



# OVAL COURT

BURLINGTON, ON

## SUN SHADOW STUDY

PROJECT #:2103321

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### SUBMITTED TO

**Thomas Kastelic**

Project Manager  
tkastelic@branthaven.com

**Branthaven Development**

720 Oval Court  
Burlington, ON L7L 6A9  
T : 905.333.8364 x 224

### SUBMITTED BY

**Rupak Banerjee, Ph.D.**

Project Coordinator  
[Rupak.Banerjee@rwdi.com](mailto:Rupak.Banerjee@rwdi.com)

**Matthew Riediger**

Project Coordinator  
[Matthew.Riediger@rwdi.com](mailto:Matthew.Riediger@rwdi.com)

**Ryan Danks, P.Eng.**

Senior Engineer / Associate  
[Ryan.Danks@rwdi.com](mailto:Ryan.Danks@rwdi.com)

**Dan Bacon**

Senior Project Manager / Principal  
[Dan.Bacon@rwdi.com](mailto:Dan.Bacon@rwdi.com)

### RWDI

600 Southgate Drive  
Guelph, ON N1G 4P6  
T: 519.823.1311

# INTRODUCTION



Rowan Williams Davies & Irwin Inc. (RWDI) was retained by Branthaven Development to conduct a Sun Shadow Study for the proposed Oval Court development in Burlington, Ontario (Image 1).

The objectives of this study were to illustrate the shadow patterns for the proposed development and determine the potential exposure to sunlight and shadow on and around the study site.

RWDI has conducted this analysis per the requirements of the city of Burlington's Shadow Study Guidelines and Terms of Reference.

This study involved the use of a three-dimensional (3D) computer model of the existing surroundings and the proposed development in place. The 3D model was used to produce renderings of the new shadows cast by the proposed development. The following report provides a discussion of the methodology and graphic results of the Sun/Shadow Study.



**Image 1** – Rendering of the Proposed Project – View from the Southwest. Study building shown in purple.

# SITE & BUILDING INFORMATION



The development consists of seven buildings located on this site, located at 5135 Fairview Street (see Image 2). The site of the proposed buildings is shown in blue. The latitude and longitude of the project site is  $43.379851^\circ$  and  $-79.758413^\circ$  respectively. The location was determined by a site plan provided by Branthaven Development and Google Earth. All Images are oriented with true north at the top of the page.

The height of the taller buildings in the proposed development are approximately 107 m. The site was previously occupied by several low-rise commercial buildings. The immediate surroundings consist of low-rise residential buildings to the south and east and low-rise commercial buildings to the north. (see Images 1 and 2).



**Image 2** – Aerial View of Existing Site and Surroundings  
(Courtesy of Google Earth)

# METHODOLOGY



The shadow plots illustrated in this report (found in Appendix A) were generated with the aid of RWDI's in-house proprietary *Eclipse* software. The software was configured to simulate the appropriate geographic characteristics and solar angles for this site.

Based on the site plan provided by Branthaven Developers (received by RWDI up to March 30, 2021), a three-dimensional computer model of the study site was created by RWDI.

The computer-generated renderings exhibit the simulated shadow conditions anticipated to occur in the vicinity of the study site. The tests conducted in this study assume bright sunlight from sunrise to sunset to properly identify shadow patterns created by the proposed structure.

The output of this study illustrates the *net-new shadowing* created by the proposed development (coloured purple on roof surfaces and blue on ground surfaces). That is to say, the shadowing created by the proposed development, less any shadows that occur due to the existing built environment (coloured in dark grey in the plots).

Per standard industry practice, shadowing due to trees has been purposely neglected as a conservatism.

The residential properties which were predicted to receive net new shadow were also screened for their Sun Access Factors (SAF) per City of Burlington requirements. These spaces are highlighted in blue in Image 3. The area highlighted in yellow is the boulevard space across Fairview Street from the proposed towers. The area highlighted in green is the park space in the vicinity.



**Image 3** – Aerial View of Existing Site and Surroundings (Courtesy of Google Earth)

# SUMMARY/CONCLUSIONS



Per the City of Burlington requirements, the new shadows cast by the proposed building were predicted for every hour between 9:00 am EDT and 6:00 pm EDT on March 21 and September 21, as well as for December 21 between 11:00 am EST and 3:00 pm EST and June 21 between 8:00 am EDT and 7:00 pm EDT.

Intermittent new shadowing from the proposed project is expected to fall across the properties to the north and east of the site. Shadowing does occur on the area south of Fairview St. during late afternoon and evening hours. New shadowing in these areas is predicted in the afternoon.

The Solar Access Factor (SAF) was calculated for all the private outdoor amenity spaces of neighboring residential properties that could be impacted by net new shadow cast by the proposed building. On-site spaces were also included but the wording of the Terms of Reference is not clear if these spaces should be included. Thus we have included them for informational purposes.

The simulations indicate that one of the studied private outdoor spaces fell below the required 0.22 SAF on March 21. The backyard of a single unit at 5110 Fairview Street received a 0.18 SAF, though it is worthy of note that this backyard is particularly small and there are other shared amenity spaces for use.

The SAF for each of the properties investigated on the 21<sup>st</sup> of March, September and December are included in the spreadsheet which accompanies this report. Shadows are anticipated to fall at grade and onto the roofs of neighboring commercial and residential properties to the north and the east. The GO station is predicted to experience net new shadows at the terminal and on the roof of the terminal from the proposed building during the morning hours throughout the year, although the extent of the shadows is predicted to be low during the winter.

The publicly accessible open spaces at grade on site were found to slightly fall below the target 0.5 SAF, though given that there is currently no existing publicly accessible spaces the proposed spaces could still be considered a net positive to the neighborhood. Similarly, the on-site 'kids play area' also falls below the target 0.5 SAF on each of the test days. Though we would note that there is still extensive access to other open spaces and nearby playgrounds in Sherwood Park which are minimally impacted by the proposed development.

RWDI would also note that when the combined area of the new grade level spaces are included together, the 0.5 SAF is achieved on all test dates except December 21.

# APPENDIX A

## SHADOW PLOTS