

Lexington Center Parking Study

Lexington, Massachusetts

Prepared for **The Town of Lexington, Massachusetts**

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1

Introduction

Vanasse Hangen Brustlin, Inc. (VHB) was hired by the Town of Lexington to prepare a parking needs study for Lexington Center. The objective of the parking study is to provide recommendations for meeting the present and future parking needs. The study area includes the commercial and public parking in and adjacent to Lexington Center, with the exception of the parking for the municipal buildings which was reconfigured in November, 2000 in conjunction with the Library relocation.

This preliminary draft presents the findings regarding existing conditions, an evaluation of parking on residential streets near the Center, and short-term recommendations to address some localized parking shortfalls.

The evaluation of existing conditions shows a parking deficit of 135 spaces. There is a slight deficit of short-term parking, but the most significant problem is the lack of long-term parking. There is an estimated shortfall of 115 long-term parking spaces and the lack of long-term parking creates problems for short-term parkers when the long-term parkers use short-term parking spaces.

This report includes several recommendations that could be implemented quickly to address the parking issues. The recommendations do include a small amount of new on-street parking, but the primary focus is on optimizing the use of the existing parking. The recommendations include issuing more annual permits for the Meriam Street Attended Lot, pricing subsidies to encourage use of the Church of Our Redeemer permit parking, and allowing long-term on-street parking on Clarke Street and Forest Street.

Parking Inventory

The parking inventory included in this study consists of all the private commercial parking and most of the public parking serving Lexington Center. The parking for the municipal buildings on Massachusetts Avenue is not included since it was recently reconfigured as part of the temporary relocation of the Cary Library.

The parking inventory includes on-street parking that is available for use throughout the day. Parking on adjacent residential streets, with parking prohibitions before 10:00 AM, are not included in the count of parking inventory. This on-street parking is discussed later in this report.

The parking supply in the study area totals 1,543 spaces. There are 270 on-street parking spaces and 1,283 off-street parking spaces. Including the on-street parking, more than half (849) of the parking supply is controlled by the Town. A detailed parking inventory is presented in the appendix as Table A.1.

Public Parking Supply

Figure 1 depicts the locations of the public parking in the Center. The public parking consists of 849 municipal parking spaces, comprised of 270 on-street spaces and 579 off-street parking spaces. As described below, 344 (40%) of the public spaces are available for monthly or daily parking.



Public Off-Street Parking Supply

As shown in Table 1, the public off-street parking includes two metered lots, one attended lot, and a leased permit lot.

Table 1: Public Off-Street Parking

Location	Number of Spaces	Type of Spaces
Waltham Street Lot	116	30-minute and 2-hour meters
Edison Way Lot	121	2-hour and 4- hour meters
Meriam Street Attended Lot	292	Hourly/Daily and Permit parking
Church of Our Redeemer Lot	<u>50</u>	Permit parking
	579	

The metered parking is in effect from 9:00 AM to 5:00 PM weekdays and Saturdays. The cost of the metered parking is 25¢ per hour. The Meriam Street Attended Lot provides hourly parking for 25¢ per hour for each of the first five hours, and a \$2.00 daily fee thereafter. Evening parking is available for 75¢. The Meriam Street Attended Lot is operated from 7:00 AM to 8:00 PM weekdays, and on Saturdays from April to November.

Table 2 lists the public permit parking that is available. There are 173 annual parking permits issued. Most of the permits are for parking in the Meriam Street Attended Lot. The number of permits for that lot is limited to 118, which includes 18 issued in conjunction with the reconfiguration of parking at the municipal buildings to accommodate the temporary relocation of the Cary Memorial Library.

Other permit parking consists of five on-street spaces on Fletcher Avenue and 50 permits for the rear parking lot at the Church of Our Redeemer on Meriam Street. The Town leases 50 spaces from the Church for \$200 annually per space and issues the permits to Center employees at cost.

There is presently a waiting list for the annual parking permits. Fewer than 10 new permits are issued each year.

Table 2: Permit Parking

Location	Number of Permits	Cost (Annual)
Meriam Street Attended Lot	118	\$225.00
Church of the Redeemer	50	\$200.00
Fletcher Avenue	<u>5</u>	\$225.00
	173	



On-Street Parking Supply

There are 270 on-street parking spaces in the study area. Two-thirds of the on-street spaces are metered, including 154 two-hour spaces (57% of the on-street parking) and 53 four-hour spaces (20%). There are also four 30-minute spaces at the Post Office.

The Battle Green area includes approximately 49 unmetered two-hour spaces. There is a short stretch of unregulated on-street parking on the east end of Massachusetts Avenue, near Winthrop Road, that accommodates about seven cars.

Private Off-Street Parking Supply

There are approximately 704 private off-street parking spaces located in the downtown. Table A.1 includes a listing of the 24 parking lots with a capacity of more than 10 spaces. Customer parking is allowed in about half of the parking lots and the remainder are restricted for use by employees and tenants.

A few of the private off-street spaces are rented to employees of other businesses. Among the locations that rent parking spaces are the Arts and Crafts Building, the Battle Green Inn, #27 Muzzey Street, and a few others. The exact number of leased spaces is not known, but is estimated to be about 40 to 50.

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Parking Activity

Extensive studies were made of the parking activity in the Center. Hourly parking occupancy counts were collected for a typical Thursday, Friday and Saturday. Detailed parking turnover studies, which identify how long cars are parked, were conducted for the Waltham Street Lot, the Edison Way Lot, and several streets. In addition, the ticket data for the Meriam Street Attended Lot were reviewed and special counts of permit parkers were completed. The details of each of the data collection efforts are presented in the appendix and summarized below.

Parking Occupancy Counts

Hourly parking occupancy counts of the public and private parking in the Center were conducted on a Thursday, Friday and Saturday in December, 2000. These counts were supplemented with additional peak hour counts in December, January and February to confirm typical conditions.

The hourly parking occupancy counts were conducted from 7:30 AM to 8:30 PM on Thursday and Friday, and from 10:30 AM to 2:30 PM on Saturday. The complete parking occupancy counts are shown in the Appendix on Tables A.2 – A.10.



On-Street Parking- Weekday

The peak occupancy of the on-street parking on both Thursday and Friday occurs at 12:30PM. All metered and general time-limit parking is fully occupied at this time. In addition, restricted on-street parking areas such as Forest Street, Meriam Street and Oakland Street also are at peak occupancy. The peak occupancy of this restricted on-street parking generally lasts only from 12:30 to 1:30 PM, indicating the impact or restaurant patrons and other lunch-hour customers.

Even though the overall peak occupancy of entire on-street parking occurs briefly during the mid-day, it is important to note that much of the on-street parking, particularly the two-hours meters, are fully utilized most of the day. The two-hour meters on Muzzey Street, Waltham Street, Depot Square, Meriam Street and Massachusetts Avenue are at or near capacity from 10:30 PM until 6:30 PM or later.

The only exception are the two-hour meters on Clarke Street which are underutilized except at lunchtime.

The use of the four-hour metered parking is less consistent. The four-hour meters on Massachusetts Avenue and Meriam Street are fully utilized throughout the day, but the four-hour meters on Muzzey Street and Raymond Street are fully utilized only from 11:30 AM to 1:30 PM. This indicates that some of this use is for short-term lunchtime parking. The four-hour meters on Grant Street are at capacity from 7:30 AM to 1:30 PM and are primarily used by Post Office employees.



Public Off-Street Parking - Weekday

Both of the Town's metered parking lots are full most of the day. The Waltham Street Lot is at or over capacity from 10:30 AM to 3:30 PM and again in the evening. The Edison Way Lot is full from 11:30 AM to 1:30 PM and again in the evening.

The self-park spaces in the Meriam Street Attended Lot are generally full by 11:30 AM and drivers arriving for the next two hours must tandem park their cars and leave the keys in case the car needs to be moved. The peak occupancy of the lot occurs at 12:30 PM when there were approximately 320 cars. Without tandem parking the capacity of the lot is about 292 cars.

The only Town-controlled parking lot that does not reach capacity is the leased area at the Church of Our Redeemer on Meriam Street. There are 50 permits issued for the leased area, but no more than 35 cars are parked at one time.



Private Off-Street Parking - Weekday

Unlike the public parking, only some of the private parking lots are ever fully occupied. The combined peak parking occupancy was approximately 75 percent. However, it should be noted that the peak occupancy of individual private parking lots occurs at different times of the day.

Another difference between the public parking and the private parking is that the overall peak parking occupancy of the private lots occurs at 1:30 PM rather than at 12:30 PM as does the public parking. Also, the use of the private parking lots is higher on Thursday than Friday.



Saturday Parking Utilization

Tables A.8 - A.10 list parking occupancy for a busy Saturday. Parking in the private lots is less than half of capacity, with only Decelle’s lot being at capacity. The public parking is about 85 percent of capacity.

Despite being at an overall capacity of 85 percent, there are heavy localized usage of public parking. In particular, virtually all of the two-hour metered parking is at capacity for much of the day. The Waltham Street Lot and the Edison Way Lot are full from at least 10:30 AM to 2:30 PM, as is most of the on-street parking. The less utilized on-street parking includes Clarke Street, the south end of Muzzey Street, the Battle Green area, and Massachusetts Avenue east of the Post Office.

Parking Turnover Studies

Parking turnover is a measure of the average number of cars using a parking space during the day. For example, if 100 cars parked in a 20-space parking lot between 9:00 AM and 5:00 PM, the turnover would be 5.0 cars per space for the eight hours.

A parking turnover study was conducted for the Edison Way Lot, the Waltham Street Lot, and Waltham, Grant and Meriam streets during December, 2000. The study was made by recording the last three digits of the license plate of each car parked at the metered spaces every hour. These data then provided information about the arrival time, departure time, and length of stay for each vehicle. The details of the results are shown in the appendix. Table 3 provides a summary of some key results.

Table 3: Parking Turnover Summary

Location	Time Limit	No. of Parkers	No. of Spaces	Turnover	No. of Spaces Used By Long-Term Parkers at 12:30 PM
Waltham Street Lot	2 Hour	564	104	5.4	30
Edison Way Lot	2 Hour	691	104	6.6	11
Muzzey Street	2 Hour	91	12	7.6	2
Meriam Street	2 Hour	80	11	7.3	1
Edison Way Lot	4 Hour	71	14	5.1	6
Muzzey Street	4 Hour	30	10	3.0	4
Meriam Street	4 Hour	33	7	3.7	4
Grant Street	4 Hour	44	12	3.7	8

The most notable finding from the survey is the impact of long-term parking in the metered parking lots. Approximately 30 percent of the two-hour spaces in the Waltham Street Lot were occupied by long-term parkers (3 hours or longer) at lunchtime. Approximately 10 percent of the spaces in the Edison Way Lot were occupied by long-term parkers at lunchtime.

The long-term parking significantly reduced parking availability for short-term parkers and is evidenced by the relatively low turnover in the lot. Whereas the two-hour parking on Muzzey Street and Meriam Street turned over 7.6 and 7.3 times, respectively, the turnover in the Edison Way Lot was 6.6 and was only 5.4 in the Waltham Street Lot.

The turnover data can be used to estimate the number of short-term parkers displaced by the long-term parkers by studying the activity data for the hours when the parking lots were full. The data indicate that at least another 160 short-term parkers could have parked in the Waltham Lot between 10:30 AM and 2:30 PM had there been no long-term parkers. In the Edison Way Lot, at least 40 short-term parkers were displaced.

It is important to note that even if there were no long-term parkers using the Waltham Street Lot, there still would not be enough parking to satisfy the demand from short-term parkers. For example, a count conducted between noon and 1:00 PM on a Thursday showed that only 34 of the 108 drivers who entered the lot looking for parking were able to find an empty space, even after waiting or circling the block. The other 74 drivers had to park elsewhere. Even if 30 or so spaces weren't occupied by long-term parkers more than 40 drivers would have been unable to park in the Waltham Street Lot.

Another significant finding was regarding the use of the 12 four-hour parking meters on Grant Street. The parking is at capacity from 7:30 AM to 1:30 PM. During the morning, all of the parkers appear to be post office employees since all the cars arrive before 7:30 AM and most depart between 11:30 AM and 2:30 PM. The early morning parkers occupy all of the spaces during the morning and it is not until 11:30 AM that other parkers are able to find spaces. The length of stay for most parkers is short. Of the 30 cars that parked on Grant Street after the postal employees left, 24 parked for only one hour, even though there is a four-hour time limit.

Meriam Street Attended Lot Parking Activity

The daily summary reports from January through December, 2000 for the Meriam Street Attended Lot were reviewed to help identify any daily or seasonal variations in parking demand. In addition, a two-day study was conducted to identify the parking patterns of daily and permit parkers in the lot.



Meriam Street Attended Lot - Daily Activity

Table 4 shows the average daily parkers for each day of the week during 2000. Parking activity on Monday is well below average, with Wednesday being the average day. The busiest day is Friday, with more than 350 daily fee parkers using the lot.

All-day parkers make up about half of the parking lot users. There are about 165 all-day parkers most of the week, with 176 on Fridays.

The parking on Saturdays differs significantly from the weekday parking. There are considerably more short-term parkers using the lot, including over 100 people who park for less than one hour.

Table 4: Meriam Street Attended Lot – Average Daily Fee Parkers

Length of Stay	Fee	Mon	Tues	Wed	Thurs	Fri	Sat
0- 1 Hour	25 ¢	36	47	58	61	74	103
1 – 2 Hours	50 ¢	18	27	37	40	54	83
2 – 3 Hours	75 ¢	12	14	18	16	22	41
3 – 4 Hours	\$1.00	9	8	8	9	16	16
4 – 5 Hours	\$1.25	9	9	9	10	13	11
All Day	\$2.00	149	162	163	166	176	84
Total		234	267	293	302	356	339
< 3 Hours		67	88	113	117	150	227
> 3 Hours		167	179	181	185	205	112

Source: Daily Reports, January – December, 2000.



Meriam Street Attended Lot - Parking Occupancy Patterns

A special count was made of the Meriam Street Attended Lot on a Thursday and Friday in March, 2001. The purpose of this count was to identify the parking occupancy patterns of the annual permit holders and the daily ticket customers. The parking attendants kept track of the number of permit cars that entered and exited each hour, and the entrance/exit times stamped on the tickets were reviewed to determine the number of cash customers who entered and exited each hour.

The detailed results of the parking counts are presented in the appendix and summarized in Table 5. The parking data indicate that approximately 85 percent of the parking lot is used by long-term parkers during the mid-day peak hour. On Friday, the busiest day, there were 311 cars parked at 12:30 PM. Of these, 48 were short-term parkers (3 hours or less) and 263 were long-term parkers.

The data also show that only about 70 to 80 percent of annual permit holders park in the lot at any one time. There are 118 permits issued for the lot. On the Thursday there were never more than 84 permit cars parked in the lot and on Friday there were never more than 96 permit cars parked.

Table 5: Meriam Street Attended Lot - Parking Occupancy Pattern (Friday)

Time of Day	Number of Parked Cars			Number of Parked Cars		
	Cash Parkers < 3 Hours	Cash Parkers > 3 Hours	Permit Parkers	Short-Term Parkers	Long-Term Parkers	Total
Before 7:00 AM	0	0	30	0	30	30
7:30 AM	0	33	40	0	73	73
8:30 AM	2	96	70	2	166	168
9:30 AM	8	132	87	8	219	227
10:30 AM	18	151	93	18	244	262
11:30 AM	26	164	89	26	253	279
Noon	48	177	86	48	263	311
1:30 PM	28	183	83	28	266	294
2:30 PM	23	169	90	23	259	282
3:30 PM	22	154	96	22	250	272
4:30 PM	15	122	84	15	206	221
5:30 PM	3	79	67	3	146	149
6:30 PM	0	72	55	0	127	127
7:30 PM	0	76	53	0	129	129

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Public Parking Supply and Demand

This chapter summarizes the demand for public parking, both short-term and long-term, and evaluates the balance of the public parking demand and supply in the Center. Since public parking accounts for the majority of the parking activity in the Center, and that public parking is at or over capacity much of the day, a thorough understanding of the localized impacts of parking demand and supply is necessary before developing recommendations to improve the parking situation.

Analysis Methodology

The analysis of the localized public parking demand is a multi-step process that begins with the determination of the "design-period" parking demand. The parking utilization counts shows that the peak parking activity in the Center typically occurs at midday on Thursdays and Fridays and therefore the weekday midday period is the critical design-period.

The magnitude of the peak parking demand is primarily based on the parking occupancy counts. The demand for public parking consists of all of the on-street and public off-street parking, as well as some parking demand that is being accommodated by privately leased parking.

The next step is to determine the split of the overall peak public parking demand between short-term parking and long-term parking. This analysis is based on the parking turnover data and the review of the Meriam Street Attended Lot data.

The distribution of the parking demand, both short-term and long-term, is the final step in assessing localized parking demand and supply. The distribution of the parking demand is based on an analysis of land uses in the Center. The analysis makes use of data regarding general land use categories and building sizes obtained from the assessor's office. The analysis also makes use of a survey distributed to many of the Center businesses. The survey provided data about the number of employees working at the business on a typical day, and data regarding where the employees parked. The survey data and the land use data were together used to calibrate parking generation rates for each category of business.

Once parking generation rates have been determined for each type of business, an assessment of parking demand and supply in specific areas can be made. For the purposes of this study the Center is divided in four analysis zones, as shown on Figure 2. The four analysis zones are:

- Block 1 – All businesses north of Massachusetts Avenue
- Block 2 – Businesses located in the block between Clarke Street and Muzzey Street
- Block 3 – Businesses located in the block between Muzzey Street and Waltham Street
- Block 4 – Businesses located along the east side of Waltham Street, and Massachusetts Avenue east of Waltham Street.

Area-wide Parking Demand and Supply

Table 6 shows the total public parking demand in the Center. The parking demand exceeds the parking supply by approximately 135 cars. This excess parking demand is being accommodated in several ways. About 30 of the cars are being accommodated through the tandem parking in the Meriam Street Attended Lot. There are often up to 320 cars being parked in the 292-space lot. About 55 cars are being parked on the residential streets adjacent to the Center. The remaining cars, an estimated 50, are accommodated by private leased parking. The leased parking includes the Arts and Crafts Society lot, Battle Green Inn, and #27 Muzzey Street, among others.

Table 6: Public Parking Demand and Supply

	<u>Parking Demand</u>	<u>Parking Supply</u>
Short-Term Parking	450	433 *
Long-Term Parking	<u>535</u>	<u>417</u> **
Total	985	849

* Includes 30-minute and 2-hour meters, and two-hour parking spaces around the Battle Green.

** Includes 4-hours meters, Church of Our Redeemer permit parking, and Meriam Street Attended Lot.

The most significant finding from the comparison of parking demand and supply is the lack of parking available for long-term parkers. Long-term parking demand exceeds the available supply by more than 115 spaces. Some of this parking is being accommodated by leasing privately-owned spaces, but much of the excess long-term parking is taking place in areas designated for short-term parking.

Localized Parking Demand and Supply

Table 7 shows the localized public parking demand and supply. Only Block 1, the area north of Massachusetts Avenue, has sufficient parking to accommodate the businesses in that area. The location with the largest parking deficit is Block 3, between Muzzey Street and Waltham Street. The parking demand for those businesses exceeds the parking supply by more than 200 spaces.

Table 7: Localized Public Parking Demand and Supply

	Block 1 Mass. Ave North	Block 2 Clarke - Muzzey	Block 3 Muzzey - Waltham	Block 4 Mass. Ave. East
Short-term Parking				
Demand	180	45	150	75
Supply	<u>152</u>	<u>35</u>	<u>133</u>	<u>30</u>
Surplus / (Deficit)	28	(10)	(17)	(45)
Long-term Parking				
Demand	190	60	210	75
Supply	<u>385</u>	<u>21</u>	<u>13</u>	<u>21</u>
Surplus / (Deficit)	195	(39)	(197)	(54)
Total				
Demand	370	105	360	150
Supply	<u>537</u>	<u>56</u>	<u>146</u>	<u>51</u>
Surplus / (Deficit)	167	(49)	(214)	(99)

NOTE: Parking supply does not include 49 two-hour spaces near the Battle Green, overflow parking on residential streets, or any privately leased parking.

All areas south of Massachusetts Avenue have parking space deficits. This is not surprising given that the area south of Massachusetts Avenue generates more than 60 percent of the parking demand yet has on 30 percent of the parking supply.

The parking deficits apply to both short-term and long-term parking. The lack of short-term parking supply is most apparent in Block 4, the area east of Waltham Street. The shortfall of long-term parking is most acute in Block 3, which has almost no parking supply available for long-term parkers.

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Residential Street Parking

Lexington Center's commercial business district is surrounded by residential areas. The delineation between the business areas and the residential areas is sometimes clearly defined, such as on Vinebrook Road. More often, there is a transition area of professional offices or church uses between the commercial district and the residential areas. Examples of this transition include Muzzey Street and Meriam Street.

Most of the adjacent residential streets have some parking restrictions, typically a two-hour time limit. A few of these streets are used by Lexington Center parkers. This chapter describes the current usage of the streets and provides an evaluation of the suitability of that use.

Figure 3 shows the posted parking restrictions on the street near Lexington Center. There are a variety of parking restrictions. The most common is "NO PARKING 7:00 AM - 10:00 AM / 2 HOUR PARKING 10:00 AM - 6:00 PM". A few streets have "NO PARKING 6:00 AM - 6:00 PM MONDAY - FRIDAY" restrictions. This is used when two-hour parking is allowed on the opposite side of the street. Vinebrook Road is the only area posted as "NO PARKING 9:00 AM - 5:00 PM".

Parking Activity

Parking activity on the residential streets was recorded as part of the all-day parking occupancy counts conducted for the Lexington Center parking meters and lots. In addition, supplemental observations were made on several other days to verify the presence of any cars that might belong to Lexington Center employees or visitors.

The observations show that there is only a small amount of parking occurring on neighborhood street. A maximum of about 60 cars were observed parking on residential streets near the Center. Almost all were parked in compliance with the two-hour time limit restrictions.

About 15 of the 60 cars were long-term parkers. A dozen of these were on Sheridan Street where there are no parking restrictions. All of the cars on Sheridan Street appeared to be those of Post Office employees. The only other long-term parking occurs in the Oakland Street/Meriam Street/Patriots Drive area. Three of the cars

parking in that area were repeatedly observed parked for most of the day in that area.

The remainder of the parking on residential streets appears to be overflow parking during the mid-day peak hour and the parking is generally within the posted two-hour time limits. For example, on Forest Street there are typically very few cars except for one or two hours at about noon when there are often eight or nine cars parked on the block between Muzzey Street and Waltham Street.

Evaluation of Parking Restrictions

Parking restrictions on residential streets are most often implemented where there is a lack of off-street parking and residents rely on overnight on-street parking. When there is a demonstrated lack of available parking, particularly in the evenings, resident parking programs are frequently implemented.

Other parking restrictions on residential streets include time-of-day restrictions and time-limit regulations. These are used to target specific groups of parkers. Parking prohibitions from 7:00 AM to 9:00 AM are commonly used near schools, and three-hour time limits are used near commuter rail stations.

Conversely, on-street parking is sometimes encouraged on residential streets in order to reduce vehicle speeds and cut-through traffic. On-street parking is a very simple and cost-effective traffic calming measure.

In Lexington Center, the parking restrictions are principally targeted against employee parking. The parking prohibition before 10:00 AM precludes many first-shift employees from parking and the two-hour time limit prevents parking by part-time employees.

Criteria

The evaluation of the residential street parking regulation near Lexington Center takes into account critical safety issues such as street width, traffic flow, curbing and sidewalks, and the number and locations of driveways. The evaluation and recommendations also include consideration of the proper balance of short-term and long-term parking usage.

Street Width and Traffic Flow

The fundamental criteria for determining the suitability of on-street parking is street width. In particular, there must always be a wide enough travel lane to allow passage of emergency vehicles.

A minimum street width of about 19' is recommended for one-way streets with parking on one side. This provides for a 7' parking lane and a 12' travel lane. A street width of about 26' is recommended for one-way streets with parking on both sides.

On low-volume, low-speed two-way streets, a minimum street width of 23' is preferable. This provides a 7' parking lane and a 16' travel lane. A width of 30' is necessary to allow parking on both sides of the street.

It should be noted that the 16' travel lane for two-way traffic is a minimum width suitable when there are short stretches of on-street parking and where low vehicle speeds are desirable. A 16' travelway often requires one of the oncoming vehicles to stop or pull aside to allow the other to pass. If free-flow traffic were desired, two 10'-wide lanes should be provided.

It should also be noted that the recommended street widths reflect actual conditions in the Center and are consistent with other local examples of on-street parking. The recommended street widths reflect conditions where parking and traffic flow are balanced, instead of priority given to either parking or traffic flow. For example, the City of Portland Oregon has "narrow street" provisions that prioritizes parking and traffic-calming. The narrow-street regulations allow parking on one side of streets as small as 20-feet wide, and parking on both sides of streets that are 26-feet wide.

Curbing and Sidewalks

Another criteria is the availability of sidewalks and curbing. On-street parking should not be encouraged when there are no sidewalks and curbing to protect pedestrians from vehicles.

Number and Location of Driveways

An extremely variable issue affecting the suitability of providing on-street parking is the number and location of driveways. Roads with many driveways are often not suitable for parking. When there are many driveways there is an increased likelihood that on-street parkers will park too close to driveways and create sight obstructions and hinder vehicle movement.

Balance of Short-Term and Long-Term Parking Usage.

For those streets that can safely provide on-street parking, the last factor in the evaluation of the parking restrictions on residential streets is whether short-term parking or long-term parking is the best alternative. Some of the residential streets are currently being used for overflow short-term parking from the Center and the evaluation considers whether the current use should be continued or if long-term parking is a better use of the parking. This is a highly localized issue effected by the proximity to other long-term parking options.



Findings and Recommendations

Ideally, there would be no reason to have residential street parking restrictions because there would be enough designated public parking. Unfortunately, there is a deficit of public parking for Center employees and visitors, and until that situation is addressed some overflow parking into residential streets is necessary.

The following recommendations reflect that there is a need for some overflow parking on residential streets, but also reflect localized shortfalls of short-term and long-term parking. Parking is not recommended simply because it could be physically accommodated. For the most part, the locations where parking is recommended are already frequently being used for parking and the recommendations focus on the best management of that parking activity.

Muzzey Street, Clarke Street and Forest Street

Muzzey Street

Muzzey Street is a one-way street with parking on one side. The roadway width varies between 23 and 26 feet. The roadway accommodates the on-street parking well. In fact, it would be possible to add a few spaces on the east side of the road in the section of Muzzey Street north of Raymond Street. This section is 26' wide. The primary constraint are the number of driveways. The ability of cars and trucks to maneuver into and out of the driveways safely would have to be maintained. Given this, there are only three sections of curb space that could be used. The curb in front of #6 Muzzey could accommodate one space, the curb in front of #10 Muzzey could accommodate three spaces, and the curb in front of #14 Muzzey could accommodate one space.

The section of Muzzey Street south of Forest Street is also suitable for parking. The street has curbs and sidewalks, and the west side of the street has no driveways. The street could accommodate about six parking spaces along the west side. Current regulations prohibit parking between 7:00 AM to 3:00 PM, presumably to prevent parking associated with the High School. Some restrictions, such as a parking prohibition before 9:00 AM, would still be required, but long-term could be allowed at other times.

Clarke Street

Clarke Street is approximately 23' wide and most of Clarke Street is two-way. The north segment of the road has parking meters on one side. The south section has parking on one side, with a two-hour time limit and a parking prohibition before 10:00 AM. The street has sidewalks and granite curbs on both sides.

The street is suitable for on-street parking on one side. The 16' two-way travel lane does not present any significant problems since traffic volumes are low and are predominately northbound.

The south end of Clarke Street could be used for long-term parking rather than the two-hour time limit parking now in effect. Six parking spaces could be delineated without encroaching upon any driveways.

Forest Street

Forest Street varies in width from about 23' to about 25'. The street has sidewalks and partial curbing on both sides. The south side of the street is used for two-hour parking after 10:00 AM.

Only on-street parking between Muzzey Street and Waltham Street is regularly used. The block is frequently filled with 8 or 9 cars during busy lunch hours. This parking does not create any undue traffic hazards. In fact, it provides a traffic calming effect. It is recommended that parking be retained and that long-term parking be allowed. Moreover, it is recommended that the two-hour parking on the section of Forest Street between Muzzey Street and Clarke Street be converted to long-term parking and moved to the north side of the street. This will make the parking more convenient to the typical parking search circulation pattern in the area. The staggered parking between the two blocks will also help slow traffic on Forest Street.

Oakland Street and Meriam Street

Meriam Street is approximately 30' wide and has curbs and sidewalks on both sides. Parking is permitted on the east side of the road. Oakland Street is about 28' wide and has raised sidewalks. Parking is permitted on the south side of the road.

Parking usage in this area includes a few long-term parkers, but most of the 20-25 cars that are parked short-term during the mid-day. Several of the parked vehicles are associated with the St. Nicholas Greek Orthodox Church or the Lexington Press, but at least half the cars appear to be related to the Center businesses.

The current regulations limit parking to two hours, and both Meriam Street and Oakland Street meet the criteria for safely providing parking. It is recommended that the parking remain, but that it not be changed to long-term parking. There is available long-term parking in the Church of Our Redeemer Lot and the Meriam Street Attended Lot, and providing free on-street parking would discourage use of the off-street parking.

Another recommendation is that additional two-hour parking spaces be designated on Meriam Street. The roadway can accommodate parking on both sides of the street yet only one side is used at present. The specific recommendations are as follows:

- Allow parking on the west side of Meriam Street between Patriots Drive and Stetson Street. Approximately five spaces could be designated in front of #10 and #12 Meriam Street. This parking is not intended to address the parking needs of the Center. Rather, parking on both sides of the street is recommended as a traffic calming measure. Traffic volumes on Meriam Street are relatively high, but speeding vehicles were often observed.
- It is recommended that three metered spaces be created on the west side of Meriam Street immediately south of the bicycle path, near the Visitor's Center. Care should be taken in ensuring that the spaces do not extend past the alley and hinder truck egress from the alley.

Vinebrook Road Area

No parking is allowed on Vinebrook Road during the day, Sherburn Road has a two-hour parking limit, and the section of Winthrop Street is a combination of two-hour and no-parking restrictions.

It is not recommended that any of the existing restrictions be changed. The only potential change would be to allow some parking along Vinebrook Road. However, only one side of Vinebrook Road has sidewalks, and because of the numerous driveways there are very few locations along Vinebrook Road that could adequately provide on-street parking. Rather than having only a few scattered designated parking areas, it is best simply to retain the current regulations.

Sherman Street Area

The Sherman Street area is distinct from the Center business area. Unlike, say, Forest Street which is used by Center-related traffic, Sherman Street is not part of downtown vehicle circulation pattern. However, it is the area with the most substantial amount of long-term parking by Center employees. Sherman Street, which has no posted parking restrictions, is used by up to a dozen drivers each day. The majority, if not all, of the parkers are Post Office employees.

Sheridan Street is only 23'-24' wide, yet parking occurs on both sides of the street. At the least parking should be restricted to one side of the street. In addition, the parking should be limited to two-hours, as is done on Sherman Street. Neither Sherman Street or Sheridan Street have sidewalks or curbs and Center-related parking should be discouraged.

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Recommendations for Immediate Action Items

The short-term public parking supply in the Center is fully utilized much of the day and evening, particularly on Thursdays and Fridays. Even on less busy days there is a lack of available short-term parking in many sections of the Center. This lack of parking is most evident on the south side of Massachusetts Avenue along the Waltham Street and Muzzey Street corridors.

Much of the lack of short-term parking is related to the use of the public parking by long-term parkers. There is a shortfall of more than 100 long-term parking spaces in the Center. The only public long-term parking is in the Meriam Street Attended Lot and the Church of Our Redeemer Lot. There are extensive waiting lists for these lots and only a handful of new permits are issued each year to people from the waiting list.

The following are recommendations to address the immediate parking situation in the Center. The recommendations focus on making short-term parking available by providing better options for long-term parkers. The recommendations are summarized on Figure 4.

Permit Parking

The Town issues approximately 175 annual parking permits but the demand for public long-term parking far exceeds this. There is a waitlist for permits yet only a handful of those on the waitlist receive permits each year. The following recommendation regarding permit parking are intended to optimize the use of the parking supply available for long-term parkers.

Increase use of the Church of Our Redeemer Lot

The Town should increase the number of parkers who use the Church of Our Redeemer Lot by increasing the number of permits issued and by price incentives.

The Town leases 50 parking spaces from the Church and issues 50 parking permits at the a cost of \$200 per year. The 50 parking spaces are never fully used. At most there are 35 cars parked in the leased area. This indicates that many of the permits are

used by part-time workers who do not require parking every day and by evening workers who do not require parking during the Center's midday peak parking hours.

Additional permits should be issued for the lot. Initially, 15 more permits should be sold. The parking should then be monitored and if all 50 spaces are not used on the busiest days, then additional permits could be sold.

It is also recommended that the price for the permits be reduced. The price adjustment would be tailored to encouraging Depot Square employees to park at the Church Lot rather than in the Meriam Street Attended Lot. This would ensure optimal utilization of both parking areas.

The recommended price structure would be for the Church Lot permits to be half that charged for the Meriam Lot. At current rates this would be \$125. The Church's lease fee to the Town would still be \$200, thus the permit parking in the Church Lot would have to be subsidized by other parking revenues.

The amount of this subsidy would be modest. At current rates it would be approximately \$5,000 annually. Full utilization of the leased parking at the Church of the Redeemer would effectively create 15 new long-term parking spaces, at a cost of little more than \$325 per space per year.

Eliminate Fletcher Avenue Permit Parking

There are five on-street spaces on Fletcher Avenue that are reserved for five permit holders. The special permit spaces should be eliminated and replaced with five 4-hour parking meters.

During the overall peak parking period downtown, only two or three of the permit spaces are used. Frequently, none of the permit spaces are used, even when nearby on-street parking is fully occupied.

Replacing the permit spaces with parking meters would ensure that the spaces are used as much during the day as possible, and by as many people as possible. The permit holders could be provided with Meriam Street Attended Lot permits if they need to park all day, or else they could use the nearby 2-hour and 4-hour metered spaces if they require short-term parking.

Issue Additional Permits for the Meriam Street Attended Lot

There are 118 permits issued for the Meriam Lot. These include 18 permits issued to Town employees displaced from the municipal building parking lot due to the relocation of the Library. The annual permit cost is \$250.

The Town should issue additional annual permits for the Meriam Street Attended Lot. The Meriam Street Lot is the best location for long-term parking and as many long-term parkers as possible should be encouraged to park there.

Initially, the number of permits should be increased to 200. This would eliminate the wait list and still provide assurance that the parking lot would not be overcrowded. It should be noted that the parking lot data indicates that only about 80 percent of the permit holders are parked in the lot at any one time. Moreover, many on the waitlist are undoubtedly some of the 150-175 drivers each day who already park in the Meriam Street Attended Lot and pay the \$2.00 fee.

Issuing more permits for the Meriam Street Lot will help make more short-term parking available in the Center, but the benefit can not be quantified precisely. The most significant benefits will be from long-term parkers who relocate to the Meriam Street Attended Lot. For example, the parking turnover data for the metered lots show that a two-hour parking space used by a single long-term parker can be used by 7 to 10 short-term parkers during a typical day. There will also be some benefits from those who already use the Meriam Street Lot and are simply converting from a daily fee payment to an annual permit. If they have annual permits for the Meriam Street Lot they may be less likely to occasionally park elsewhere in the Center.

There will be a reduction in revenue if more annual permits are issued. Worst case, if all new permit holders already pay \$2.00 a day to park in the Meriam Street Lot, then revenues would decrease by \$15,000 to \$20,000 a year. The \$15,000 estimate assumes these drivers currently park in the lot four days a week and the \$20,000 estimate assumes they park five days a week. In order to be revenue-neutral the permit price would have to be increased by \$75 to \$100.

On-Street Parking

The following recommendations regarding on-street parking focus on means of making more long-term parking options available so that fewer long-term parkers will use spaces intended for short-term parkers. The recommendations are shown on Figure 4.

Provide Long-Term Parking On Clarke Street

The parking meters on Clarke Street are no longer used consistently since the Library moved. It is recommended that the 15 two-hour parking meters be converted to 10-hour parking meters until the Library expansion is complete. This would provide a convenient alternative for long-term parkers and would maximize the use of the available parking supply.

It is also recommended that the two-hour parking restrictions on Clarke Street south of Raymond Street be eliminated. This would create six spaces for long-term parkers.

Additional Parking on Muzzey Street

Five new metered parking spaces should be created along the east side of the street. One space would be in front of #6 Muzzey, three in front of #10 Muzzey, and one in front of #14 Muzzey. The spaces would be for short-term parking.

It is also recommended that the east side of Muzzey Street south of Forest Street be redesigned for long-term parking. At present, no parking is allowed until after 3:00 P.M. Parking should be prohibited prior to 9:00 AM, to prevent school-related parking, but long-term parking should be permitted at other times of the day. Six long-term parking spaces would be created.

Provide Long-Term Parking On Forest Street

It is recommended that the two-hour parking restrictions on Forest Street, between Clarke Street and Waltham Street, be removed and long-term parking be allowed. Currently, the parking between Muzzey Street and Waltham Street is routinely used to accommodate overflow short-term parking that is created when long-term parkers occupy spaces in the Waltham Street Lot and other locations. The Forest Street parking would provide long-term parkers an alternative and would free up the more convenient spaces for short-term parkers.

Another recommendation is to relocate the Forest Street parking between Muzzey Street and Clarke Street to the north side of the street. This would make the parking more convenient for drivers who are searching for parking after traveling down Muzzey Street.

Add Parking on Meriam Street

It is recommended that three new metered parking spaces be created on the west side of Meriam Street immediately south of the bicycle path, near the Visitor's Center. Even though only three spaces are proposed, the benefits would be significant. Based on the parking turnover data for that locations, three short-term parking spaces would accommodate more than 20 parkers each day.

It is recommended that some time-limit parking be added to the west side of Meriam Street between Patriots Drive and Stetson Street. This parking is not intended to address the parking needs of the Center, but is recommended as a traffic calming measure.

Establish Time-Limit Parking on Sheridan Street

Sheridan Street is the only residential street consistently used for long-term parking by employees. Time-limit parking restrictions should be established to prevent long-term parking. The 10 or so employees parking on the street are better accommodated in the Meriam Street Attended Lot.

Change Parking Restrictions on Massachusetts Avenue, near Woburn Street.

There is a section of curb in front of #1536 Massachusetts Avenue that has no posted parking regulations. This is the only section of Massachusetts Avenue that does not

have any time-limits. There are approximately seven spaces that are used by employee parkers, several of whom arrive before 7:00 AM. It is recommended that four-hour parking meters be installed to encourage more parking turnover.

As replacement for the unrestricted parking, it is recommended that parking be allowed on the north side of Massachusetts Avenue, near Woburn Street. At least six parking spaces could be designated without creating any sight distance or safety problems at the Massachusetts Avenue/Woburn Street intersection.