

Fwd: Docket 3673 - Solar Exposure Analysis for Proposed Alley Way at 455 Mass Ave

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From: Don Seltzer <timoneer@gmail.com>
Date: October 23, 2021 at 1:18:06 PM EDT
To: Rachel Zsembery <RZsembery@town.arlington.ma.us>, KLau@town.arlington.ma.us, Eugene Benson <EBenson@town.arlington.ma.us>, mtintocalis@town.arlington.ma.us,
Cc: Jenny Raitt <JRaitt@town.arlington.ma.us>
Subject: Docket 3673 - Solar Exposure Analysis for Proposed Alley Way at 455 Mass Ave

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To: Arlington Redevelopment Board

At the previous hearing for 455 Mass Ave I commented on the lack of sufficient sunlight exposure of the two landscaped strips proposed for this solar exposure analysis.

Don Seltzer

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 455 Mass Ave Solar Exposure Analysis.pdf

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Docket 3673 - Solar Exposure Analysis for Proposed Alley Way at 455 Mass Ave



The proposed alley way is a 77' long and 10' wide strip oriented to the southwest, 225° compass bearing. It will be surrounded on three sides by two story buildings estimated to be 30' high.

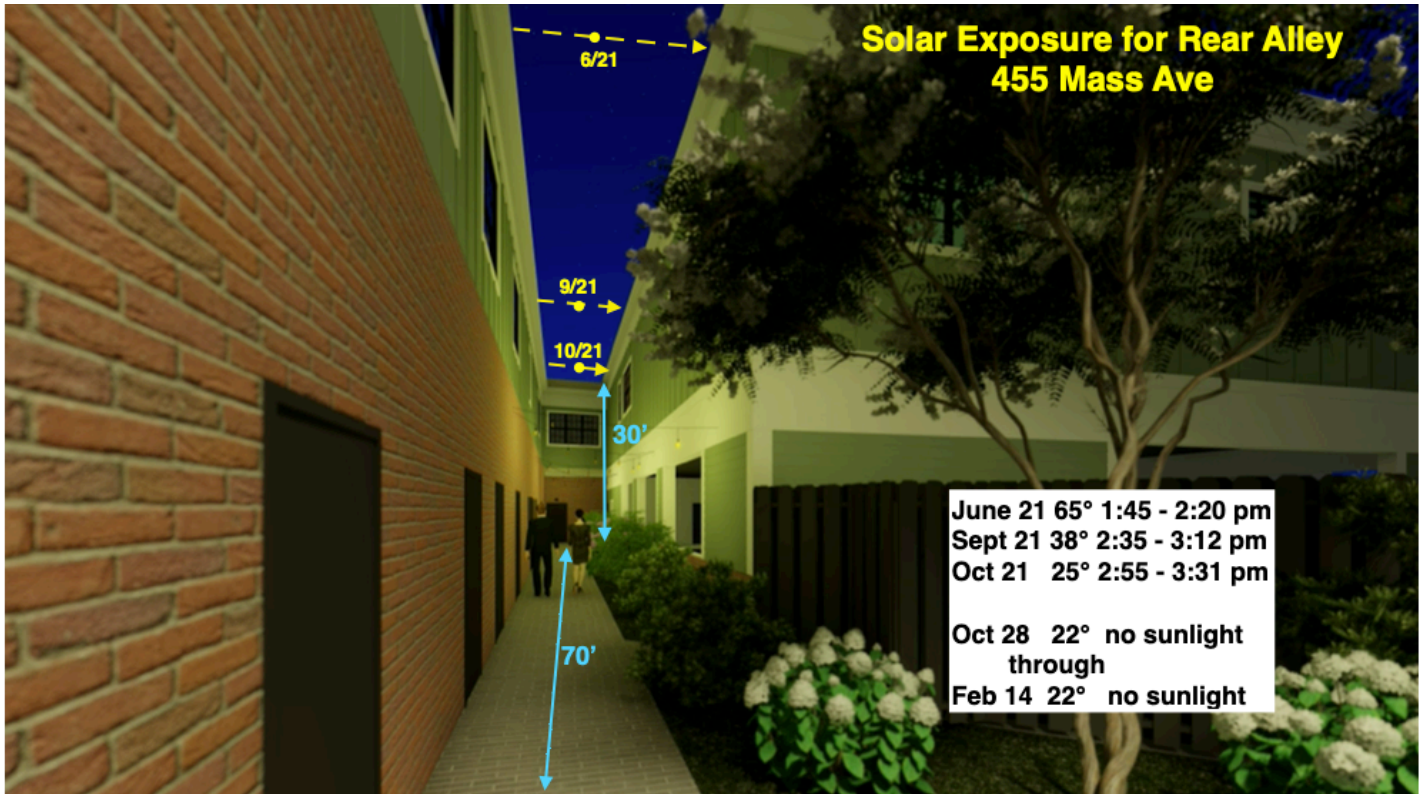
Half the width of this 10' alley will be walkway and half landscaping.



The current use is as an 18' wide parking and service/loading area for the retail businesses on the ground floor. Multiple dumpsters are also located in this area.

The narrow aperture of visible sky simplifies the analysis of solar exposure throughout the year. Near the 'head' of the alley, 70' from the 'foot', the visible horizontal aperture of the SW sky is about 8° . Vertically, only the portion of the sky above 23° is visible at this location.

Using solar ephemeris data, it is easy to determine those months of the year when the sun's altitude is greater than 23° above the horizon when in the SW. It is also possible to determine the length of time each day when its azimuth is in the narrow window of 221° - 229° .



For this particular alley way, the sun will pass above the roofs of the surrounding buildings for approximately 35 minutes each day, for about 8 months of the year. From late October until mid February, no sunlight will reach the head of the alley way.

Similar estimates can be made for other locations along the alley. At the midpoint, there will be a brief bit of afternoon sunlight each day for six months of the year, and complete shade for the other six months.

At the foot of the alley, closest to the building, the view of the sky in the first 14' begins at 65° above the horizon. The sun never reaches this altitude in the SW, and this portion of the alley will be in total shade throughout the year.

The proposed use of half the width of this alley as a landscaped area should be reevaluated. It is unlikely that the choice of plantings can survive on just 35 minutes of sunlight a day throughout the growing season.

It is also a challenge to maintain the other half of this alley as an accessible walkway during the winter. There does not seem to be a workable solution to clearing snow from this long narrow strip, other than to dump it onto the landscaped portion. The total lack of winter sunlight also means that the walkway will likely be dangerously icy for extended periods.

The second alley way on the other side of the garage has similar problems, but less severe because the building on the adjoining lot is neither as high, nor does it extend as far back.