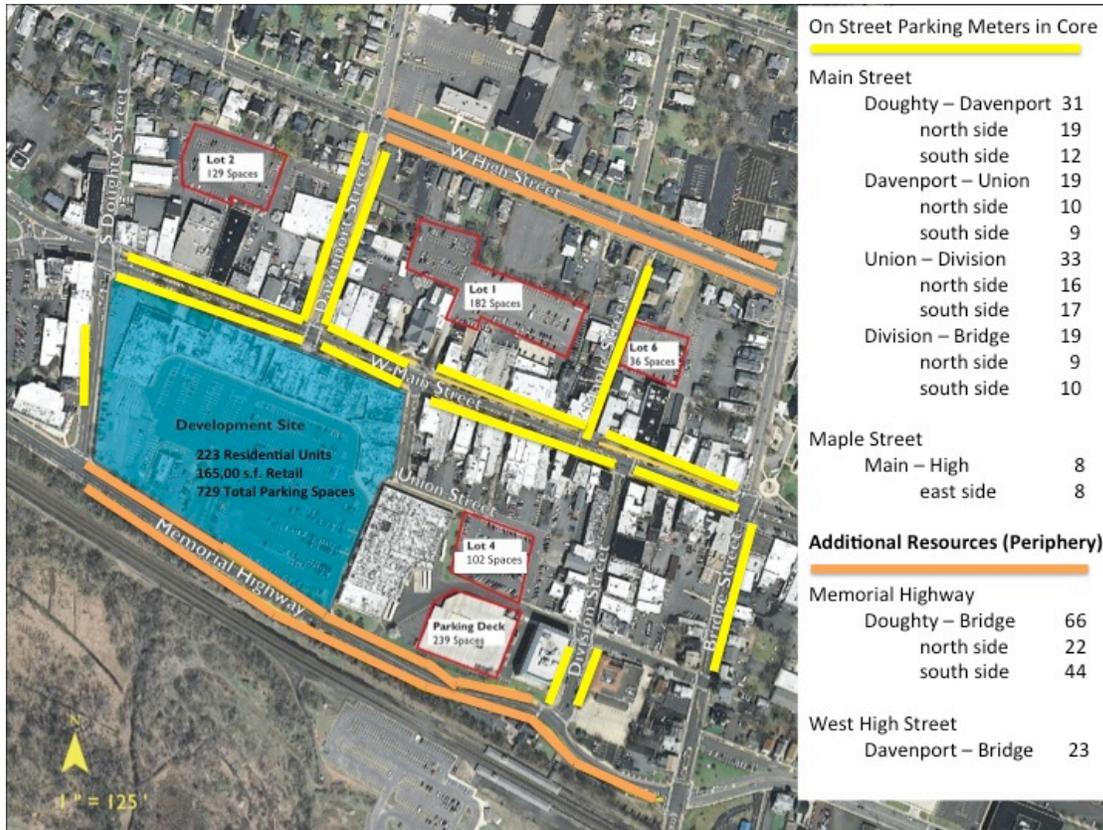


1.0 INTRODUCTION

The Borough of Somerville has requested that Bier Associates provide a Parking Occupancy/Demand and Financial Feasibility Analysis for a proposed Parking Deck to be constructed on Municipal Parking Lot #4, located between Union Street and the South Street extension to support West Main Street redevelopment as well as overflow parking demand from the Somerville Town Center (STC) mixed use redevelopment project.



Map 1: Downtown Somerville Study Area

2.0 Parking Supply:

The total number of municipal On and Off-street metered parking spaces in the study area are **670**. Table 1 illustrates the inventory of public parking supply, and includes Somerville Town Center parking lot and Post Office Plaza parking deck.

	Name	Spaces
On Street Meters	Main Street (Bridge to Doughty)	102
	Side Streets	66
	Veteran’s Memorial Highway	66
	West High Street	23
Off Street Municipal Lots	Lot 1	182
	Lot 2	129
	Lot 4	102
Private	Somerville Town Center Lot	729
	Post Office Plaza	239

On Street Total: 257

Off Street Total: 413

Private Parking Facilities: 968

2.1 Public Parking Utilization & Occupancy:

Bier Associates conducted hourly parking occupancy counts in municipal Lots 1-2-4, Shoprite and Post Office Plaza parking facilities and at on street metered parking spaces within the study area on Saturday, March 30, 2013, Friday, April 5, 2013, and Saturday, April 6, 2013.

2.2 On-Street Occupancy:

The On-street peak parking occupancy occurred for 2 hours, between 6 PM – 8 PM on April 5 and April 6, with 160 & 158 of the On-street 168 space parking inventory occupied, equaling 94%.

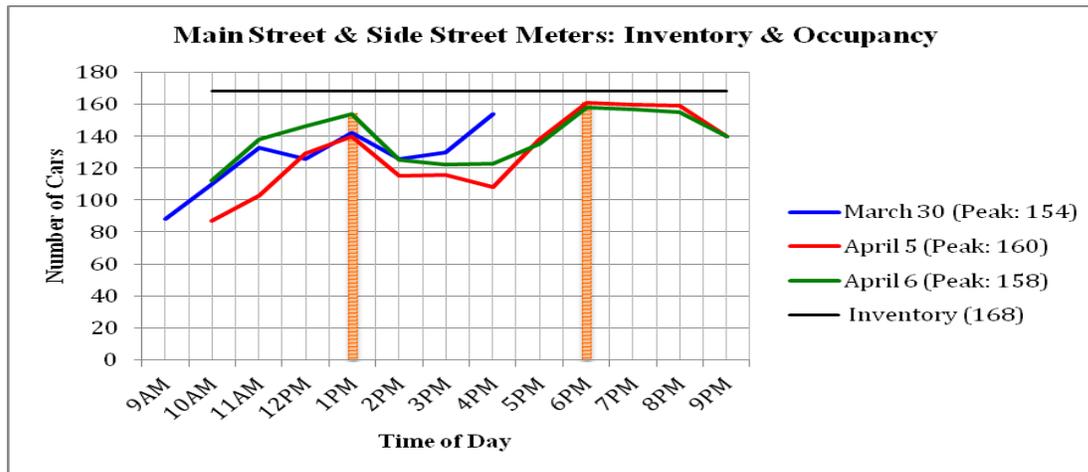


Figure 1: MAIN & SIDE STREETS: INVENTORY & OCCUPANCY

2.3 Off-Street Municipal Parking Lot Occupancy:

Peak Off-street occupancy for all municipal lots at 7PM and 8PM on April 5th was 344 spaces equaling 83% occupancy and on April 6th was 379 spaces equaling 92% occupancy.

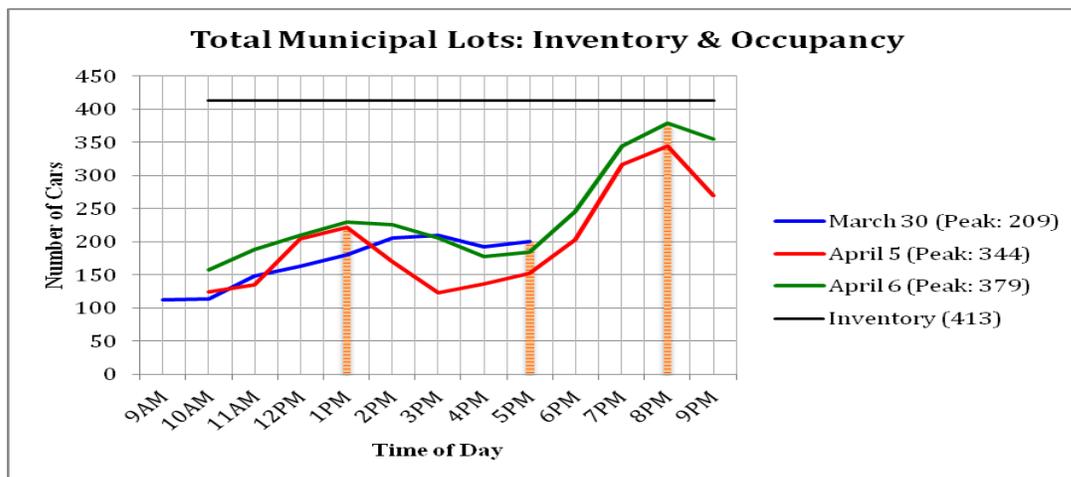


Figure 2: MUNICIPAL LOTS 1-2-4: INVENTORY & OCCUPANCY

Individual Municipal Parking Lot Occupancies:

Lot 1 had peak occupancies on April 5 & 6 of **171** (94%) & **159** (87%).

Lot 2 had peak occupancy on April 6 of **118** (91%).

Lot 4 had peak occupancies of **100**, **102** and **102** (98% -100%) on March 30, April 5 & 6.

2.4 Post Office Plaza Parking Deck Occupancy:

Post Office Plaza parking deck has a private parking facility with **239** parking spaces adjacent to Lot 4. On April 5 & 6 during the 7PM and 8PM peak parking occupancy timeframe, the Post Office Plaza parking deck had **74** and **60** vehicles parked. Parkers were not office tenants of Post Office Plaza and were observed walking to area restaurants. *When the Post Office Plaza parking deck occupancies are added to municipal parking lot occupancies, Friday & Saturday at 7PM & 8PM the peak parking occupancies on April 5 and 6, in Off-street municipal parking lots was in fact 418 and 439 vehicles, which constitutes full occupancy 101% and 106% of the municipal off-street public parking system.*

2.5 ShopRite Parking Lot Occupancy:

Figure 3 illustrates the ShopRite parking occupancy in the STC parking lot. Based on the Carl Pehnke, P.E. STC parking plan, approved by the Planning Board, a ratio of 4.0 parking spaces per 1,000 s.f. was applied to 70,000 s.f. of supermarket, not including the mezzanine, which results in **280** parking spaces calculated for purposes of this study, for supermarket use. Supermarket peak parking demands were observed to occur 2 times during the day, 12noon to 3PM and evening 5PM to 8PM.

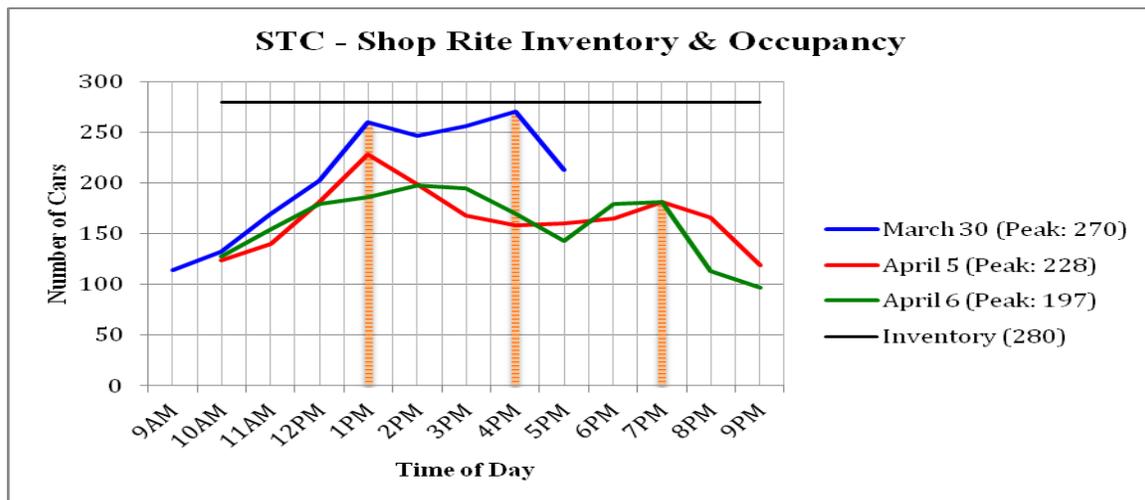


Figure 3: STC - SHOPRITE: INVENTORY & OCCUPANCY

Bier Associates study team had the opportunity to observe Shoprite parking occupancy on Saturday, March 30, 2013 the day before Easter Sunday a holidays which yields the highest parking demands and occupancy counts for supermarkets.

Section 3 – LAND USE ANALYSIS

The following section analyzes the impact of the Somerville Town Center development project on the study area.

3.0 Somerville Town Center Modeling Of Parking Demand & Supply

Somerville Town Center (STC) will have a marginal impact on the demand for and availability of parking in the study area. The development project has a parking demand of **994** parking spaces to satisfy the mixed development. Table 2 below, shows the breakdown of land uses and number of parking spaces required by.

Land Use	Overall Size	Applied Ratio	Spaces
Residential	223 Units	1.5	335
Supermarket	69,900 sq. ft.	4.0	280
Retail	42,000 sq. ft.	4.0	168
Health Club	42,000 sq. ft.	4.0	160
Restuarant	8,000 sq. ft.	4.0	32
TOTAL			994

TABLE 2

Mr. Pehnke modeled parking demand using the *ULI Shared Parking Calculator for a Community Shopping Center*, based on a parking ratio of **4.0** parking spaces per square foot for **165,000 s.f.** consisting of the supermarket, retail, commercial, health club and bank uses and **1.5** parking spaces per **223** apartment dwelling units.

The Somerville Planning Board approved the STC project with TOD and internal CBD captive user credits for parking. The Board's Traffic Engineer, Harvey Yesowitz, P.E. of Harlyn Associates, reviewed Mr. Pehnke's parking demand calculations and found them to be acceptable. Mr. Pehnke's ULI shared parking model, TOD and internal captive users methodologies resulted in a weekday parking demand of **783** and weekend demand of **765** parking spaces generated by Somerville Town Center. The STC project received credit for **815** parking spaces, which resulted in a surplus of **30** parking spaces at peak parking demand.

Parking Plan Approved by Planning Board	
STC Parking Lots	729 spaces
Lot 4 Parking Credit	60 spaces
On-Street & Loading Area	26 spaces
TOTAL	815 SPACES

TABLE 3

The **60** parking spaces in Lot 4 and Union Street credited to the STC project are utilized during peak demand times. Additionally, **9** parking spaces in the loading area, in the rear of Shoprite, are restricted to tractor trailers. Consequently, the available STC parking supply for general public, residents and shopping center employees is **745** parking spaces. There may be a need to create an additional **40** parking spaces to satisfy STC's peak parking demand.

Section 4: PARKING SYSTEM ANALYSIS

4.0 Parking System Surplus/Deficit:

In order to accurately assess the stress on the parking system in relation to parking demand, the concept of “practical capacity” needs to be discussed. The level of utilization within a study area may reach a level where potential parkers become frustrated when trying to locate and available space and therefore perceive the parking resource is full. This is true for both on-street and off-street parking resources. For the purpose of this study, *a capacity factor of 90% is considered to be effectively full* and was used to analyze both On-street and Off-street parking conditions in the study area.

The Somerville study area only reaches 90% practical system parking capacity for 2 hours on Friday & Saturday nights from 7PM to 9PM. Parking occupancy exceeds 500 vehicles parked on and off-street, equaling 90% effective occupancy, only 4 hours during the entire 168 hour week, which is 2% of the week.

4.01 On-Street Meters

Using the 90% capacity factor, On-street meters along Main Street, South Bridge Street, Maple Street and Doughty Avenue, *excluding Veterans Memorial Highway*, had peak occupancies of **93%** & **94%** at 1PM & 6:30PM on Friday & Saturday and were effectively full.

4.02 Municipal Lots 1-2-4

The 3 municipal parking lots had combined occupancy at peak demands of **83%** on Friday at 8PM and **92%** on Saturday at 8PM.

Lot 4 adjacent to STC had peak occupancies of 100% at 1PM and 90% -100% 6PM to 8PM on Friday and 95%- 100% starting at 12 noon and continuing to 8PM on Saturday.

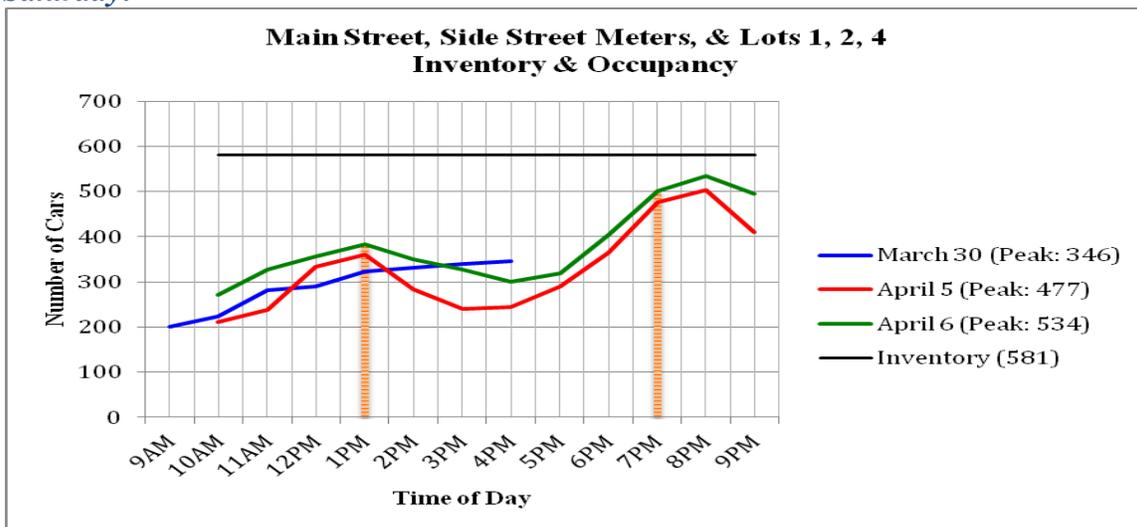


Figure 4: On & Off-Street Metered Parking Spaces Inventory & Occupancy

4.03 Post Office Plaza Parking Deck & Municipal Lots

During the evening parking peaks, on Friday 74 and Saturday 60 vehicles were parked in the P.O. Plaza parking deck. *When Post Office Plaza parkers are added to the parking counts for municipal Lots 1-2-4 the Off-street parking system was near 581 actual capacity at 8PM on Friday 576 and Saturday 596 was in excess of 100% physical capacity.*

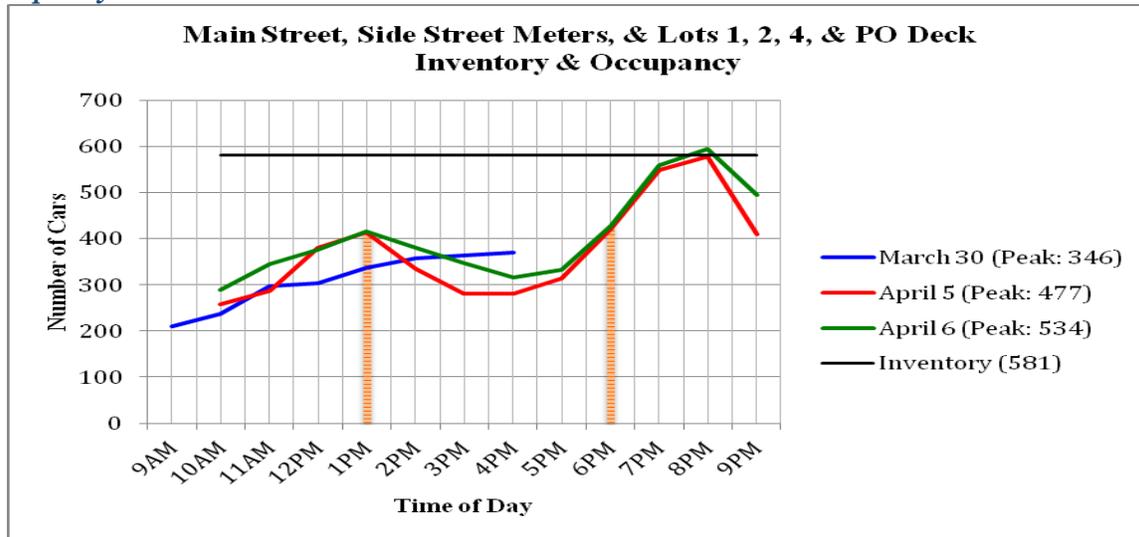


Figure 5: On & Off-Street Municipal Parking Spaces & P O Plaza Deck Occupancy

When Post Office Plaza parkers are added to on-street meter and municipal parking lot occupancies on Saturday the 1PM afternoon peak was **400** vehicles equaling **69%** parking system occupancy. Friday and Saturday afternoon municipal parking system occupancy declines to an average of **300** vehicles **52%** at 4:30 PM. Friday & Saturday evening occupancy returns to **400** vehicles **69%** at 6:15 PM and increases to **500** vehicles **86%** at 7PM and peaks at **576/595** vehicles at 8PM **100%** occupancy.

4.04 Somerville Town Center – Parking Lot

Any peak demand parking space deficiencies related to use of the Health Club can be mitigated by available parking in Municipal Lot 2, located across the street from the Main Street entrance to the facility. Health club patrons are more likely to park in municipal Lot 2 when the STC parking lot is full, which is closer to the facility, then municipal Lot 4 which is located on Union Street behind the supermarket.

The supermarket *holiday highest peak parking occupancy* of **270 (96%)** was satisfied by the Pehnke model’s allocation of **280** parking spaces in the STC parking lot. Friday and Saturday 7PM ordinary supermarket peak occupancy of **181 (65%)**, places no stress on the municipal parking system.

4.05 Veterans Memorial Highway West – Added to Municipal Parking Inventory

When **40** available parking spaces on Vet. Mem. Hwy. are added to the **581** municipal parking space inventory, consisting of On-street meters and Municipal Lots 1-2-4, the public parking inventory increases to **621** parking spaces. The public parking system peak occupancy, including P.O. Plaza vehicle counts, remains at Friday **576** & Saturday **595**, but parking system occupancy decreases from **100%** to **93%** Friday and **96%** on Saturday. *Parking occupancy still exceeds the 90% maximum parking system practical capacity recommended as a parking planning industry standard.*

4.06 W. High Street Parking Spaces - Added to Municipal Parking Inventory

West High Street has Sixty (**60**) parking spaces, of which **19** are metered spaces, located from Maple Street to Davenport Street. The W. High Street parking spaces are vacant in the evenings. When **50** parking spaces from Maple to Davenport Streets are added to the municipal parking system serving the study area, the inventory increases to **671** parking spaces. Peak parking system occupancy recorded on Friday **576** & Saturday **595**, decreases from **100%** to **86%** and **89%**, and is less then the **90%** effective capacity factor.

4.07 Municipal Lot 4 – Parking Deck

Assuming that a 1 level parking deck, similar to the Post Office Plaza parking deck, is built on municipal Lot 4, **71** parking spaces will be gained and the municipal parking inventory will be increased to **742** parking spaces. *Peak occupancy recorded on Friday 576 & Saturday 595, as a percentage of parking system occupancy decreases from 100% to 78% and 80%, and are well below the 90% effective parking capacity factor, with a surplus of 147 available parking spaces.*

4.08 Post Office Plaza Parking Deck

If the Borough is able to negotiate a 10 - 20 year public parking lease agreement with the owners of the Post Office Plaza parking deck to use the deck (**239 spaces**) for employee, public and event parking, on *weekends only from 5PM Friday to Midnight Sunday*, and *adding the 74 parking spaces that were observed to be occupied on Friday at 7PM to the public parking supply the municipal parking inventory will be increased to 813 parking spaces. Peak occupancy recorded on Friday 576 & Saturday 595, decreases from 100% to 71% and 73% with a surplus of 221 available parking spaces.*

Individual Facility				Cumulative Occupancy			
Facility Name	Inventory	Peak	%	Inventory	Peak	%	Supply Available
Main St. Meters	102	99	97%	102	99	97%	3
Side St. Meters	66	59	89%	168	158	93%	10
Lots 1-2-4	413	379	92%	581	535	92%	46
Post Office Plaza	239	74	31%	581	595	102%	Deficit <14>
Vet Mem Hwy (66)	59	19	32%	640	614	96%	26
W. High St.	50	-	-	690	614	89%	76
Lot 4 Deck	71	-	-	761	614	80%	147
With Post Office Plaza Deck Parking Lease							
P.O. Plaza @ 74	74	-	-	835	614	73%	221
P.O. Plaza @ 150	150	-	-	911	614	67%	297

Section 5 PARKING SYSTEM OPERATION & MANAGEMENT

5.0 Current Parking System Overview

On-street and municipal lots meters are regulated from 9AM to 5PM, Monday to Friday. Parking is free weekdays after 5PM and all day weekends. Parking regulations are enforced weekdays by 1 Parking Enforcement Officer (PEO).

5.1 Main Street Business District Resident Parking In Municipal Lots

Bier Associates staff conducted car counts at 5:30AM on a weekday to estimate the number of residents parking overnight in municipal parking lots. Eighty seven (87) vehicles were observed in the municipal lots at 5:30AM. Weekend parking within the Main Street/study area by residents in municipal lots reduces the municipal lots parking supply to 326 available spaces for customers and visitors to the Main Street Business District.

5.2 Merchant & Employee Parking At On-Street Meters

Overnight parking is prohibited at Main Street and Side Street parking meters, seven days per week. On Saturday, March 30 at 9AM, parking occupancy at all On-street parking meters was 88 vehicles. Assuming that 18 parkers were customers of the Duncan Donuts, luncheonette at the corner of Main & Bridge Streets or other business, for purposes of this report it is estimated that 70 vehicles parked On-street belonged to business owners and employees.

There are 102 Main and 66 Side Street parking meters, a total of 168 spaces in the study area. During the weekends, On-street parking meters are free and there is no time limit or parking enforcement. Main Street meters on Saturday April 6 had 60 vehicles parked at 10AM. Based on the Saturday On-Street 10AM parking occupancy counts it is reasonable to assume that 70 or more merchant and employee vehicles were parked in the 120 parking meter spaces that were occupied.

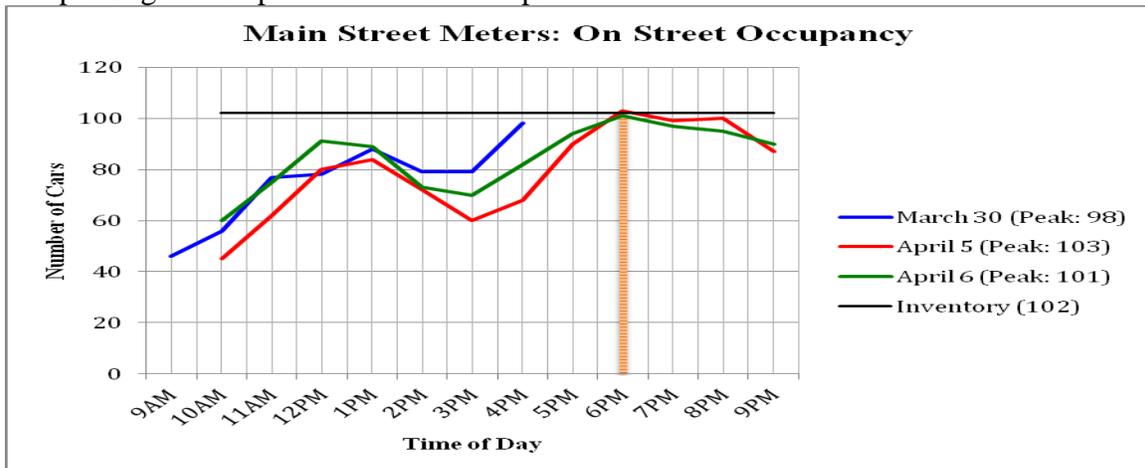


Figure 6: Main Street Meters: On Street Occupancy

5.3 Weekend Parking Regulation

The existing municipal parking system inventory in the study area consisting of; Main Street (102), Side Streets (66), Veterans memorial Highway (40), W. High Street (50) and Municipal Lots 1-2-4 (413) contains 671 parking spaces 76 more parking spaces than the current *peak parking demand of 595 that occurs for 2 hour, at 7PM-8PM* on Friday & Saturday nights.

If Friday night 5PM to 8PM and Saturday from 9AM to 8PM remain free and/or without time limit regulations, there is no way to incentivize residents, merchants and employees not to use the most convenient and close in parking located on Main Street and in the municipal lots.

In order for the existing municipal parking inventory to be used effectively, merchants and employees should be prohibited from parking Friday night and Saturday 9AM to 9PM at Main Street and Side Streets parking metered spaces and be required to park at the 90 On-Street parking spaces located on Veterans Memorial Highway and W. High Street. *Residents* in the study area that park Friday night and Saturday 9AM to 9PM in the municipal parking lots *should not be allowed to park in Lot 4* and should be required to park on Veterans Memorial Highway, in Lot 2 or at the 10 hour long term meters located in Lot 1 along the fenceline.

To accomplish the objective of moving residents, merchants and employees from the most close in parking spaces to more remote parking spaces, it is necessary at a minimum to enforce *2 hour parking time limits* at the On-street and in municipal Lots 1 & 2 for close in parking spaces, *from Friday 5PM to 8PM and Saturday 9AM to 8PM*. Further consideration should be given to extending paid parking at On-street meters and in municipal parking lots from Friday night to 8PM and Saturday from 9AM to 8PM to promote On-Street parking space turn over and to generate user fee to pay for the proposed parking deck to be constructed on municipal Lot 4.

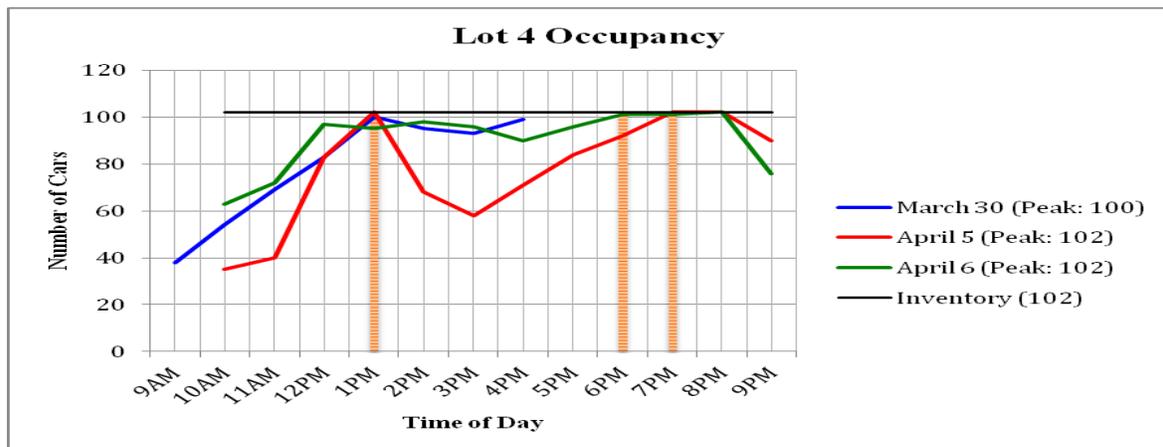


Figure 7: Lot 4 Occupancy

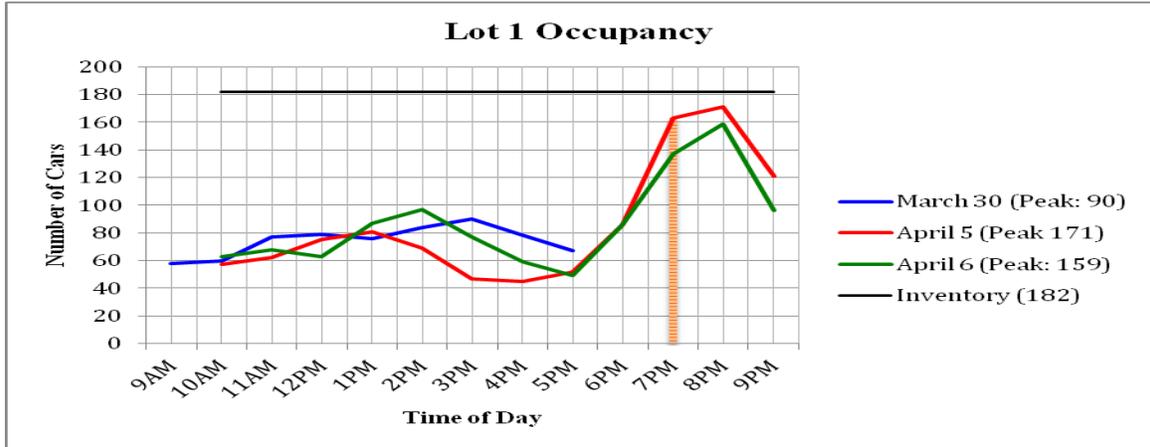


Figure 8: Lot 1 Occupancy

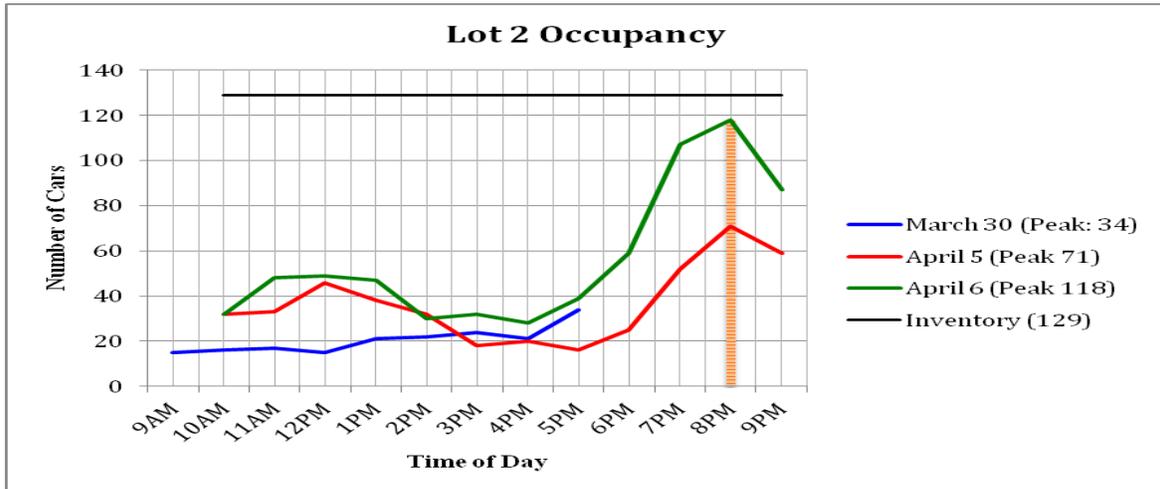


Figure 10: Lot 2 Occupancy

Bier Associates

Parking and Government Consultants