Technical Memorandum

date September 18 2019
to Noah Eisendrath
from Andrew McClurg, AICP, CTP
project name 65 Mechanic Street, Tisbury MA
subject Traffic impacts and parking needs

An Adult Use Marijuana Dispensary is proposed at 65 Mechanic Street in Tisbury. The existing 4,900-square-foot building, which is currently occupied by two auto repair shops, will be expanded by 600 square feet. The proposed dispensary, including back office and vault, will occupy 1,200 square feet; the remaining 4,300 square feet will be used for cultivation, processing, a commercial kitchen, and office/administration.

I have been retained as a traffic and parking consultant for the project. I am a transportation planner with over 30 years' experience with traffic impact studies – both reviewing them, in my former capacity (1985–1995) as director of development review for the Boston Transportation Department and, more recently, preparing them for developers. I am a member of the American Institute of Certified Planners, and have the added credential of Certified Transportation Planner from the American Planning Association, awarded on the basis of an exam testing mastery of all aspects of transportation planning.

Existing Conditions
The traffic impact of the project, in terms of new vehicle-trips per hour, is measured against existing conditions on State Road. The Martha's Vineyard Commission does not have recent counts along State Road, but did provide automatic traffic recorder counts taken in 2010. These indicate that two-way traffic volumes in the segment between High Point Lane and Pine Tree Road (which includes the Mechanic Street intersection) were approximately 1,100 in the PM peak hour during the late-August high season.

Traffic Impacts of the Project
Site Trip Generation. Estimation of project traffic impacts begins with trip generation: the measure of the number of new trips that will be added to the roadway network as a result of activity on the project site. The established guide for estimating the amount of vehicular traffic generated by a given land use is the Institute of Transportation Engineers' (ITE) Trip Generation manual. The manual's recently released 10th edition includes, for the first time, a land use category (#882) for marijuana dispensaries.

ITE trip generation rates are given in terms of vehicle-trips generated per square foot, on a daily or peak-hour basis. For the weekday, the manual
gives AM and PM peak-hour rates, in terms of trips per thousand gross square feet (kgsf), during
- the peak hours within the 7:00-9:00 and 4:00-6:00 periods (adjacent traffic) and
- the busiest AM and PM hours of the generator itself. For Land Use Code #882, the peak hours of the generator are 11:45AM-12:45PM and 5:45-6:45PM, reflecting activities at the sites studied in Oregon and Colorado.

At the outset it should be noted that the trip-generating characteristics of marijuana dispensaries have not yet been well studied in Massachusetts, and that the actual traffic impacts of the Tisbury dispensary will reflect the unique conditions of Martha’s Vineyard. In particular, the market for the dispensary’s products ends at the water’s edge. Whereas on the mainland it is possible for a dispensary to generate traffic from a wide area, on Martha’s Vineyard there is a limit to the number of customers. Also, the proposed dispensary is less than a mile from the center of Vineyard Haven – within walking, and especially bicycling, distance. Finally, it is not proposed that the dispensary be open during the 7:00 AM hour, and so, contrary to the ITE manual, it is unlikely to generate any traffic then. Regardless, in order to present a conservative (worst-case) analysis, it is assumed here that the dispensary will generate trips at the same rates as are given in the ITE manual.

To properly estimate the impact of the proposed dispensary on traffic volumes, the trips it will generate should be compared against those generated by the site’s previous, discontinued uses. The proposed dispensary will replace the two auto-repair shops which occupy the existing 4,900-square-foot building.

Table 1 shows the ITE trip generation rates for a marijuana dispensary and an auto-repair shop.

<table>
<thead>
<tr>
<th>Marijuana Dispensary</th>
<th>AM Peak</th>
<th>AM In</th>
<th>AM Out</th>
<th>PM Peak</th>
<th>PM In</th>
<th>PM Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>peak hour of Generator</td>
<td>20.88</td>
<td>52%</td>
<td>48%</td>
<td>29.93</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>peak hour of Adjacent</td>
<td>10.44</td>
<td>56%</td>
<td>44%</td>
<td>21.83</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Auto-Repair Shop</th>
<th>AM Peak</th>
<th>AM In</th>
<th>AM Out</th>
<th>PM Peak</th>
<th>PM In</th>
<th>PM Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>peak hour of Generator</td>
<td>2.83</td>
<td>56%</td>
<td>44%</td>
<td>3.51</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>peak hour of Adjacent</td>
<td>2.25</td>
<td>50%</td>
<td>50%</td>
<td>3.11</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Table 1. ITE Vehicle Trip Generation Rates in trips/kgsf

The total numbers of trips generated by the site are also a function of the degree to which the land use attracts unique trips (trips made for the sole purpose of visiting the site) versus pass-by trips (trips that were already on
the road for another purpose). For purposes of this analysis, it was assumed that all trips generated by the existing auto-repair shops are unique, and that 25% of the marijuana dispensary trips are pass-by.\footnote{25% is the assumed pass-by percentage used in a recent traffic study for a proposed marijuana dispensary in Lowell, MA. The authors correctly note that the ITE Trip Generation Handbook’s pass-by percentage for a pharmacy is given as 49% for the PM peak hour, and so that 25% is a conservative estimate. In terms of the likelihood that trips to the site will be pass-by, a marijuana dispensary may be more comparable with a supply store. The most relevant comparison provided by the Handbook would be with a hardware/paint store, for which a pass-by percentage of 26% is given.}

Table 2 shows total trips generated by the existing auto-repair shops; the future marijuana dispensary; and the difference, which indicates the net projected change in traffic volume onto State Road generated by the marijuana dispensary. Table 2 thus shows the project’s calculated net trip generation during the weekday AM and PM peak hours, taking into account the ‘removal’ of the trips generated by the current use of the site.

<table>
<thead>
<tr>
<th>Auto-Repair Shop</th>
<th>4,900 sf</th>
<th>WEEKDAY</th>
<th>Generator AM Peak</th>
<th>Generator AM In</th>
<th>Generator AM Out</th>
<th>Generator PM Peak</th>
<th>Generator PM In</th>
<th>Generator PM Out</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>peak hour of</td>
<td>14</td>
<td>8</td>
<td>6</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjacent</td>
<td>11</td>
<td>6</td>
<td>6</td>
<td>15</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Dispensary</td>
<td>1,200 sf</td>
<td>WEEKDAY</td>
<td>Generator AM Peak</td>
<td>19</td>
<td>10</td>
<td>9</td>
<td>27</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjacent</td>
<td>9</td>
<td>5</td>
<td>4</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Net (B-A)</td>
<td></td>
<td>WEEKDAY</td>
<td>Generator AM Peak</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjacent</td>
<td>-2</td>
<td>0</td>
<td>-1</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 2. Trip Generation of Existing and Proposed Land Uses

The other proposed uses on the site, although they do not involve retail activity, will generate a modicum of traffic. The rest of the building will be staffed by 12 people at any given time, with two shifts per day. These employees will come and go occasionally.

The traffic impact of the project will thus be negligible in comparison with State Road’s existing volumes of approximately 1,100 in the high-season PM peak-hour.
Parking
The dispensary and its associated uses will occupy 65 Mechanic Row. As shown in Figure 1, it will have 30 parking spaces.

Figure 1. Site Plan and Parking Layout

Customer Parking Need: The number of customer spaces needed can be estimated on the basis of the trip generation projections described above.
In the peak hour of the dispensary’s weekday operations, it will generate 18 customer visits (including pass-by trips, which are not reflected in Table 2). The proponents expect that the average customer will spend 15-20 minutes on site. Assuming, conservatively, that each customer visit will last 20 minutes and that parking spaces turn over accordingly, peak customer parking demand is projected to average 6 spaces.

The actual occupancy at any one time will vary around that average (mean). The variation around the mean will determine how frequently there is an occurrence of parking demand being particularly high or low. Variation will depend on the arrival of customers. Within a given hour, arrival times will be random, meaning that they will follow a normal distribution, otherwise known as the bell curve, as shown below.

![Figure 2. Normal Distribution](image)

The bell curve is the best way of predicting events that vary randomly around a mean. With a mean of 6 customer parking spaces needed, the curve’s X axis equates to the range between 0 arrivals per hour and 12. The accumulation of customer parking would thus be less than 12 (just over three standard deviations from the mean) 99.9% of the time, and less than 10 spaces 99% of the time.

**Employee Parking Need**: The dispensary will have 7 people on staff at any given time. The rest of the building will be staffed by 12 people at any given time, with two shifts per day. If each employee drove his or her own car to work, 19 spaces would be needed.

**Total Parking Need**: Even if every employee commuted in a separate vehicle, coinciding with the 99th percentile customer visitation event, the total demand would be 29 parking spaces. It can thus be projected that the site’s 30 parking spaces will accommodate its total maximum parking demand, including customers and employees at all uses on the site.
Conclusions
1. The traffic impacts of the project will be negligible.

2. Parking supply is adequate.

3. To further ensure that no parking problems occur, particularly during the early months of the dispensary’s operations, the proponent has the ability to manage parking demand by both customers and employees. The measures the proponent is willing to employ as needed include:
   • providing bicycle parking
   • limiting employee parking
   • incentives for employees and customers using bicycles and public transportation
   • employee carpool incentives
   • scheduling shift changes at off-peak customer hours