customer service could be accomplished by the parking manager, parking field supervisor or by other City employees who would have authority to "raise the gates".
- **The Augusta, Hardy and RMA lots should also implement a "Pay by Phone" service.** Cost to the City for the system development, signage, promotion, marketing, and management is zero as the service provider captures their operation costs and profit from the user convenience fee which is added to the City's parking fee. User fees depend on the contract but could vary between \$0.20 and \$0.35 per transaction.
- Back Office Software (BOS) is recommended, as it is integral with the success of the parking technology being proposed. Without a strong software package, the technology may be ignored and therefore rendered useless. The cost of BOS is included within the POF contract.

VALIDATION OPTIONS AND THE STONEWALL JACKSON HOTEL

The City should revise the parking management procedures it currently employs with the Stonewall Jackson Hotel and its New Street Garage. The recommended strategy could also be used for a larger merchant validation program at the Johnson Street Garage and Wharf Lot.

- **For the Stonewall Jackson Hotel and Johnson Street garage it is recommended that a web-based validator system be employed.** To integrate the garage's PARCS system with the hotel's folio system, a scanner and PARCS-to-hotel folio software system would be required, for a total cost of \$17,000.

ON-STREET OPERATIONS

The City has a combination of metered and complimentary on-street parking management programs, with the meter problem specific to 10-hour meters along the Mary Baldwin College boundary. In effect, the meter program in place is designed to serve long-term parkers. This is contrary to the intended purpose of parking meters on curbside spaces. The short-term parking restrictions that are in place are managed through signage and enforcement. The level of enforcement seems appropriate but the technology employed is woefully inadequate to the task.

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- ***The curbside parking meter program needs to be expanded in phases to discourage non-compliance with posted restrictions, and to improve the performance*** of those valuable spaces. The expansion program would initially be limited to the more visible and active curbside spaces on Beverley, Central, New, and Barrister Street.
- Assuming one central pay-and-display pay station is located on each block, then ten pieces of equipment would be required at an estimated cost of \$90,000. First full-year operating revenue for these spaces is estimated at \$83,700.
- Presuming the curbside metering program proves effective at encouraging improved parking turnover and performance during an initial one-year evaluation period, the City would then commit to the second phase of the expansion program. This phase would impact 140 on-street spaces, including but not limited to Frederick Street and select streets south of Johnson Street. In this phase, fifteen pay-and-display units would be installed at a cost of \$135,000. The on-street program's system-wide revenue is estimated to generate \$314,600 during its first full year of operation.

PARKING ENFORCEMENT AND ADJUDICATION

The City parking citation issuance, tracking, and adjudication program, like much of its parking control equipment, is outdated. Based on the high volume of tickets issued on average each day, the low volume of appeals, and the high percentage of vehicles parked in violation of the 2-hour duration, it would appear that the parking enforcement program isn't as effective as it needs to be.

- ***Recommend acquisition and employment of handheld ticket issuance devices/systems in the implementation and management of the parking enforcement program.*** Some handheld ticketing systems also include software for residential or monthly permitting, an online web portal for payment, and online adjudication processes.
- Estimated costs include handheld application with Bluetooth printer (\$3,000 purchase per user with contract of \$750.00 per year), parking management software (\$6,000 per user purchase and contract of \$1,200 per year), a customer web portal for adjudication and appeals (\$10,000 purchase), a one-time system setup fee (\$13,000) and annual contract management costs (\$4,000).
- ***Mobile License Plate Recognition (MLPR) can also be implemented to increase the efficiency of parking enforcement.*** Given that the cost to purchase and outfit a vehicle is approximately \$50,000, it is recommended that the city delay on the decision to purchase this technology until other improvements to the parking program have been initiated, measured, and formalized.

PARKING VIOLATIONS AND FINE STRUCTURE

The fine structure in Staunton is was increased in 2016 in an effort to improve compliance with posted parking restrictions. Based on parking turnover and duration data collected by the consultant, it would appear that these increased rates did not have the desired response. Additional improvements are required.

- With the implementation of the recommended handheld ticket issuance devices and associated back office software, the City will see improved compliance with posted

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restrictions, particularly those related to duration. If implemented, ***the City should soften the fine structure by incorporate a first warning system.*** A warning softens the negative impression that parking enforcement generally creates and it educates the parking “consumer” on appropriate parking behavior.

PROJECT PARKING SYSTEM FINANCIAL ANALYSIS

Each year the City of Staunton's General Fund is required to make significant transfers to the Parking Fund to cover that program's operating deficits. Even with those financial subsidies, the City and Parking Fund have failed to anticipate costs associated with unfunded operating mandates and deferred maintenance. An example is the Johnson Street Garage which now requires a capital expenditure of \$2.5 million for immediate and necessary structural repair and maintenance.

- With current parking rates and performance of existing parking facilities, and a \$1.00 per hour rate for new/expanded metered spaces, the parking system would operate at a deficit of \$178,929 in FY2030. Assuming no increases in parking activity and only periodic rate increase to cover operating costs, the parking system will achieve sustained financial self-sufficiency by FY2023 with an operating surplus of \$58,179.

City of Staunton Five-Year Parking Operations & Management Implementation Plan/Schedule

Task	FY2019				FY2020				FY2021				FY2022				FY2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Create a Community-based Parking Task Force																				
Fund Repair/Maintenance of the Johnson St. Garage																				
Reinforce Role and Responsibility of Parking Fund																				
Create and Retain Parking Manager Position																				
Upgrade PARCS Equipment in Johnson, New, and Wharf Lot																				
Initiate Handheld Ticket Issue Enforcement System																				
Upgrade Parking Equipment in Augusta, Hardy, and RMA Lot																				
Initiate Web-based Jackson Hotel Validation System																				
Soften Violations/Fine Structure with First Time Warning																				
Initiate and Evaluate Phase I Meter Expansion Program																				
If Warranted Initiate Phase II Meter Program																				
If Warranted Initiate LPR Enforcement Program																				
Perform Surveys of Parking System Performance																				

EXISTING PARKING INVENTORY AND PERFORMANCE



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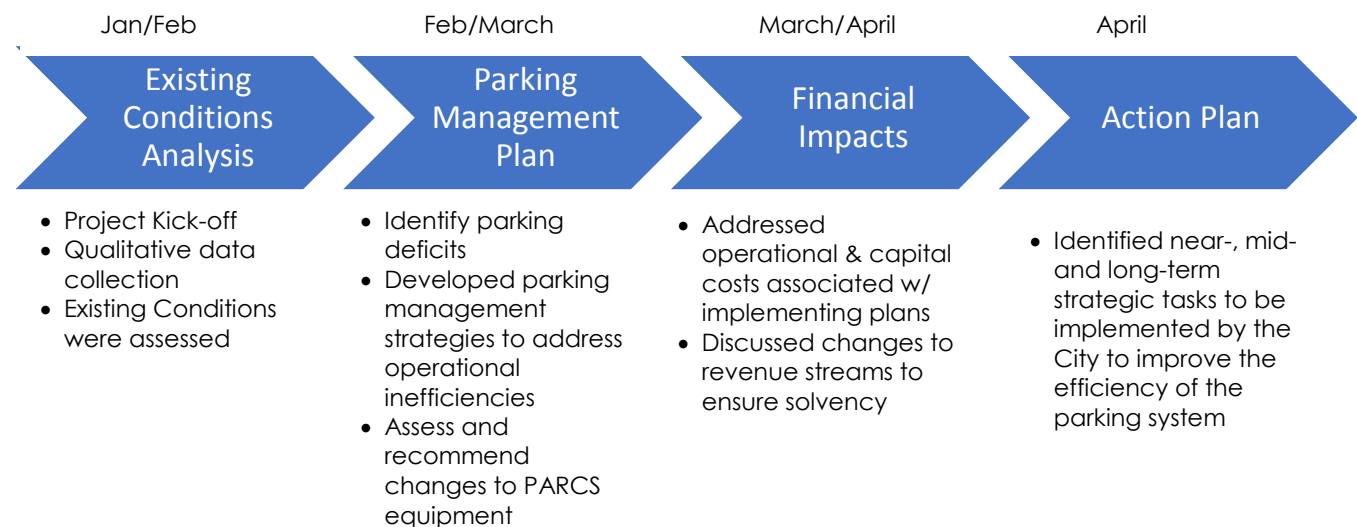
INTRODUCTION

The City of Staunton (the "City") retained Walker Parking Consultants (Walker) to perform a comprehensive parking needs assessment and develop an operations and management plan identifying the cost and timeframe for implementing key operational, financial, and capital recommendations. Currently, the parking system in downtown Staunton is a patchwork of on- and off-street facilities, developed in response to a specific need at a specific time, and operating under varying levels of control and maintenance. The City recognizes that the current management plan is inefficient and that a new path is needed to better serve the community at large.

The City, through our analysis, is seeking answers to the following questions:

1. What is the demand for parking in the downtown?
2. What is the true cost to provide and maintain its parking system?
3. What parking rates (monthly and hourly) are appropriate and/or required?
4. What types of parking access and revenue control equipment would best meet the downtown's various needs?
5. Which City department or departments should be involved in parking?
6. What changes need to be made to existing codes and ordinances to make the parking program effective and responsive?

The purpose of the study is to provide a quantitative evaluation of the existing parking adequacy that clearly identifies the parking inventory, utilization and availability in downtown Staunton, while also providing insight on how the existing parking supply may be used more efficiently. Through this analysis, Staunton hopes to build a roadmap to guide it through the next ten years of growth in its downtown. The methodology employed by Walker to achieve this goal, as well as the general timeframe in which the tasks were completed follows.



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STUDY AREA BOUNDARY

The boundaries of the study area in Staunton include Churchville Avenue to the north, Market Street/Coalter Street to the east, the railroad tracks to the south, and Lewis Street to the west. The exception to these boundaries are the public parking lot and on-street parking along the east side of Lewis Street.

Figure 1 below shows the boundaries of the study area surveyed by Walker.

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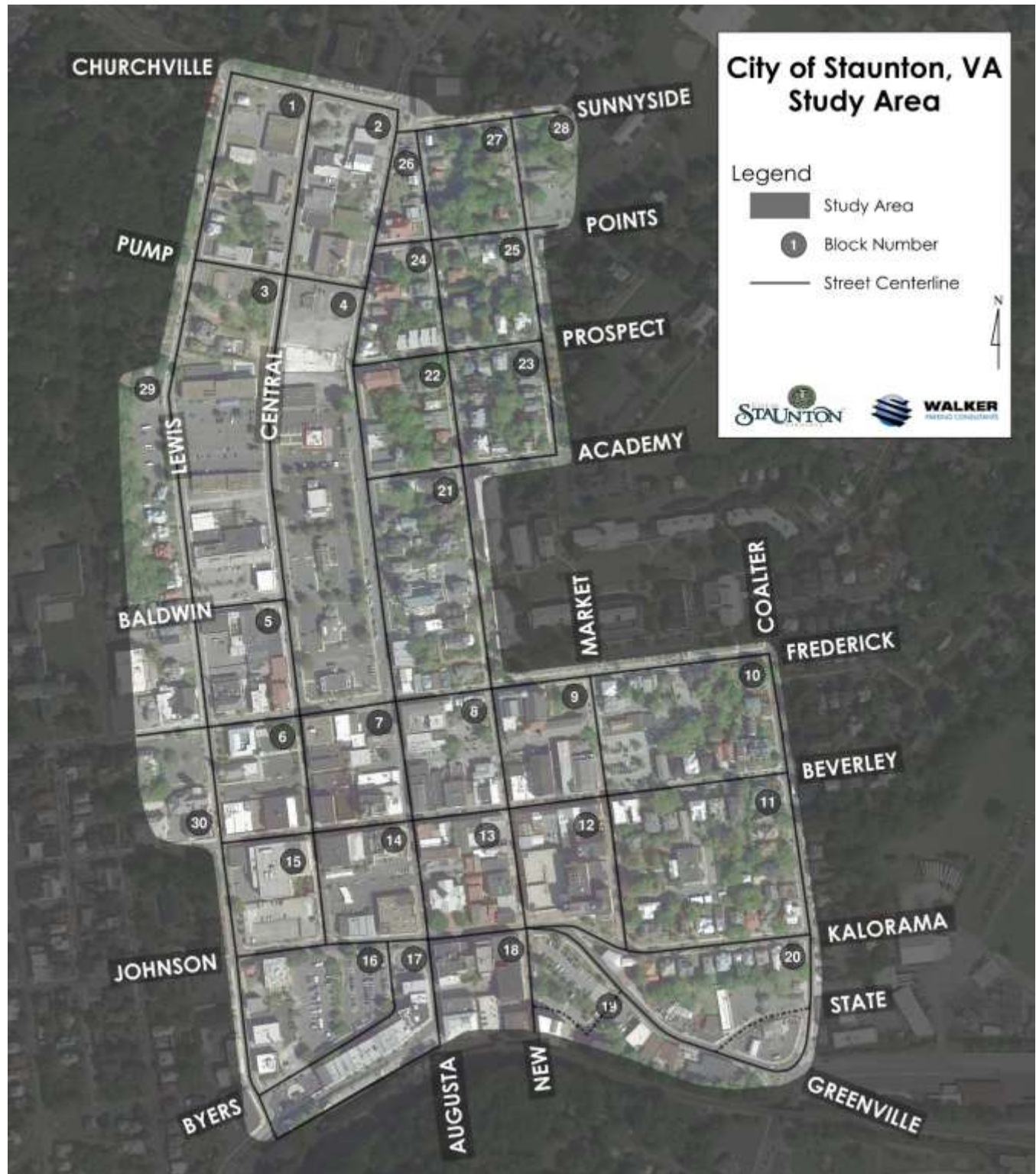
PARKING OPERATIONS AND MANAGEMENT PLAN



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Figure 1: Study Area



Source: Walker Parking Consultants, 2017

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METHODOLOGY

The findings of the supply and demand phase of the project are the foundation of an effective parking action plan. Before we can identify opportunities to develop or improve parking or recommend changes to existing parking policies, we must first have a solid understanding of existing conditions within the study area. Our understanding of existing conditions begins with stakeholder interviews and community surveys to determine the parking habits and preferences of typical users, as well as identify obstacles and opportunities for improvement. These qualitative findings are combined with the parking supply and demand data collected during our field survey to develop a comprehensive picture of parking conditions in the downtown.

Walker attended two public meetings with multiple community stakeholders, including restaurant and retail business owners, property owners, residents, and many others in order to gather different perspectives on parking within downtown Staunton. Various City departments were also surveyed to establish an understanding of the operating policies and practices governing the parking system. The interviews and public meetings provided Walker with a better understanding of where and when people are parking in the downtown area, why they come downtown most often, how long they visit, what issues relative to parking are most important to them, and their willingness to adopt new parking technologies.

Using the data collected during the week of January 30th, 2017, Walker established baseline parking conditions for the study area. Parking demand was compared to the available supply to determine occupancy rates, as well as parking adequacy on a block by block basis. Data from different time periods throughout the day, as well as different types of parking was studied.

Recognizing that there is no “perfect” day to collect parking occupancy data, Walker also adjusted our observations to account for seasonal fluctuation in parking demand and re-evaluate parking adequacy. The economic make-up of the downtown includes a variety of retail and restaurant establishments and tourism attractions, as well as office and residential land uses. Each of these uses experience peak activity during different times of the year and time of day. While Walker doesn't know the exact mix of land uses in the downtown, we applied our knowledge from previous experiences in downtown communities and industry knowledge to develop a likely parking scenario during a very busy day. We then compared the projected demand to the available supply and commented on the adequacy of the parking system to support demand during the design condition.

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PARKING INVENTORY

ON-STREET PARKING

The foundation of a parking supply and demand study is an inventory of the existing parking supply. Parking in the study area is available in several forms. The vast majority of on-street parking is free, with time limits on some blocks. Other blocks outside of the core commercial area are residential and the curbside spaces are unrestricted. Walker also inventoried the number of spaces on streets with posted residential parking permit signage. There are even a few select blocks with metered parking. For the most part, on-street parking is signed and restrictions are clearly marked.

Table 1 below summarizes the on-street parking occupancy by restriction, including unrestricted, police, 10-hour meter, 1 to 2 hour, 15 minute and ADA/handicap. There are a small number of 1-hour spaces, and given their small number and broad distribution, were comingled with the larger volume of 2-hour spaces. Walker observed a total of 917 on-street spaces during our survey. Approximately 45% of the available supply is unrestricted, while another 43% are restricted to two hours or less.

Table 1: On-Street Parking Supply

	Unrestricted	Police	10-Hour Meter	<2 Hour	15 Minute	ADA	Total Supply
On-Street Total	412	15	32	398	41	19	917
% of Total	45%	2%	3%	43%	4%	2%	100%

Source: Walker Parking Consultants, 2017

A visual representation of the on-street parking restrictions is shown in Figure 2. Please note, although they were included in our analysis, the unrestricted streets in the residential neighborhoods, such as along Blocks 23, 25, 27, and 28 were not designated on this map.

Figure 2: On-Street Parking Restrictions



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PUBLIC OFF-STREET PARKING

Off-street parking is available downtown in multiple publicly-owned parking lots and two garages. The public facilities include the Johnson Street and New Street Garages, the RMA Lot, Wharf Lot, Hardy Lot, Court Lot¹, Augusta Lot, Firehouse Lot and N. Lewis Lot. Public off-street parking is offered in some lots free of charge, such as the N. Lewis and Firehouse Lots; at other facilities, parkers must pay, either at a multi-space or single-space meter, or upon exit in both garages and the Wharf lot. The City's policy to offer free on-street spaces in its commercial core, fee-based management of its core surface and structured parking facilities, and long-term (10 hour) metered on-street parking on the fringe of the Mary Baldwin University is unusual, and suggests a reactive effort. In a subsequent section of the report, we will address the appropriateness of the fees being imposed and the methods/equipment for collecting revenue in further detail.

Based on the data collected, there are a total of 949 public off-street parking spaces in the study area. The majority (92%) are available for use by the general public, i.e. unrestricted, ADA or EVC. The remaining 8% of public spaces are reserved for specific user groups, be it the police, reserved, City staff or others. Some "reserved" spaces are available to the public on nights and weekends, while others remain restricted to one use group 100% of the time.

Table 2 on the following page summarizes the public off-street parking supply by block and restriction.

Table 2: Public Off-Street Parking Supply

Block	Facility Name	Management Type	Unrestricted	2 Hour Metered	10 Hour Metered	ADA	24-Hour Reserved	EVC	M-F Reserved	Police	Total
5	Firehouse Lot	Free	49			1					50
8	Augusta St Lot	Pay by Space			32	2	15		2		51
10	Hardy Lot	Metered			60	2					62
12	New St Garage	Cashier/Gate	262			9	1				272
15	Johnson St Garage	Cashier/Gate	181			7			39	21	248
16	Wharf Lot	Cashier/Gate	165			6	8				179
19	RMA Lot	Metered		15	36	2		1			54
29	Lewis St. Lot	Free	31			2					33
Total	----	----	688	15	128	31	24	1	33	21	949

Note: Count excludes 18 spaces leased to County in Johnson/Court Lot and 9 spaces reserved for City employees and fleet vehicles in lot behind the Jewish Temple

Source: Walker Parking Consultants, 2017

A graphical representation of the off-street public parking restrictions is shown on the following page (see Figure 3).

Figure 3: Public Off-Street Parking Restrictions



Source: Walker Parking Consultants, 2017

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Please note that Table 2 and Figure 3 excludes 18 spaces in what appeared to be a private lot on Johnson Street near the County Courthouse Lot (Block 17) and nine spaces in a private lot behind the Jewish Temple (Block 10). Initially, it was believed that these two lots were not part of the City's public parking infrastructure. The lot on Johnson Street near the Courthouse is signed as a "Private Parking Lot" and the Jewish Temple lot, which is somewhat hidden within Block 10 and segregated from the Hardy Lot, had "Reserved" parking signs placed along its retaining wall. The Johnson Street/Courthouse lot is leased to the County and each space in the Jewish Temple lot is reserved for a City employee and/or a City-owned vehicle. Both lots are owned and operated by the City of Staunton and should have been included in the public parking analysis.



Public parking occupancy counts (to be discussed shortly) differed from the counts of private/restricted parking in that the public facilities were surveyed each hour between 8 a.m. and 5 p.m. while the private/restricted facilities were only surveyed once between the hours of 10 a.m. and 2 p.m., i.e., the period when parking activity peaks system wide. As such, the occupancy tables to follow will continue to exclude the Johnson Street/Courthouse Lot and Jewish Temple Lot as only the peak hour survey was completed for these two lots. The inventory and occupancy of those facilities is included in the private/restricted database. Conversely, it is understood that the former "Wilson Lot" on Block 30 was public but was removed from the City's public parking supply some years ago. It is owned and operated by the Central United Methodist Church.

This experience illuminates the complexity of even public off-street parking as spaces owned/operated by a municipality may, in fact, be dedicated or reserved for a specific user group and are not available to the general public. And while the public and private inventory and occupancy data will not be updated to reflect City ownership of the Johnson Street/Courthouse lot or Jewish Temple lot, the assessment of the City's financial and operational responsibility for these assets has been updated.

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PRIVATE OFF-STREET PARKING

Private parking facilities consist of commercial parking lots and residential parking lots. Private parking facilities may be designated for use by a specific commercial/private use or for residential parking. These facilities are not available to the general public for use during a typical day. Walker did not survey private driveways as part of this assessment. The table below quantifies the private off-street parking supply by block for the entire study area. A total of 1,248 private off-street spaces are available in downtown Staunton. Based on our analysis, approximately 63% of the private supply is located north of Frederick Street. As the focus of the study is on the planning, management, finance, and enforcement of City owned/operated parking assets, the detailed data collected for private/restricted off-street facilities is reserved for the Appendix.

PARKING PERFORMANCE

To determine the parking patterns in the study area both public and private and on- and off-street were surveyed over the course of two days, February 1st and 2nd, 2017. The data collected during the survey is tabulated by block and user type to develop a better understanding of the parking systems performance during the survey day. Through our observations we hope to understand where people are parking and how long they are staying, and ultimately better recommend parking policy changes to maximize the existing parking resources.

It was acknowledged during the public work sessions and stakeholder interviews that February is not typically a period of highest parking activity. This report acknowledges this issue but wishes to reinforce the fact that the focus on this study is not on the justification of peak parking utilization for purposes of building more public parking facilities in Staunton. The purpose of the study is to collect sufficient information to make parking planning, operations, and management recommendations to improve the form and function of the City parking system. Parking utilization is but one of many indices used to make those recommendations.

ON-STREET OCCUPANCY

On-street parking occupancy was observed on Wednesday, February 1st, 2017 from 9:00 a.m. until 5:00 p.m. The data was collected using license plate recognition (LPR) technology. Two cameras are mounted on a vehicle driving the same circuit once every hour. The cameras capture a picture of the vehicle, the license plate and the geospatial location (including an estimated address) of the parked vehicle. Walker then tabulates the data in order to determine the occupancy rate on each block face within the study area. Please note that once converted into occupancy, vehicle per space turnover, and



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vehicle parked duration data the license plate numbers themselves are immediately and forever erased from the database.

The day of Walker's survey was unseasonable warm at 51°F. We assumed the survey day represents average parking conditions in downtown Staunton. The peak hour occupancy was observed around 1:00 p.m., with approximately 46%, or 423 of the available 917 spaces, occupied. While the overall occupancy rate does not suggest a system wide problem, it is important to note that parking "hot spots", or areas where the occupancy rate exceeded 85% of capacity, were observed in the downtown. Refer to Figure 4 to see a graphical representation of the peak hour on-street occupancy rates. Figures illustrating the occupancy rates throughout the survey day can be found in the Appendix.

PUBLIC OFF-STREET PARKING OCCUPANCY

Walker surveyed the public off-street parking facilities on Thursday, February 2nd, 2017 hourly between 9:00 a.m. and 5:00 p.m. to establish baseline off-street public occupancy rates. The table below summarizes Walker's observations. Do note that use of 27 spaces in the Johnson/Court lot and Jewish Temple lot were not included in this survey but are included in the private/restricted count. Similar to on-street parking demand, the off-street parking demand peaked around 1:00 p.m. with 472 of the 949 available public spaces occupied, or 50% of the capacity. This is not to say that certain parking facilities did not experience parking levels near or at capacity at various points throughout the day.

Table 3: Public Off-Street Parking Occupancy

Block	Lot Name	Supply	9AM	10AM	11AM	12AM	1PM	2PM	3PM	4PM	5PM
5	Firehouse Lot	50	44	44	45	42	43	43	38	34	18
8	Augusta St Lot	51	13	13	17	19	21	17	14	31	34
10	Hardy Lot	62	40	37	35	31	31	27	28	26	16
12	New St Garage	272	69	83	90	93	102	94	91	96	96
15	Johnson St Garage	248	100	97	95	102	104	102	100	97	84
16	Wharf Lot	179	149	135	146	145	146	144	125	89	63
19	RMA Lot	54	11	14	15	12	12	12	11	9	13
29	Lewis St. Lot	33	13	12	12	13	13	13	15	14	14
Total		949	439	435	455	457	472	452	422	396	338

Source: Walker Parking Consultants, 2017

Again, Walker has included a pictorial representation of the peak hour (1:00 p.m.) on- and off-street occupancy rates in Figure 4. Additional graphics illustrating the hourly occupancy rates for each public facility in the study area can be found in the Appendix.

At 1:00 p.m., the Firehouse Lot was the only facility to experience an occupancy rate greater than 85%. Both the Wharf Lot (Block 16) and the Court Lot (Block 9) experienced rates above 50%. The occupancy rate in the remaining public facilities did not exceed 50% during the peak hour.

Figure 4: Public Parking Occupancy



Source: Walker Parking Consultants, 2017

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PRIVATE OFF-STREET PARKING OCCUPANCY

Private off-street parking facilities were also surveyed on February 2nd, 2017 to determine typical parking occupancy rates. Private off-street parking facilities were surveyed once between the hours of 10:00 a.m. and 2:00 p.m. to confirm the inventory and record the parking occupancy. Because these spaces are not available to the general public, Walker's goal was not to establish baseline conditions, but rather confirm general usage and identify opportunities for shared parking. Overall, the private off-street supply is sufficient to support demand, with only 41% of the available supply occupied; however, some blocks do experience demand above 85% of capacity. When occupancy exceeds this level, patrons may experience delays and frustration while searching for a space. Therefore, the parking supply may be perceived as inadequate even though there are some spaces available in the parking system.

OPERATIONAL PARKING SURPLUS/DEFICIT

A parking supply operates at peak efficiency when parking occupancy, including both transient and monthly parking patrons, is 85 percent to 95 percent of the supply. When occupancy exceeds this level, patrons may experience delays and frustration while searching for a space. Therefore, the parking supply may be perceived as inadequate even though there are some spaces available in the parking system. We call this the effective or operational parking supply. The small cushion between the total capacity and the operational supply accounts for vehicles moving in and out of spaces, spaces lost to snow or misparked and oversized cars, and the general search time needed to find the last few available spaces. The size of the cushion depends on the type of parking; a 15% cushion is recommended for on-street parking due to the increased difficulty of parallel parking and the need to navigate traffic, while private parking facilities are generally frequented by the same parkers every day and only need a small 5% cushion to function effectively.

As illustrated on Table 4, Walker compared the effective parking supply to the observed parking demand in Staunton in order to determine the operational surplus or deficit (adequacy). Overall, parking in Staunton is adequate to support demand. This does not mean that small parking "hot spots" on some blocks within the downtown do not exist. However, adequate parking is available within one or two blocks of any intermittent shortfalls.

Table 4: Operational Parking Surplus/Deficit

Type	Parking Supply		Peak Hour Occupancy	Operational Surplus/ Deficit
	Actual	Operational		
On-Street	917	779	423	356
Public Off-Street	949	854	472	382
Public Subtotal	1,866	1,634	895	739
Private Off-Street	1,248	1,186	506	680
Total	3,114	2,819	1,401	1,418

Source: Walker Parking Consultants, 2017

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System-wide there are approximately 3,114 spaces available, with an operational capacity of 2,819 spaces. When compared to the peak utilization, a surplus of 1,418 spaces exists. Approximately half (52%) of the surplus is located in a public facility, while the other half is restricted to specific users in a private facility. When assessing the public parking system's efficiency and effectiveness it is important to have a general understanding of the location, supply, and utilization of private/restricted parking spaces as the municipality, in this case the City of Staunton, may wish to modify the management and pricing of its parking assets in response to changing demands on the private sector. If there were a significant shortage of public parking in Staunton, which is obviously not the case presently, the City could expand the availability of publicly accessible parking spaces by leasing and managing private parking lots for the benefit of the property owner, their tenants, and the general public.

DESIGN DAY CONDITIONS

As stated earlier, there is no perfect day to collect data; conditions in the downtown change daily depending on weather, tourism, holidays, downtown events, etc. While the survey day was judged to adequately represent typical conditions in downtown Staunton, we understand the parking system may experience levels of demand greater than observed resulting in stress to the overall system. Without land use data for the study area upon which to calculate parking demand ratios and then apply seasonal presence factors to, we rely on our industry experience and apply an overall adjustment factor to the observed peak hour parking demand. As a result, some blocks may register parking rates greater than 100%; however, in reality demand would simply shift to a different block where parking was available.

Table 5 on the following page summarizes the design day parking conditions on a block by block basis.



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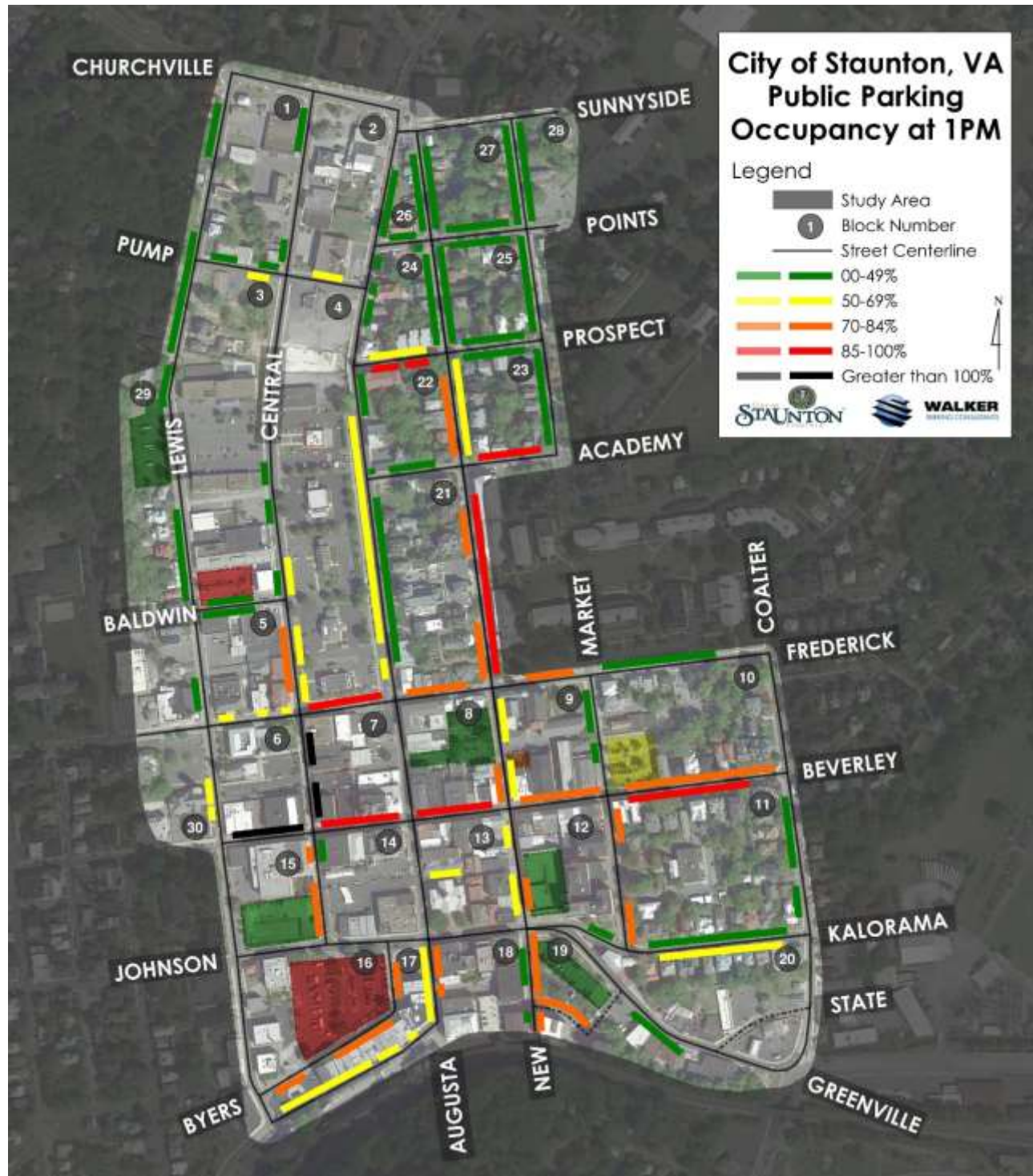
Table 5: Design Day – Public Parking Occupancy

Block	Public Off-Street			On-Street			Total Public		
	Supply	Occupancy	% Occupied	Supply	Occupancy	% Occupied	Supply	Occupancy	% Occupied
1	0	0	0%	30	11	37%	30	11	37%
2	0	0	0%	5	3	60%	5	3	60%
3	0	0	0%	63	20	32%	63	20	32%
4	0	0	0%	89	62	70%	89	62	70%
5	49	47	96%	28	15	54%	77	62	81%
6	0	0	0%	16	16	100%	16	16	100%
7	0	0	0%	22	23	105%	22	23	105%
8	58	23	40%	16	15	94%	74	38	51%
9	0	0	0%	55	39	71%	55	39	71%
10	63	34	54%	42	19	45%	105	53	50%
11	0	0	0%	71	33	46%	71	33	46%
12	262	112	43%	8	4	50%	270	116	43%
13	0	0	0%	14	9	64%	14	9	64%
14	0	0	0%	3	1	33%	3	1	33%
15	248	114	46%	9	7	78%	257	121	47%
16	179	161	90%	7	0	0%	186	161	87%
17	0	0	0%	54	36	67%	54	36	67%
18	0	0	0%	16	7	44%	16	7	44%
19	54	13	24%	31	21	68%	85	34	40%
20	0	0	0%	19	10	53%	19	10	53%
21	0	0	0%	83	48	58%	83	48	58%
22	0	0	0%	34	18	53%	34	18	53%
23	0	0	0%	53	29	55%	53	29	55%
24	0	0	0%	33	10	30%	33	10	30%
25	0	0	0%	52	8	15%	52	8	15%
26	0	0	0%	24	1	4%	24	1	4%
27	0	0	0%	39	2	5%	39	2	5%
28	0	0	0%	15	7	47%	15	7	47%
29	33	14	42%	0	0	0%	33	14	42%
30	0	0	0%	0	0	0%	0	0	0%
Total	946	518	55%	931	474	51%	1,877	992	53%

Source: Walker Parking Consultants, 2017

When compared to Figure 4, the design day parking occupancy map on Figure 5 features several more areas highlighted in orange and red, such as the Wharf lot and several blocks along Beverley Street. Overall, adequate public parking supply is still available in the downtown during design day conditions.

Figure 5: Design Day Public Parking Occupancy



Source: Walker Parking Consultants, 2017

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ON-STREET TURNOVER AND DURATION

In addition to determining occupancy rates at on-street spaces within the study area, Walker also used the data collected with the LPR camera to calculate duration and turnover on each block face. These two performance measurements, together with occupancy help provide Walker with a more complete picture of parking activity in the downtown. For our purposes, the duration refers to the average length of stay a vehicle is parked on a block face and can be calculated by dividing the total numbers of occupied hours by the total number of cars during a particular survey period; in our case, nine hours. Turnover refers to the number of cars to park in a space over the survey period. Thus, a space that turns over frequently would likely experience shorter parking durations than a space that only turned twice during the day. Both of these measures allow us to measure the efficiency of the parking system.

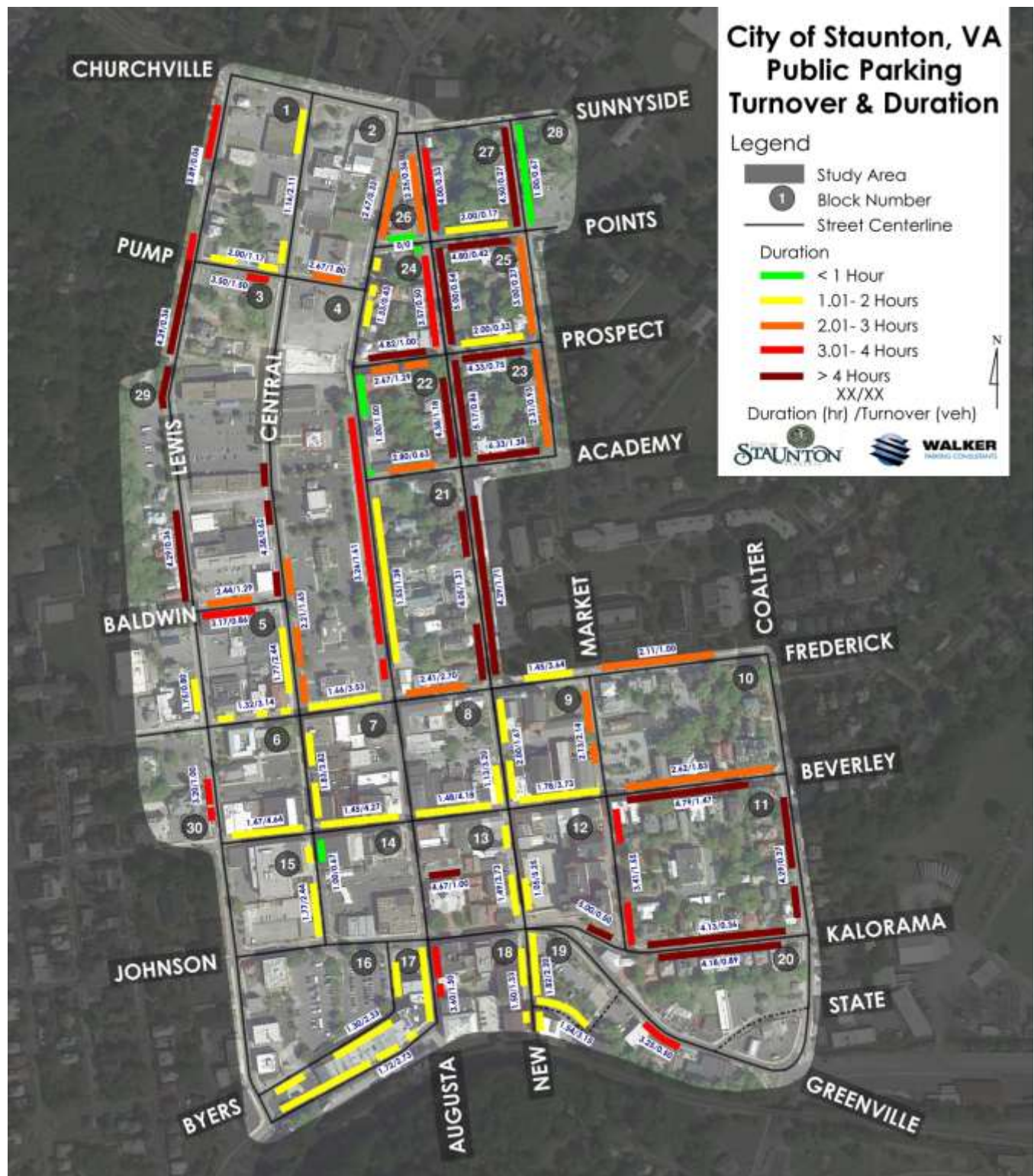
In central business districts, where there is a lot of activity and demand for convenient parking is high, the goal is to encourage turnover by limiting the number of hours a vehicle is parked. For example, under current parking regulations (two-hour limit, M-F, 9:00 a.m.-5:00 p.m.), one space on Beverley Street could service between four and five customers during a nine-hour day, assuming parkers were complying with the two-hour limit.

Figure 6 on the following page shows the average length of stay (duration) and the turnover for each block face in our study area. It is important to keep in mind that some streets in the study area do not have any posted time restrictions. For example, the block faces and on-street spaces on Beverley Street, which represent the commercial "spine" of the downtown, had averaged parked duration of 1.45 to 1.78 hours and average vehicle per space turnover rates of 3.73 and 4.64 vehicles per space per day. This suggests that on-street spaces on Beverley Street and, presumably, its adjacent side streets are performing in compliance with posted goals.

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Figure 6: Design Day Public Parking Occupancy



Source: Walker Parking Consultants, 2017

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However, generalized interpretations of on-street performance are insufficient to determine true compliance with posted durations. And because the impetus of the parking study is to address operational issues related to the public parking system in Staunton, Walker performed a more in-depth analysis of the parking turnover and duration data collected to understand parking behaviors and recommend changes. Table 6 breaks down the on-street parking behaviors based on the time restriction. We recognize that some block faces may have more than one type of on-street restriction; however, for the purposes of our analysis, a block with mixed restrictions was assigned to a category based on the restriction of the majority of the spaces on the block.

Table 6: Turnover and Duration by Parking Restriction

# of Vehicles by Parked Duration									Total	Average	Average
1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	5 Hrs.	6 Hrs.	7 Hrs.	8 Hrs.	9 Hrs.	Parked Vehicles	Parked Hours	Vehicle per Space
535	158	67	22	26	13	12	22	24	869	1,774	2.04
											2.10

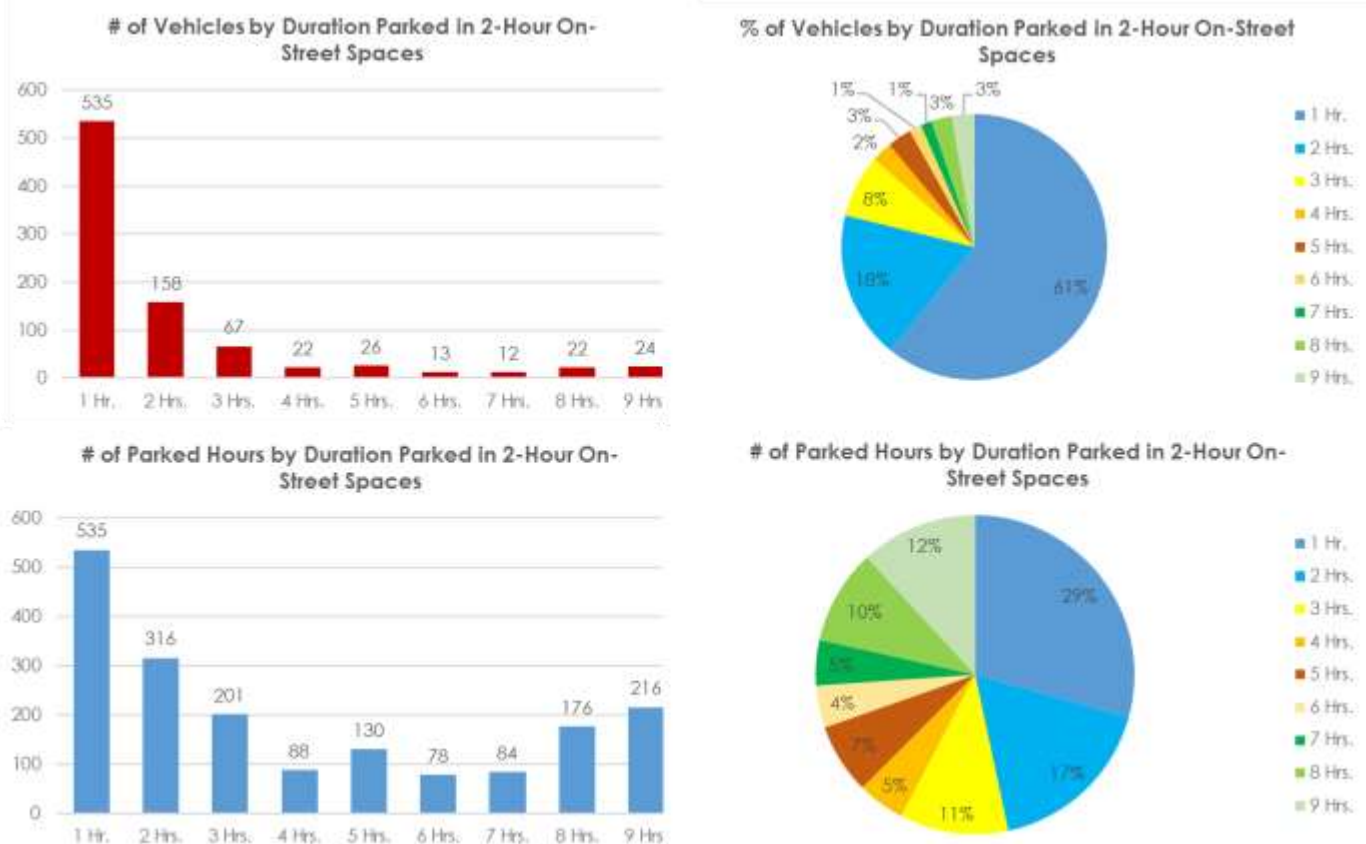
 Source: Walker Parking Consultants, 2017

Walker calculated an average length of stay of 2.06 hours on the two-hour restricted streets. While this finding may appear to meet the intent of the two-hour zone on the surface, 184 vehicles, or 21% of the total parked vehicles, were observed parking for three or more hours. These 184 vehicles were parked for 956 hours, or 26% of the available parking hours (9:00 am – 5:00 pm). Furthermore, these vehicles account for 53% of the utilized parking hours (total vehicle hours). As many of 480 vehicles could have parked in the spaces occupied by these 186 violators. The bar and pie charts under Figure 7 better illustrate these issues.

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Figure 7: Performance/Parked Duration of Two-hour On-Street Spaces



Source: Walker Parking Consultants, 2017

REVIEW OF EXISTING PARKING OPERATIONS AND MANAGEMENT



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PARKING CONSULTANTS

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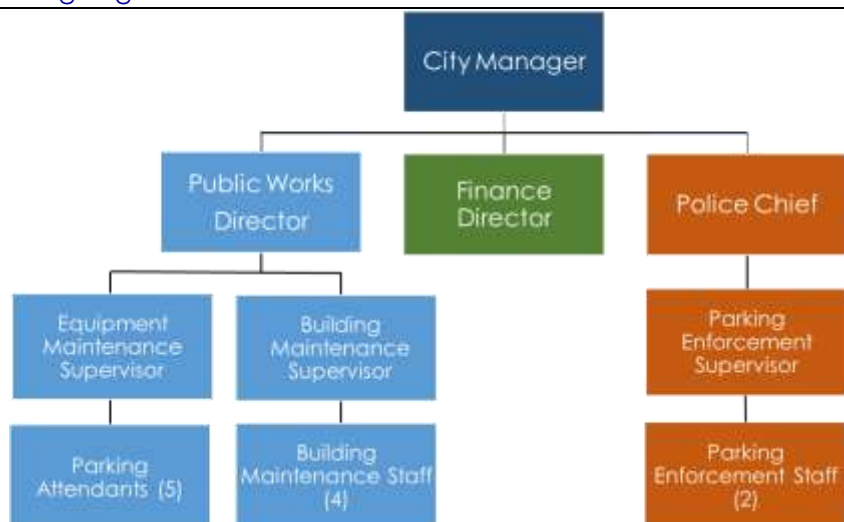
REVIEW OF EXISTING PARKING OPERATIONS AND MANAGEMENT

The analysis of existing parking inventory and utilization establishes the foundation upon which parking operations, procedures, and recommendations are based. However, these quantitative elements are but one of several indices that are examined when suggesting operational and management change. And as the parking program includes planning, finance, maintenance, enforcement, and adjudication, an understanding of the interrelationships (or lack thereof) between these different responsibilities is required. Therefore, prior to the presentation of a parking management plan, which is introduced later in this section, an overview of the current program and a discussion of parking best management practices follows.

PARKING ORGANIZATIONAL STRUCTURE, ROLES, AND RESPONSIBILITIES

From an organizational perspective, the City's parking system responsibilities are decentralized and, in general, involve the Public Works Department, Finance Department, Police Department, and City Manager's office. While all operations and maintenance falls comprehensively under the Public Works Department and its Equipment Maintenance Supervisor (see the chart under Figure 8), the development of policy under which these departments and the parking system as a whole function are not the responsibility of a single agency or individual. There is no single department or individual that is responsible for the coordination of all these activities. While this is a common organizational structure in smaller municipalities, its efficiency and effectiveness is dependent on a cooperative environment where the various departments involved in parking planning, finance, operations, maintenance, enforcement, and adjudication work together to identify, fund, and implement mitigating solutions. Unfortunately, the public parking program in Staunton may have reached a level of cost and operational complexity where this informal form of management and oversight is no longer sufficient. Recommendations regarding the level of staffing, leadership, and communication will be presented later in this report.

Figure 8: Current Parking Organizational Chart



Source: Walker Parking Consultants, 2017

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EXISTING PARKING MANAGEMENT

The traffic engineering section of the Department of Public Works has established guidelines for operating the existing equipment. This document is number SOP4140-002. The document covers the lot attendant's routines from opening the lot or garage to the last closing procedure. Each procedure is well established and described in this document. Since the equipment is not automated or on-line these procedures are critical for consistent reporting and auditing.

STRUCTURED PARKING FACILITIES

The structured parking facilities (garages) include the Johnson Street and the New Street garages. The operating procedures differ for both locations due to the existing equipment. The Johnson Street garage utilizes an Amano brand ticket dispenser along with Amano barrier gate for entry. The cashier has an Amano time clock which is used to time stamp the ticket upon exit. This provides an entry and exit time printed on each ticket. The cashier manually calculates the fee based on the entry time stamp on the customer's ticket. There is also a "Secura Key" brand card reader for monthly or contract parkers. This is a standalone device that must be programmed onsite. The equipment has exceeded its useful life, has been discontinued by the manufacturer, and is no longer being supported.

The New St garage also utilizes an Amano brand ticket dispenser and barrier gate for entry. The cashier has a Datapark fee computer with a validator and receipt printer. The cashier enters the time on the ticket into the fee computer, and the appropriate fee is calculated and displayed to the customer. When the fee has been paid, the fee computer sends a signal to the barrier gate to raise. The validator prints the exit time and charge on the ticket for auditing purposes. There is also a Hamilton Auto Cashier at the exit lane. When a cashier is not present, the customer can pay a flat rate fee to this machine which will raise the barrier gate. Except the Datapark fee computer, the equipment has exceeded its useful life, has been discontinued by the manufacturer, and is no longer being supported.

SURFACE LOTS

The Wharf parking lot has the same equipment as the Johnson St garage and is operated in the same manner. The customer takes a ticket from the Amano dispenser upon entering the lot. When leaving, the ticket is presented to the cashier and the fee is manually calculated and upon payment, the cashier raises the gate. The equipment has exceeded its useful life, has been discontinued by the manufacturer, and is no longer being supported.

The Augusta parking lot has a Digital Paytech "Shelby" model multi-space parking meter. This lot is set as "Pay by Space". The customer parks their vehicle, makes payment to the "Shelby" pay meter, and enters the spaces number. A receipt is printed which shows the expiration date and time of the amount of parking paid but there is no requirement to place the receipt on the vehicle's dashboard as is required of alternative "Pay and Display" strategies. Enforcement officers simply check the multi-space meter to record the paid space numbers versus spaces that are occupied. The Digital Paytech "Shelby" machine on the Augusta Lot has been discontinued and is no longer supported by the manufacturer.

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The Hardy and the RMA lots utilize POM series APM-E single space parking meters. These meters run on battery power. Each parking space has a meter which the patron pays with coins only. The meter shows the amount of time paid for and/or whether it has expired. These meters are off-line and there is no auditability beyond manual counting of the coins collected.

The Johnson Street/Court lot and Jewish Temple lot, as noted previously, do not employ multi-space or single space meters as they are either reserved by space number to City employees and/or City fleet vehicles or are leased to and managed by the County.

ON-STREET SPACES

As noted on Table 1 only 32 of the 917 on-street spaces in the study area are managed using parking meters and those meters have ten hour durations. The on-street spaces that are metered utilize the same POM series APM-E single space parking meters as the Hardy and RMA lots. These meters run on battery power. Each parking space has a meter which the patron pays with coins only. The meter shows the amount of time paid for and/or whether it has expired. These meters are off-line and there is no auditability beyond manual counting of the coins collected.

PARKING ENFORCEMENT, VIOLATIONS, FINES, AND ADJUDICATION

Recommendations regarding parking management, to be presented later in the report, will address changes to the City's parking enforcement program. As background, the following is presented. Parking enforcement falls under the supervision of the Police Department. The department employs two fulltime parking enforcement officer who issue hand written citation and classic caulking of tires to issue/record tickets and track parked durations. During the previous three years, an average of 4,292 tickets per year have been issued which equals 16 per day (5 days/week for parking enforcement).

After a ticket is issued, a copy is returned to the records clerk, who manually enters the ticket information in Munis, the City's tracking software. The violator has 10 days to pay, either in person or at the Treasurer's office, or by placing the ticket and payment in one of the drop boxes located downtown. If the ticket isn't paid, a late letter is sent by the records clerk, with instructions to pay the fine and a warning that they will be summoned to court if it isn't paid. If unpaid still, the records clerk mails a summons to the violator. At that point, they must appear in court or pay the fine and any associated court costs directly to the court. If they want to contest the ticket, they have to fill out a paper form, which is then given to the officer who wrote the ticket for comments. The form is then sent to the Commonwealth's Attorney, who decides whether the ticket will be dismissed or not. The violator is notified by letter of the disposition of the contested citation. Of the 4,292 average number of tickets issued each year, 85% are paid generating \$37,200 in revenue. On average, 178 citations (or 4% of the total) are contested each year. Information on the number of citations waived by the Commonwealth's Attorney wasn't provided but it is understood based on conversation with City staff that the volume is considerable.

The City's parking citation issuance, tracking, and adjudication program, like much of its parking control equipment, is outdated. Based on the low volume of tickets issued on average each

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day and the high percentage of vehicles parked in violation of the 2-hour duration it would appear that the parking enforcement program isn't as effective as it needs to be.

Prior to the commencement of this study, the City went through a very public and somewhat painful process of addressing weaknesses in its parking enforcement program by increasing fines for most parking violations. This decision was made before the parking duration and turnover data was collected. Table 7 presents the fines for most major parking violations in Staunton before and compares those values to the fines imposed on other nearby/similar municipalities. It is unclear, at present, if the increased fines for overtime parking in Staunton have had the desired effect.

Table 7: Fines for Major Parking Violations in Nearby/Similar Municipalities

Violation	Staunton	Harrisonburg ⁽¹⁾	Fredericksburg	Williamsburg	Lynchburg	Lexington	Warrenton	Blacksburg	Charlottesville
Overtime 1st Offense	\$10	\$10	Warning	\$10	\$20	\$15	\$5	\$35	\$20
Overtime 2nd	\$50	\$10	\$15	\$30	\$20	\$20	\$10	\$35	\$20
Overtime 3rd	\$50	\$10	\$25	\$50	\$20	\$50	\$25	\$35	\$20
Overtime 4th	\$50	\$10	\$35	\$50	\$20	\$50	\$50	\$35	\$20
Prohibited Zone	\$20	\$10	\$25	\$10	\$30	\$15, \$20, \$50	\$10	\$50	\$10
Loading Zone	\$15	\$10	\$25	\$10	\$30	\$15, \$20, \$50	\$10	\$35	\$15
Handicapped Space	\$100	\$50	\$100	\$100	\$100	\$25	\$50	\$100	\$360

(1) Harrisonburg fines for overtime parking increase to \$25 after sixth citation and \$50 after eleventh citation.

Source: Walker Parking Consultants, 2017

PARKING RATES

Table 8 presents research into relatively similar municipalities in Virginia and compares their parking fees to the rates for on- and off-street parking in Staunton. With regards to hourly parking, rates vary dramatically with most offering complimentary curbside and off-street parking. However, changes to fee-based parking management recommendations for Staunton, if warranted, should not be based on what a nearby or similar municipality charges or doesn't charge for parking. Management strategies and associated fees for use and/or abuse (fines) should be relative to the economic health of the community, the demand for parking, and performance of publicly available space. The public parking system's relative profit or loss is immaterial in comparison to the system's ability to support the viability and success of the office, retail, residential, and cultural activities which parking infrastructure is intended to support.

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Table 8: On-Street and Off-Street Parking Rates in Staunton and Comparable Communities

Location/Duration	Staunton	Harrisonburg	Fredericksburg	Williamsburg	Lynchburg	Lexington	Warrenton	Blacksburg	Charlottesville
On-Street Parking									
Per Hour	\$0.50	\$0.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Off-Street Parking									
1st Hour	\$0.50	\$0.00	\$0.00	\$1.00	\$0.50-\$1.00	\$0.00	\$0.00	na	\$2.00-3.00
2nd Hour	\$1.00	\$0.00	\$0.00	\$2.00	\$2.00	\$0.00	\$0.00	na	\$5.00-6.00
3rd Hour	\$1.50	\$0.00	\$0.00	\$3.00	\$3.00	\$0.00	\$0.00	na	\$7.50-9.00
Each Additional Hour	\$0.50	\$0.00	\$1.00	\$1.00	\$1.00	\$0.00	\$0.00	na	\$2.50-\$3.00
Max All-Day	\$6.00	\$0.00	\$8.00	\$12.00	\$5.00	\$0.00	\$0.00	na	\$16-20
Monthly Permit (1)	\$30.00	\$35.00	\$75-\$100	\$60.00	\$25-\$50	\$0.00	\$0.00	na	\$120-\$130

(1) Month rate rates reflects low city resident and higher non-resident fees.

Source: Walker Parking Consultants, 2017

It is interesting to note that downtown Staunton is the only municipality surveyed that has both complimentary and metered on-street parking. It should also be noted that Charlottesville, Williamsburg, and Fredericksburg are either in the process of introducing fee-based curbside management strategies or are in serious discussions about implementation. Lynchburg, on the other hand, is discontinuing an on-street meter pilot program and Harrisonburg has eliminated on-street parking meters/fees altogether.

JOHNSON STREET GARAGE MAINTENANCE AND REPAIR

The firm of Wiley - Wilson was retained by the City to assess the condition of the Johnson Street Garage to include remedial repair recommendations, order of magnitude cost estimate, and estimated life of repairs. The report dated January 19, 2017 offered the following:

We feel that the majority of the distress noted in the parking garage structure is the result of water infiltration into the structure through the failed joint system between the precast concrete single tees. The water infiltration has allowed a pathway for moisture and de-icing salts to reach much of the structure leading to corrosion of reinforcing members, as well as the spalling and delamination of both cast-in-place and precast concrete members.

Despite the widespread distress observed in the structure, we feel that the structure can be repaired to extend the life of the structure. We feel that if the repairs described herein are performed and continued periodic maintenance is performed on the structure, the life of the facility may be extended up to 20 years. If the structural repairs are not performed, the distress to the structure will likely render it unusable within the next 2 to 5 years.

The report concludes that immediate repairs, those required within the year to prevent a public safety hazard and/or to prevent further damage will cost the City \$242,400, short-term repairs

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(within 1 to 2 years) will cost \$410,400, and mid-term repairs that are necessary but do not present a current hazard to the garage's performance will be required in 2 to 5 years and cost \$75,000. This initial repair and maintenance plan would require a budget of \$727,800.

Subsequently, Wiley-Wilson revised those costs to include a 20-year lifecycle analysis/need.

Based on the City of Staunton's desire to extend the life cycle of the parking garage another 20 years, we recommend that the following remedial steps be taken in addition to the remedial repairs that were listed in our recent report:

- *Apply corrosion inhibitor with a silane/siloxane sealant on the top surface of all slabs, sidewalks, curb areas.*
- *Apply passive galvanic anodes in the cast-in-place concrete perimeter beams/curbs.*

The order of magnitude costs for these proposed remedial repairs is approximately \$500,000 - \$600,000. Please note that these costs are in addition to the estimate numbers previously provided by our firm. Also as mentioned above, the sealants will need to be re-applied every 3 to 5 years. The cost to reseal will range from approximately \$100,000 to \$325,000 depending on whether you reseal with only a silane/siloxane sealer or a corrosion inhibitor with silane/siloxane.

Therefore, the total cost to keep the Johnson Street garage operational for the next 20-years has been estimated at \$2.5 million, a fee that includes design, cost contingencies, and construction administration.

Walker was asked by City staff if there was an industry standing regarding a decision to demolish an aging parking structure to be replaced in kind by a new structure. Given the unlimited number of factors that influence that decision the answer was no. Note that a system-wide and comprehensive parking cost model has been prepared and will include in addition to the cost to repair and maintain the Johnson Street Garage as estimated by Wiley-Wilson the expense to operate and maintain the City's other off-street and on-street parking facilities. Like roads and bridges, parking is critical public infrastructure which must be maintained. This cost model will remind Staunton's political leadership and downtown stakeholders that deferred maintenance of such infrastructure offers a very negative return on the public's investment.

PARKING FUND

The City's Parking Fund is intended to track and project all parking related expenditures and revenues including in the City's annual capital and operating budgets. The Parking Fund is a separate fiscal and accounting entity with its own self-balancing set of accounts; its own assets, liabilities, and equity; and its own revenues and expenditures. Where operating revenues cannot meet operating expenses transfers from the City's Parking Fund are required to make the fund, and therefore parking program, solvent. The creation of a Parking Fund or Enterprise Fund is typically the first step toward an efficient and responsive municipal parking system and the City of Staunton has already made that step.

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Table 9 presents the historic and current year-to-date Parking Fund expenditures from FY2014 through June 8, 2017. Parking Fund expenditures ranged between \$591,453 in FY2014 to \$651,375 to date in FY2017, representing an increase of 10.1% during that period. Excluding debt service payments for the New Street Garage and insurance and Parking Fund in-lieu payments, the annual cost to operate the City's on-street and off-street assets ranged between \$295,640 and \$335,910. Based on the recent field surveys there are a total of 1,877 on- and City-owned/operated off-street spaces in the downtown parking system. For YTD FY2017 that equates to \$179 per space per year. When examining the City's access controlled and staffed parking structures, namely the Johnson Street Garage and New Street Garage, the annual per space cost is much greater and equals \$317 and \$518, respectively. Staffing at the booth/gates, which includes the Wharf Street Lot, are not insignificant and for the current YTD period equal \$65,468.

Table 9: Historic and Current YTD Parking Fund Expenditures (as of June 8, 2017)

ACTUAL EXPENDITURES	FY2014	FY2015	FY2016	FY2017 YTD
Parking Risk Management	\$ 18,832	\$ 17,578	\$ 13,387	\$ 14,997
Streets & Metered Lots	52,325	55,185	61,381	98,968
Johnson Street Garage	51,579	47,596	46,603	56,229
Wharf Lot	29,571	34,866	31,620	29,942
New Street Garage	162,165	160,714	164,806	150,771
Debt Service	224,400	224,400	224,400	224,400
Payment in Lieu of Tax to Gen Fund	52,581	78,267	68,051	76,068
Total Expenditures	\$ 591,453	\$ 618,606	\$ 610,248	\$ 651,375

Source: Walker Parking

Table 10 presents the historic and current year-to-date Parking Fund revenues from FY2014 through June 8, 2017. Parking Fund revenues ranged between \$520,483 in FY2014 to \$493,160 to date in FY2017, representing a decline of 5.2% during that period. Monthly rentals, aka permits, represent the largest single source of operating revenue and equaled \$140,147 for YTD FY2017. Daily receipts revenue, aka hourly or transient parking activity, generated \$37,040, of which only \$1,530 is from on-street meters.

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Table 10: Historic and Current YTD Parking Fund Revenues (as of June 8, 2017)

ACTUAL REVENUES	FY2014	FY2015	FY2016	FY2017 YTD
Interest Income	\$ 80	\$ 115	\$ 40	\$ 19
Rental of Real Property	4,061	-	1,955	3,800
Parking Fines	35,744	34,458	32,379	50,848
Administrative Fees	4,872	5,705	4,357	10,920
Street Meter Receipts	3,944	4,583	7,824	1,530
Hardy Lot Receipts	12,610	15,536	13,970	7,408
RMA Lot Receipts	7,077	7,324	8,406	4,840
Sale of Tokens	2,640	4,420	3,820	1,250
<u>Daily Receipts:</u>				
Wharf Lot	26,410	47,476	52,970	46,414
Augusta Street Lot	8,787	11,866	12,794	10,964
Johnson Street Garage	4,466	8,599	8,646	5,740
New Street Garage	31,568	41,519	43,156	35,510
<u>Monthly Rentals:</u>				
Wharf Lot	13,395	16,546	17,634	15,584
Augusta Street	9,650	11,100	11,130	9,240
Johnson Street Garage	21,446	20,691	17,242	16,135
New Street Garage	100,791	151,852	154,628	140,147
Miscellaneous	22	18	-	590
Meter Permits	7,550	12,691	15,503	12,193
Perimeter Permits	970	1,998	968	1,028
General Fund Payment	224,400	39,528	39,528	119,000
Total Revenues	\$ 520,483	\$ 436,025	\$ 446,950	\$ 493,160

Source: Walker Parking

While operating costs increased by over 10% during this period, operating revenues declined by over 5%. As a result, the money that must be transferred from the Parking Fund to cover the Parking Funds operating shortage has increased from \$70,970 in FY2014 to \$168,298 for the last full reporting year (FY2016). As of June 8, 2017, that shortage equals \$158,215. Note that these figures did not include an annual sinking fund for long-term maintenance and durability of the City's parking structures or surface lots but do include costs associated with non-parking staff time that was engaged in parking planning and policy. For example, time spent by staff in the Public Works, Finance, Economic Development, and Police departments, and City Manager's Office when responding to inquiries about the parking program or debating/developing new policies and procedures is tracked and included in the cost of the parking program.

PUBLIC PARKING MANAGEMENT PRIMER

From a demand management perspective, on-street parking spaces serve high-turnover and short duration-of-stay patrons due to their visibility, convenience, and proximity to core destinations. Off-street facilities (lots and structures) should be managed to meet a variety of short-term and long-term parking needs depending on the land use activity that they serve. The logic supporting these statements is based on an understanding that long-term parkers, like employees, are more willing to accept longer walking distances given the greater duration of stay and more consistent pattern of parking. Given the limited supply of on-street parking and its convenience for short-term activity, many municipalities employ strategies to discourage long-term parking on-street and promote the attractiveness of more peripheral off-street facilities.

The surveys of parked duration in 2-hour exclusive on-street spaces discovered that a small but problematic percentage of vehicles in Staunton are parked in excess of the posted time period and, thus, are consuming a significant percentage of time in these valuable spaces. To mitigate this issue, Walker identified two types of policy measures that can help achieve the broader parking management policy goals;

"Push" policies are focused directly on the behavior of drivers parked in the on-street spaces. They include time restrictions on parkers, related measures used to enforce compliance of these policies and restrictions, and, conceivably, pricing on-street parking spaces. "Pull" policies are essentially policies put in place in locations away from the on-street spaces, which encourage long-term parkers not to park in the coveted visitor spaces, or not park at all, but instead use other means to access the downtown, where practical, such as car/vanpool programs and/or Staunton's downtown transit. "Pull" policies may take the form of incentives to park in certain locations, such as relaxed or eliminated time limits and, in a fee-based environment, inexpensive or free parking. In effect, "push" policies tend to be punitive in nature while "pull" policies are incentives to change behavior.

In Staunton, the City does employ posted on-street durations of 15 minutes, 1 hour, and 2 hours to encourage long-term parkers to find more peripheral lots such as the Johnson Street and New Street garages acceptable. However, and with the exception of 32 ten-hour metered spaces, the vast majority of curbside spaces in Staunton are offered free of charge. Without fee-based strategies (meters, payment kiosks, pay-by-cell phone service, etc.), the City's downtown on-street management program is totally dependent on enforcement. Based on the previously mentioned parked duration surveys it appears that this approach isn't yielding the desired results and some changes are warranted.

From a financial perspective, and in an ideal situation, a parking system is self-supporting either through user fees, special tax districts, or some combination of the two. The concept is that those that don't use this particular public infrastructure need not be taxed through the Parking Fund or other measures to pay for this service. By applying natural market forces which recognize the demand for parking, particularly curbside parking, a stream of revenue could/would be generated to fund its planning, construction, management, and maintenance. Like tickets to a baseball game or concert, where the value of a front row seat is far greater

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than one in the last row, a municipality could price its on-street and off-street parking assets in a similar fashion.

GOALS AND OBJECTIVES OF PARKING SYSTEM

The goals of any parking system are centered on providing the most efficient and friendly parking experience to patrons and visitors. This outcome is accomplished through various parking policies that promote a positive customer experience while ensuring that supply is available for commercial and civic activity. Management of the parking supply plays a key role in ensuring that visitors and patrons find parking quickly and efficiently while assisting in mitigation of unwanted on-street parking by long-term users, including employees. Walker's recommendations for the City of Staunton incorporate the following strategies that promote effective management of the downtown parking supply:

- Prudent use of available parking technologies;
- Clear, effective on-street parking enforcement;
- Clear and understandable signage and wayfinding; and
- Management of available on- and off-street parking demand.

As noted in the assessment of existing supply and occupancy conditions, there does not appear to be a true supply/demand problem as surplus spaces can be found in the City's off-street facilities and nearly all downtown blocks. Even though available supply may exist within one or two blocks, localized challenges may form perceptions that parking is inadequate. This perception is magnified by the apparent weakness in the current parking enforcement program. Staunton can address these parking challenges simply by enhancing its current parking management strategies. The majority of the recommendations that follow, therefore, address the challenges of parking management without having to commit to significant long-term capital investments such as a new parking structure or surface lot. Following that strategy, Table 11 provides an overview of how many communities are starting to think about parking planning.

Table 11: Community Approach to Parking Planning

Old Parking Paradigm	New Parking Paradigm
• "Parking Problem" means inadequate parking supply.	✓ There are many types of parking problems (management, pricing, enforcement, etc.)
• Abundant parking supply is always desirable.	✓ Too much supply is as harmful as too little. Public resources should be maximized and sized appropriately.
• Parking should be provided free, funded indirectly, through rents and taxes.	✓ Users should pay directly for parking facilities. A coordinated pricing system should value price parking with on-street parking priced the highest.
• Innovation faces a high burden of proof and should only be applied if proven and widely accepted.	✓ Innovations should be encouraged. Even unsuccessful experiments often provide useful information.
• Parking management is a last resort, to be applied only if increasing supply is infeasible.	✓ Parking management programs should be applied to prevent parking problems.

Source: Walker Parking Consultants, 2017

OFF-STREET PARKING OPERATIONS AND MANAGEMENT

The City's off-street facilities include parking structures and surface lots, with the surface lots in both core and peripheral locations. The off-street parking operations currently include a variety of parking styles including free unlimited, free time-limited, single space metered, multi space metered, monthly regular, monthly reserved, and gated/cashiered management. Unlike on-street parking spaces which cannot be controlled using gates and which should be used almost exclusively for short-term parking activity, the City's off-street facilities offer management flexibility in that they can meet the needs of short-term and long-term parkers. This control and flexibility then forms the foundation of parking as economic development where the need of existing and future businesses can be more easily met. While parking facilities that are funded using public tax exempt bonds have limitations on the number of spaces that can be reserved for a specific group or development, a municipality can, nonetheless, assure a would-be employer or developer that a number of spaces in one or more facilities is capable of meeting their employees and visitors needs on a one-on-one/individual basis. Given the age and condition of the access and revenue control equipment in the Johnson Street Garage, New Street Garage, and Wharf lot, and the aging and "mixed bag" of approaches used in its other off-street lots, the City cannot with confidence make these types of economic development commitments. The following offers recommendations on off-street parking access, revenue control, and management strategies.

OFF-STREET GATE CONTROLLED PARKING OPERATIONS

Walker recommends a more consistent approach to the parking operations including more on-line equipment which will provide better reporting through automatic data generation. Walker

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recommends replacing the Johnson Street Garage, New Street Garage and Wharf Lot PARCS equipment in conjunction with a City wide improvement plan to be discussed later in this report. Although there are a few different modes of operation, Walker recommends a Pay-on-foot (POF) System. Pay-on-foot (POF) machines replace the cashiers with automated payment machines. As the name suggests, the motorist walks up to the POF prior to returning to the car. The POF is strategically located so that motorists will be walking past it or near it on the way back to their car. The motorist inserts the parking ticket (received upon entering the garage) into the designated ticket inlet. The ticket is read by a fee computer and the fee is calculated. The POF uses visible and audible messaging to advise the motorist of the parking fee. The audible messages can be programmed in multiple languages.

- POFs can accept cash, credit cards, debit cards, smart cards, or validations.
- If paying with cash, the motorist inserts bills and or coins into the designated inlet. The POF can calculate and return change.
- If paying by card, the motorist inserts the card into the designated inlet and the POF processes the card.
- Validations can also be processed by the POF and are described further below.

The motorist returns to the car, drives to the exit gate, and inserts the validated ticket into the exit verifier. The exit verifier also uses visible and audible messaging to advise the motorist to insert the validated ticket at the exit verifier. Upon confirming the validated ticket, a signal is sent to raise the exit gate. As with the cashiered system, embedded magnetic loops (and detectors) send a signal to close the gate after the car exits.

The POF allows for a predetermined grace period (i.e.: twenty minutes) to allow the motorist enough time to return to the car and drive to the exit. If the time expires the motorist will be required to pay an additional parking fee for the additional time parked. This ensures that motorists pay the appropriate fees (rather than intentionally paying for parking a few hours before leaving to pay a lower fee).

Motorists may misjudge the time, forget to validate their ticket, lose the ticket, or forget to pay at the POF. The exit verifier can be equipped to accept credit card payments, and will prompt the motorist to do so. Note that cash payments cannot be made at the exit with POF. To pay with cash, the customer would need to park and return to the POF. An intercom button is available at the exit for assistance.

If a transaction cannot be reconciled through assistance via the intercom, City staff is deployed to respond in-person. There are hardware and software options that enable staff to process cash tickets at the exit. If staff is not readily available to address the un-reconciled transaction, the gate may also be raised remotely.

This program would require an individual or individuals who would have immediate access to downtown parking facilities. This level of customer service could be accomplished by the parking manager, parking field supervisor or by other City employees who would have authority to "raise the gates".

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Signage is required to advise motorists to "Take Your Ticket with You / Do Not Leave Ticket in Car" and "This Is an Automated Pay-on-Foot Garage". Please Pay at the Pay Station before Exiting". Entry stations can also play recorded audio messages.

Advantages of POF include:

1. Quicker egress time: The transaction is taken out of the lane and into the lobby.
2. Lower personnel costs: Cashiers can be reallocated to other positions.
3. Reduction in cash in lane: Lower risk of theft.
4. Better cash control and audit procedures.

Equipment costs for the Johnson Street assumes a full PARCs array at the existing full entrance/exit and the entrance/exit lanes where the police enter. This array would include barrier gates, bar code ticket dispenser, channel loop detectors, exit verifier with pay-in-lane credit card acceptor (no cash), and a proximity card reader. The recommendation for a second entry point is recommended as the City may wish to relocate police fleet vehicles to the upper level of the Johnson Street garage as the demand for transient (aka, customer) parking increases. The cost is \$72,000 for lane equipment and one POF pay station at \$35,000. Including installation, servers, software, licenses, and contingency but not including costs, if any, to redesign/realign the actual lanes, are estimated at \$128,000. Cost of the PARCs equipment at the New Street Garage include one full entrance/exit array, one full entrance only array, and one pay station. Total cost including contingency is estimated at \$107,000. Finally, the Wharf Street lot would have one entrance/exit array, one pay station, and a shelter for the pay station and would cost \$104,000 including software, licenses, contingencies, etc. Total system costs could equal \$339,000.

UNGATED SURFACE LOT PARKING OPERATIONS (HARDY, RMA AND AUGUSTA LOTS)

Before specific recommendations for the City's ungated off-street surface lots, Hardy, RMA, and Augusta are offered, some background on parking meter technology is required. Current technology generally defined as "smart" meters include a number of customer conveniences and data reporting modules that dramatically improve their performance, effectiveness, and accountability. However, there are major differences between smart single-space meters (SSMs) and smart multi-space meters (MSMs) that need to be considered when choosing a particular strategy.

- The public generally finds SSMs easier to use. SSMs are familiar and require no special instructions. MSMs require instructions; in fact, ambassadors are generally deployed to assist customers during initial rollout.
- SSMs do not require signage. Motorists see the meter and know they are expected to pay. MSMs require signage (w/arrows) advising motorists to pay at the MSM. Pay-by-space meters also require space numbers.
- MSMs, by their nature, do not allow for 'piggybacking' (parking at a meter that has time left on it from the previous parker). This can account for increased revenues of up to 10%.

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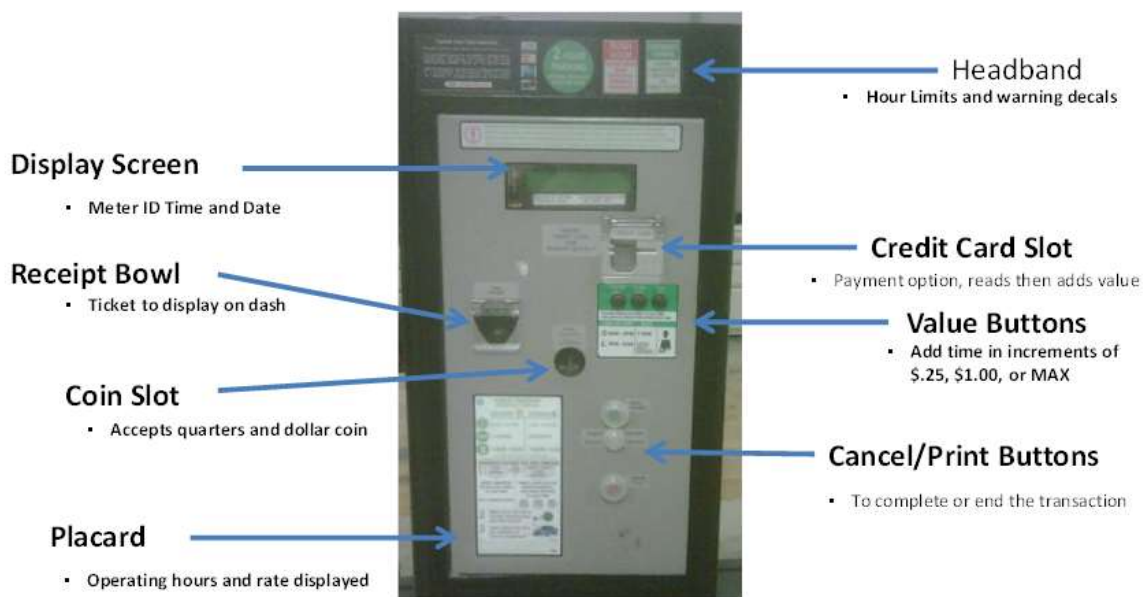
- SSMs cannot accommodate pay-and-display or mobile license plate enforcement, which are more efficient than physically inspecting every meter.

A detailed analysis of multi-space and single-space meters follows:

The development of the multi-space meter (MSM) enhanced metered parking as a viable option for controlling revenue from multiple spaces with fewer devices. For on-street applications, multi-space meters usually manage eight to fifteen spaces. For surface lot or multi-level parking facility applications, one multi-space meter can manage any number of spaces, depending on the configuration and application.

Each meter is equipped with graphical and LED displays to instruct motorists; one or a combination of coin, token, banknote, credit card or smart card acceptors; a cashbox and/or bill vault to securely store money; and user interface buttons and/or a keypad. The meters are computerized, which allows for complex rate structures and strong audit and enforcement trails.

Figure 9: Multi-space Meter Face Plate (Example)



Source: Walker Parking Consultants, 2017

Depending on the specific application and manufacturer, most multi-space meters can be configured for use in one of three modes of operation: pay and display, pay-by-space, or pay-by-license plate. The City currently uses pay-by-space equipment in the Augusta Street lot. Most multi-space meter manufacturers make one meter capable of being programmed for all three payment modes by changing the user interface (face plate) and the system software (rather than replacing the meter).

The Augusta, Hardy and RMA lots should have new parking meters installed and it is recommended that the City install multi-space meters in either the pay and display, pay-by-space, or pay-by-license plate mode. As with the other PARCS equipment these devices should

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be procured through a Request for Proposal (RFP) process. If all machines are procured at the same time, economies of scale will allow for a better price point. The cost for the central pay station is \$35,000 and would need to include a shelter estimated to cost \$5,000 for patron and equipment protection from the elements. Including server, system software, training/orientation, installation, and licensing, the total cost for one installation in each of the three lots is estimated to cost \$131,250 plus \$15,000 for shelters. Note that these costs do not include annual maintenance contracts which can equal 8% to 10% of the equipment system costs.

The Augusta, Hardy and RMA lots should also implement a "Pay by Phone" service. By logging into a mobile app (or just a web browser), the patron can make their parking payment over the phone. This data is integrated with the pay meter on the parking lot so enforcement is simplified. There are many companies providing this service, and this should also be determined through an RFP Process. The selected company will provide signage indicating where the patron is parked. Cost to the City for the system development, signage, promotion, marketing, and management is zero as the service provider captures their operation costs and profit from the user convenience fee which is added to the City's parking fee. User fees depend on the contract but could vary between \$0.20 and \$0.35 per transaction.

DATA COMMUNICATION, INFORMATION, AND BACK OFFICE SOFTWARE

The Back Office Software (BOS) is integral to the success of the parking technology being utilized. Without a strong software package, the technology may be ignored and therefore rendered useless. The BOS will vary between the technologies, but must be accessible on a standard PC, have multi login access levels and have programming and reporting features.

BOS is usually required to be purchased along with the equipment of choice. The owner receives the software and associated license and the software is installed on a dedicated server which is provided by the vendor. The server is required to be locked in a server rack, off the ground and protected from dust and debris. The server rack should be located in a dedicated server room with restricted access by authorized personnel.

The equipment described in this report relies on an internet connection, not only for credit card authorization, but for data upload/download and communication between the systems. Johnson Street garage, New Street garage, and the Wharf lot will all require a hardwire internet connection for credit card and communications. The multi-space meters rely on internet connection through a cellular modem. The hand-held ticket issuing software relies on the cell phone's internet connection. These are monthly service charges the City will need to incur.

The equipment will generate reports on a daily, monthly, or custom time set, and all can be available for import into software such as Microsoft Excel ® or CSV format. The reports can be accessed from any computer with internet access, so administration can be centralized for all systems. The cost of BOS is included within the POF contract.

VALIDATION OPTIONS AND THE STONEWALL JACKSON HOTEL

The City may wish to revise the parking management procedures it currently employs with the Stonewall Jackson Hotel and its New Street Garage. The following strategy could also be used

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for a larger merchant validation program at the Johnson Street Garage and Wharf Lot. There are three standard options for providing auditable validated parking with today's gated PARCS equipment: Offline ticket validators, chaser tickets, and a web-based validation system.

Offline validators are compact, portable ticket encoders that encode parking entry tickets with validation information. The Hotel and merchants that are authorized to validate tickets are issued a validator. The customer brings their parking ticket with them to the front desk or cashier, and upon satisfying that hotel/merchant's requirements (minimum purchase) the ticket is inserted into the validator and the validation code is imprinted on the ticket. Chaser tickets are separate, 'second' tickets that possess machine-readable validation information. Businesses that are authorized to validate tickets are pre-sold chaser tickets, and they can provide them to their authorized customers. The parker then inserts (or scans) the original parking ticket into the exit verifier, then the chaser ticket. Chaser tickets can be confusing and may take longer to process at the exit, as there are two tickets to insert.

Web-based validators consist of barcode ticket scanners that can be stationed behind the hotel, retail, or restaurant check-in/check-out counter for better control. The customer brings their parking ticket with them to the hotel/merchant, and upon satisfying that requirements (hotel stay, minimum purchase, etc.), the barcode ticket is scanned and automatically validated. These validators require the merchant to provide internet access to the device.

For the Stonewall Jackson Hotel and Johnson Street garage it is recommended that the web-based validator system be employed. To integrate the garage's PARCS system with the hotel's folio system a scanner and PARCS to hotel folio software would be required system for a total cost of \$17,000. This would enable guest to use room key for free in and out and it would also post the parking fee to the hotel system and the garage revenue system.

ON-STREET PARKING OPERATIONS

As noted previously, the City has a combination of metered and complimentary on-street parking management programs, with the meter program specific to 10-hour meters along the Mary Baldwin University boundary. In effect, the meter program in place is designed to serve long-term parkers. This is contrary to the intended purpose of parking meters on curbside spaces. The short-term parking restrictions that are in place are managed through signage and enforcement. The level of enforcement seems appropriate but the technology employed is woefully inadequate to the task so the City recently increased fines for overtime parking violations. While recommendations on parking enforcement technology are included in this section of the report, the City needs to use the other tool it has to encourage appropriate on-street parking behavior and improve those spaces performance by modernizing and expanding its parking meter program.

METER EXPANSION PROGRAM

Figure 10 illustrates the recommended meter expansion phasing program which is aimed to further discourage non-compliance with posted restrictions and improve the performance of those valuable curbside spaces. The expansion program would initially be limited to the more

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visible and active curbside spaces (see light blue shaded streets/block faces) on Beverley, Central, and New streets, and Barrister's Row. In total, 93 existing spaces would be affected.

Figure 10: Phase I and II On-Street Parking Meter Expansion Program



Source: Walker Parking Consultants, 2017

Assuming one central POF pay-and-display pay station is located on each block then ten pieces of equipment would be required at an estimated cost of \$90,000 (\$9,000 per unit including installation and use initial orientation). Presuming the curbside metering program proves effective at encouraging improved parking turnover and performance during an initial one-year evaluation period, the City would then commit to the second phase of the expansion program (see light brown shaded areas). This phase would impact 140 on-street spaces including but not limited to Frederick Street and select streets south of Johnson Street. In this phase fifteen pay-and-display units would be installed at a cost of \$135,000. Note that annual maintenance and service costs are not included in this figure and can range from 7-9% of the total acquisition cost per year after the warranty has expired. In addition to equipment costs, monthly management, and connectivity fees of \$45.00 to \$60.00 per unit are required to maintain real-time wireless connectivity and to host the data. Other costs include extended warranties, service contracts, battery replacement and paper receipts (not covered by warranties). These fees exclude merchant credit card processing fees.

Figure 11: Examples of On-Street Multi-Space Meters



Source: Walker Parking Consultants, 2017

PARKING ENFORCEMENT

HANDHELD TICKET ISSUANCE DEVICES AND LICENSE PLATE RECOGNITION

Handheld ticket issuance systems have continued to grow with technology, and systems now utilize “smart phone” technologies and enforcement applications for ticket issuance. The enforcement applications can capture high-resolution photos, verbal comments, and GPS coordinates for fewer appeals. The software can integrate in real-time with pay-by-phone, multi-space meters and online single space meters. Repeat violators and “hot list” vehicles will be automatically flagged when entering a ticket. Real time electronic chalking is available for time zone enforcement. The ticket is printed on a Bluetooth enabled portable printer. Some handheld ticketing systems also include software for residential or monthly permitting, an online web portal for payment, and online adjudication processes. The following is a breakdown of system requirements. Note that the cost associated with new devices and software will be included in the financial section of this report.

Handheld electronic ticketing device with Bluetooth printer: The enforcement software shall be loaded onto an “Android” mobile phone. The application will be online with the Parking Management Software and will communicate in real-time. The application must be able to:

1. Scan barcode parking passes and verify validity.
2. Capture high-resolution color photos, verbal comments, and GPS coordinates and connect this data to the ticket issued.
3. Integrate in real-time with Pay-by-Phone, Multi-space meters, and on-line single space meters.
4. Automatically flag repeat violators and “hot list” vehicles when entering another ticket.

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5. Electronically chalking for time zone enforcement.

Parking Management Software: The parking management software must track the ticket from issuance to payment or adjudication. It will be held on the manufacturers server and accessed through a web portal. The software is fully configurable to the owner's choices: name, address and phone number of owner, Fee Rate, Rate Escalation, and time, etc.

1. Automated upload of mobile tickets.
2. Automated Permit Holder lookup.
3. Automatic fine escalation and late fees.
4. Electronic payment posting.
5. Repeat offender tracking.

Customer Web Portal: The Customer Web Portal is a self-service ecommerce module that connects in real-time to the Parking Management Software. Customers and violators can log in remotely from any browser, smartphone, or tablet and access their account or tickets.

1. Online Violation payment.
2. Online Violation appeal.
3. If parking permits are utilized, the customer can access their account, post payments, apply for permits, get on a waiting list, etc.

Estimated Costs:

1. Handheld application with Bluetooth printer: \$3,000 purchase per user with contract of \$750.00 per year.
2. Parking Management Software: \$6,000 per user purchase and contract of \$1,200 per year. A. \$10,000 one-time setup fee with annual contract of \$2,000.
3. Customer Web Portal: \$10,000 purchase.
A. \$3,000 one-time setup fee with annual contract of \$2,000.

Costs associated with handheld enforcement hardware, software, licensing, and contract management are not insignificant and can be confusing. For Staunton's parking program one-time hardware/software/web portal costs are estimated at \$32,000, and annual licensing and service maintenance costs are estimated at \$5,950.

Mobile License Plate Recognition (MLPR) can also be implemented to increase the efficiency of parking enforcement. This is particularly effective for time zone enforcement. The MLPR cameras are mounted on the roof of a regular sized vehicle, or even an electric vehicle (like a golf cart). As the MLPR drives past vehicles, it captures the license plate information, date, time, and location. If the same license is recognized in the same location beyond the allowed time limit, the enforcement officer can stop and issue the ticket. Since the data is all recorded and a photo of the license plate is available, the adjudication rate will be very low. Given that the cost to purchase and outfit a vehicle is approximately \$50,000, it is recommended that the city delay on the decision to purchase this technology until other improvements to the parking program have been initiated, measured, and formalized.

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PARKING VIOLATIONS AND FINE STRUCTURE

Table 7 presented previously illustrates Staunton's parking fines for major parking violations and compared those fines to similar Virginia municipalities. It would appear that the increased rates were in response to poor compliance and/or ineffectual enforcement. During the course of Walker personnel's visits to Staunton, which included trips before and after award of the consulting contract, the parking enforcement officers were visible and active. Therefore, the weakness in the City's enforcement program isn't due to a low fine structure or poor coverage, it is due to poor technology. With the implementation of the recommended handheld ticket issuance devices and associated back office software, the City will see improved compliance with posted restrictions, particularly those related to duration. If implemented, the City should soften the fine structure by incorporating a first warning system similar to the one employed by the City of Fredericksburg. A warning softens the negative impression that parking enforcement generally creates and it educates the parking "consumer" on appropriate parking behavior. It also reduces the number of appeals and, potentially, number of citations waived by the Commonwealth Attorney's office. Conversely, the second and subsequent fines for overtime parking become much more severe in an attempt to correct, once and for all, that behavior. Like an accelerated fine structure, the warning requires that the parking enforcement program record the violating vehicles license plate into a database for future reference, hence the need for appropriate field equipment and back office software.

PARKING MANAGER ROLES AND RESPONSIBILITIES

Organizationally, the City's parking website does a fine job in educating the consumer on its facilities and the free and fee choices. The site includes telephone numbers for general questions, parking tickets, monthly permits, and issues with parking equipment. However, it is unclear who you can speak with regarding a change in curbside management. Who can you speak with regarding changes in parking policy and hours of operation? Moreover, which staff person is responsible for establishing the system-wide parking operations, management, and maintenance budget? Who fights for those dollars during budget discussions each year? The ability to effectively execute policy and management changes and, equally important, monitor and respond to the actual results of policy changes, depends in large part on the structure of parking organizational management within City government. This section of the parking management plan focuses on improvements to the City of Staunton's parking organizational structure, aimed at making the parking system more effective for meeting economic development and neighborhood integrity goals.

As noted previously, there is no one person responsible for parking, nor is parking the central focus of any one department, with the results that parking operation and its policies are challenged from the lack of a unified vision. Given the complexity of the City's parking system and the need to increase customer convenience and operational efficiency through technology, there is a need for unified management of the City's public parking system.

Moving forward, it is recommended that the City create a champion of parking. One person should have responsibility for leading the City's parking mission, comprehensively overseeing all elements of the parking system, promoting the maintenance and financial soundness of the parking infrastructure, and addressing the concerns and requests of the stakeholders who rely

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on the system. While a common reporting structure for a parking manager is to work in a City's Public Works Department and report to the director of Public Works, given the fact that parking decisions in Staunton are being made by various departments, the parking manager position should exist within the City Manager's office. That individual will need to be included in all meetings where parking would or could be discussed. The following are potential job responsibilities of this position:

- *Orchestrate the consolidation of parking system functions;*
- *Coordinate with the Finance Department on the administration of financial responsibilities relating to parking system;*
- *Work with Finance and Public Works to review the financial and operational performance of the parking system;*
- *Review with Finance daily revenue, financial and operational incident reports;*
- *Review monthly financial status reports including revenue trends and newly implemented cash control procedures;*
- *Review revenue and expense performance, modify operating policies to meet the City's goals, and monitor compliance with contractual obligations;*
- *Implement new procedures as directed by the Director of Public Works;*
- *Oversee budgetary responsibilities;*
- *Determine the financial feasibility of implementing suggested programs to benefit downtown;*
- *Work with Public Works to oversee public parking facilities maintenance;*
- *Physically inspect off-street parking facilities;*
- *Review revenue control and occupancy issues;*
- *Monitor public complaints and respond to the public and adjust procedures as needed;*
- *Coordinate implementation of policy recommendations concerning demand management between on and off street spaces, reserved and unreserved space mix, oversell factors, and enforcement levels;*
- *Obtain knowledge of parking industry including trends in parking management and equipment options;*
- *Maintain ongoing inventory of facilities including rate surveys and available parking for monthly and daily users in all downtown parking facilities. Track demand and occupancies;*
- *Analyze parking rate structure and make recommendations that improve customer service and increase potential parking revenue;*
- *Make recommendations on new ways to generate additional demand and revenue for the City and evaluate feasibility of such programs. Present findings and recommendations to City for review;*
- *Make recommendations on future demand and development programs;*
- *Administer third party contracts designed to promote the City's parking goals.*
- *Meet with downtown merchants, residents, and various City departments to coordinate efforts related to on and off street parking; and*
- *Meet monthly with stakeholder groups to ensure that parking policies and goals complement both the City's and stakeholder interests and greater vision.*

In effect, this individual will be the face of public parking in Staunton. When someone has a question regarding site plan space requirements, parking rates, enforcement and ticketing, a

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faulty parking meter, or anything regarding the City's on- and off-street parking program they'll know to call this individual. It is recommended that the salary for this position be in the \$55,000 to \$75,000 range and using an average of \$65,000 with benefits equaling 35% then the cost for the purposes of a financial analysis is \$87,775 annually

Lastly, parking management needs to constantly evolve in response to changes in the land uses that the parking system supports. Parking codes, ordinances, and administrative policy need to be flexible and/or anticipate changing conditions. Both internal and external pressures that wish to effect improvements to the parking program need to be heard and then used to change the legislative language that directs the program.

To better "hear" the voices of change and to build political leverage, it is recommended that the City create a parking task force to be appointed by the City Manager. This body need not function as a commission, but should nonetheless include representation from downtown and residential parking permit program residents, business owners, property owners, Mary Baldwin University, courts, and a staff liaison. This group should meet once a month during the early phases of parking operations and management change but the frequency of meetings could be reduced (or increased) depending on the issues.

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PRELIMINARY SYSTEM-WIDE FINANCIAL ANALYSIS

The following merges the recommendations on staffing, parking access gates, revenue control equipment, meters, enforcement, and monthly and hourly rates into a 10-year preliminary financial performance assessment. The major physical, operational, and financial decision that the city needs to make in the next year or two is not related to new equipment, enforcement technology, or a parking manager position but the future of the Johnson Street Garage. Therefore, the financials that follow include debt service payments associated with garage repair and maintenance and a conceptual comparison of that cost versus demolition and construction of a new, replacement parking structure.

PROJECTED PARKING SYSTEM OPERATING & MAINTENANCE EXPENDITURES

Table 12 presents the detailed calculations and all assumptions regarding potential expenditures and revenues from FY2017 through FY2027. This financial estimate includes existing and projected Parking Enterprise Fund expenditures (\$671,862 in FY2017), and the costs associated with all recommended/additional system expenses which would take effect in FY2019. For FY2019 these recommended/additional costs include capital and equipment amortization costs of \$85,950, equipment maintenance contract cost of \$22,000, \$87,770 for the parking manager's salary and benefits, and \$91,150 for the garage and surface lot long-term sinking fund. The sinking fund is a parking industry recommendation to retain monies each year to fund eventual and anticipated repair and structural maintenance projects. Had the City of Staunton created such an annual budget retention item for its Johnson Street Garage it would not to request the \$2.5 million in capital funding which is now required. Presuming all of the recommended changes are instituted in FY2019 the total system cost of Staunton's parking program would equal \$844,720, which is a \$286,870 increase over the existing enterprise fund's projected expenditure of \$557,850.

As noted, it is anticipated that the structural repair and rehabilitation of the Johnson Street Garage will be funded as a capital project and would be financed separately from the Parking Enterprise Fund. However, all costs to operate, manage, and maintain the City's parking system should in practice be covered by the Enterprise Fund and as such the debt associated with that project is included and would increase the fund's expenditure responsibilities for FY2019 to \$1,07,455. Note that by FY2020 the \$224,400 annual debt service payment for the New Street Garage will no longer be on the city's books and system-wide costs including the Johnson Street Garage debt for that year would drop to \$818,964.

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Table 12: 10-Year Parking Operating, Debt Service, and Maintenance Costs

	Capital Cost	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	
Existing Enterprise Fund Expenditures	Risk Management	---	21,040	21,228	21,800	22,300	22,900	23,500	24,100	24,700	25,300	26,500	
	Debt Service Cost (New Street Garage)	---	224,400	224,400	224,400	0	0	0	0	0	0	0	
	Street and Lot Meters	---	109,326	59,997	61,000	63,000	65,000	67,000	69,000	71,000	73,000	77,000	
	Parking Garage	---	42,499	16,527	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	
	Wharf Parking Lot	---	32,671	36,725	38,000	39,000	40,000	41,000	42,000	43,000	44,000	46,000	
	New Street Parking Garage	---	165,858	112,955	115,779	119,000	119,000	122,000	122,000	125,000	128,000	128,000	
	PILOT- Cost Allocation Services	---	76,068	76,068	79,871	83,865	88,058	92,461	97,084	101,938	107,035	118,006	
	Total Existing EF Expenditures w/out GF Transfer	---	\$671,862	\$547,900	\$557,850	\$344,165	\$351,958	\$362,961	\$371,184	\$382,638	\$391,335	\$403,287	\$412,506
	Recommended Capital / Equipment Amortization												
	P ARCS Gates/Control Array	\$356,187	0	0	52,000	52,000	52,000	52,000	52,000	52,000	52,000	62,400	62,400
New Street Parking Garage	Off-Street Multi-Space Meters	\$146,250	0	0	21,000	21,000	21,000	21,000	21,000	21,000	21,000	25,200	
	Curbside Multi-Space Meters ⁽¹⁾	\$90,000	0	0	0	13,000	13,000	32,556	32,556	32,556	32,556	32,556	
	Enforcement Handheld & Software	\$32,000	0	0	5,000	5,000	5,000	5,000	5,000	5,000	5,000	6,000	
	Enforcement Software Contract	---	0	0	5,950	5,950	5,950	5,950	5,950	5,950	5,950	5,950	
	Stonewall Jackson Hotel Validation System	\$17,000	0	0	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,400	
	Fleet Vehicle & LPR Equipment	\$50,000	0	0	0	0	7,000	7,000	7,000	7,000	7,000	7,000	
	Total Capital / Equipment Amortization	\$691,437	\$0	\$0	\$85,950	\$98,950	\$105,950	\$125,506	\$125,506	\$125,506	\$125,506	\$135,906	\$141,506
	Total Equipment Contract Management Cost	---	\$0	\$0	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000	\$22,000	\$26,400	\$26,400
	Recommended Staffing and Benefits												
	Parking Manager	\$87,770	0	0	87,770	89,964	92,213	94,519	96,882	99,304	101,786	104,331	106,939
New Street Parking Garage	Total Staffing and Benefits	---	\$0	\$0	\$87,770	\$89,964	\$92,213	\$94,519	\$96,882	\$99,304	\$101,786	\$106,939	
	Recommended Facility Long-term Sinking Fund												
	Johnson Street Garage	\$150/sp/yr.	0	0	37,200	37,200	37,200	37,200	37,200	37,200	37,200	37,200	
	New Street Parking Garage	\$150/sp/yr.	0	0	40,800	40,800	40,800	40,800	40,800	40,800	40,800	40,800	
Surface Lots	Surface Lots	\$50/sp/yr.	0	0	13,150	13,150	13,150	13,150	13,150	13,150	13,150	13,150	
	Total Facility Operations & Maintenance Costs	---	\$0	\$0	\$91,150	\$91,150	\$91,150	\$91,150	\$91,150	\$91,150	\$91,150	\$91,150	
Total System Cost w/ Recommended Actions		---	\$671,862	\$547,900	\$844,720	\$646,229	\$663,272	\$696,135	\$706,721	\$720,598	\$731,777	\$761,074	\$778,501
Johnson St. Garage Major Repair/Maintenance ⁽²⁾		\$2,500,000	\$0	\$0	\$172,735	\$172,735	\$172,735	\$172,735	\$172,735	\$172,735	\$172,735	\$172,735	
Total System Cost w/ Johnson St. Garage Repair		---	\$671,862	\$720,635	\$1,017,455	\$818,964	\$836,006	\$868,870	\$879,456	\$893,332	\$904,512	\$933,808	\$951,236

(1) Meter expansion Phase I estimated to occur in FY2020 and Phase II in 2022

(2) See Wiley-Wilson

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PROJECTED PARKING SYSTEM OPERATING REVENUES

Note that while the system costs are fixed and are associated with equipment and operating industry standards, parking revenues are very difficult to estimate as;

- 1) *existing utilization on one facility where fees may be introduced may shift to another facility where parking would remain complementary,*
- 2) *demand will increase over time associated with additional and as yet unknown development and the absorption of presently vacant buildings,*
- 3) *the city's facilities that are and could remain complementary may, in fact, be converted to fee-based operation once demand pressures in those areas increase, and*
- 4) *parking rates should change upwards or downwards in reaction to market forces.*

Nonetheless, there is sufficient information on current off-street parking operations from the City and on-street performance from the parking occupancy, turnover, and duration of stay surveys to suggest what revenue could/should be generated. Table 13 estimates the parking revenue that could/would be generated annually for the next ten years. Key to this analysis is an assumption/recommendation that the new, two-hour, metered curbside spaces would operate with a rate of \$1.00 per hour and an average revenue per parking transaction of \$1.50. That equates to an average duration of stay of 1 ½ hours. Note that though parking activity and utilization in the City's on- and off-street facilities should grow during this period with continued economic success and redevelopment, the analysis simply assumes periodic, cost of living-based parking operating rate increases every five years. With regards to the City's existing hourly and monthly parking rates it is recommended that they remain unchanged, thus offering a lower cost alternative to metered on-street parking. Should the City and its stakeholders elect to test the use of curbside meters and presuming the meters' effectiveness in improving on-street turnover and performance, the City could elect to lower off-street parking rates further to make its garages and surface lots even more attractive.



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Table 13: 10-Year Parking Operating Revenue Estimate

	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027
Existing Fund Revenue ⁽¹⁾⁽²⁾											
Daily Receipts	106,385	119,000	119,000	119,000	142,800	142,800	142,800	142,800	171,400	171,400	171,400
Monthly Receipts	213,640	186,000	186,000	186,000	223,200	223,200	223,200	223,200	267,800	267,800	267,800
Parking Violations/Citations	54,606	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Street Meter Receipts	2,553	4,500	4,500	4,500	5,400	5,400	5,400	5,400	6,500	6,500	6,500
Meter Permits	14,083	15,000	15,000	15,000	18,000	18,000	18,000	18,000	21,600	21,600	21,600
Admin Fees/Miscellaneous	39,756	9,100	9,100	9,100	10,900	10,900	10,900	10,900	13,100	13,100	13,100
Total Enterprise Fund Revenue	\$431,023	\$383,600	\$383,600	\$383,600	\$450,300	\$450,300	\$450,300	\$450,300	\$530,400	\$530,400	\$530,400
Estimated New Parking Revenue ⁽²⁾⁽³⁾											
New On-Street Meters Revenue	\$0	\$0	\$0	\$83,700	\$83,700	\$83,700	\$314,600	\$377,520	\$377,520	\$377,520	\$377,520
Total Estimated Parking Revenue	\$431,023	\$383,600	\$383,600	\$467,300	\$534,000	\$534,000	\$764,900	\$827,820	\$907,920	\$907,920	\$907,920

Note:

FY2017 = ACTUAL REVENUES

FY2018 = BUDGET REVENUES

(1) Excludes transfers from the general fund.

(2) Revenues increase by 20% every fifth year for cost of living adjustment

(3) Assumes 93 on-street spaces multiplied by five vehicle per space average turnover multiplied by \$1.00 average transaction, multiplied by 60% daily coverage factor multiplied by 300 days. By FY2023 number of metered curbside spaces increases to 233 and rate to increase to \$1.50 per hour.

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PROJECTED PARKING SYSTEM FINANCIAL OPERATING SURPLUS OR DEFICIT

To determine the parking system financial strength and/or continued dependence on General Fund transfers, Table 14 layers existing and estimated parking expenditures over the next ten years to existing and estimated operating revenue. In FY2018 the Parking Enterprise Fund is projected to operate at a \$164,300 deficit and will require an equal transfer from the General Fund. Expenditures and debt associated with the New Street Garage and the recommended parking operational and management improvements which take effect in FY2019 would result in system-wide financial shortage of \$461,120 in FY2019. With the expiration of the New Street Garage debt and generation of parking revenue from an expanded on-street meter program the system-wide operating loss would drop to \$178,929 in FY2020. Presuming that the meter expansion program proves successful and the City chooses to expand that program further under Phase II the parking system would yield a financial surplus of \$58,179 in FY2022. Note that this analysis assumes that existing parking rates and fees would remain unchanged until 2021. At present, hourly rates are \$0.50, the maximum fee for all-day parking is \$6.00 (\$7.00 for hotel guest), and the non-reserved and reserved monthly parking permit cost \$30.00 and \$60.00, respectively. The hourly fee for on-street parking would be \$1.00 until FY2023 at which point it would increase to \$1.50 per hour.



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Table 14: 10-Year Parking System Operating Profit or Loss

	Actual		Estimated/Projected								
	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027
Existing Operations, Maintenance & Debt Service											
Existing Enterprise Fund Expenditures	671,862	547,900	557,850	344,165	351,958	362,961	371,184	382,638	391,335	403,287	412,506
Recommended/Additional System Costs											
Recommended Capital / Equipment Amortization	0	0	85,950	98,950	105,950	125,506	125,506	125,506	125,506	135,906	141,506
Recommended Equip. Contract Management Cost	0	0	22,000	22,000	22,000	22,000	22,000	22,000	22,000	26,400	26,400
Recommended Staffing and Benefits	0	0	87,770	89,964	92,213	96,882	99,304	101,786	104,331	106,939	106,939
Recommended Facility Sinking Fund	0	0	91,150	91,150	91,150	91,150	91,150	91,150	91,150	91,150	91,150
Total Recommended/Additional System Costs	\$0	\$0	\$286,870	\$302,064	\$311,313	\$333,174	\$335,537	\$337,959	\$340,442	\$357,786	\$365,995
Total Existing and Recommended System Costs	\$671,862	\$547,900	\$844,720	\$646,229	\$663,272	\$696,135	\$706,721	\$720,598	\$731,777	\$761,074	\$778,501
Parking System Revenues											
Existing/Projected Fund Revenue	431,023	383,600	383,600	383,600	450,300	450,300	450,300	450,300	530,400	530,400	530,400
New On-Street Meters Revenue	0	0	0	83,700	83,700	83,700	314,600	377,520	377,520	377,520	377,520
Total Parking System Revenues	\$431,023	\$383,600	\$383,600	\$467,300	\$534,000	\$534,000	\$764,900	\$827,820	\$907,920	\$907,920	\$907,920
Parking System Operating Profit or Loss	\$240,839	\$164,300	\$461,120	\$178,929	\$129,272	\$162,135	\$58,179	\$107,222	\$176,143	\$146,846	\$129,419

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The analysis illustrates that current parking market rates in Staunton are not sufficient to cover annual operating costs and the debt service associated with major construction and/or structural rehabilitation. Parking rates in Richmond, Fredericksburg, Charlottesville, or most municipalities for that matter, are generally insufficient to cover both the high annual debt service payment associated with new construction or significant reconstruction and day-to-day operations/maintenance. The analysis does prove, however, that the current parking rates in Staunton, with expansion of the on-street meter program on high turnover streets, are sufficient to cover annual operation costs and proactive maintenance and structure repair work.

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CONCLUSION

The parking system in downtown Staunton is a patchwork of on- and off-street facilities, developed in response to a specific need at a specific time, and operating under varying levels of control and maintenance. The history of parking policies and enforcement strategies, aka, fines for violations, illustrates a similar reactive approach when addressing parking issues. However, like the parking control equipment in the various lots and garages, this reactive approach has resulted in an overly complicated, difficult to manage, and, for the parking consumer, a difficult to understand program. For City staff, who wish to support economic development, ensure efficiency in operation, and provide a financially self-sustaining parking system, the mixed bag of parking management strategies and technology is particularly frustrating. At present, the City public parking program is "flying blind" as the equipment and software does not provide even the most basic information on performance.

With regards to performance, detailed surveys of curbside parking activity revealed the fact that an overly large percentage of vehicles parked in the commercial heart of Staunton for far longer than the desired and posted 2-hour duration. City staff entrusted with curbside parking enforcement are present and appear dutiful, but the volume of long-term parkers in short-term spaces confirms the fact that the technology they use to enforce parking ordinances is lacking.

The report and parking management plan presented herein provide a roadmap for the City, downtown business, and the various downtown stakeholders to follow to maximize the efficiency of the City's on-street and off-street parking infrastructure. However, that management plan and associated evaluation identified a great number of latent concerns, the most significant being the need to fund the repair and long-term maintenance of the Johnson Street Garage. The garage is necessary infrastructure to support downtown businesses and residents. However, parking market conditions in Staunton, like most areas of the country, are insufficient to cover the annual cost of management, enforcement, preventive maintenance, and debt service payments for major capital projects. It would be unwise to increase the rate for hourly and monthly parking in an attempt to cover the annual debt service payments.

Equally unwise would be ignoring the need to improve the performance of valuable curbside parking in the commercial core and the need to provide customer conveniences and operating flexibility in the off-street facilities. The report, therefore, recommends the expansion of the existing curbside meter program to improve the performance of these spaces, recommends the modernization of all parking access and revenue control equipment in the larger, gated facilities, replacement of archaic methods to enforce parking with newer technology, and the modernization of parking (and revenue) management strategies in the non-gated facilities. While these improvements will not generate cash surpluses in the short term, which is not the intent of parking management strategies, they will ensure that these valuable downtown parking (and access) assets will operate in an efficient, cost neutral, but economically supportive manner.

While the City, its political leadership, and taxpayers could choose to disregard some or all of the operational and management recommendations in this report, the responsibility to fund and maintain its parking infrastructure is not negotiable. Because the city and Parking Fund did

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not include a sinking fund for long-term durability, the City must now spend \$2.5 million to save its Johnson Street parking facility from structure failure. By providing the various lots and parking structures in Staunton to serve the downtown's economic and access needs, the City and its stakeholder have committed to funding their operation during their useful lifecycle, which for parking structures could be 40 to 50 years. The City could choose to provide free, aka, complimentary parking, but without parking user fees that would simply transfer the financial responsibility from those who choose to park to all taxpayers, including those who don't have a property/business downtown and those who don't own a car.

APPENDIX



WALKER
PARKING CONSULTANTS

PRIVATE OFF-STREET PARKING OCCUPANCY

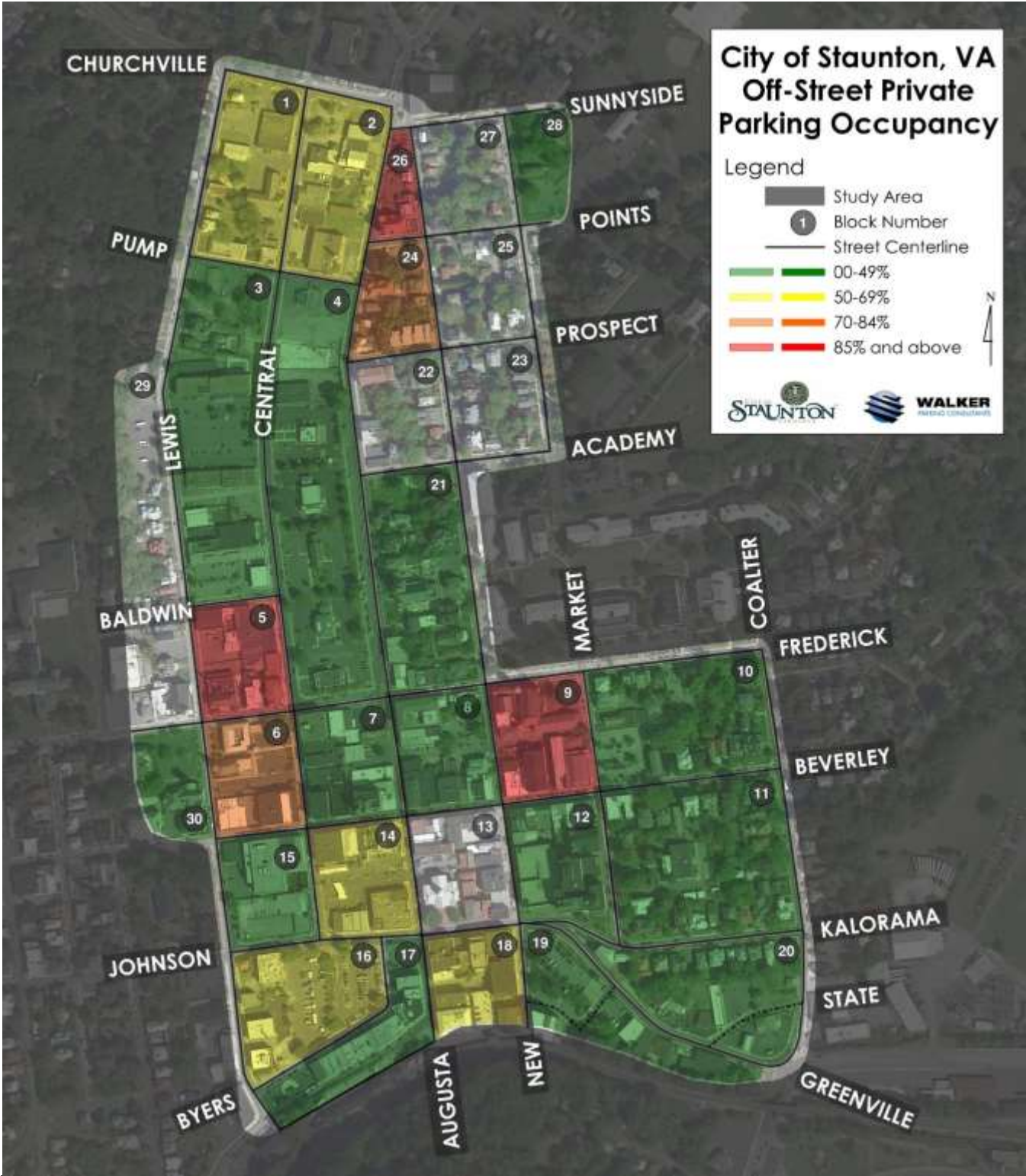
Private Off-Street Parking Occupancy

Block	Supply	Demand	% Occupied
1	88	55	63%
2	65	45	69%
3	198	46	23%
4	279	69	25%
5	35	30	86%
6	49	40	82%
7	33	14	42%
8	6	0	0%
9	15	13	87%
10	22	8	36%
11	20	8	40%
12	6	2	33%
13	0	0	0%
14	45	27	60%
15	13	2	15%
16	68	24	35%
17	47	20	43%
18	81	46	57%
19	25	11	44%
20	34	3	9%
21	29	9	31%
22	0	0	0%
23	0	0	0%
24	10	8	80%
25	0	0	0%
26	10	10	100%
27	0	0	0%
28	28	2	7%
29	0	0	0%
30	34	11	32%
Total	1,240	503	41%

Source: Walker Parking Consultants, 2017

The private occupancy information shown in the table above is also illustrated in the map on the next page. Blocks not colored do not have private off-street parking. The largest sources of private off-street parking are located on Blocks 3 and 4; they were observed to be less than 50% full. While the overall occupancy in the study area did not indicate a parking shortage, we recognize that demand varies throughout the day, as well as seasonally. Should the need for additional parking be realized, these parking resources should be considered for shared parking opportunities.

Figure 6: Private Off-Street Parking Occupancy



Source: Walker Parking Consultants, 2017

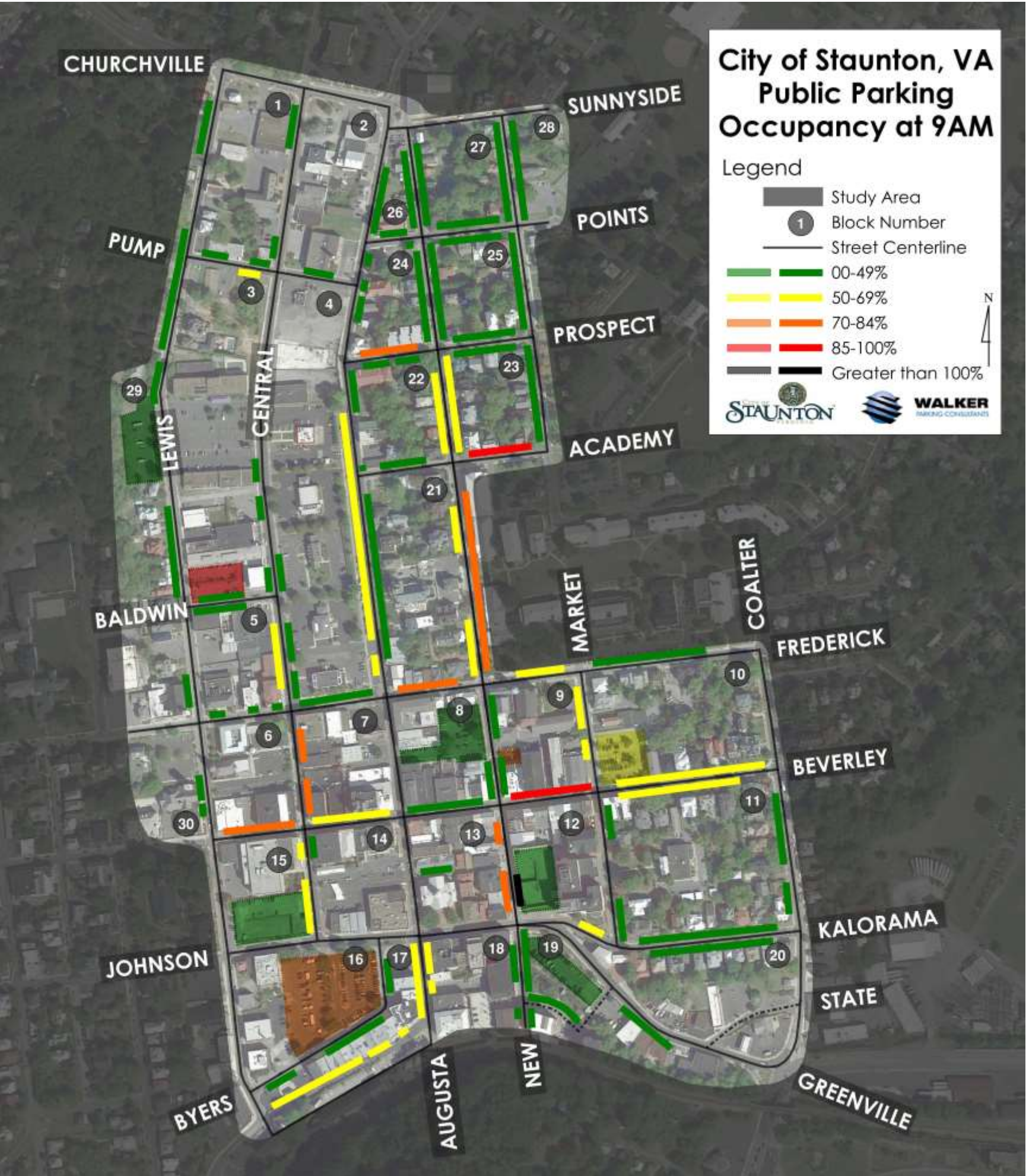
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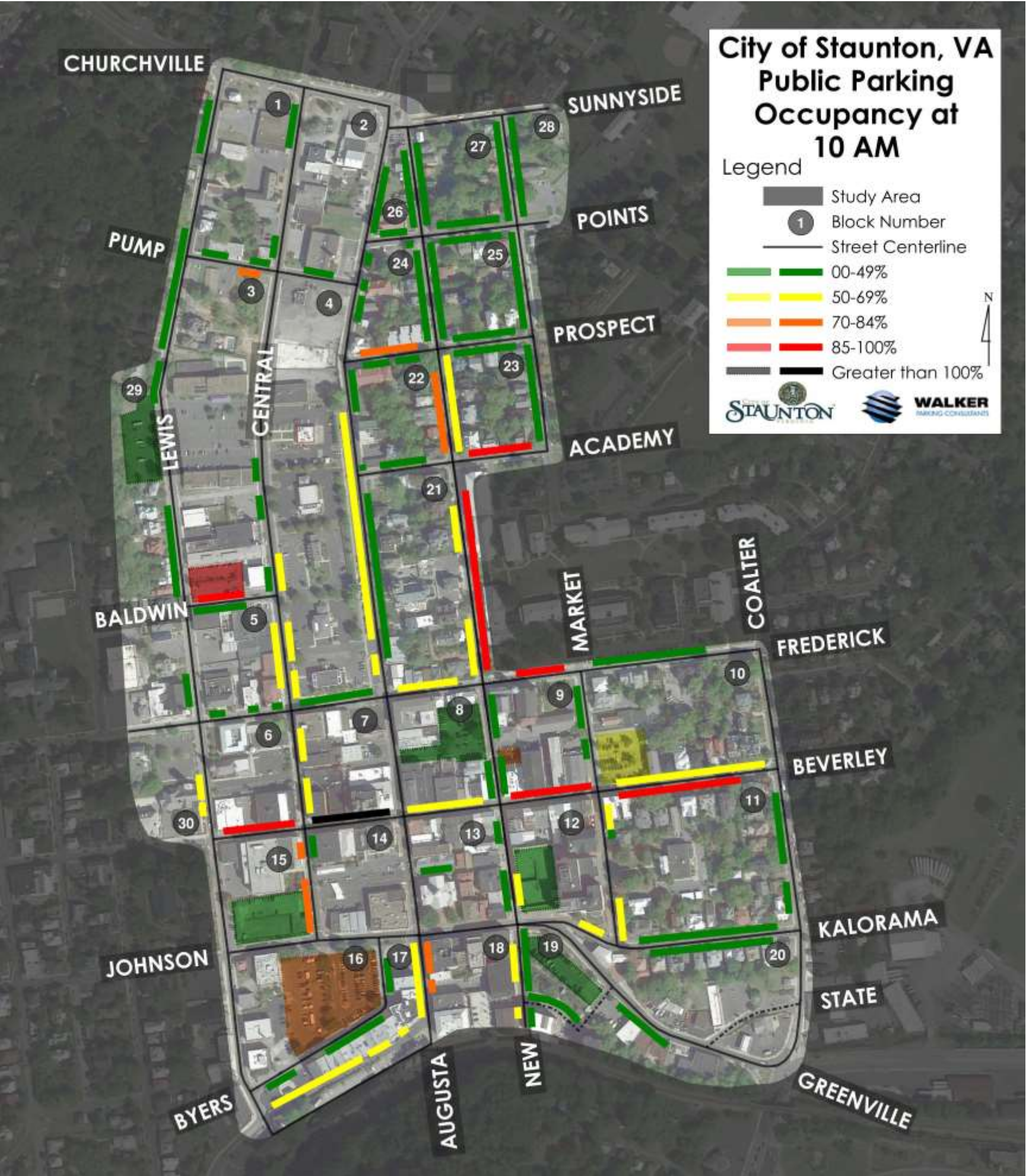
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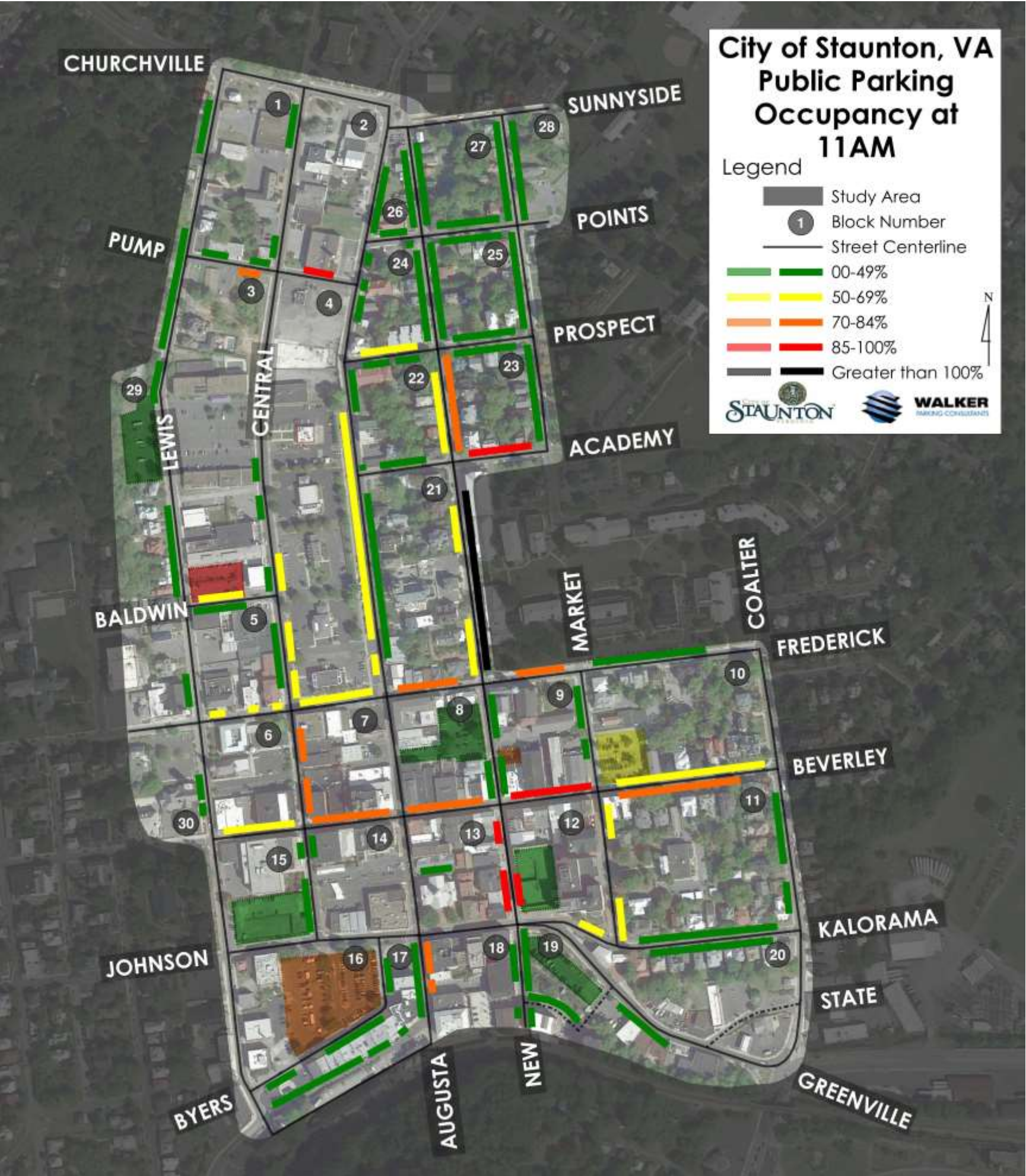
ON-STREET PARKING SUPPLY

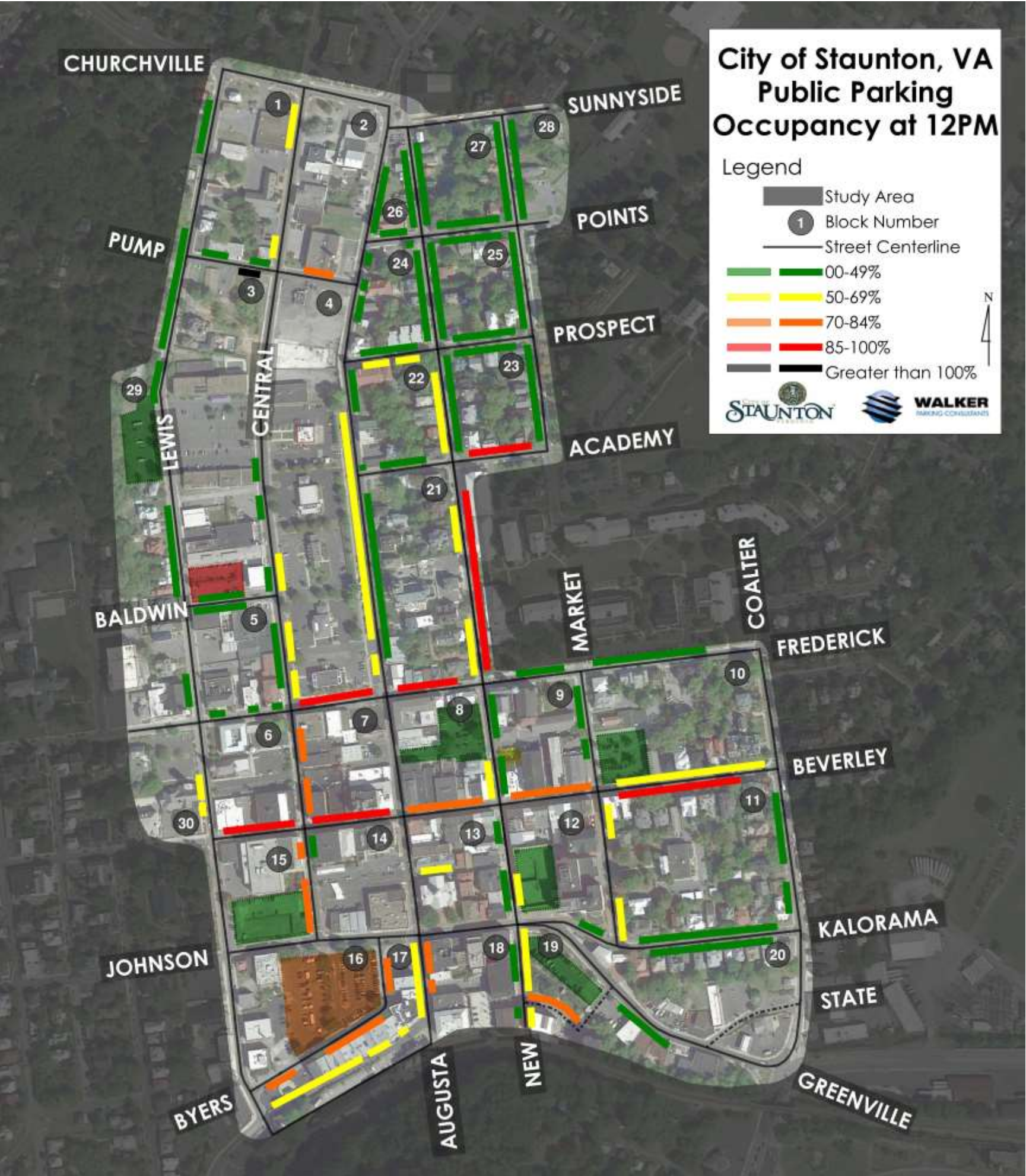
Block	Street	Total Supply	Unrestricted	Police	10-Hour Meter	<2 Hour	15 Minute	ADA
1	Pump	6	6					
1	Central	9	6			3		
1	Lewis	15	15					
2	Pump	5	5					
3	Pump	4	4					
3	Baldwin	7	7					
3	Central	13	9			3	1	
3	Lewis	39	23			16		
4	Augusta	57	54			3		
4	Central	17	7			10		
4	Frederick	15	14					1
5	Frederick	7				2	5	
5	Baldwin	7	7					
5	Central	9				8	1	
5	Lewis	5				3	2	
6	Beverley	11				9	1	1
6	Lewis	5				4		1
7	Beverly	11				8	3	
7	Central	11				9	2	
8	Beverley	11				9	1	1
8	New	5				5		
9	Frederick	11				11		
9	New	12		2		8		2
9	Market	7				7		
9	Beverley	11				9	2	
10	Beverley	23				23		
10	Frederick	19			19			
11	Beverley	19	17				2	
11	Coalter	19	19					
11	Kaloramc	22				22		
11	Market	11				9		2
12	Kaloramc	4			4			
12	New	4					4	
13	Barrister	3				2		1
13	New	11				11		
14	Central	3					3	
15	Central	9		3		6		
16	Lewis	7				7		
17	Augusta	30		4		21	1	4
17	Byers	24				20	4	
18	Augusta	10		6		4		
18	New	6				6		
19	Greenville	8				8		
19	Mill	13				13		
19	New	10				10		
20	Kaloramc	19				19		
21	Frederick	10				8	2	
21	New	16			9	7		
21	New -East	28				26	2	
21	Augusta	29	3			24	2	
22	Augusta	8	6					2
22	New	11				11		
22	Prospect	7	7					
22	Academy	8	8					
23	Academy	13	13					
23	Market	14	14					
23	New	14				14		
23	Prospect	12	12					
24	Augusta	7	2				3	2
24	New	14	14					
24	Prospect	11	11					
24	Points	1	1					
25	Market	15	15					
25	New	13	13					
25	Points	12	12					
25	Prospect	12	12					
26	Augusta	9	9					
26	New	11	9					2
26	Points	4	4					
27	Market	15	15					
27	New	12	12					
27	Points	12	12					
28	Market	15	15					
Total		917	412	15	32	398	41	19
% of Total			45%	2%	3%	43%	4%	2%

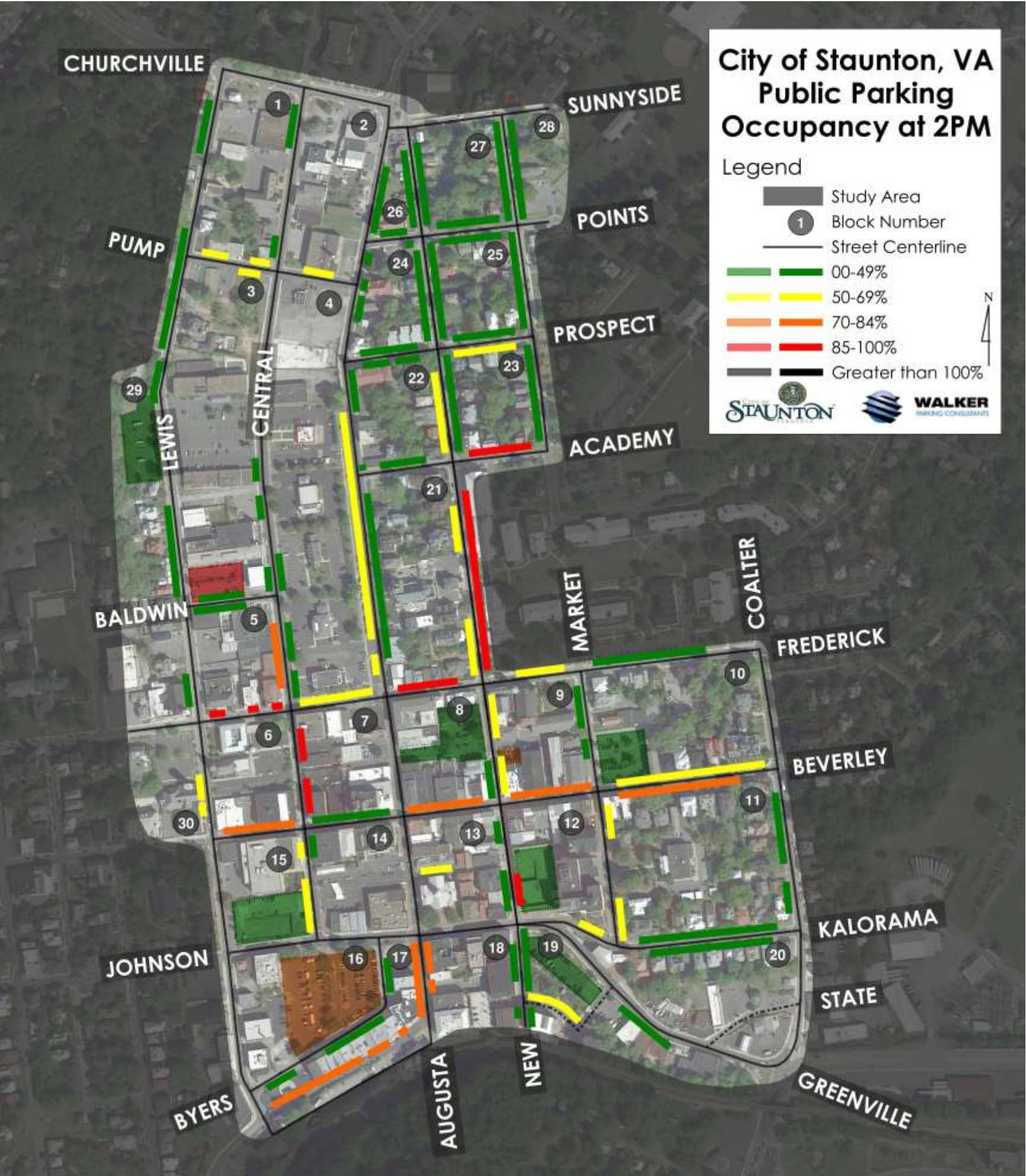
PUBLIC PARKING OCCUPANCY BY HOUR

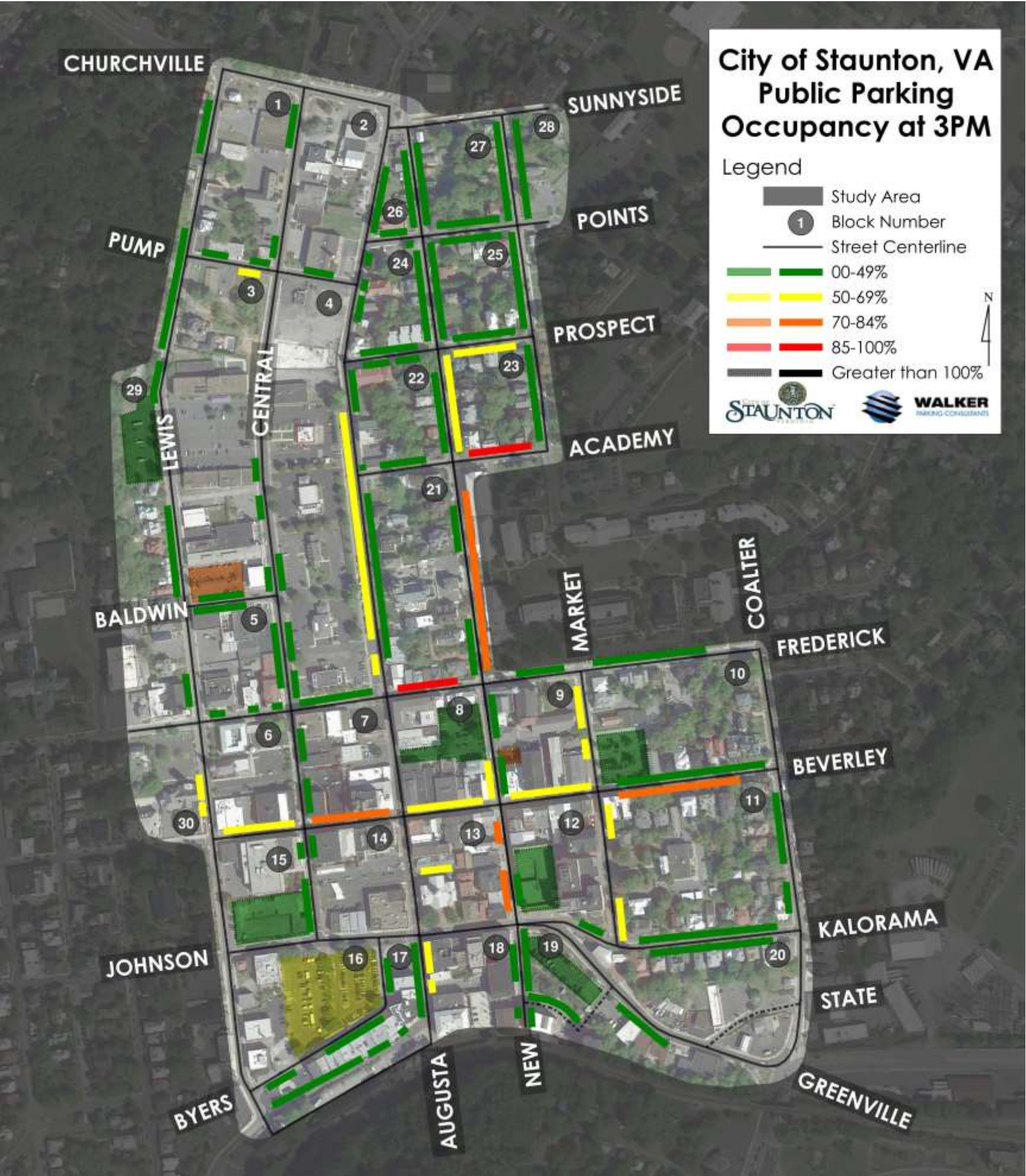
















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ON-STREET PARKING DURATION AND TURNOVER

Block	Street	Length of Stay										Total Cars	Total Vehicle Hours	Average Length of Stay	
		One Hour	Two Hours	Three Hours	Four Hours	Five Hours	Six Hours	Seven Hours	Eight Hours	Nine Hours	Total Hours			Stay	Turnover
1	Central	17	1	1	0	0	0	0	0	0	81	19	22	1.16	2.11
1	Lewis	2	2	0	0	3	1	0	1	0	135	9	35	3.89	0.60
1	Pump	5	1	0	0	0	0	1	0	0	54	7	14	2.00	1.17
2	Pump	4	3	0	0	0	0	2	0	0	45	9	24	2.67	1.80
3	Baldwin	3	2	2	1	1	0	0	0	0	63	9	22	2.44	1.29
3	Central	4	0	0	0	0	0	2	1	1	117	8	35	4.38	0.62
3	Lewis	6	1	0	1	0	2	0	0	4	351	14	60	4.29	0.36
3	Pump	3	1	0	0	0	0	1	0	1	36	6	21	3.50	1.50
4	Augusta	41	14	6	5	3	5	2	10	6	513	92	300	3.26	1.61
4	Central	16	7	1	0	1	0	1	1	1	153	28	62	2.21	1.65
4	Frederick	30	14	7	1	1	0	0	0	0	135	53	88	1.66	3.53
5	Baldwin	3	1	0	0	0	1	0	1	0	63	6	19	3.17	0.86
5	Central	16	3	0	2	0	0	0	0	1	81	22	39	1.77	2.44
5	Frederick	17	3	2	0	10	0	0	0	0	63	22	29	1.32	3.14
5	Lewis	2	1	1	0	0	0	0	0	0	45	4	7	1.75	0.80
6	Beverley	40	5	3	0	2	1	0	0	0	99	51	75	1.47	4.64
6	Lewis	1	1	2	0	0	0	1	0	0	45	5	16	3.20	1.00
7	Beverley	36	8	0	1	0	2	0	0	0	99	47	68	1.45	4.27
7	Central	28	7	2	2	0	1	1	1	0	99	42	77	1.83	3.82
8	Beverley	33	8	3	1	0	1	0	0	0	99	46	68	1.48	4.18
8	New	14	2	0	0	0	0	0	0	0	45	16	18	1.13	3.20
9	Beverley	24	8	6	2	0	0	1	0	0	99	41	73	1.78	3.73
9	Frederick	28	7	4	1	0	0	0	0	0	99	40	58	1.45	3.64
9	Market	9	1	3	0	1	0	1	0	0	63	15	32	2.13	2.14
9	New	12	4	0	3	0	0	0	1	0	108	20	40	2.00	1.67
10	Beverley	22	7	4	1	3	0	0	2	3	207	42	110	2.62	1.83
10	Frederick	9	7	1	0	0	0	2	0	0	171	19	40	2.11	1.00
11	Beverley	7	2	2	3	2	1	1	8	2	171	28	134	4.79	1.47
11	Coalter	0	1	3	1	0	0	1	1	0	171	7	30	4.29	0.37
11	Kalorama	3	0	1	1	0	0	1	2	0	198	8	33	4.13	0.36
11	Market	6	4	1	1	1	1	0	1	2	99	17	58	3.41	1.55
12	Kalorama	0	1	0	0	0	0	0	1	0	36	2	10	5.00	0.50
12	New	20	1	0	0	0	0	0	0	0	36	21	22	1.05	5.25
13	Barrister	1	0	0	0	1	0	0	1	0	27	3	14	4.67	1.00
13	New	27	8	6	0	0	0	0	0	0	99	41	61	1.49	3.73
14	Central	2	0	0	0	0	0	0	0	0	27	2	2	1.00	0.67
15	Central	10	9	1	2	0	0	0	0	0	81	22	39	1.77	2.44
16	Lewis	0	0	0	0	0	0	0	0	0	63	0	0	0.00	0.00
17	Augusta	51	17	9	1	2	0	1	1	0	270	82	141	1.72	2.73
17	Byers	40	15	1	0	0	0	0	0	0	216	56	73	1.30	2.33
18	Augusta	5	1	3	1	1	1	1	2	0	90	15	54	3.60	1.50
18	New	4	4	0	0	0	0	0	0	0	54	8	12	1.50	1.33
19	Greenville	2	1	0	0	0	0	0	0	1	72	4	13	3.25	0.50
19	Mill	28	9	2	0	1	1	0	0	0	117	41	63	1.54	3.15
19	New	13	4	3	1	0	1	0	0	0	90	22	40	1.82	2.20
20	Kalorama	4	4	1	1	2	0	1	1	3	171	17	71	4.18	0.89
21	Augusta	26	8	4	2	0	0	0	0	0	261	40	62	1.55	1.38
21	Frederick	15	3	3	1	2	2	0	0	1	90	27	65	2.41	2.70
21	New	10	2	0	0	0	2	1	2	4	144	21	85	4.05	1.31
21	New -East	18	4	4	1	1	3	2	8	7	252	48	206	4.29	1.71
22	Academy	2	1	1	0	0	0	1	0	0	72	5	14	2.80	0.63
22	Augusta	8	0	0	0	0	0	0	0	0	72	8	8	1.00	1.00
22	New	4	2	0	1	0	2	1	1	2	99	13	57	4.38	1.18
22	Prospect	4	1	2	1	0	0	0	1	0	63	9	24	2.67	1.29
23	Academy	3	0	1	1	1	2	1	1	8	117	18	114	6.33	1.38
23	Market	5	5	1	0	1	0	1	0	0	126	13	30	2.31	0.93
23	New	2	0	3	1	1	0	1	1	3	126	12	62	5.17	0.86
23	Prospect	4	1	0	0	0	0	0	3	1	108	9	39	4.33	0.75
24	Augusta	2	1	0	0	0	0	0	0	0	63	3	4	1.33	0.43
24	New	3	1	0	0	1	1	0	0	1	126	7	25	3.57	0.50
24	Points	0	0	0	0	0	0	0	0	0	9	0	0	0.00	0.00
24	Prospect	1	2	3	0	1	0	1	0	3	99	11	53	4.82	1.00
25	Market	2	0	1	0	0	0	1	0	0	135	4	12	3.00	0.27
25	New	2	1	0	0	1	0	0	1	2	117	7	35	5.00	0.54
25	Points	2	0	0	0	0	0	2	1	0	108	5	24	4.80	0.42
25	Prospect	1	2	1	0	0	0	0	0	0	108	4	8	2.00	0.33
26	Augusta	0	1	2	0	0	0	0	0	0	81	3	8	2.67	0.33
26	New	2	0	1	1	0	0	0	0	0	99	4	9	2.25	0.36
26	Points	0	0	0	0	0	0	0	0	0	36	0	0	0.00	0.00
27	Market	1	1	0	0	0	1	0	0	1	135	4	18	4.50	0.27
27	New	0	1	1	0	1	1	0	0	0	108	4	16	4.00	0.33
27	Points	0	2	0	0	0	0	0	0	0	108	2	4	2.00	0.17
28	Market	4	0	0	0	1	1	0	0	4	135	10	51	1.00	0.67
Total		769	239	109	42	46	34	33	55	62	8,253	1,379	3,355	2.43	

