



SHADOW IMPACT ANALYSIS

PROPOSED DEVELOPMENT

**550 Ontario Street
Milton, Ontario**

KNYMH FILE # 18082

Prepared by:
KNYMH INC.

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SHADOW IMPACT ANALYSIS

PROPOSED DEVELOPMENT

550 Ontario Street
Milton, Ontario

1.0 PURPOSE:

The purpose of this report is to analyse the impact of a proposed development upon the adjacent properties, streets, and public spaces at the above noted location. We will discuss and comment upon the impact of the massing of the proposed development upon the adjacent properties using a computer generated model for analysis of the proposed buildings with a flat roof and a rooftop mechanical room which includes the rooftop building service equipment.

We have provided graphics along with a Site Plan and Satellite imagery of the surrounding area.

The property is located in Milton Ontario, at the intersection of Ontario Street and Derry Road.

2.0 DESCRIPTION OF THE SITE AND NEIGHBOURING PROPERTIES:

The Subject Property: (Figure 1)

The subject property is a residential development of an existing commercial lot. The site is occupied by two (2) single storey commercial buildings, the existing buildings will be demolished as part of the development. The lot is located at the intersection of Ontario Street & Derry Road on the southwest corner. The subject lot area is 1.71 hectares.

The proposed development consists of three (3) buildings upon the subject lands. Building A is a twenty-four (24) storey high-rise residential tower with a six (6) storey podium. Building B is a nineteen (19) storey high-rise residential tower with a five (5) storey podium. Building C is a four (4) storey building.

The subject lands and neighboring parcels generally appear to be uniform in grade with exception of the boundary along the Sixteen Mile Creek Park. The shadow impact to the Sixteen Mile Creek Park area is minimal and did not warrant modelling of the terrain to illustrate the change in elevation. For the purpose of this analysis the proposed development and adjacent properties are represented at the same elevation.

Neighbouring properties include: (Figure 1)

2.1) TO THE WEST (Study Area 1): The property abuts a residential neighbourhood consisting of two (2) storey dwellings. *This neighbourhood features many mature deciduous trees* that would actively shade these properties from spring through to fall seasons.

2.2) TO THE NORTH and NORTHEAST (Study Area 2): The property abuts Ontario Street. Immediately across the street are single storey commercial properties extending to Derry Road.

2.3) TO THE EAST (Study Area 3): The property abuts Derry Road. The northeast corner of the intersection of Ontario Street and Derry Road features a high-rise residential development with three (3) towers at sixteen (16), twenty (20) and twenty-five (25) storeys in height. The southeast corner has single storey commercial spaces.

2.4) TO THE SOUTH and SOUTHEAST (Study Area 4): The property abuts the Sixteen Mile Creek Park natural heritage area.



SITE CONTEXT MAP

Latitude: 43° 14' 30" N
Longitude: 79° 51' 00" W



3.0 METHOD OF ANALYSIS:

The method of analysis will consist of a discussion of the shadow impact the proposed development will have on the adjacent properties and the public realm. The summary is within Section 6.0.

The graphic analysis which we present within this report is developed using a computer generated modelling program in conjunction with satellite imagery and survey information with the following criteria specified in the Shadow Impact Analysis Guidelines developed by the Town of Milton [v.Nov2019]:

Geographic Coordinates: N 43° 14' 30", W 79° 51' 00"

Standard Time: UTC -5:00

Daylight Savings Time: UTC -4:00

Test Dates: September 21

Test Times: Hourly intervals starting 9:00am and ending at 5:00pm.

Date / Time	Sunrise		Sunset	
September 21 (UTC -4:00)	7:05 am		7:18 pm	

3.1 ASSESSMENT CRITERIA – Town of Milton

Impact Analysis (Public Realm):

- (A) 60% of the opposing sidewalks should receive direct sunlight for at least 3 continuous hours (between 10:00 am and 3:00 pm).
- (B) In mixed-use areas, sidewalk patios should receive at least 2 hours of sunlight during either lunchtime (between 10 am and 2 pm) or dinner hours (between 5:00 pm and 9:00 pm).
- (C) 50% of community parks and urban plazas should receive 5 continuous hours of sunshine between 9:00 am and 5:00 pm.
- (D) Active areas - fixed picnic stations or barbeque areas, splash pads, play equipment areas, schoolyards and community gardens should receive at least 5 hours of sunshine (between 9:00 am and 5:00 pm) but may not be continuous.

Impact Analysis (Private Realm):

- (E) Private front yard, rear yard, windows and rooftop patios should receive sunlight for at least 2 continuous hours of sunshine (between 10 am and 5 pm).

Impact Analysis (Solar Panels):

- (F) Solar panels should receive sunlight for an extended period of the day (minimum 8 hours may not be consecutive).

4.0 SHADOW IMPACT ANALYSIS OF THE PROPOSED DEVELOPMENT

4.1 SUN / SHADOW STUDY:

(SEPTEMBER 21 • Figure 2.1-1 to 2.1-12)

A summary of the September 21 shadow effect of the proposal upon the surrounding area. This commentary will discuss the impact of the proposed residential development's shadows upon properties at the north, east and southeast side of the subject property. The impact is studied at the specific time period and assessment criteria noted in Section 3 of this document of the proposed development.

It should be noted that the Fall are the "moderate" in terms of shadow length and duration relative to annual shadows. The times for this period are under Eastern Daylight Time. (UTC -4:00)

4.2A North and Northwest Property Impact, September 21 (Figure 2.1-1 to 2.1-5)

At 9:00am the morning sun in fall rotates approximately 184-degrees from east to west in 12-hours. It is low in the sky rising to approximately 23-degrees at this time of day.

Study Area (1) Impact

- Shadow falls upon the residential neighbourhood east of Laurier Ave. and subject lands.
- No impact to opposing sidewalks along Laurier Ave.

Study Area (2) Impact

- The public sidewalk on the north side of Ontario Street will receive direct sunlight until tower shadow from building 'A' crosses it at 1:00pm.

Study Area (4) Impact

- Shadow clear of Natural Heritage Area by 10:00am test time

At 12:00pm the noontime sun in spring / fall is higher (45.38-degrees) in the sky and originates from near-south.

Study Area (1) Impact

- Shadow clears all properties in the residential neighbourhood at 1:00pm test time.

Study Area (2) Impact

- The public sidewalk on the north side of Ontario Street is impacted by the tower of building 'A' exclusively from 1:00pm to 3:00pm.
- No impact to commercial properties observed in study area.

4.2B Northeast and East Property Impact, September 21 (Figure 2.1-4 to 2.1-9)

At 3:00pm the afternoon sun in spring / fall is past its peak. It is approximately 39.04-degrees above the horizon and the shadows are still short at this time of day.

Study Area (2) Impact

- Commercial space at #590 Ontario Street S is impacted between the 3:00pm and 4:00pm test times.



SEPTEMBER 21, 9:00AM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W





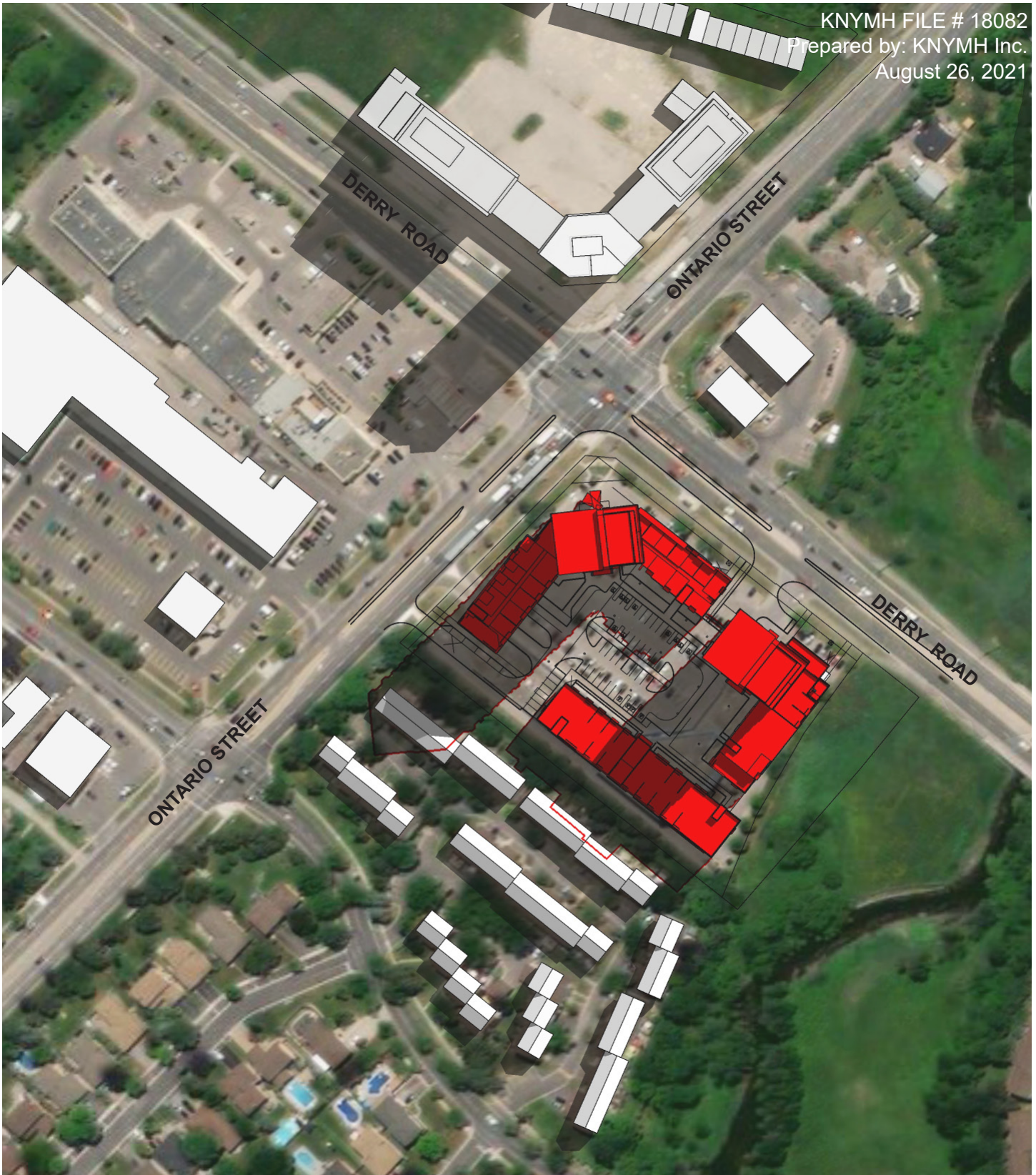
SEPTEMBER 21, 10:00AM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W





SEPTEMBER 21, 11:00AM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W





SEPTEMBER 21, 12:00PM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W





SEPTEMBER 21, 1:00PM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W





SEPTEMBER 21, 2:00PM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W





SEPTEMBER 21, 3:00PM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W





SEPTEMBER 21, 4:00PM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W





SEPTEMBER 21, 5:00PM

UTC: (-04:00)

Latitude: 43° 14' 30" N

Longitude: 79° 51' 00" W



5.0 GENERAL OBSERVATIONS: REGARDING THE PROPOSED DEVELOPMENT

5.1 ASSESSMENT CRITERIA (Public Realm)

(A) 60% of the opposing sidewalks should receive direct sunlight for at least 3 continuous hours (between 10:00 am and 3:00 pm).

- Impact analysis indicates that 60% of the opposing public sidewalks adjacent to the site will experience three (3) hours of continuous sunlight.
- Opposing sidewalk length was measured as equal to length of the street facing property line(s) of proposed development.

(B) In mixed-use areas, sidewalk patios should receive at least 2 hours of sunlight during either lunchtime (between 10 am and 2 pm) or dinner hours (between 5:00 pm and 9:00 pm).

- Impact analysis indicates that two (2) hours of sunlight during the time periods specified will be achieved.

(C) 50% of community parks and urban plazas should receive 5 continuous hours of sunshine between 9:00 am and 5:00 pm.

- Impact analysis indicates that 50% of community parks and urban plazas receive five (5) continuous hours of sunshine during the time periods specified will be achieved.

(D) Active areas - fixed picnic stations or barbeque areas, splash pads, play equipment areas, schoolyards and community gardens should receive at least 5 hours of sunshine (between 9:00 am and 5:00 pm) but may not be continuous.

- Not applicable

5.2 ASSESSMENT CRITERIA (Private Realm)

(E) Private front yard, rear yard, windows and rooftop patios should receive sunlight for at least 2 continuous hours of sunshine (between 10 am and 5 pm).

- Impact analysis indicates all residential properties within the study areas will receive a minimum of two (2) continuous hours of sunlight during the test period.

5.3 ASSESSMENT CRITERIA (Solar Panels)

(F) Solar panels should receive sunlight for an extended period of the day (minimum 8 hours may not be consecutive).

- There currently exist no solar panel installations in the study area.
- In a scenario where all building in the study area installed solar panels:
 - All residential dwellings will receive eight (8) hours of sunlight.
 - All commercial spaces within the study areas will receive eight (8) hours of sunlight with the exception of #590 Ontario Street S. #590 will receive six (6) hours of sunlight between 9:00am and 5:00pm

**6.0 SUMMARY OBSERVATIONS: REGARDING IMPACT OF DEVELOPMENT UPON
THE SURROUNDING AREA**

The shadow impact analysis of public sidewalks, plazas, parks, school yards and non-residential outdoor amenity areas on September 21 demonstrates the opposing public sidewalks will receive five (5) hours of continuous sunlight (between 10am and 3pm). The shadow impact analysis of the opposing public sidewalks shows that the proposed development meets and exceeds the criteria specified in the Town of Milton guidelines.

The shadow impact analysis of residential amenity spaces on September 21 indicates no impact on surrounding residential properties.

There exist no observable solar panel installations in the study areas. The shading of building faces or roofs for the possibility of using solar energy does not impact any residential properties and limited to one (1) commercial property.

The proposed high-rise development is considerate to the guidelines set for shadow impact analysis by the town of Milton on nearby residential developments and the public realm. The proposed development presents the ideal building typology for this site and mitigates sun shading impact upon the neighbouring residential properties. This building form and orientation produces narrow shadows that move quickly across the terrain. Based upon the analysis we suggest that the proposed design will not have a significant negative effect on the surrounding neighbourhood.

In our opinion, this development is compatible with the area and does not have a significant effect on the existing neighbourhood in general.

Sincerely,
KNYMH Inc.