



Setti D. Warren
Mayor

City of Newton, Massachusetts
Department of Planning and Development
1000 Commonwealth Avenue Newton, Massachusetts 02459

MEMORANDUM

To: Bob Rooney, Chief Operating Officer

From: Candace Havens, Director, Planning and Development Department
David Koses, Transportation Planning Coordinator
Lydia Hausle, Planning Intern

Re: Newton City Hall & Library Parking Study

Date: December 9, 2013

BACKGROUND

The purpose of this study is to display and analyze collected data in order to make an informed recommendation for a more appropriate parking solution for Library patrons, as well as City Hall staff and visitors. Further, the study provides a platform from which the City of Newton may begin to consider long-term approaches to reducing reliance on individual vehicles, consistent with Mayor Warren's vision of livable communities and complete streets in and around Newton City Hall.

After receiving numerous complaints concerning the lack of available parking at the Newton Free Library, located at 330 Homer St., the Newton Department of Planning and Development developed and conducted a parking study to evaluate the current stock of parking at the Library and in the immediate vicinity. A major concern of library patrons has been the use of the Newton Free Library parking lot by the staff of Newton City Hall, located directly across the street. Further, as Newton City Hall has absorbed the Newton Department of Health, Human Services, as well as Cultural Arts into the building, the demand for employee and visitor parking has increased.

ANALYSIS SUMMARY

The data collected from a walking survey performed on Tuesday, October 15, 2013 provided valuable metrics concerning the utilization of the current parking stock in and around the Newton Free Library. The analysis of the data was centered on arriving at a recommendation that achieves three main goals:

- I. To provide accessible and convenient parking for patrons of the Newton Free Library and Newton City Hall;
- II. To establish appropriate restrictions and options that accommodate customers and employees; and

- III. To consider and incorporate a long-term vision that addresses the potential for an increased modal share by pedestrians, bicyclists, and transit riders.

MAP 1: Study Area



The list below summarizes the problems and opportunities affecting the study area as found from the collected data and subsequent analysis. For a full report of the findings and analysis, please see the section titled 'Full Findings and Analysis.'

- Although some of the parking areas operate under heavy pressure, the study area as a whole is not short of parking supply. At the busiest hour, 11 AM, the study area is 81.9% full, with the capacity to accommodate an additional 78 vehicles.
- At present, there are few restrictions on parking in the area. Further, many of the spaces that are restricted, such as the carpool spots in War Memorial Circle, are underutilized.
- The study area as a whole operates at an average of 73% occupancy. However, some areas are often far more crowded than that. Specifically, City Hall Circle and the Library Lot are overused, often functioning at occupancies of above 85%, and in some cases above 95%. Additionally, the staff lot, while underutilized at some times, is severely over utilized at 1 PM.

- Walnut Street is grossly underutilized. The peak occupancy occurs at 10 AM when 22% of parking spaces are occupied. The street as a whole is, on average, 87% vacant, representing a free, convenient parking alternative.
- At present, 33 city vehicles are housed in the study area. At any given time throughout the day, city cars consume an average of 6.32% of the total parking stock. While relatively unobtrusive for visitors in most lots, city vehicles represent a large percentage, up to 73%, of vehicles in War Memorial Circle. Most other lots are largely unaffected by the presence of city vehicles. Less significant volumes of city cars were recorded in City Hall Circle, the Library Lot and on Homer St.
- Both the Library Lot and City Hall Circle accommodate a mix of long-term and short-term parkers. At present, the Library Lot has an average hourly turnover rate of 49%, meaning that 49% of spaces in the lot become free within a single hour. City Hall Circle has an average hourly turnover rate of 39%, meaning that 39% of spaces become available within a single hour. On average, people are parked for longer durations at City Hall Circle than in the Library Lot.
- Both City Hall Circle and the Library Lot serve as a long-term parking place for many vehicles that likely belong to employees. In City Hall Circle, 21% of vehicles parked for five or more hours. In the Library Lot, 16% of vehicles were parked for five or more hours. According to City Hall's Human Resource Department, 171 employees report to City Hall Daily. According to the Director of the Library, between 70 and 76 people are working in the Library at any given time. These long-term parkers, specifically in the Library Lot, are placing unnecessary constraints on a parking area meant to accommodate visitors of the Newton Free Library.

RECOMMENDATION

The following recommendations are based on data and analyses from the study area. They strive to address the short-term needs of the area, while also anticipating future needs and city-wide goals. Some of the recommendations represent an opportunity for pilot programs. Specifically, those recommendations that address time-restricted parking and encouragement of alternative modes of transportation may be better received by employees and the public if implemented first as a trial. A map outlining the recommendations for the trial can be found at the end of this document.

1. **Restrict City Hall Employees from Parking in the Library Lot.** With 16% of vehicles assumed to be "likely employees" displaced from the Library Lot, visitors would have access to parking spots currently occupied by long-term parkers. For additional parking, city hall employees may be directed to Walnut Street, Commonwealth Avenue, and Homer Street.

AND;

Consider Restricting Employee Parking on Portions of City Hall Circle Drive. 21% of vehicles parked at City Hall Circle during the data collection were assumed to be "likely employees". The number of employees parked at City Hall Circle may be controlled with "visitor only" signs or with a 2 hour parking limit from 9AM-5PM around the circle. This will alleviate the congestion that occurs at the peak hours of the day. This limitation will also ensure that visitors of City Hall may find convenient parking when coming in for errands or other business.

2. **Make Better Use of 36 Parking Spaces on Walnut Street, as well as available space on Homer Street and Commonwealth Ave.** Walnut Street, as previously stated, is “parked” well below capacity. Assuming that the Library Lot and City Hall Circle both directed all of their traffic in excess of the 85% target to Walnut Street, it *still* would not be fully occupied (as shown in Table I). Further, there are two paths leading from Walnut Street to Newton City Hall. Ensuring snow clearance and the installation of low-laying LED light fixtures along the paths would diffuse any fear employees may have about walking to their vehicles, and also enhance the aesthetic of the paths. It may also be appropriate to ease foot travel from Homer Street and Commonwealth Ave. to the City Hall Building by incorporating tasteful lighting fixtures and creating obvious pathways, as employees will be directed to park in these areas.

TABLE I: Walnut Street Occupancy After Adjusting Library Lot and City Hall Circle Parking to 85% Utilization									
	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM
OCCUPIED SPACES ON WALNUT ST. DURING DATA COLLECTION	4	8	5	6	4	4	3	4	3
TOTAL EXCESS FROM LIBRARY LOT & WALNUT STREET	0	9	25	2	4	30	24	8	0
AVAILABLE PARKING SPACES ON WALNUT STREET	32	28	31	30	32	32	33	32	33
OCCUPIED SPACES AFTER ABSORBING EXCESS	4	17	30	8	8	34	27	12	3
UNOCCUPIED SPACES ON WALNUT STREET AFTER ADJUSTMENT	32	19	6	28	28	2	9	24	33

3. **Reclaim a Portion of War Memorial Lot for Housing City Cars, Handicap Parking, and Employees.** Currently, the majority of city vehicles reside in the War Memorial Lot. Restricting a part of the circle for city vehicles will alleviate the pressure city cars place on other parking lots, while also making all city vehicles readily accessible for employees to take out for business. There are 44 parking spaces in War Memorial Circle, 20 along the inside of the circle, and 24 around the outside. The highest number of city vehicles parked in the entire study area at a single time is 23, however 33 individual city vehicles were observed throughout the day. Converting the 20 spots along the inside of the circle to “city car parking” would absorb nearly all of the pressure from city cars on all other parking areas. Further, as this option leaves as many as 24 spaces open, these spaces would remain open for increased handicap parking and designated employee parking.
4. **Restrict portion of Library Lot for short-term (ex. 15 minute, 1 hour, etc.) parking.** Residents have voiced their concern about their inability to find convenient parking for their quick trips to the library. There is currently live parking in front of the library that is well utilized by people quickly dropping off books. Adding a row, or a portion of a row of short-term parking to the Library Lot, specifically in rows close to the library door, may help (a.) placate frustrated library visitors, and (b.) ensure that library employees and long-term visitors do not consume the parking closest to the entrance.
5. **Improve Signage to the Staff Lot and Front of City Hall to Encourage Use of Main Door by Visitors.** Current signage in the staff lot is inadequate to ensure that unauthorized vehicles do not park in the lot, thereby causing congestion. Contractors and other visitors of City Hall who may have business with Inspectional Services may prefer to use the South side entrance, however they should not be consuming parking spaces specifically designated for certain employees. Improved signage to the lot

(ex. “Authorized Staff Only”) may dissuade unauthorized parking. Installing a tasteful “Visitor Entrance” sign on the front (East) façade of City Hall may also help direct people to the proper entrance.

6. **Promote Alternative Modes of Transportation for Employees.** At present, there are few resources in place to incentivize or even make possible traveling to Newton City Hall or the Newton Free Library without a personal vehicle. While the thoroughfares around the area are populated with sidewalks, employees can only be expected or encouraged to walk so far. Further, though there are some bicycle lanes in the vicinity of the study area, and others under consideration, there are few bicycle racks. The City might consider ways to improve the area for alternative modes of transportation, and also promote those opportunities that already exist (underutilized carpool parking spots, the #59 bus, etc.). Conducting a survey of both the Newton Free Library and Newton City Hall staff in order to understand what would incentivize alternative modes of transportation could prove to be a useful tool in planning future infrastructural and policy changes (such as free MBTA passes, bicycle lanes, commuter benefits, etc.). This recommendation also presents an opportunity to involve the newly appointed Sustainability Director in an effort to be as consistent as possible with the city’s environmental goals.

RESEARCH METHOD

Data collection for this study took place on Tuesday, October 15, 2013, between the hours of 9 AM and 6 PM. This date was chosen in order to carry out the data collection on an ordinary day, one that would represent an honest description of the day-to-day parking trends in and around the Newton Free Library and Newton City Hall. In addition to collecting license plate data, the Department reached out to employees of City Hall’s Human Resource Department and the Director of the Library in order to know the exact number of people employed by both establishments.

There were seven major areas included in the data collection (see Map I); the entire parking lot at the Newton Free Library, the City Hall staff lot, Homer Street between Walnut Street and Commonwealth Avenue, Walnut Street between Homer Street and Commonwealth Avenue, the entirety of City Hall Circle, Commonwealth Avenue between City Hall Circle Drive and the War Memorial Circle, and the entirety of the War Memorial Circle. In total, occupancy and length of stay data was collected for 431 parking spaces. In choosing these seven locations, the Department aimed to exhaust any and all parking solutions for persons wishing to use the Library. Additionally, the inclusion of parking data from areas in the vicinity of the Library, such as on Walnut Street or Commonwealth Avenue, allowed for an elevated understanding of the forces, if any, that contribute to the parking congestion in the Library lot.

The data collection itself consisted of documenting the license plate number of cars in each study location hourly. The walking survey was done in the same direction and in the same order every hour to ensure consistent and comprehensive data was recorded. The license plate number and specific location of the car within a given study area was recorded. Additionally, the longevity of a vehicle’s stay was recorded. The data collection was intended to gather sufficient information to analyze the occupancy of the study area, as well as the turnover of vehicles in order to assess the long-term and short-term parking needs of the area.

Given the volume (33) of city-owned vehicles that absorb parking in the study area, all City cars and their identification numbers were recorded. Further, any Public Works, Fire, and Police Department vehicles were also recorded.

FULL FINDINGS AND ANALYSIS

In the following pages, the data has been broken down and reorganized to highlight the central problems and opportunities of the study area.

EXISTING PARKING SUPPLY AND DEMAND

At present, there are few restrictions governing the 431 parking spots available in the study area. Aside from 10 handicap spots, and a small selection of other restricted spaces, there are 407 parking spots in the study area that are completely unrestricted. Further, no parking spaces make use of a meter or other financial disincentive. The existing parking supply is shown in Table II.

TABLE II: Existing Parking Supply									
Study Area	Handicap Spots	Live Parking Spots	Veteran Parking Spots	Alderman Parking Spots	15 Min Parking Spots	Assessing Parking Spots	Carpool Parking Spots	Un-restricted Spots	Total Parking Spots
Library Lot	6	0	0	0	0	0	0	179	185
Homer St.	1	3	0	0	0	0	0	59	63
Staff Lot	3	0	0	1	0	0	0	14	18
City Hall Circle	0	0	0	2	2	0	0	61	65
Walnut St.	0	0	0	0	0	0	0	36	36
Commonwealth Ave.	0	0	0	0	0	0	0	20	20
War Memorial Circle	0	0	1	0	0	1	4	38	44
Total Study Area	10	3	1	3	2	1	4	407	431

Although the Department cannot be certain of how people get to work each day, data from the Director of the Library and City Hall's Human Resources Department reveal how many people must travel to City Hall and the Library for work, as shown in Table III.

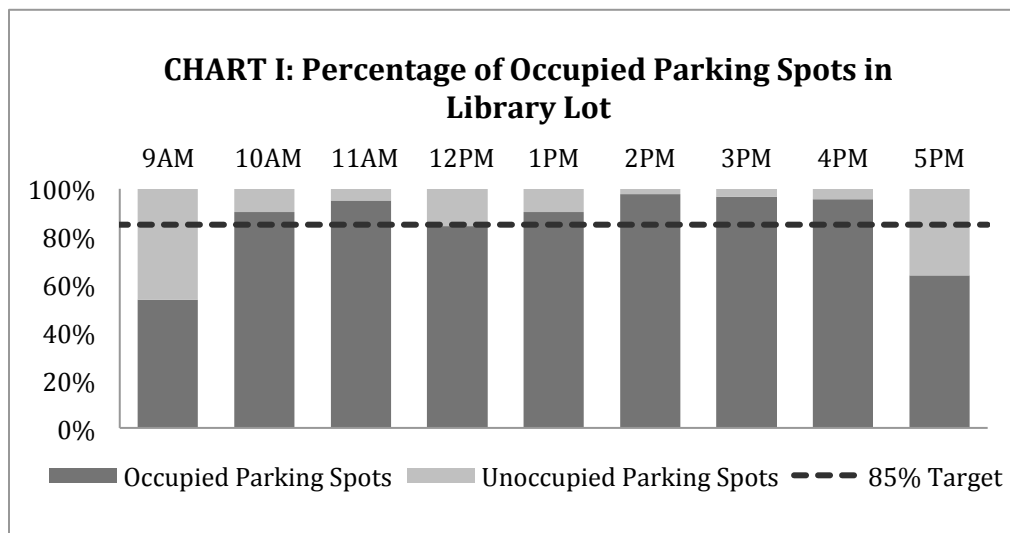
TABLE III: Employees of Newton Free Library and City Hall		
Employer	Number of Employees	Employee to Parking Spaces Ratio
Newton City Hall	171	1: 2.5
Newton Free Library	76*	1: 5.7
Total	247	1: 1.7

* 76 represents the upper limit of a range (70-76) of employees and volunteers that are expected to be working at any given

OCCUPANCY

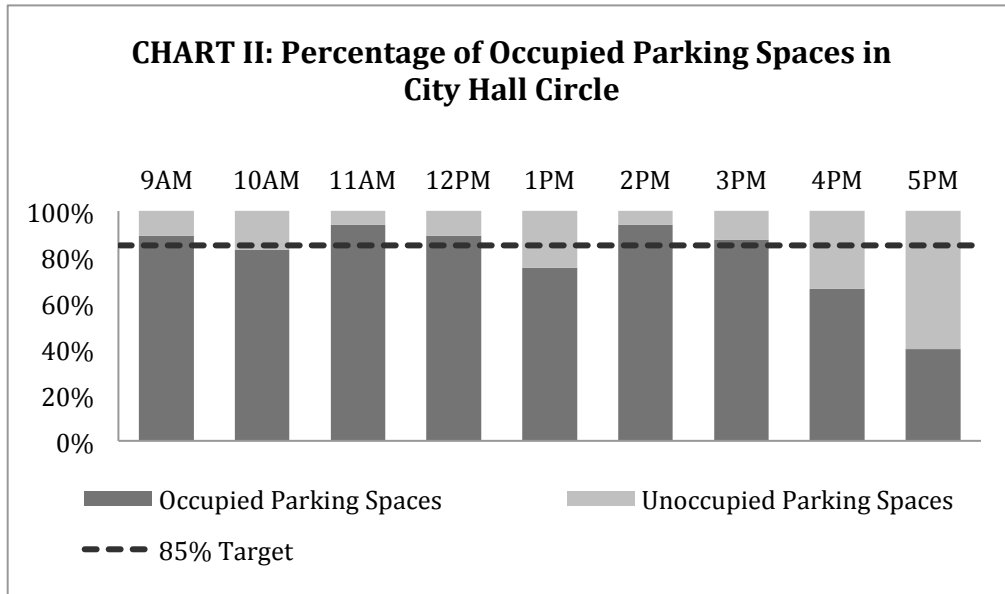
In order to assess the utilization of the available parking stock in the area, the occupancy for each individual area and the study area as a whole was calculated. The results illuminate those lots that experience periods of time when available parking spaces are scarce or nonexistent. Specifically, the occupancy charts reveal that the Library Lot, City Hall Circle, the Staff Lot, and War Memorial Circle experience “peak hours”, during which occupancy levels breach 85%, an industry standard for target parking occupancy.

Relative to the occupancy pattern of the entire study area, the Library Lot experiences high occupancy throughout the day. As seen in Chart I, “peak hours” for the Library Lot occur from 10 AM until noon, and again from 1 PM until 5 PM. At the busiest hour, the Library Lot is 98% full, which translates to 181 out of 185 parking spaces occupied at 2 PM. The dip in occupancy at 12 PM can potentially be attributed to a break in library activities at lunchtime

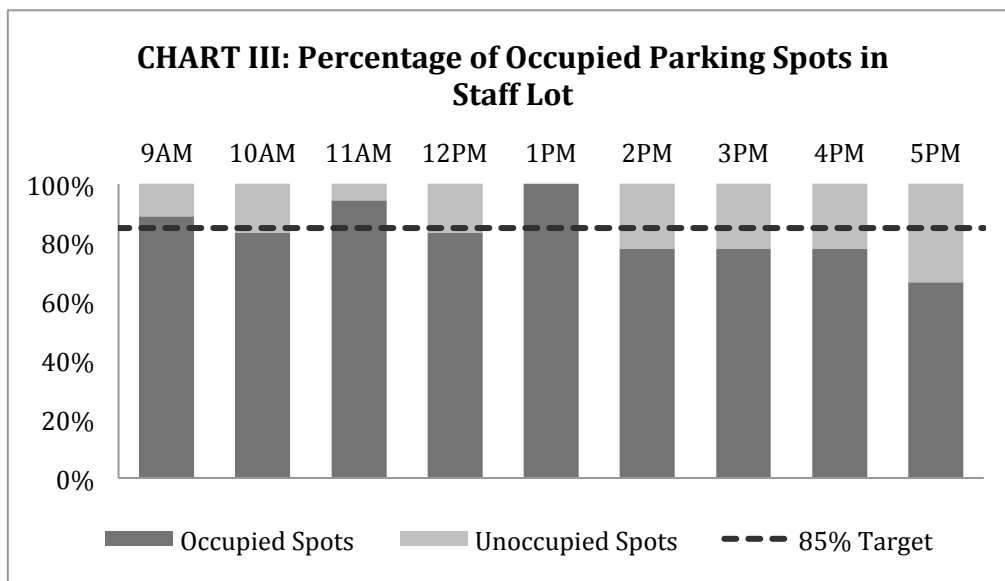


Relative to the occupancy pattern of the entire study area, the Library Lot experiences high occupancy throughout the day. As seen in Chart I, “peak hours” for the Library Lot occur from 10 AM until noon, and again from 1 PM until 5 PM. At the busiest hour, the Library Lot is 98% full, which translates to 181 out of 185 parking spaces occupied at 2 PM. The dip in occupancy at 12 PM can potentially be attributed to a break in library activities at lunchtime

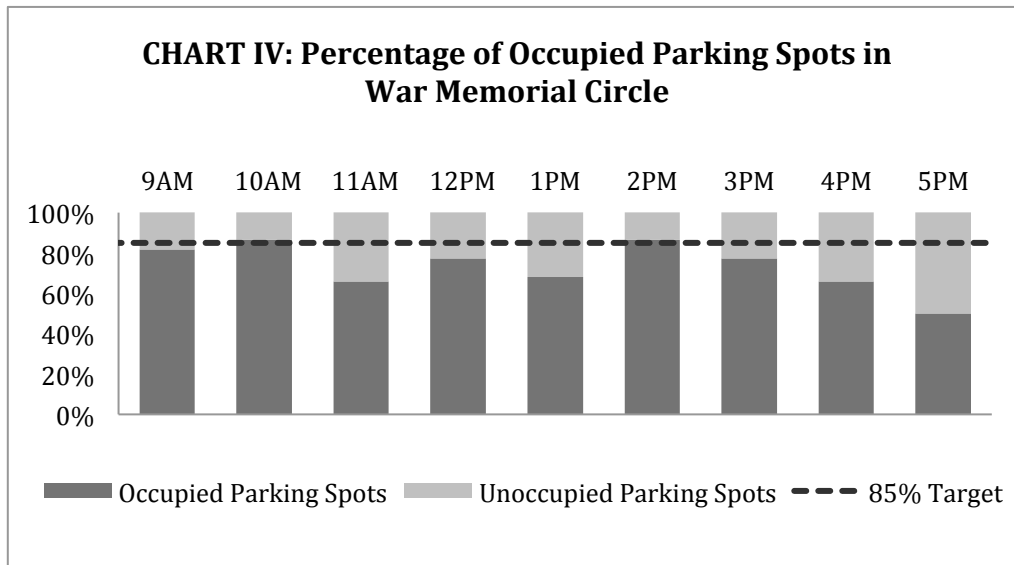
City Hall Circle experiences similar parking congestion at “peak hours” throughout the day (see Chart II). Though overall occupancy is less than that of the Library Lot, City Hall Circle does experience occupancy levels much higher than the study area as a whole. Like the Library Lot, City Hall Circle experiences morning peaks and afternoon peaks from 9 AM to 10 AM, 11 AM to 1 PM, and from 2 PM until 4 PM. At two times, City Hall Circle reaches occupancy of 94%, meaning that 61 of 65 parking spaces are occupied. Unlike the Library Lot, City Hall Circle occupancy does not dip below 85% at noontime.



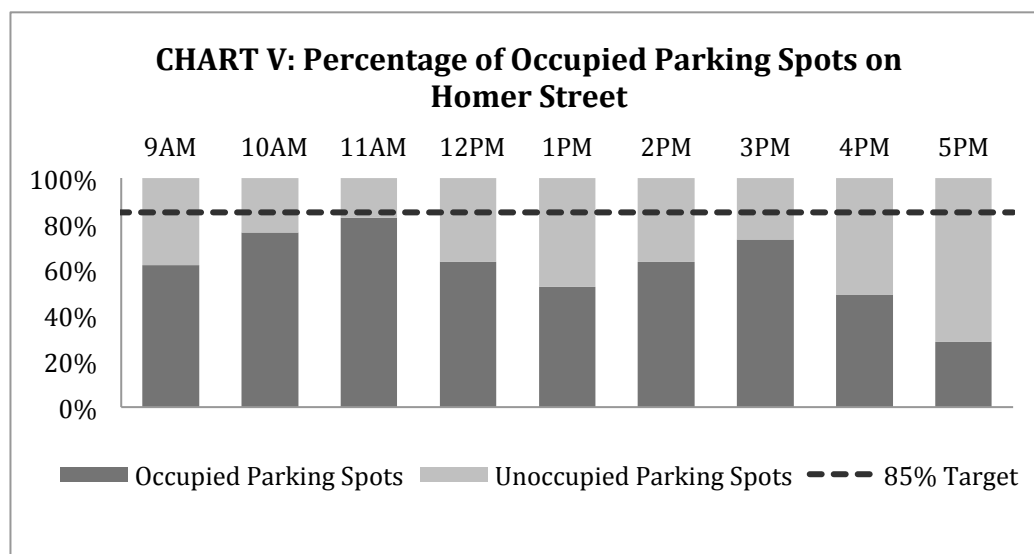
The Staff lot operates at occupancy levels above 85% at 9 AM, 11 AM, and 1 PM, as seen in Chart III. On the day of the walking survey, the staff lot was above capacity, with cars parked in imagined spaces and squeezed tightly into narrow areas at 1 PM. Although high occupancy in the staff lot is desired in order to alleviate parking pressure on other areas, blocking in vehicles poses potential inconveniences and hazards for employees.



The War Memorial Lot experiences occupancy of 86% at 10 AM and 2 PM (see Chart IV). Aside from the two hours when the War Memorial Lot rises just above the 85% threshold, the lot remains readily available for people to park in and is not considered to be an area of concern for people wishing to use the Newton Free Library. All other study areas function at an occupancy of 85% or less for all hours recorded during the walking survey.

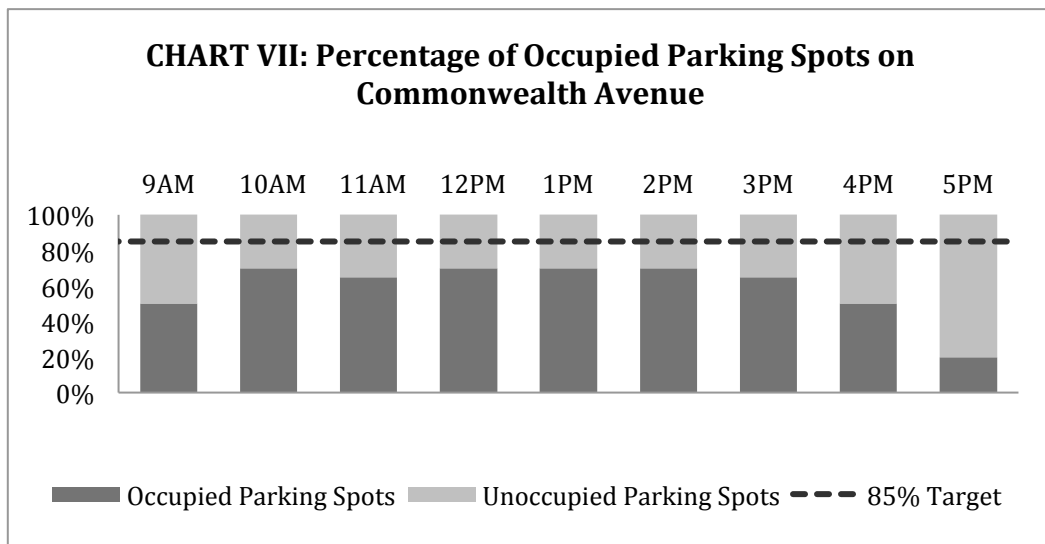
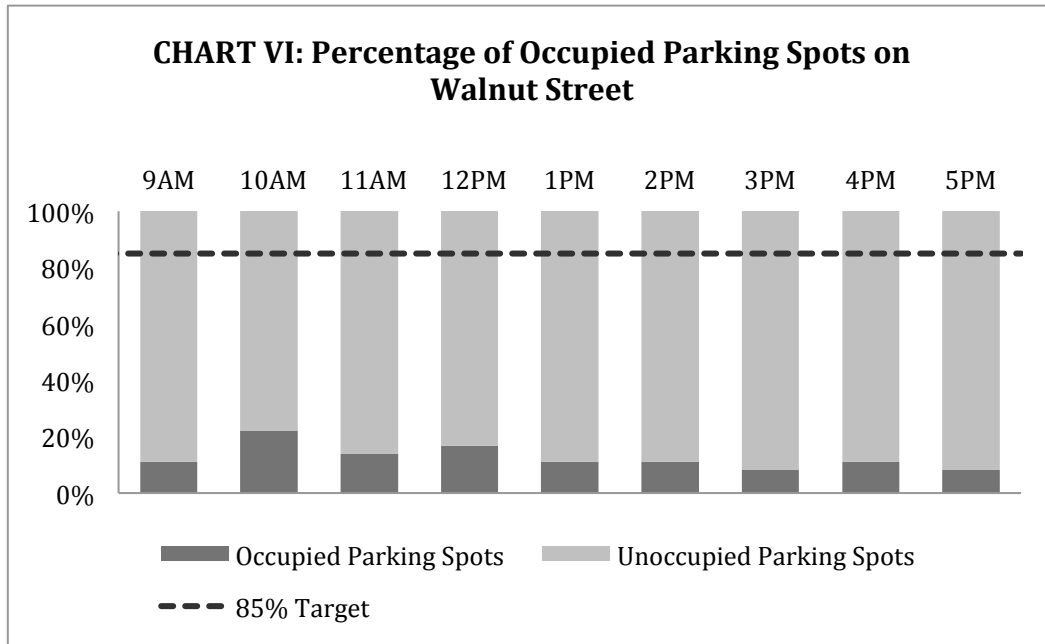


Homer Street, Walnut Street, and Commonwealth Avenue experience far less parking pressure than the four areas charted above. From Charts V, VI, and VII, it is obvious that there is much room for these three areas to absorb some of the parking demand that is currently stressing the parking supply in the Library Lot, City Hall Circle, the Staff Lot, and War Memorial Circle.



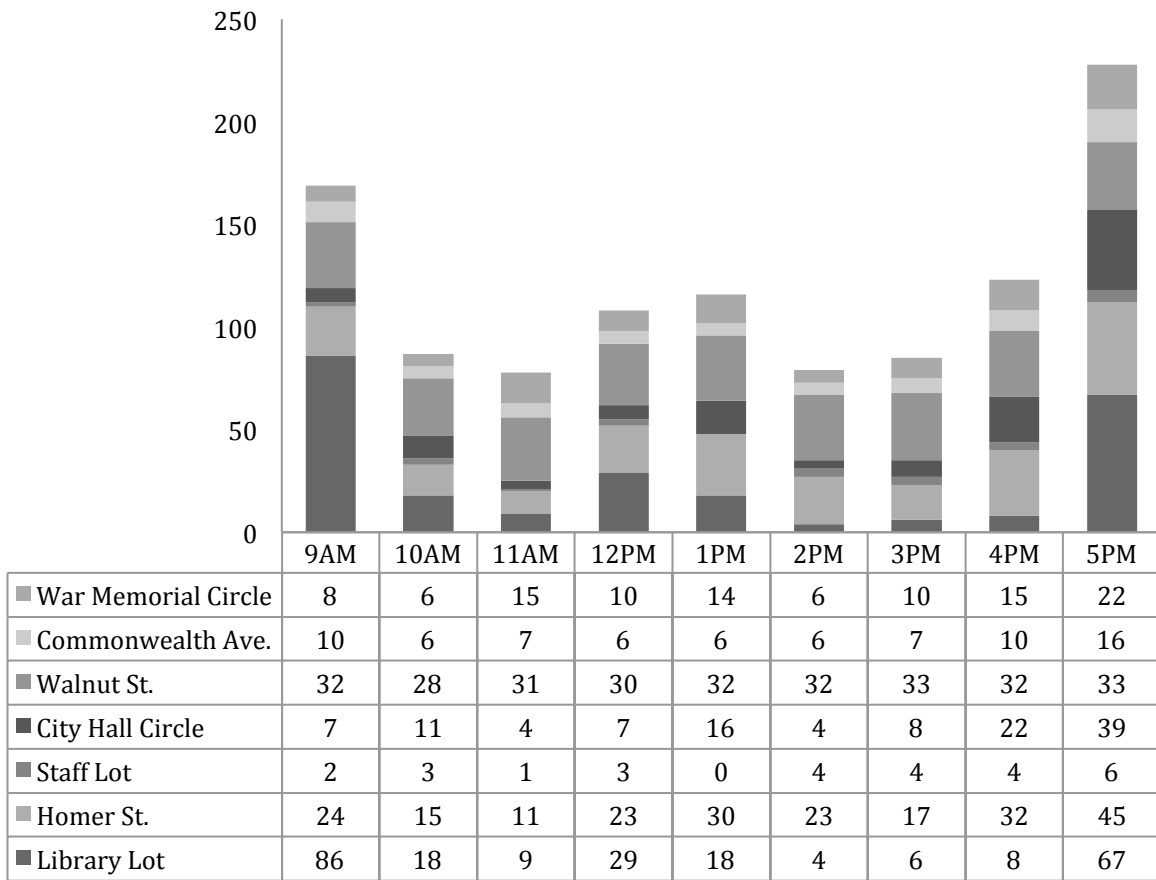
Though Homer St. does peak during the middle of the day, as other study areas do, it is never over crowded and during most hours, there are many open parking spaces available.

Walnut Street is, by far, the least used area in the study. At its busiest hour, eight of the available 36 parking spots were occupied.



Though some of the above charts illustrate parking area under heavy amount of pressure, the study area as a whole is not short of parking supply. Chart VIII shows the number of unoccupied spaces in each location from 9AM until 6PM. This representation confirms that the main problem affecting the area is not the supply of parking spaces, but rather the distribution of cars throughout the area.

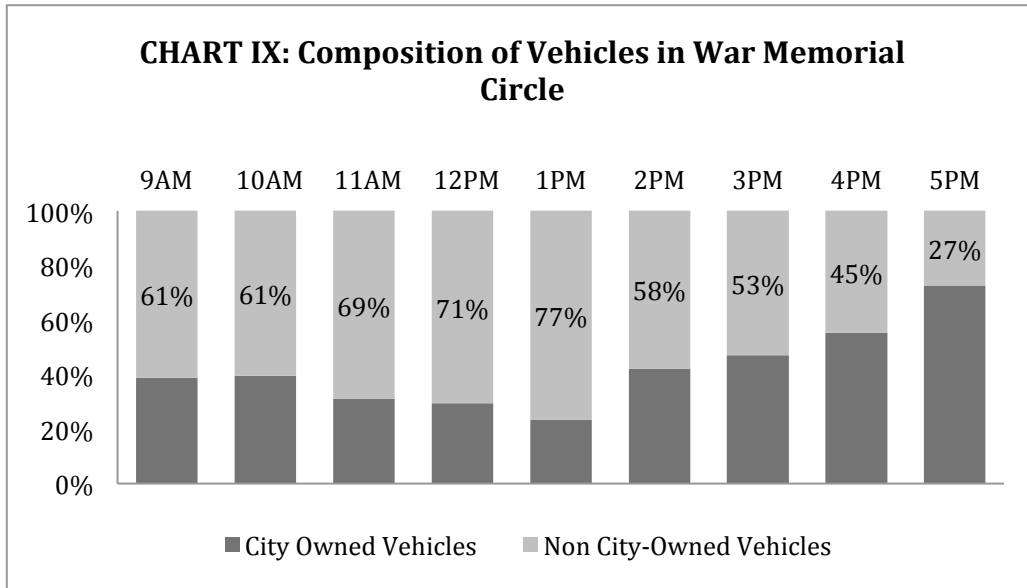
CHART VIII: Number of Available Spaces by Time and Location



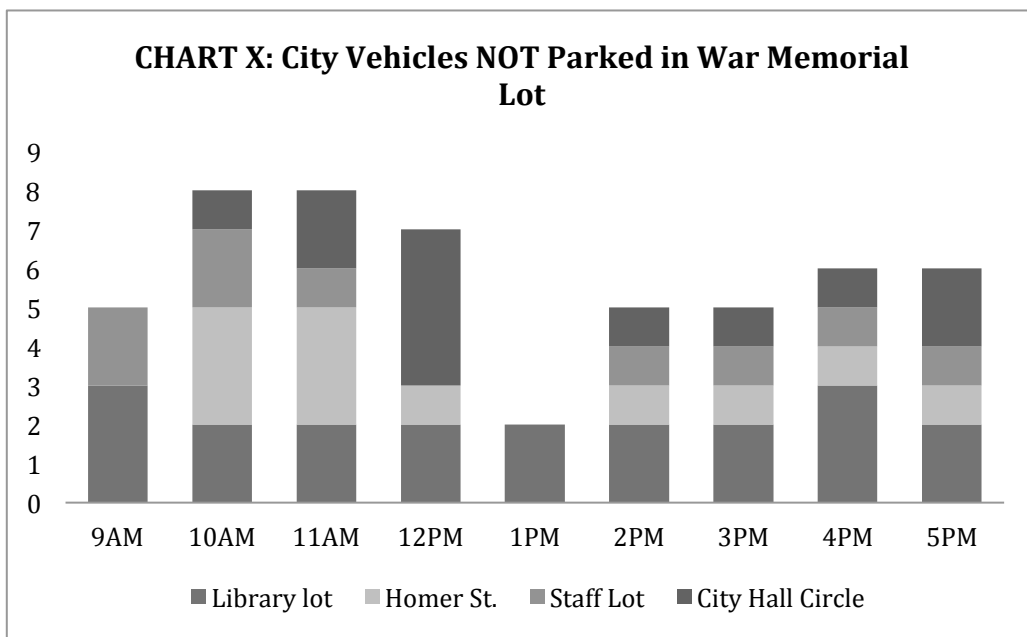
COMPOSITION OF VEHICLES: PUBLIC VS. CITY OWNED VEHICLES

In order to understand the needs of the study area to accommodate the 33 city owned vehicles in a way that does not interfere with Library activity, it is important to understand the current parking patterns of city cars. Most study areas had few, if any, city vehicles parked in them throughout the day. The overwhelming majority of city vehicles were parked in War Memorial Circle, with fewer city owned cars parked in the Library Lot, Staff Lot, City Hall Circle, and on Homer Street.

In the War Memorial Circle, it is important to note that although the occupancy in the lot decreases to 50% by the end of the workday (chart IV), the composition of vehicles shifts to a majority of city owned vehicles; by 5 PM, 16 of the 22 vehicles parked in the lot are city owned.



In the War Memorial Circle, it is important to note that although the occupancy in the lot decreases to 50% by the end of the workday (chart IV), the composition of vehicles shifts to a majority of city owned vehicles; by 5 PM, 16 of the 22 vehicles parked in the lot are city owned.

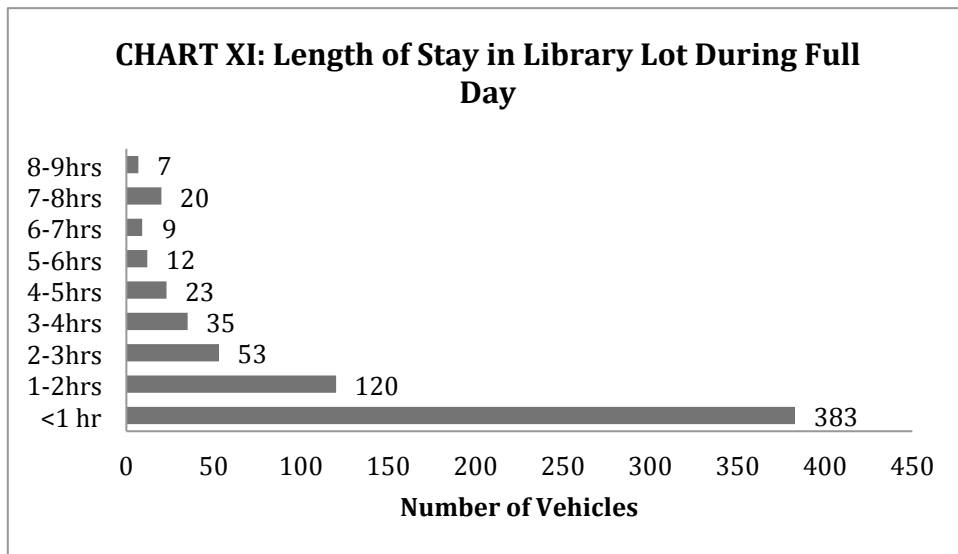


As previously mentioned, the presence of city owned vehicles in areas other than War Memorial Circle is not overwhelming. Chart X shows the number of city cars recorded at any given hour that were *not* parked in War Memorial Circle. Some areas, like Homer St. experience very inconsistent numbers of city cars. Other areas,

like the Library Lot, serve as a much more consistent holding ground for the city’s vehicles, regardless of whether or not it is an appropriate parking location for these cars.

LENGTH OF STAY

The length of stay is an important metric in order to understand what affect long-term and short-term visitors have on the study area. Because the Library Lot and City Hall Circle represent the areas with the most constrained parking, the length of stay for vehicles in both lots has been calculated to determine how much parking is consumed by long-term and short-term parkers.



Throughout the course of the walking survey, 662 vehicles were counted in the Library Lot. Of those 662 vehicles, 383, or 58%, were parked for less than one hour. Moreover, 66 of the vehicles parked in the library lot left and returned at some point throughout the day. The average length of stay for all vehicles parked in the Library Lot was 1.6 hours, with a median length of stay of less than one hour.

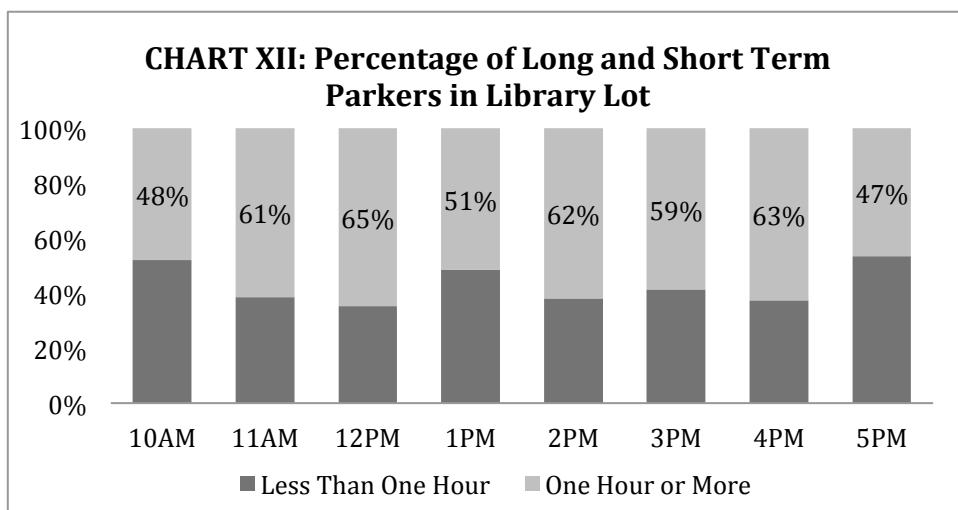


Chart XII highlights how many vehicles at each hour of the day were parked for less than one hour and for one hour or more. On average, 49% of vehicles in the Library Lot at any given time had been parked for less than one hour. Note that the 9AM hour, which would have shown 100% of vehicles as having been parked for less than one hour, has been omitted.

Similar to the Newton Free Library, Newton City Hall is a destination of many people for various reasons. Throughout the course of the walking survey, 185 vehicles were counted in City Hall Circle, as shown in Chart XII. Of those 185 cars, 119, or 64%, were parked for less than one hour. The average length of stay for all cars in City Hall Circle was 2.03 hours, although the median length of stay was less than one hour.

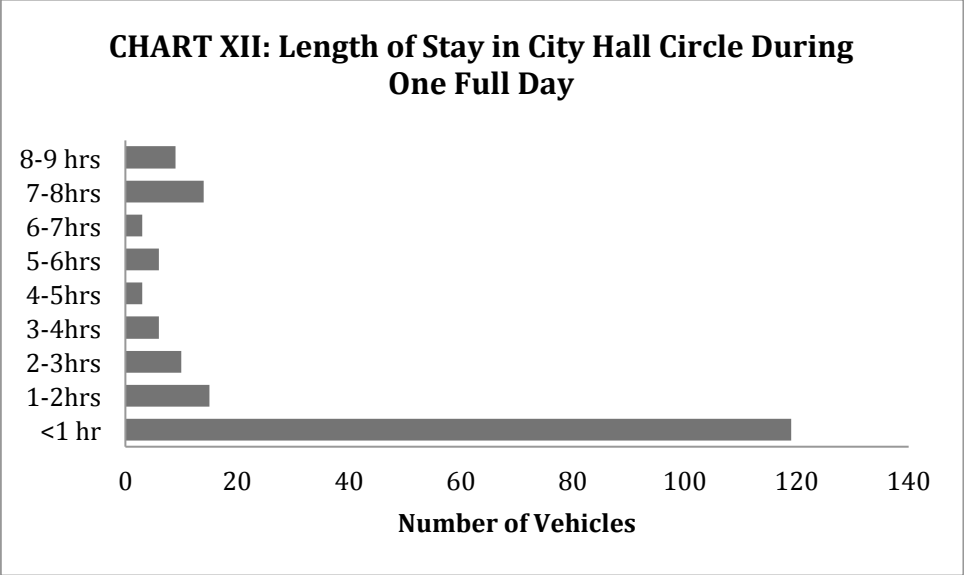
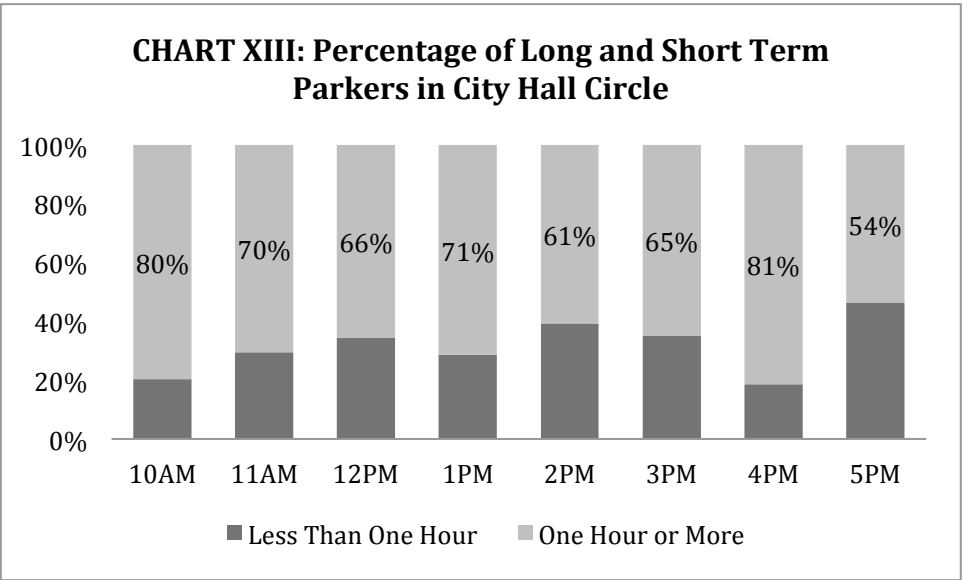


Chart XIII highlights the percentage of vehicles parked for less than one hour or more than one hour at each hour of the day. On average, 39% of vehicles parked in City Hall Circle at any given time had been parked for one hour or less. Note that the 9AM hour, which would have shown 100% of vehicles as having been parked for less than one hour, has been omitted.



With an understanding of the parking patterns at the Library Lot and City Hall Circle, it becomes feasible to decipher the driver type for vehicles. Specifically, it becomes much easier to assume whether a vehicle belongs to a customer or an employee.

Table IV, shown below, classifies all vehicles parked in the Library Lot and City Hall Circle. All vehicles parked for less than 5 hours were assumed to be customer vehicles, *unless* that same vehicle re-parked during the day. Conversely, if a vehicle was parked for 5 or more hours, including vehicles that left and then returned, it was assumed to be an employee of either the Newton Free Library or Newton City Hall.

TABLE IV: Assumed Driver Type Based on Parking Pattern				
Assumed Driver Type	Location	Total Vehicles	% of All Vehicles	Description
Likely Customer	City Hall Circle	147	79%	Vehicle parked for less than 5 hours and does not re-park
Likely Employee		38	21%	Vehicle parked for 5 or more hours
Likely Customer	Library Lot	553	84%	Vehicle parked for less than 5 hours and does not re-park
Likely Employee		109	16%	Vehicle parked for 5 or more hours

The table shows that in both lots, the majority of cars are likely customer vehicles. However, 21% of City Hall Circle and 16% of the Library Lot are likely employee vehicles, and contribute heavily to the need for long term parking opportunities in the area that do not interfere with parking for patrons of the Library.

CLOSING REMARKS

The data collected, and subsequent analysis, led to the recommendations found on pages 4 and 5 of this memorandum, and include:

1. Restrict Employees from Parking in the Library Lot and Consider Restricting Employee Parking on Portions of City Hall Circle Drive.
2. Make Better Use of 36 Parking Spaces on Walnut Street, as well as available space on Homer Street and Commonwealth Ave
3. Reclaim a Portion of War Memorial Lot for City Car Parking
4. Restrict portion of Library Lot for short-term (ex. 15 minute, 1 hour, etc.) parking.
5. Improve Signage to the Staff Lot and Front of City Hall to Encourage Use of Main Door by Visitors
6. Conduct alternative transportation survey for employees.

It is advised that one or a combination of these recommendations be considered for a trial. During the trial period, a qualitative evaluation of the parking availability could be undertaken prior to making any permanent changes.

City Hall/Library Parking Changes - Pilot

Rec. #3: No General Parking in War Memorial Circle. City cars, h/c, and assigned employees.

Rec. #2: City Hall staff & general public may park in areas shown in red

Rec. #1: Circle: 2-hr limit 9AM-5PM

No Change: Assigned + h/c parking in Staff Lot

Rec. #4: 1st row: 2-hr limit

Rec. #1: No City Hall Staff Parking in Library Lot

Other Proposed Improvements: Pathway Lighting, Improved Crosswalks, TDM Measures to Reduce Parking Demand.