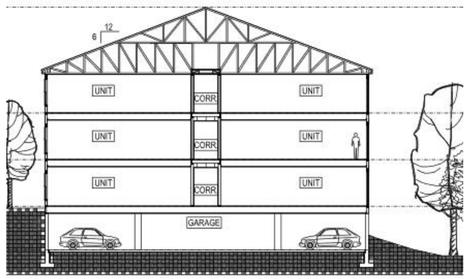
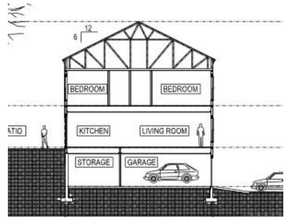
contour lines graphed at 2' vertical offset

Methodology:
These images are taken from the developer's application. The top image is a plan showing where section 1 is taken. The middle image is section 1 showing buildings on a slope. The lower image is a plan showing the topo lines (contours) which are at 2' vertical intervals.

On the plan, the contours have been graphed with vertical lines from each contour, going to the green box, which shows the true slope of the site. That slope has been placed as a yellow wedge in the section drawing, to contrast it with the slope shown in the section. I contend that the developer's section shows a site that is significantly flatter than what exists. Retaining walls are not shown to indicate that the site will be filled.



Buildings 1-5 (height varies, but foundation is similar)



Buildings 10-13

Calculations based on the following assumptions.
There are 4 building types, with a total of 11 buildings. I did the following:
- took the square footage footprint of each building type and multiplied by the quantity of buildings of that type
-added the total square footage of all building types
-multiplied that by 6. On the site plan most buildings are on a slope that is 12' from the high side edge to the low side. If we assume that the low side is a grade level (and not elevated), then we have a triangle where the low side is at zero and the high side at 12'. The average depth (midway point) of that triangle is 6'. Based on this assumption, an average of 6' depth of earth times the building footprint would have to be removed for each building to create a level platform for parking.

-I divided the total by 27, which coverts cubic feet to cubic yards
-I divided that total by 14, which is the number of yards of earth that fit into an 18 wheel dump truck
-I multiplied that by 2, because each truck that hauls dirt out has to return empty, and we are counting total trips to and from the site.

	A	B	C	D
1	building type	footprint (sq')	qty	total footprint
2				
3	1	5940	5	29,700
4	2	15330	3	45,990
5	3	18615	2	37,230
6	4	2184	1	2,184
7	total			115,104
8	x 6' average excavation depth			690,624
9	divided by 27 for cubic yards			25,579
10	divded by 14 for each dump truck load			1,827
11	x 2 for return trip empty truck			3,654

Also note that this calculation did not include excavation and earth removal for road beds. If the typical road is at least 15-20' wide, it would span about 6-8' in slope, of which half would need to be removed to create a level road bed (it could be cut and fill, but then the filled side would have to be retained). Assuming a minimum of 2500 linear feet of road, times 15' wide, creates 37500 sq' road, x3' depth avg excavation, equals 112,500 cubic ', or 4166 cubic yards, divided by 14 (dump truck) equals another 297 truck loads, times 2 (return trip) equals 595 truck loads.

Note, I did not include any excavation for parking areas (considerable) or subsurface water retention, or sewage plant.

I estimate 3654 trips for the buildings, 595 for the roads, and at least another 200 for parking, etc, for a total of approximately 4500-5000 truck loads. This does not include concrete trucks and all the other building material deliveries.

At the ZBA meeting of 3/21 focusing on traffic impacts of the Sudbury Station application, many specific issues and concerns were raised which I will summarize below. In addition, there were serious process issues raised that call into question whether this application can be vetted effectively.

At both this meeting, and a prior conservation commission meeting I attended, board members had received information from the developer without sufficient time to review it. At conservation, the commissioners had forty-eight hours to review an entire set of complex drawings. It was apparent at that meeting that most commissioners were not prepared to ask detailed, specific questions regarding a proposal that they were largely unfamiliar with. At the ZBA, the peer reviewer prepared his report *before* the commissioners had provided any feedback on the developer's traffic impact study. Thus, most of the specific questions raised in the hearing had not been addressed by the peer reviewer or the developer. I understand that this hearing is not the end of the process. However, it was the only public meeting scheduled to specifically address traffic concerns, and while many concerns were raised, few were addressed other than to state that further study was needed.

It was pointed out by a board member that all of the aspects of this project under review are interrelated. The questions will become more complicated as the process moves forward. Members of the public asked how they could analyze information that they did not have timely access to, and the board responded that they faced the same challenge. This suggests that there is not adequate staffing and resources in place to ensure complete and thorough review of all aspects of a development that will have widespread and permanent impacts to the town.

At the first public meeting regarding this application, I asked whether the town was equipped to handle two complex 40B applications simultaneously. I was informed that staffing was adequate, but if not, additional resources would be put into place. I suggest that the time to do this is now. I was shocked to discover that a letter that I had submitted to the planning board months ago that raised specific concerns about the developer's traffic study had just been shared with the peer reviewer yesterday, after his initial analysis had been completed.

The town is only faced with this development because of the negligent actions of town government who misrepresented the facts to town meeting. This is essentially disenfranchisement of the citizenry, who must rely on town government for accurate and timely information. This disenfranchisement is exacerbated by the slow and incomplete release of information regarding this application.

I suggest the following:

1) A formal calendar of submissions should be created and submitted to the developer that allows time for the board and public to review relevant information in a timely manner. This calendar should be posted on the website, with all relevant submissions linked to the calendar.
2) Minutes of all board meetings be posted within forty-eight hours of the meeting.
3) Staffing is increased to ensure that the project is understood in its entirety, and that questions are submitted to the developer according to a schedule that ensures that board members and the public have timely access to the necessary information to allow for proper analysis.

I understand that everyone in town government works hard and that board members are volunteers. That is exactly why I'm suggesting that in order to properly serve the citizens, staffing needs to be increased to meet this unusual set of conditions.

The following specific traffic and safety issues were raised that need further study and responses:

1) The developer's assumptions about the percent of SS residents that will use the Hudson Road access rather than Peter's Way was not based on scientific analysis but rather the naïve belief that people will choose the access that is closest to them, rather than one that avoids traffic. The following actual data needs to be provided:
    a. A timed study of the alternate routes (route 1, Hudson Rd, route 2, Candy Hill Rd) to determine which is the fastest Eastbound route at 7:15, 7:45, 8:15, 8:45 AM and the Westbound route at 4:45, 5:15, 5:45, 6:16 PM on a number of weekdays.
    b. The number of light cycles that a vehicle leaving from both access points would encounter to get through the center at those specific times.
    c. The number of cars that make it through the light in every direction at those times.
2) Photographic visualization diagrams of sight lines at two intersections:
    a. The crosswalk at Peakham and Hudson roads, specifically regarding vehicles making right turns North on Peakham. The site lines of a vehicle heading West at sunset on Hudson road approach the SS entrance. (perform study on a sunny day).
    b. The site lines of a vehicle exiting Peter's Way heading North on Concord Road during morning and evening rush hour, when traffic is stacked in front of Peter's Way. Page 11 of the MDM report *show site lines based on no cars on the road, a condition that will never exist during rush hour*. If one insert cars into the diagram, the site line is reduced to practically zero (see attached diagram). A driver at this intersection will have to insert their vehicle perpendicular to the standing traffic and far into the road to see past the southbound vehicles. Similarly, the ability of a vehicle heading North on Concord Rd to see a vehicle entering Peter's Way through traffic should be studied.

Figure 1: The yellow line is the traffic study site line assuming no cars. I have added the black cars to indicate real world conditions. The red line is the actual site line

3) Statistical documentation of the developer's assertion that optimizing the light timing at Hudson and Concord Road would improve performance of the intersection. Common sense indicates that given a stack of cars in each direction, the light timing simply moves the problem from one road to another.

4) Data showing the worst case, not just the *average* case, of wait times. As the saying goes, the *average* of an ice bath and a boiling water bath is a nice warm bath.
5) Traffic and safety during the construction process: This is a substantial health and safety issue that was not addressed in any way in the studies. The site is on a steep hill, a large part of which will be removed to create a level area for buildings, roads, and parking.

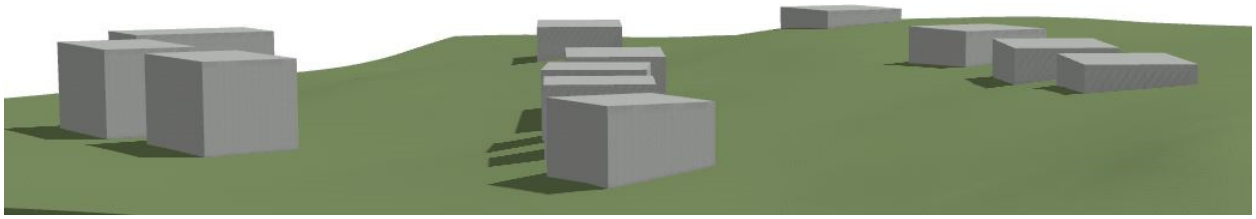


Figure 1: 3D computer model showing accurate slope based on GIS data and approximate location of buildings

Since the developer has not provided any grading or section information, I have made rough calculations based on the plans and sections submitted. According to GIS maps, the top of the building area where the clubhouse is located is approx. elev. 250'. Drawing a line parallel to Hudson Rd. towards the RR track is a distance of approx. 700' and descends to approx. 185' at the trackbed, for a difference of 65' creating a slope of approx. 6 degrees. As the access road progresses uphill from Hudson road, the slope becomes steeper. The drawings indicate that most parking will be below grade, at least on the uphill side. Given an average building footprint of 13,000', and an average excavation per building of 5' (half underground), a total of 65,000 cubic feet per building, or 715,000 feet for 11 buildings, will have to be removed. This does not include additional excavation for footings and foundation walls. There is approx. 4500 linear feet of roadway at 20' wide (including sidewalks or shoulders), equaling 90,000 square feet x at least 3' deep to compensate for the slope and provide a level roadway, equaling 270,000 cubic ft. If we add the building and roadway area we have 985,000 cubic feet, or 36,481 cubic yards of material to be removed.

Note, I have not figured any removal of material for regrading of the site other than the area directly under buildings and roadways. Typically, projects on slopes are constructed with the cut and fill method, where material is removed from the high side and added to the low side. However, this assumes that either a) there is enough room to create a gradual slope on either side of the "plateau" (not possible on this narrow lot), or b) there are retaining structures on both the high and low sides (which are not indicated on the plans). Therefore, we must assume that this material is be removed from the site. (note, this does not include the considerable earth removal related to the stormwater detention basin). The largest overroad dump truck carries 14 yards of earth. If we divide 36,481/14, we have 2,605 truckloads of material removed from the site. Since each truck must make a return trip empty, we are facing a minimum of 5,211 dump truck trips during construction. This does not include the many trips incoming to the site to deliver gravel, concrete, and building materials. Some of these trucks will not be able to make the turn into the site as currently shown. When the Big Dig was underway, the "haul road" was built specifically to keep large trucks off of normally travelled roads to avoid creating traffic jams, accidents, and destroying the roadway and infrastructure. Clearly, this is not an option here.

The health and safety issues under review by the ZBA include issues related to construction. I strongly urge the board to request information from the developer regarding the earth removal issues raised herein, at this time, before any more peer review of incomplete traffic and safety data is undertaken. Since large trucks pose far more safety issues than cars, we must have a detailed understanding of the safety impact of thousands of trucks on our congested and narrow roads. Answers that do not include accurate topo sections based on stamped engineering drawings should be rejected. If the developer is unable to provide the necessary information at the proper level of detail, the process should be halted until such information can be provided.

Figure 2: Typical earth-moving equipment for a project of this scale

Respectfully submitted,

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