



Ref.: 13038

July 3, 2013

Mr. Bart Bussink
Two Squares, LLC
56 Regent Street
Cambridge, Massachusetts 02140

Reg.: 92-96 Prospect Street Somerville, MA. - Parking Memorandum

Dear Mr. Bussink:

Based on information contained in the permit application for the above referenced project, I offer the following for your use.

Existing Conditions and Project Understanding

Two Squares, LLC wishes to redevelop a parcel located at 92-96 Prospect Street /205 Tremont Street in Somerville, Massachusetts. The property is located on the east side of Prospect Street and spans the block to the west side of Tremont Street. It is located on the southern edge of Union Square, less than 500 feet south of the intersection of Prospect Street and Webster Avenue (Figure 1). The surrounding neighborhood contains a mix of residential and non-residential uses.

There is one existing building on the lot, a single-story commercial building. Two Squares, LLC proposes to construct a three-story residential building within the boundaries of the existing structure to house eleven (11) residential units. According to the special permit/variance

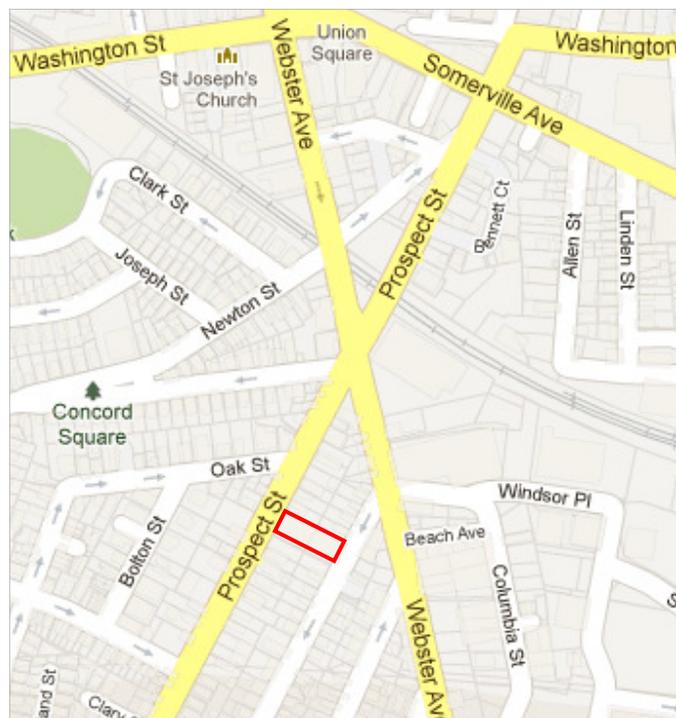


Figure 1 – Site Location

application, the Somerville Zoning Ordinance (SZO) requires additional off-street parking spaces for the eleven residential units. The proposed project may require up to 21 off-street parking spaces.

The existing parking layout provides for 13 sub-standard parking spaces in the rear lot accessed via Tremont Street. The interior of the building was used to store up to 79 more vehicles. The project team had planned on using the exterior parking layout to accommodate the parking demand associated with the new use. However, an alternative plan was developed to accommodate a request by the City of Somerville's Fire Department (SFD). The new parking lot layout provides for 13 off-street parking spaces; a shortfall of 8 parking spaces which requires a parking variance. The project also provides for 14 bicycle parking spaces. This traffic memorandum has been prepared to assist the City staff in determining whether the proposed parking layout will be sufficient to accommodate the proposed demand while providing emergency access as well.

This parking memorandum demonstrates that the proposed project provides an adequate amount of parking to meet the proposed demand and that the project will not have an adverse impact on the surrounding neighborhood's on-street parking supply. The following factors contribute to the justification of a parking variance for the proposed residential redevelopment project:

- Proposed Off-street Parking,
- Additional On-street Parking Spaces,
- Mode Choice,
- Vehicles Per Household,
- Proximity to Public Transit,
- On-Street Parking Utilization, and
- Union Square Parking Ratio Comparison

Proposed Off-Street Parking

The proposed parking lot is accessed via Tremont Street. Tremont Street is a one-way street originating at Webster Avenue in Somerville and ending at Broadway in Cambridge. The proposed Site Plan, provided by Peter Quinn Architects, provides for 13 parking spaces in the rear lot (Figure 2). The parking lot layout was redesigned to provide access to fire apparatus along the side of the building. As stated above, this alternative plan was developed to accommodate a request by the City of Somerville's Fire Department (SFD). By providing twelve (12) perpendicular parking spaces as well as one (1) parallel parking space, the architect provides for the same number of parking spaces as the existing rear lot but in a more efficient manner. The new parking layout is also more dimensionally compliant. The redesign required changing the curb cut location but did not affect the number of street trees or appurtenances.

Parking Layout Maneuverability

In order to provide an adequate drive aisle and ample emergency access, the project team proposes that all 12 perpendicular parking spaces be compact parking spaces (six 8'x16' and six 8'x18'). The parking aisle (20-23 feet wide) allows vehicles enough space to back out of the parking spaces and be driven in a forward motion as they exit the property onto the street, as required by the SZO for parking areas containing 6 or more parking spaces.

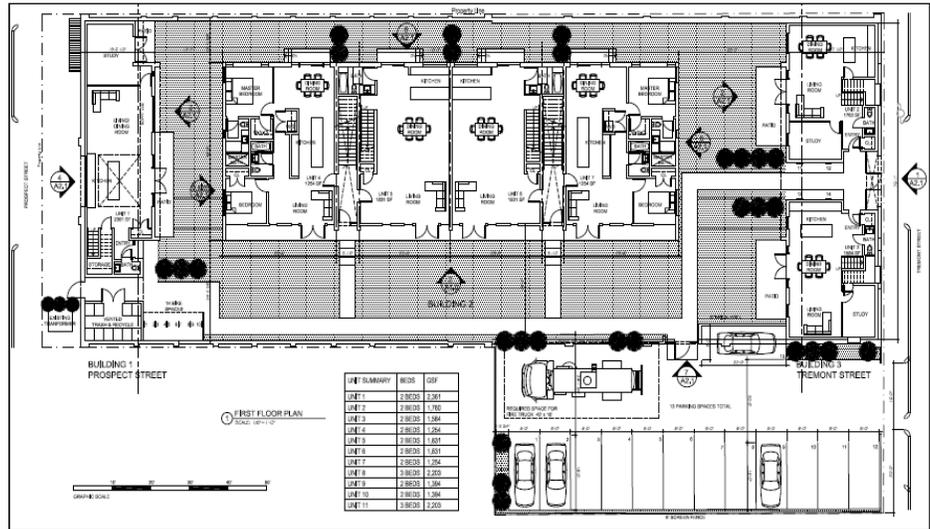


Figure 2 – Proposed Site Plan

Compact parking spaces (8'x16') are commonly accepted by the Somerville Zoning Ordinance (SZO) and by nationally recognized transportation publications such as the Institute of Transportation Engineers (ITE) Transportation Planning Handbook, 3rd Edition and Traffic Engineering Handbook, 6th Edition. Although commonly accepted, the SZO only allows for 20% of the total number of parking spaces to be compact parking spaces and only in lots providing more than 20 spaces. However, it may be argued that a requirement limiting the proportion of compact spaces is likely written to encompass a broad range of parking facilities such as parking areas designed for retail establishments which typically have high turnovers of users per parking space. This increased use of each parking stall by many different users throughout the day demands larger parking space dimensions and in most cases larger parking aisles as well. The larger spaces and aisles reduce the likelihood of any minor scrapes or “fender benders” related to the high frequency usage of the stalls. Conversely, in a residential setting, the use of smaller parking stalls is more reasonable since there will be a much smaller turnover rate, providing consistent users that will be much more familiar with the parking environment and more invested in avoiding any minor parking incidents.

Parking Stall Length

In addition, the shorter parking stall is safe and viable only if a vehicle is fully accommodated within the parking stall. If not, the parked car will overhang into the parking aisle negatively

impacting the maneuverability of the parking area. The average size of most vehicle classifications is less than 16 feet:

- a sub-compact sedan (<14.77'),
- a compact sedan (14.77'),
- a mid-size sedan (15.83'),
- a mid-size SUV (15.60')

There are a few vehicle classifications such as large sedans and large SUVs that have average lengths slightly larger than 16 feet (~17'); however, with the increased popularity of compact cars and sub-compact cars due to fuel efficiency and environmentally conscience buyers, parked vehicles exceeding the proposed stall length is less likely. Also, if there are a few residents who own larger vehicles, they can be accommodated in the six 18-foot long stalls or the standard sized parallel parking stall (8'x 22'). Therefore, the 16-foot long parking stalls should be able to safely accommodate parked vehicles without compromising the aisle width.

Parking Stall Width

Similar to the length of a parking stall, a smaller width is only viable if a parked vehicle can be fully accommodated within the parking stall. If not, the full complement of parking spaces may be less likely to be used resulting in a driver opting to park in the street instead. However, 8-foot wide parking spaces are more likely to be fully utilized in a residential setting versus a retail setting (as explained above). Based on several top car manufactures specifications, typical vehicle widths for each of the common vehicle classifications are listed below:

- a sub-compact sedan (5.5'),
- a compact sedan (5.8'),
- a mid-size sedan (6.1'), and
- a compact SUV (6.0')

The largest vehicle classification (large SUVs) have a typical width slightly larger than the four classifications listed above (~6.5'), however, with the increased popularity of compact cars and sub-compact cars due to fuel efficiency and environmentally conscience buyers, wider vehicles are less likely. Based on the list of typical vehicle widths, an 8-foot wide parking stall will typically allow for 2 - 2 ½ feet of space between each parked vehicle. Therefore, the 8-foot wide parking stalls should be able to safely accommodate getting in and out of the parked vehicles. In addition, as mentioned above, the residents who park their vehicles will be much more familiar with the parking environment and more invested in avoiding any minor parking incidents.

Additional On-Street Parking

After reviewing the Site Plan provided by Peter Quinn Architect, the project team has determined that there is an opportunity to create approximately three (3) new on-street parking spaces. The proposed development will close one curb cut on Tremont Street and another curb cut on Prospect Street (Figure 3). Due to the distances between the site's existing Prospect Street curb cut and the neighboring properties' curb cuts, the neighborhood actually gains two on-street parking spaces by closing the Prospect Street curb cut and one on Tremont Street. The addition of the on-street parking spaces partially offsets the shortfall of on-site parking spaces. The added on-street parking also benefits the surrounding neighborhood since they will be available to anyone.



Figure 3 – Existing Curb Cuts

Proximity to Transit

While the proposed project is not within 1,000 feet of an existing transit station, it is located roughly one mile from four stations: Harvard Square, Central Square, Lechmere, and Sullivan Square (Figure 4). The project location has good access to public transportation via several MBTA bus routes.

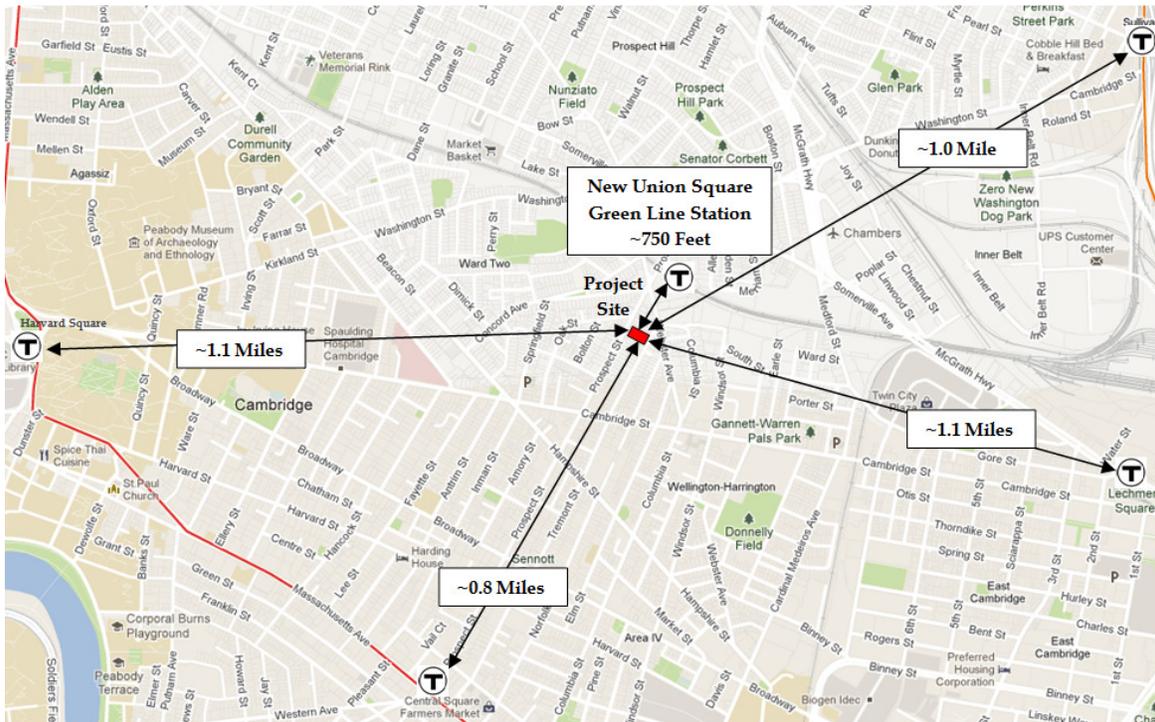


Figure 4 – Proximity to Transit Stations

Most of the bus routes listed below travel within ¼ of a mile of the project site; three routes travel within 500 feet (or a 2-minute walk) of the proposed project.

- Route CT2 – Travels between Sullivan Square & Ruggles Station
- Route 69 – Travels between Harvard Square & Lechmere Station
- Route 83 – Travels between Rindge Avenue & Central Square
- Route 85 – Travels between Spring Hill & Kendall Square
- Route 86 – Travels between Sullivan Square Station & Cleveland Circle
- Route 87 – Travels between Arlington Center & Lechmere Station
- Route 91 – Travels between Sullivan Square Station & Central Square

These routes provide valuable connections to area transit stations. This already extensive public transportation network provides Union Square residents access to job centers without the use of a car. However, since Union Square is likely the most traversed square in the City (in terms of vehicles), the City of Somerville successfully advocated for the Green Line to be extended to Union Square.

The Green Line Extension Project (GLX) will provide for two stations located relatively close to the proposed project; the Gilman Square Station will be located approximately one mile from the project and the Union Square Station will be even closer, only 750 feet away (Figure 4, above).

Based on information provided on the MBTA's website, the construction phase that includes the Union Sq. station is anticipated to be completed in late 2016 and begin testing in early 2017 (the schedule assumes two key FTA approvals). With good access to public transportation improving with the addition of a new transit station, it is reasonable to expect that vehicle ownership rates for this project will be less than typical vehicle ownership rates for Somerville residents.

Mode Choice

Based on information provided by the project team, the project will be marketed to the type of person(s) who is open to non-vehicular modes of transportation. Examples of non-vehicular modes of transportation are bicycling, walking, buses, heavy rail, light rail, and even telecommuting. In fact, more than half of existing Somerville residents travel to work via modes other than the single occupant vehicle (Figure 5). Approximately 29% used public transportation to travel to work, 12% cycled or walked to work, 10% carpooled, and 2% worked from home.

The remaining percentage chose other means of travel. The percentage of Somerville residents choosing public transportation will likely increase once the Green Line Extension (GLX) and the Assembly Square Orange Line Station projects are complete and operational. The GLX project will add 5 new transit stations in Somerville including one in Union Square, with an entrance ~750 feet from the proposed redevelopment project.



Figure 5 –Mode Choice (Somerville)

Vehicles Per Household

As shown on Figure 6, 58% of the owner-occupied houses and condos in Somerville have either one vehicle or no vehicle. Although these data correspond to households versus number of bedrooms, it clearly indicates that Somerville residents are more likely to have fewer than two cars. This is likely due to the excellent access to public transportation that Somerville provides (see Mode Choice). In fact, many households have a rapid transit station located less than a mile away; the remaining households will likely have the same once the 6 new transit stations are in place.

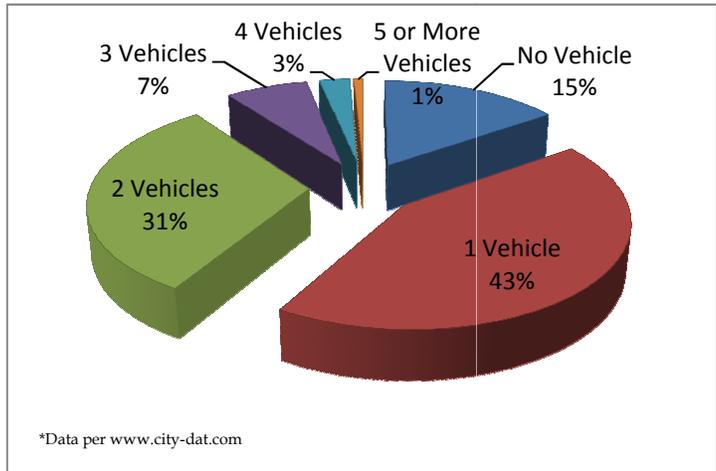


Figure 6 – Vehicles per Household

Union Square Parking Ratio Comparison

As mentioned above, the City of Somerville successfully advocated for a Green Line transit station in Union Square. Recognizing the growth potential for Union Square, the City updated the Zoning Ordinance to include several Transit Oriented Development (TOD) zoning districts. The TOD zoning districts generally require less parking than other zoning districts. Proximity to transit is likely only one of many factors contributing to reduced parking requirements. Other factors may include higher density and a mix of uses. Even though the proposed project is located within a Residence RB zoning district, it is closer to the new transit station than many TOD zoned properties are (Figure 7).

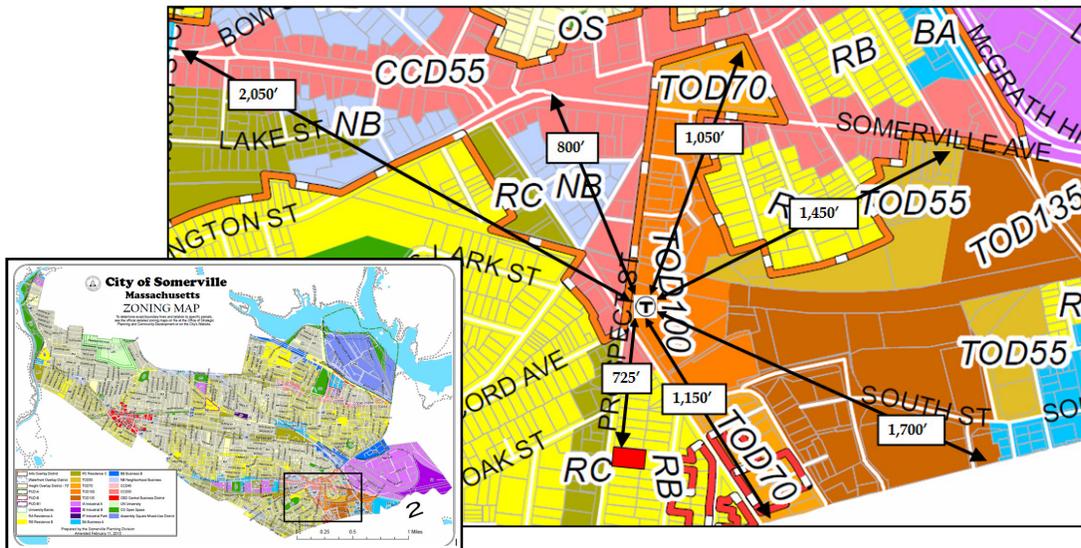


Figure 7 – Union Square Zoning Map & TOD Districts' Proximity to Transit

Although the proposed project is not a mixed-use project, residents of the project will have similar access to new office and retail uses created by the transformative re-zoning of Union Square. Therefore, it is reasonable to expect residents living in the proposed building to have similar parking needs as residents living in TOD-zoned buildings scattered around Union Square. If so, the true parking demand for the proposed project may be comparable to the parking requirement for TOD zoning districts; one parking space per unit. The proposed project is providing 1.18 parking spaces per unit plus one for visitors.

Parking and New Development

Many reports have been written regarding parking strategies relative to TOD. One such report is *Building Transit Oriented Development In Established Communities* by Julie Goodwill and Sara J. Hendricks (November 2002). It defines transit oriented development (TOD) as development activity located along or within walking distance to transit routes that mixes residential, retail, office, and public uses in a walkable environment, making it convenient for residents and employees to travel by transit, bicycle, or foot.

It further suggests that the main purpose of TOD is enhancing mobility by decreasing reliance on the automobile and by encouraging use of alternate modes of transportation such as transit, walking, and biking. According to *Creating Transit Station Communities in the Central Puget Sound Region: A Transit-Oriented Development Workbook*, people living near a transit station are up to six times more likely to commute to work by transit than other people living in the same region.

Another report, *Parking for Transit-Oriented Development*, by Jeffrey Tumlin and Adam Millard-Ball (2006) suggests that reduced parking can have an important role in promoting self-selection -- encouraging households with fewer vehicles to live close to transit. This supports the idea that persons open to non-vehicular modes of travel may be attracted to the proposed development.

Existing On-Street Parking Utilization

The study area includes all public on-street parking spaces available within a reasonable walking distance of the proposed redevelopment project, excluding restricted parking spaces (Figure 8). Based on coordination with the City Traffic Engineer, the most appropriate time to collect parking utilization data for this neighborhood is during a weekday evening between 7 and 9 PM and a weekend afternoon between 12 and 2 PM. Therefore, parking utilization data was collected on Thursday May 2, 2013, Friday May 3, 2013, and Saturday May 4, 2013 during the requested time periods.

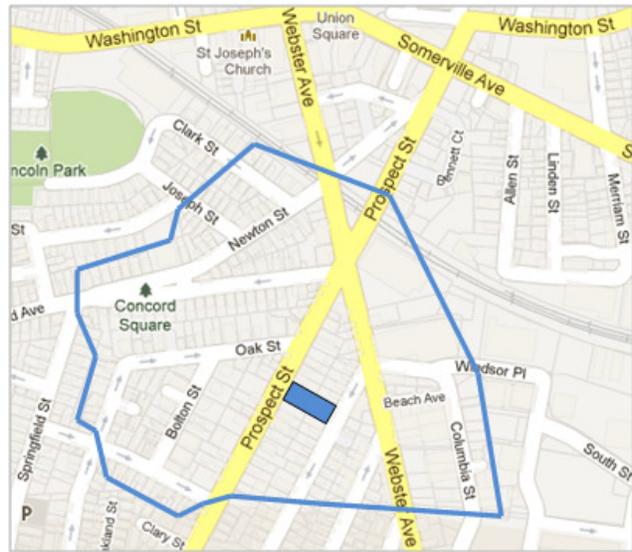


Figure 8 – Parking Study Area

The parking study area has a total of 338 on-street parking spaces available for public use (Table 1). This area represents all parking located within a reasonable walking distance of the project; approximately a 5-minute walk. The study area does not include on-street parking located within the City of Cambridge since such on-street parking is unavailable to Somerville residents. Based on the data collected, over 30% of the area's public parking supply is available (empty) on a weeknight or a weekend afternoon which equates to over 100 parking spaces.

Table 1 – Parking Utilization Data (Within a 5-Minute Walk³)

Description			# Parking Spaces Occupied (Full)							
Street	Limits	Total Number of On-street Parking Spaces	Thursday	Percent	Friday	Percent	Evening	Percent	Saturday	Percent
			Evening ¹	Occupied	Evening ¹	Occupied	Average	Occupied	Afternoon ²	Occupied
Bolton Street		35	16	45.7%	24	68.6%	20	57.1%	22	62.9%
Clark Street	From Newton St. to #17-19 Clark St.	14	11	78.6%	6	42.9%	8.5	60.7%	9	64.3%
Columbia Street		14	12	85.7%	9	64.3%	10.5	75.0%	11	78.6%
Concord Avenue	Newton St. to Prospect St.	37	18	48.6%	15	40.5%	16.5	44.6%	20	54.1%
Concord Avenue	Springfield St. to Newton St.	21	15	71.4%	15	71.4%	15	71.4%	16	76.2%
Joseph Street	From Newton St. to #22 Joseph St.	18	18	100.0%	15	83.3%	16.5	91.7%	12	66.7%
Newton Street	Concord Ave. to Webster Ave.	22	18	81.8%	16	72.7%	17	77.3%	16	72.7%
Norfolk Street	Webster Ave. to City Line	19	15	78.9%	18	94.7%	16.5	86.8%	18	94.7%
Oak Street	Bolston St. to Prospect St.	23	9	39.1%	9	39.1%	9	39.1%	11	47.8%
Oak Street	From #41 Oak St. to Bolton St.	23	15	65.2%	16	69.6%	15.5	67.4%	14	60.9%
Oak Street	From Houghton St. to #43 Oak St.	15	12	80.0%	10	66.7%	11	73.3%	12	80.0%
Prospect Street	From #92-96 Prospect to Webster Ave.	17	10	58.8%	10	58.8%	10	58.8%	8	47.1%
Prospect Street*	From City Line to #98 Prospect St.*	11	11	100.0%	11	100.0%	11	100.0%	11	100.0%
Tremont Street	Webster Ave. to City Line	29	24	82.8%	23	79.3%	23.5	81.0%	21	72.4%
Webster Avenue	City Line to Norfolk St.	21	12	57.1%	21	100.0%	16.5	78.6%	16	76.2%
Webster Avenue	Norfolk St. to Tremont St.	9	7	77.8%	8	88.9%	7.5	83.3%	8	88.9%
Webster Avenue	Tremont St. to Prospect St.	10	9	90.0%	7	70.0%	8	80.0%	5	50.0%
Public Street Sub-total		338	232	68.6%	233	68.9%	232.5	68.8%	230	68.0%

¹ Evening data was collected between 7 and 9 PM on Thursday May 2, 2013 and Friday May 3, 2013

² Weekend afternoon data was collected between 12 and 2 PM on Saturday May 4, 2013

³ Walking distance assumes a distance of ~1,200 feet and a walking speed of ~4 feet per sec

*Assumed 100% occupancy

Furthermore, there are a total of 99 on-street parking spaces located within a 2-minute walking distance of the proposed project (Table 2). Based on the data collected, approximately 30% of the parking supply located within a 2-minute walk of the proposed project is available on a weeknight or a weekend afternoon which equates to over 29 parking spaces.

Table 2 – Parking Utilization Data (Within a 2-Minute Walk³)

Description			# Parking Spaces Occupied (Full)							
Street	Limits	Total Number of On-street Parking Spaces	Thursday Evening ¹		Friday Evening ¹		Evening Average		Saturday Afternoon ²	
			Percent Occupied	Percent Occupied	Percent Occupied	Percent Occupied	Percent Occupied	Percent Occupied		
Oak Street	Bolton St. to Prospect St.	23	9	39.1%	9	39.1%	9	39.1%	11	47.8%
Prospect Street	From #92-96 Prospect to Webster Ave.	17	10	58.8%	10	58.8%	10	58.8%	8	47.1%
Prospect Street*	From City Line to #98 Prospect St.*	11	11	100.0%	11	100.0%	11	100.0%	11	100.0%
Tremont Street	Webster Ave. to City Line	29	24	82.8%	23	79.3%	23.5	81.0%	21	72.4%
Webster Avenue	Norfolk St. to Tremont St.	9	7	77.8%	8	88.9%	7.5	83.3%	8	88.9%
Webster Avenue	Tremont St. to Prospect St.	10	9	90.0%	7	70.0%	8	80.0%	5	50.0%
Public Street Sub-total		99	70	70.7%	68	68.7%	69	69.7%	64	64.6%

¹ Evening data was collected between 7 and 9 PM on Thursday May 2, 2013 and Friday May 3, 2013

² Weekend afternoon data was collected between 12 and 2 PM on Saturday May 4, 2013

³ Walking distance assumes a distance of ~450 feet and a walking speed of ~4 feet per sec

*Assumed 100% occupancy

Of the 99 parking spaces within a 2-minute walk, 57 are located on Prospect Street and Tremont Street. According to the data, at least 20% of those spaces are empty on a typical night or weekend afternoon which equates to approximately 11 parking spaces. Therefore, it is reasonable to suggest that the 100 empty parking spaces located within a 5 minute walk, the 29 empty parking spaces located within a 2 minute walk, or most importantly, the 11 empty parking spaces located on Prospect Street and Tremont Street can accommodate the net shortfall of five parking spaces (8 minus the 3 new on-street spaces).

Traffic Impact Assessment

The previous land use had been a storage and repair garage for Quest Diagnostics' fleet. The property had been issued a garage permit for approximately 94 vehicles. The vehicles were stored in the exterior lot as well as the interior of the building. According to members of Spartan Management and Quest Diagnostics, the facility was used to store vehicles overnight and to perform repairs. Trip generation for the previous non-residential use is estimated as follows:

- Drivers enter in their personal vehicles,
- Drivers exit in company vehicles,
- Drivers enter in company vehicles, and
- Drivers exit in their personal vehicles

Quest Diagnostics representatives estimated that a majority of the fleet was available for service on most days. In addition, they indicated that there were likely over thirty (30) drivers during the typical daytime shift. Therefore, assuming 4 trips per driver as described above, the Quest

Diagnostics facility generated approximately 120 daily vehicle trips. Based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual* for Land Use Code 230 (Residential Condominium), 11 units generate approximately 95 trips per day. This information suggests that the previous use generated a greater number of trips than the proposed use will generate, likely resulting in a net reduction in project related traffic on Prospect Street and Tremont Street.

Conclusion

This traffic memorandum has demonstrates that the proposed project will likely have a negligible impact on the surrounding neighborhood's public parking supply. The factors that support a parking variance for the proposed project include the thirteen (13) off-street parking spaces being provided, the creation of three additional on-street parking spaces, the proximity to existing and future public transportation, the mode choice data, the low vehicle ownership rates, the Union Square parking ratio comparison, the parking studies relative to TOD areas, and the surplus of on-street public parking.

This parking memorandum has also demonstrated that providing compact sized parking spaces does not increase the likelihood of any safety issues. Collectively, this information suggests that the surrounding neighborhood's transportation infrastructure in conjunction with the on-site parking is more than adequate to meet the demands of this project. In addition, the information provided suggests that the project will likely result in a net reduction in project related traffic over the previous use of the site.

Should you have any questions regarding this memorandum, please contact Mr. Todd Blake at (617) 686-6618.

Sincerely,

Ron Müller & Associates



Ronald Müller, P.E.

Principal