

Project: Village Square – Village of Buchanan, NY  
Scope: Light and Shade Study by Season and Time of Day  
Date: November 3, 2023

Introduction:

The Planning Board requested a brief study of the effect of the proposed buildings on the light and shade on the adjoining property to the north of the site.

The enclosed images represent the 3-D model of the current conditions as compared to the conditions after development. This work was performed by preparing a 3-D model of the adjoining house and the proposed buildings.

To simulate the current condition, 3-D trees were placed on the site and the site plan was geo-located using google earth to match the latitude and longitude of the site. This is necessary to accurately compute the sun angle in this location.

Three months were chosen, January, June and September to give a range over the year. Two time periods were chose, 9:00 am and Noon. It was noticed that after 12 pm the sun shone from the west and there was no change in any case, therefore that case was not detailed.

Finally, we added a comparison to show that the 3-D model represents actual conditions.

Results:

In general, the current trees provide shade to the adjoining house in the early morning. By reviewing each of the images it appears that the proposed Village Square project would increase the amount of light under all circumstances studied. Further, there would be little effect on the shading of the adjoining house throughout the year.

The results can be compared as each page following represents the current condition juxtaposed to the proposed condition.

Submitted by:

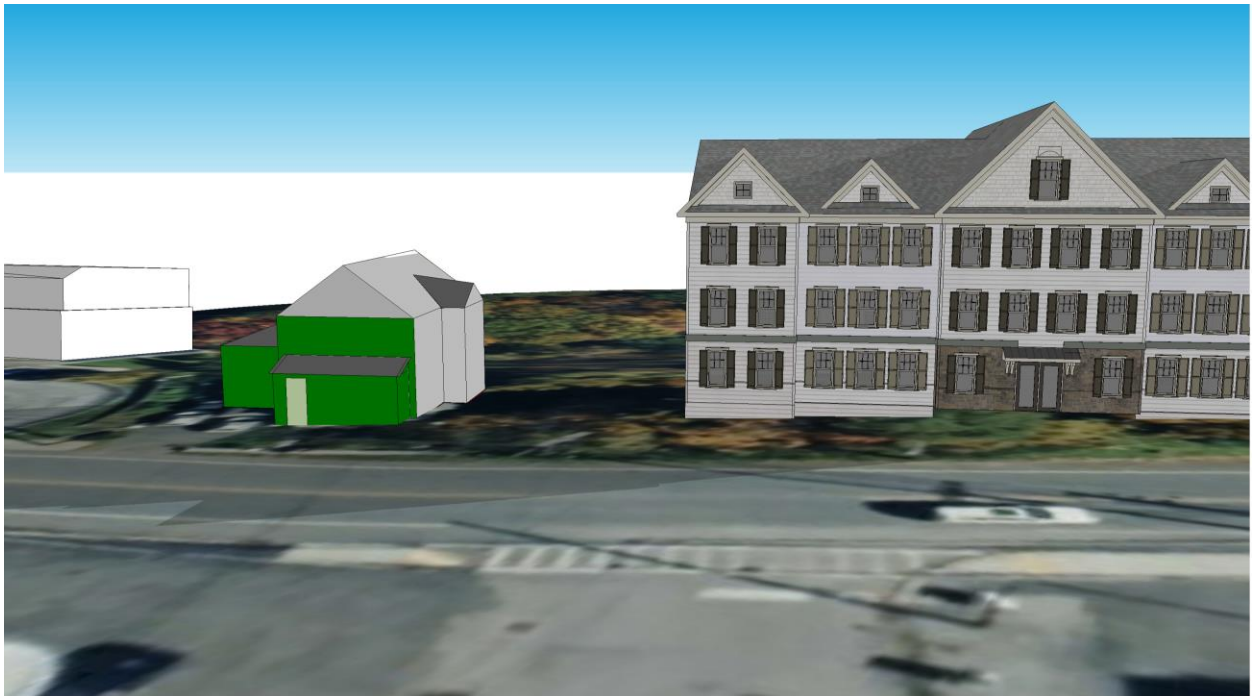


Ralph G. Mastromonaco, PE

January 9:00 am  
Existing



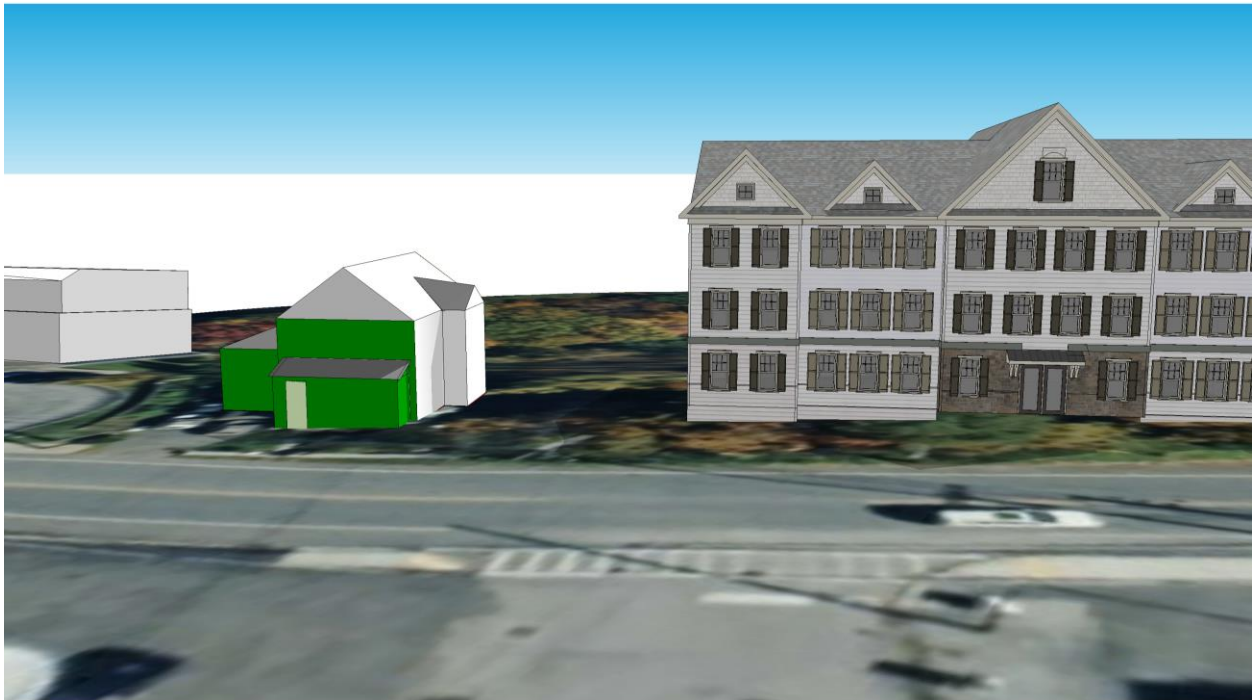
Future



June 9:00 am  
Existing



Future

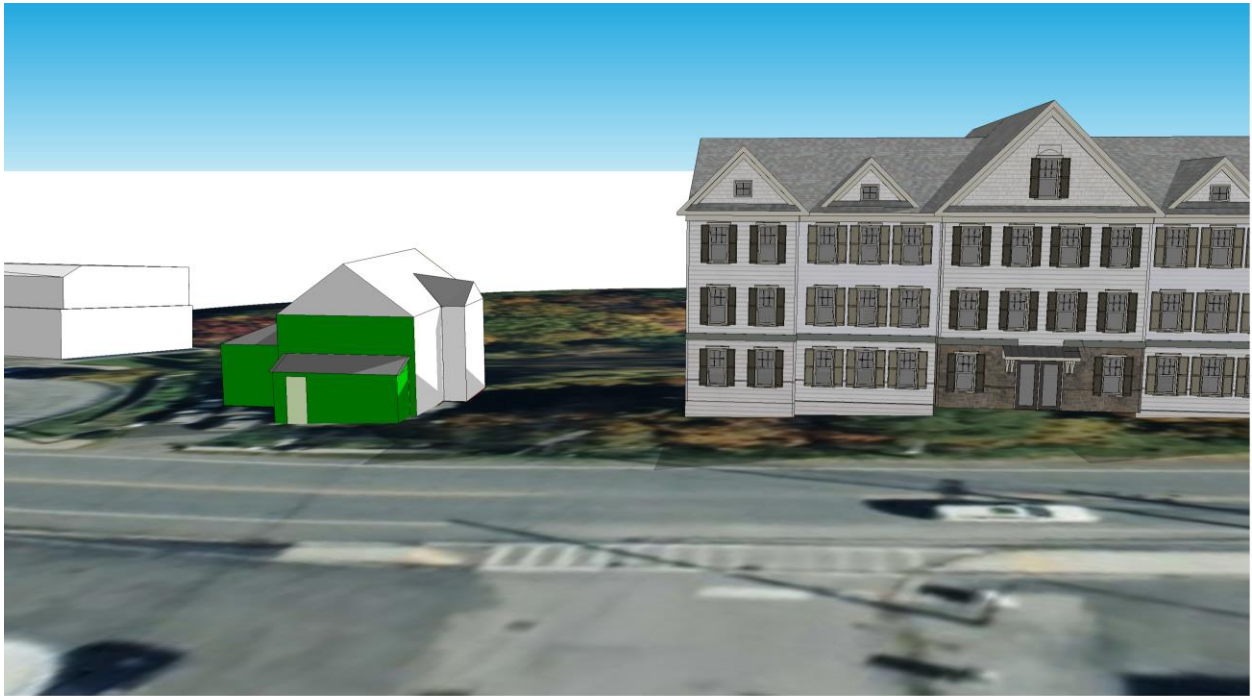




September 9:00 am  
Existing



Future



January Noon  
Existing



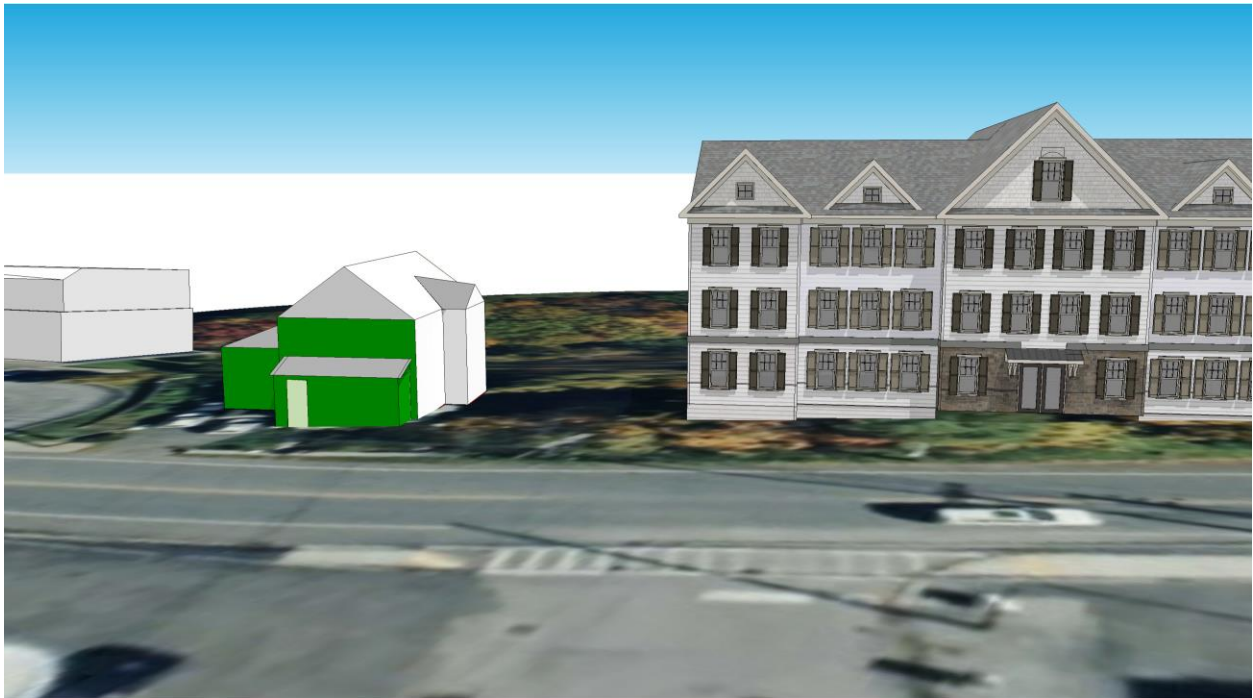
Future



June Noon  
Existing



Future





September Noon  
Existing



Future



Figure: Google Earth Street View and Calibration of 3D Model

Google Earth Street View – September Morning 2014



3-D Model for September 10:00 am



Note: This is presented to show that the 3-D model for the current condition is fairly accurate in representing the extent of shade as both shaded areas appear to be similar. This is particularly noticeable by the shadows on the front porch roof as well as the right side of the house.