



Design Consultants, Inc.

Civil Engineering
Transportation/Traffic
Water/Wastewater
Geotechnical
Land Surveying
Environmental
Planning

MEMORANDUM

DCI JOB NO. 2015-129

TO: Robert Gregory
North East Harvest Select Corp.
23 Chester Street
Somerville, MA 02144

FROM: Wayne Keefner, P.E., PTOE
Design Consultants, Inc.

SUBJECT: **Trip Generation Memorandum**
378 Highland Avenue
Somerville, MA

DATE: November 14, 2019

Introduction

As requested by the client, North East Select Harvest (“Proponent”), Design Consultants, Inc. (DCI) has prepared this report to analyze the proposed trip generation for the project located at 378 Highland Avenue (“Project”) in Somerville. Currently, the building houses five retail spaces, with two currently operational. It is our understanding that the Proponent is proposing to convert the three non-operational retail spaces into one Adult-Use Marijuana Establishment (“Dispensary”). The basement of these spaces will also be part of the Dispensary and be used for storage and security. The property will be a regulated facility operating in compliance with the requirements and regulations of the Commonwealth of Massachusetts and the City of Somerville.

Project Description

Currently, the proposed Project site includes a 1-story building with three retail spaces. The retail spaces previously operated as an apparel store, bakery, and an office totaling 1,542 square feet of space. The three retail spaces will be combined and converted into a 1,542 square foot

Dispensary. The basement will be used as storage space that will only be used by the facility owner and employees of the Dispensary.

Existing Transportation Conditions

Roadways

Highland Avenue is classified as an Urban Minor Arterial under City of Somerville jurisdiction. Highland Avenue is a two-lane, two-way roadway east of Cutter Avenue and a two lane, one-way roadway west of Cutter Avenue. Highland Avenue is approximately 1.7 miles in length and spans from its intersection with College Avenue and Elm Street and its intersection with Medford Street in Somerville. Highland Avenue provides access to Davis Square, a stop on the MBTA Red Line, 0.2 miles from the Project site. There is a designated bicycle lane in the westbound direction between the Project site and Davis Square. There are sidewalks along both sides of Highland Avenue along its entire length which connect to Davis Square.

Cutter Avenue is classified as a Local Road under City of Somerville jurisdiction. Cutter Avenue is a one-lane, one-way roadway. Cutter Avenue is approximately 0.1 miles in length and spans from its intersection with Summer Street to Highland Avenue. There is a buffered, painted bicycle lane in the northbound direction. There are sidewalks along both sides of Cutter Avenue along its entire length.

Public Transportation

Subway (T) Stops

Davis Square Station, a stop on the MBTA Red Line, is located approximately 0.2 miles from the Project site. Davis Square Station allows passengers to access the MBTA Red Line or any one of eight bus routes that serve Somerville, Malden, Medford, Cambridge, and downtown Boston. The Red Line runs between Alewife Station in Cambridge and Braintree station in Braintree or Ashmont station in Boston. The Red Line provides service through Cambridge at Porter Square, Harvard Square, Central Square, Kendall Square, and into Downtown Boston. Inbound service to Ashmont/Braintree has train headways of 3 to 5 minutes during the Weekday AM peak period and 3 to 6 minutes during the Weekday PM peak period. Outbound service to Alewife has train headways of 1 to 8 minutes during the Weekday AM peak period and 2 to 7 minutes in the Weekday PM peak period.

As part of the Green Line Extension Project, a future MBTA Green Line stop will be constructed in the vicinity of Magoun Square, approximately 0.5 miles from the Project site. Pedestrian and bicycle access between the Magoun Square stop and the Project site is facilitated by the Somerville Community Path. Magoun Square Station will provide access to downtown Boston as well as Somerville and Medford, including a stop at Tufts University.

Bus Routes within Study Area:

The Massachusetts Bay Transportation Authority (MBTA) services the Project location with bus routes 87, 88, 89, 90, 94, and 96. Bus Route 87 and 96 serve the MBTA Elm Street at Cutter Avenue stop, which is approximately 600 feet from the Project site. Bus route 87 runs between Massachusetts Avenue at Broadway in Arlington and Lechmere Station, a stop on the MBTA Green Line in Cambridge. Bus route 96 runs between Medford Square in Medford and Harvard Station, a stop on the MBTA Red Line in Cambridge. Bus Routes 88, 89, and 90 serve the MBTA bus stop located on Highland Avenue at Cutter Avenue, which is directly in front of the Project site. Bus route 88 runs between the Clarendon Hill Busway in Somerville and Lechmere Station. Bus route 89 runs between the Clarendon Hill Busway and Sullivan Square, a stop on the MBTA Orange Line in Charlestown. Bus route 90 runs between Davis Square in Somerville and Grand Union Boulevard at Canal Street in Somerville, with a stop at Sullivan Square. Bus Route 94 serves the MBTA Grove Street at Highland Avenue stop, which is approximately 500 feet from the Project site. Bus route 94 runs between Davis Square and Medford Square. Detailed schedules and maps are attached in the Appendix.

Pedestrian/Bicycle Facilities and Connectivity

Pedestrian connectivity in the vicinity of the Project is facilitated by existing sidewalks, crosswalks, and ADA ramps. There are sidewalks present on both sides of Highland Avenue and Cutter Avenue. At the signalized intersection of Highland Avenue at Cutter Avenue, pedestrian signals are provided at each crosswalk. At the intersection of Highland Avenue at Grove Street, curb bump outs shorten the crossing distance across Highland Avenue.

Within the study area, there are dedicated bike lanes along Cutter Avenue and Highland Avenue west of Cutter Avenue. Bicycle sharrows are painted on Highland Avenue east of Cutter Avenue. Access to the Somerville Community Path is located 300 feet north of the Project site at the end of Ellington Road where an ADA accessible ramp is provided. The Somerville Community Path provides bicycle and pedestrian access between Lowell Street in Somerville and Massachusetts Avenue in Cambridge, where it becomes the Alewife Linear Park, and is approximately 1.3 miles in length. Alewife Linear Park connects to the Minuteman Commuter Bikeway, which provides access to the towns of Arlington, Lexington, and Bedford. A BlueBikes Station with up to 25 bicycles is located in Davis Square, approximately 0.25 miles northwest of the Project, adjacent to the Davis MBTA station. BlueBikes is a public bike share with station facilities in Boston, Brookline, Cambridge and Somerville. Covered bicycle parking is provided at the Davis Square Station T stop. As part of the proposed Project, the Proponent will be providing bicycle racks on-site for any customer or employee who wishes to get to/from the site via bicycle.

Project Trip Generation

Estimated Facility Operations

It is anticipated that the proposed Dispensary will operate every day during the following hours:

- 10:00am to 8:00pm Monday to Thursday
- 10:00am to 10:00pm Friday and Saturday
- 12:00pm to 5:00pm Sunday

Given the likelihood of other adult-use facilities opening in the surrounding cities, towns, and neighborhoods, the focus is on meeting the needs of customers mostly within Somerville and a few surrounding neighborhoods. The service area will be largely dependent on the evolving competition in the area as other adult-use facilities are established.

Customers

Customer visits are expected to occur throughout the day with peak hours typically in the afternoon and on the weekends. Given that the facility will not be open until after the Weekday AM peak hour (7am to 9am), it is assumed that there will be zero (0) trips to the facility made by customers.

Initially, the facility will be set up as appointment-only for customers. Based on discussions with the Proponent, these appointments will be spaced 15 minutes apart, and will account for check-in, wait, sale, and exit. With a total of five (5) point of sale stations available, the facility will be able to accommodate a maximum of 20 customers per hour.

It is assumed that the Weekday PM peak hour trips will be made mostly by individuals who are on their way home from work. Many of these individuals will be from the surrounding communities. The anticipated client base is expected to become smaller with the opening of more facilities throughout Somerville. In a previous study for an adult-use facility in Somerville, DCI reviewed the Census Data for multiple cities and towns surrounding the site and determined that approximately 50% of trips will be made via a non-vehicular mode to commute. It is expected that the customers of the Dispensary will commute in a similar way. However, as more facilities open in the area, the majority of the client base should consist of residents local to the Davis Square neighborhood. Local residents will be able to make trips via non-vehicular modes. Therefore it was assumed that 75% of trips will be made via non-vehicular modes. This would result in an estimate of approximately 5 customers making trips via motor vehicle and 15 customers making trips via non-vehicular modes each hour. With each customer making an entering and exiting trip, this would result in 10 vehicle-trips during the Weekday PM peak hour.

Employees

The Proponent anticipates having a maximum of 14 (1 manager, 2 Assistant Managers, 7 Full Time, 4 Part Time) employees. Home locations for these individuals will depend on a variety of different factors, though the Proponent will attempt to hire a majority of the employees from within Somerville. The Proponent will be providing public transportation subsidies to employees and will highly encourage the use of non-vehicular modes of transportation to work. The Proponent has committed to put an emphasis on hiring local residents from the surrounding community. With a majority of the employees living within Somerville or within walking/biking distance, it is expected that many of them will use non-vehicular modes of transportation to commute to work. Additionally, all shifts are expected to begin and end outside of the peak commuting hours. Consequently, even if an employee wishes to drive a motor vehicle to the site, they will be doing so outside of the peak hours. This will eliminate vehicle-trips to the site by employees during the peak hours.

Service/Delivery Patterns

The proposed Dispensary will generate a variety of delivery trips, as described below:

- Product – All product will be grown at an off-site facility and delivered to the facility (via an unbranded passenger automobile) three to four times per week. Delivery routes used for the transportation of marijuana products will be randomized within the Commonwealth.
- Trash – The Dispensary will have private trash pick-up and is expected to be serviced once per week. Trash will be stored inside the building and wheeled in bins to the curb on collection days.
- Cash – Cash will be picked up two to three times per week. The timing of both the product deliveries and the cash pick-ups will vary each day to reduce predictability for security reasons.

In total, the number of service/delivery trips are expected to be minimal and will be scheduled to occur during off-peak periods. It is estimated that there will be one (1) total daily service/delivery trips. Deliveries to the Dispensary will be scheduled to ensure there is no disruption of the delivery schedule by the two existing food establishments in the building.

Based on the customer, employee, and service/delivery trips described in the previous section, the Dispensary is expected to generate zero (0) vehicle-trips during the Weekday AM peak hour, 16 vehicle-trips during the Weekday PM peak hour, and approximately 160 vehicle-trips on an average weekday. Table 1 shows the calculations based on these expected travel patterns.

Table 1: Adjusted Vehicle-Trip Generation Calculations per Employee, Customer, and Delivery/Service Travel Patterns

Time Period/ Direction		Project Vehicle-Trips - Marijuana Retailer ¹			
		Customers	Employees	Service/ Delivery	Total
Weekday AM Peak Hour	In	0	0	0	0
	Out	0	0	0	0
	Total	0	0	0	0
Weekday PM Peak Hour	In	5	0	0	5
	Out	5	0	0	5
	Total	10	0	0	10
Weekday Daily	In	50	0	1	51
	Out	50	0	1	51
	Total	100	0	2	102

¹ Based on customer, employee, and service/delivery information

Institute of Transportation Engineers (ITE) Estimates

For comparison, trip estimates were calculated using the *Trip Generation Manual (10th Edition)*, published by the Institute of Transportation Engineers (ITE) in 2017. The *Trip Generation Manual* includes a land use for a marijuana dispensary (LUC 882). The proposed facility will occupy approximately 1,542 square feet of space. Given that the proposed facility will not be open until after the Weekday AM peak hour and employee shifts will not start during the peak hours, it is assumed that there will be zero (0) trips made during the Weekday AM peak hour.

Based on the ITE trip generation rates, it is expected that the Dispensary will generate 60 trips during the Weekday PM peak hour and 602 trips on an average weekday. Using the same non-vehicular mode split as previously described, this would equate to 16 vehicle-trips during the Weekday PM peak hour and 162 vehicle-trips on an average weekday. This equates to approximately one (1) trip every four (4) minutes during the Weekday PM peak hour. Table 2 shows the calculations based on the ITE *Trip Generation Manual*.

Table 2: Vehicle-Trip Generation Calculations per ITE *Trip Generation Manual*, 10th Edition

Land Use Code: 882	Marijuana Dispensary		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily
Size (per 1,000 Square Feet)	1.542	1.542	1.542
Average Trip Rate	0.00	21.83	252.70
Total Vehicle-Trips	0	34	390
Adjusted Vehicle-Trips (No Employee Vehicle Trips)	0	34	390
Adjusted Vehicle-Trips (75% Non-Vehicular Trips)	0	8	98
Entering %	56%	50%	50%
Exiting %	44%	50%	50%
Entering Vehicle-Trips	0	4	49
Exiting Vehicle-Trips	0	4	49

As compared to Table 1, the ITE *Trip Generation Manual* estimate results in approximately the same number of vehicle-trips during both the Weekday PM peak hour and full weekday.

Parking Availability

As part of this Project, there will be parking provided on-site within a parking lot directly adjacent to the building. This parking lot will be able to accommodate between 8 and 10 vehicles, and will be used for customers only. Based on the trip generation calculations, it is believed that approximately one (1) of the five (5) appointments every 15 minutes will arrive by motor vehicle, which can be accommodated by the on-site parking. In the event that all appointments in a given time period arrive via motor vehicle, the on-site parking lot will be able to accommodate the five (5) vehicles, as well as any overlap between appointment periods.

Additionally, the Proponent has an agreement with the building across the street at 373 Highland Avenue to rent parking spaces for employees. Any employee who wishes to drive to the site will be parking off-site at 373 Highland Avenue as to not take up any of the on-site parking spaces.

Transportation Demand Management (TDM)

Given the sites proximity to the Davis Square Red Line, MBTA bus lines, and bicycle and pedestrian infrastructure, it is expected that a majority of these trips will be made using non-vehicular transportation to access the site. It is also expected that other adult-use facilities will be opening in surrounding cities and towns, and the majority of the visitors to the site are expected to be from within walking distance. Furthermore, with the addition of Transportation Demand Management (TDM) measures the number of vehicle-trips is expected to be reduced even further.

In order to limit the number of vehicle-trips that the site is expected to generate, the Proponent will promote transit accessibility, walk-ability, and bike-ability to both customers and staff. With the Red Line service that is available in Davis Square, as well as the multiple bus routes and bicycle access, emphasis will be placed on using these alternative modes of transportation instead of driving to the site. Specific mitigation measures that the Proponent intends to implement are:

- Employees –
 - Ensure employees will not park on adjacent streets;
 - Encourage employees to use ridesharing services for the connection between the Project site, MBTA stops, and other transit/parking destinations;
 - Provide subsidized transit passes;
 - Offer a guaranteed ride home to employees who choose not to drive to work;
 - Make an effort to hire employees local to the Somerville and Davis Square area

- Website –
 - Provide information detailing travel options to the site, including MBTA service and bike-sharing options.
 - Directions to the facility and information on parking at the site.
 - Provide information regarding location of bicycle-sharing facilities and bicycle parking availability on-site

Conclusion

The Project site at 378 Highland Avenue is currently occupied by three retail spaces that total 1,542 square feet of space. The Proponent is proposing to redevelop the three retail spaces into an Adult-Use Marijuana Establishment.

Using anticipated customer, employee, and service/delivery trip patterns, the facility is expected to generate **zero (0) vehicle-trips** during the Weekday AM Peak Hour, **10 vehicle-trips** during the Weekday PM Peak Hour, and **102 vehicle-trips** during an average weekday. Using the average trip generation rates from the *ITE Trip Generation Manual, 10th Edition*, and adjusting for trips being made by non-vehicular modes, the site is expected to generate 0 vehicle-trips during the Weekday AM Peak Hour, 8 vehicle-trips during the Weekday PM Peak Hour, and 98 vehicle-trips during an average weekday. These calculations support the calculations made with the estimated customer, employee, and service/delivery trips. Additionally, the Proponent is also committed to implementing Transportation Demand Management (TDM) measures to encourage both customers and staff to use alternative modes of transportation to get to and from the site, thus minimizing the number of vehicle-trips to the site and the traffic impact on the surrounding roadways.

DCI anticipates that the information in this memorandum provides sufficient data to address all requirements set forth by the City of Somerville.

APPENDIX

PUBLIC TRANSPORTATION TRIP GENERATION

PUBLIC TRANSPORTATION

TRIP GENERATION
