

DESIGN IMPACT ANALYSIS

PROPOSED DEVELOPMENT

388 Main Street East Milton, Ontario

KNYMH File # 22063

Prepared by: KNYMH INC.

Date: December 2, 2024

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DOCUMENT REVISION HISTORY:

Version	Revision Date	Revision Summary	Tracking
1.0	2024.12.02	ISSUED: Initial report	1202.247

DISCLAIMER:

The Design Impact Analysis involves subjective analysis and exploration of design concepts and their potential impact. The interpretations, opinions, and conclusions presented within the report are subjective and based on individual perspectives. They do not represent universally accepted design principles or practices.

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SECTION 1.0 - DESIGN OBJECTIVE

The objective 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 associated with the architectural form and massing of the proposed development upon the adjacent properties.

The main goals of the design impact analysis are:

- 1) Assess and quantify the potential impacts on the surrounding environment and stakeholders, such as residents, businesses, and public spaces.
- 2) Identify potential conflicts or concerns and inform design strategies to mitigate the impact effectively.

SECTION 2.0 - DESIGN EVALUATION METHODS

The graphic analysis which we present within this report is developed using computer generated modelling software in conjunction with satellite imagery and survey information.

North Orientation: The satelite images are aligned with True North using a variant of the original Mercator projection that is oriented along the Earth's polar axis, and the massing model is centred upon the UTM Grid North at the latitude and longitude specified. We have provided graphics along with a Site Plan and Satellite imagery of the surrounding area.

The streetview photography of existing conditions presented in this analysis is based on a stationary perspective that would be experienced by a person standing at various station points / viewpoints within the public realm. This report may feature photographs from varying times of year due to time constraints. It is desirable to use photographs taken in winter during 'leaf-off' conditions for the purposes of illustrating worst case scenario and this is a consideration in the analysis of the site.

SECTION 3.0 - SITE CONTEXT

Location: Milton, Ontario, Canada

Geographic Coordinates: Latitude: N 43d 14' 30" Longitude: W 79d 51' 00"

SITE

The property is located in Milton, Ontario at #388 Main Street East. The site is southwest of the intersection between Main Street East and Ontario Street South. The total lot area is approx. 0.6594 hectares, the site is occupied by several existing 2 storey buildings that will be removed as part of the development.

Neighbouring properties include:

- 2.1) TO THE EAST (Study Area 1): The property abuts Bruce Street and Pearl Street, Bruce Street features a pedestrian sidewalk on the east side and Pearl Street has a sidewalk on both sides. Immediately across Bruce Street is a two (2) storey commercial plaza at #400 Main Street E. Across Pearl Street is an elementary school at #45 Bruce Street, the school yard is located on both sides of the property. Further east of the school is a five (5) storey apartment building at #40 Ontario Street S.
- 2.2) TO THE NORTH (Study Area 2): The property abuts Main Street East which features a pedestrian sidewalk on both sides. Immediately across Main Street is a urban mixed use area comprising primarily of two (2) storey buildings with the exception of a six (6) storey apartment building at #383 Main Street E. The building at #383 Main Street E features a rooftop solar panel installation. Further north is the CN Railway Corridor.
- 2.3) TO THE WEST AND SOUTHWEST (Study Area 3): The property abuts Prince Street which features a pedestrian sidewalk on the west side. Immediately across Prince Street is a urban mixed use area comprising primarily of two (2) storey buildings. Further west is a residential pocket with frontage along Court Street North.

TOPOGRAPHY

The subject lands and neighbouring parcels generally appear to be uniform in grade. For the purpose of this analysis the proposed development and adjacent properties are represented at the same elevation.

Refer to "FIGURE 3.1 - SITE CONTEXT MAP" on page 4.

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SECTION 3.1 - ARCHITECTURAL FORM

ARCHITECTURAL FORM

The proposed development labelled as building 'A' consists of one (1) building upon the subject lands. The building form is a six (6) storey 'U' shaped podium linking two (2) towers. The west tower is sixteen (16) storeys high and east tower is eighteen (18) storeys. The podium steps down to three (3) storeys on the north side along Main Street and along Pearl Street to the south. The proposed development features six-hundred sixty-eight (668) residential units.

Refer to "FIGURE 3.3 - SITE CONTEXT MAP" on page 4.

FIGURE 3.1 - MASSING ELEVATIONS (PROPOSED)

WEST ELEVATION:

(ALONG PRINCE STREET)

The massing of proposed building

is oriented along Main Street East to reinforce the streetline. The facade features a three (3) storey podium transitioning the higher building portions to a more human scale. Both towers are setback from the south portion of the site to mitigate impact on the surrounding residential and institutional areas.



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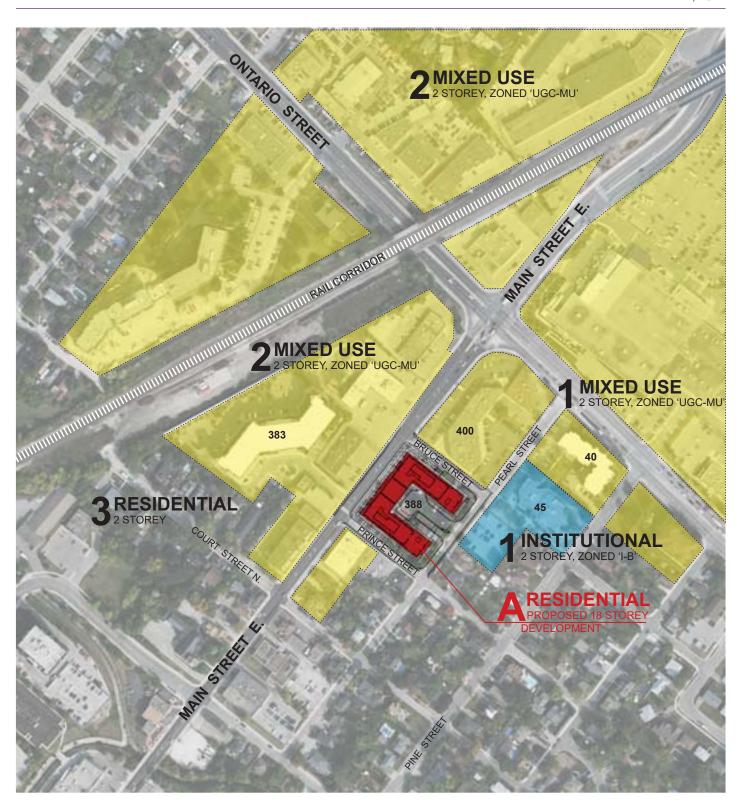


FIGURE 3.1 - SITE CONTEXT MAP



SECTION 4.0 - METHOD OF ANALYSIS

Shadow Impact

Geographic Coordinates: Latitude: N 43d 14' 30", Longitude: W 79d 51' 00"

Standard Time: UTC -5:00

Daylight Savings Time: UTC -4:00

Test Dates and Times: Refer to "APPENDIX 1.0 - SHADOW IMPACT SCHEDULE" on page A1-1

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SECTION 4.1 - IMPACT ASSESSMENT CRITERIA

The graphic analysis and impact assessment which we present within this report is developed with the following criteria specified in the:

'Terms of Reference for Sun Shadow Analysis' developed by the Town of Milton [v.Jan,2023]

SHADOW IMPACT ANALYSIS (Public Realm) - Town of Milton (Section 5.1): April 21, June 21 & September 21

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

In mixed-use areas, sidewalk patios should receive at least two (2) hours of sunlight during either lunchtime (between 10:00 am and 2:00 pm) or dinner hours (between 5:00 pm and 9:00 pm). 50% of community parks and urban plazas should receive five (5) continuous hours of sunshine between 9:00 am and 5:00 pm.

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.

SHADOW IMPACT ANALYSIS (Private Realm) - Town of Milton (Section 5.2): April 21, June 21 & September 21

Private front yard, rear yard, windows and rooftop patios should receive sunlight for at least two (2) continuous hours of sunshine (between 10:00 am and 5:00 pm).

SHADOW IMPACT ANALYSIS (Solar Panels) - Town of Milton (Section 5.3): December 21

Solar panels should receive sunlight for an extended period of the day (minimum 8 hours may not be consecutive). Shadow impacts from development should not exceed two consecutive hourly test times on December 21.

SECTION 5.0 - GENERAL OBERVATIONS

SECTION 5.1 - SHADOW IMPACT ANALYSIS

This commentary will discuss the sun/shadow of the proposed development and properties within the impact zone. The impact is studied at the specific time period and assessment criteria noted in SECTION 4.1 - IMPACT ASSESSMENT CRITERIA and APPENDIX 1.0 - SHADOW IMPACT SCHEDULE of this document of the proposed development.

SUN / SHADOW STUDY: (APRIL 21 • Figure 1.1-1 to 1.1-12)

Study Area (3) Impact: Shadow clear of residential properties by 10:00am test time. Shadow clear of sidewalk along Prince Street by 10:00am test time. No impact exceeding assement criteria noted

Study Area (2) Impact: Shadow clear of #383 Main Street by 11:00am test time and all mixed-use areas by 1:00pm. No impact exceeding assement criteria noted.

Main Street pedestrian sidewalk is partially covered at 11:00am and clear at 2:00pm. No impact exceeding assement criteria noted

Study Area (1) Impact: Shadow impacts #400 Main Street at 1:00pm until end of test period. Bruce Street pedestrian sidewalk is partially covered at 1:00pm until end of test period. No impact exceeding assement criteria noted

SUN / SHADOW STUDY: (JUNE 21 • Figure 1.2-1 to 1.2-14)

Study Area (3) Impact: Shadow clear of residential properties by 9:00am test time. Shadow clear of sidewalk along Prince Street by 11:00am test time. No impact exceeding assement criteria noted

Study Area (2) Impact: Shadow clear of all mixed-use areas by 12:00pm. No impact exceeding assement criteria noted.

Main Street pedestrian sidewalk is partially covered at 11:00am and clear at 1:00pm. No impact exceeding assement criteria noted

Study Area (1) Impact: Shadow impacts #400 Main Street at 2:00pm until end of test period. Bruce Street pedestrian sidewalk is partially covered at 2:00pm until end of test period. No impact exceeding assement criteria noted

SUN / SHADOW STUDY: (SEPTEMBER 21 • Figure 1.3-1 to 1.3-12)

Study Area (3) Impact: Shadow clear of residential properties by 10:00am test time. Shadow clear of sidewalk along Prince Street by 10:00am test time. No impact exceeding assement criteria noted.

Study Area (2) Impact: Shadow clear of #383 Main Street by 11:00am test time and all mixed-use areas by 2:00pm. No impact exceeding assement criteria noted.

Main Street pedestrian sidewalk is partially covered at 12:00pm and clear at 2:00pm. Impact to Main Street sidewalk exceeds assement criteria noted

Study Area (1) Impact: Shadow impacts #400 Main Street at 1:00pm until end of test period. Bruce Street pedestrian sidewalk is partially covered at 12:00pm and fully covered at 2:00pm until end of test period. No impact exceeding assement criteria noted

SUN / SHADOW STUDY: (DECEMBER 21 • Figure 1.4-1 to 1.4-8)

Study Area (3) Impact: No impact to solar panels observed.

Study Area (2) Impact: Shadow clear of #383 Main Street rooftop solar panels by 11:00am test time. No impact exceeding assement criteria noted.

Study Area (1) Impact: No impact to solar panels observed.

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SECTION 6.0 - SUMMARY OBSERVATIONS

REGARDING SHADOW IMPACT OF DEVELOPMENT UPON THE SURROUNDING AREA

The shadow impact analysis of the public sidewalks demonstrates the opposing public sidewalks along Prince Street and Bruce Street will receive more than three (3) hours of continuous sunlight during the test periods. During the September 21 test period 60% of the opposing sidewalk along Main Street East did not receive 3 continuous hours of sunlight. The shadow impact analysis of the opposing public sidewalks shows that the proposed development meets and exceeds the criteria indicated in this assessment for 2 of the 3 pedestrian sidewalks in the immediate area.

The shadow impact analysis of public active spaces indicates the school yards within the study areas will receive more than five (5) hours of sunlight during the test periods. The shadow impact analysis of the school yards shows that the proposed development meets and exceeds the criteria indicated in this assessment.

The shadow impact analysis of residential amenity spaces indicates residential properties within the study areas will receive more than two (2) continuous hours of sunlight during the test periods. The shadow impact analysis of the private front yard, rear yard, windows and rooftop patios shows that the proposed development meets and exceeds the criteria indicated in this assessment.

The shadow impact analysis of solar collection indicates the solar panel installation at #383 Main Street East will receive a minimum of eight (8) hours of sunlight during the April, June and September test periods plus noi impacted more than two (2) continuous hours in December. The shadow impact analysis of solar collection shows that the proposed development meets the criteria indicated in this assessment.

The proposed development presents the ideal building typology for this site and mitigates sun shading impact upon the neighbouring residential properties and the public realm. 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. Date: December 2, 2024

APPENDIX 1.0 - SHADOW IMPACT SCHEDULE

Test Dates: April 21, June 21, September 21 and December 21

Test Times: Hourly intervals starting 1.5 hours after sunrise and ending 1.5 hours before sunset.

Test time interval is based on assessment criteria and terminates at nearest time to period end or start for each of the test dates. The test times are under Eastern Daylight Time.

References:

'Terms of Reference for Sun Shadow Analysis' developed by the Town of Milton [v.Jan,2023]

Sunrise and Sunset information: https://www.timeanddate.com/sun/

APRIL 21	
Sunrise (+1.5)	6:26 AM (7:56)
Sunset (-1.5)	8:10 PM (6:40)
Solar Noon	1:18 PM
	Test Times
	8:00 AM
	9:00 AM
	10:00 AM
	11:00 AM
	12:00 PM
	1:00 PM
	2:00 PM
	3:00 PM
	4:00 PM
	5:00 PM
	6:00 PM

JUNE 21		
Sunrise (+1.5)	5:38 AM (7:08)	
Sunset (-1.5)	9:04 PM (7:34)	
Solar Noon	1:21 PM	
	Test Times	
	7:00 AM	
	8:00 AM	
	9:00 AM	
	10:00 AM	
	11:00 AM	
	12:00 PM	
	1:00 PM	
	2:00 PM	
	3:00 PM	
	4:00 PM	
	5:00 PM	
	6:00 PM	
	7:00 PM	

SEPTEMBER 21		
Sunrise (+1.5)	7:06 AM (8:36)	
Sunset (-1.5)	7:17 PM (5:47)	
Solar Noon	1:12 PM	
Test Times		
	8:00 AM	
	9:00 AM	
	10:00 AM	
	11:00 AM	
	12:00 PM	
	1:00 PM	
	2:00 PM	
	3:00 PM	
	4:00 PM	
	5:00 PM	

DECEMBER 21		
Sunrise (+1.5)	7:49 AM (9:19)	
Sunset (-1.5)	4:46 PM (3:16)	
Solar Noon	12:17 PM	
Test Time		
	9:00 AM	
	10:00 AM	
	11:00 AM	
	12:00 AM	
	1:00 PM	
	2:00 PM	
	3:00 PM	

FIGURE A1.1 - SHADOW IMPACT GRAPHICS APRIL 21

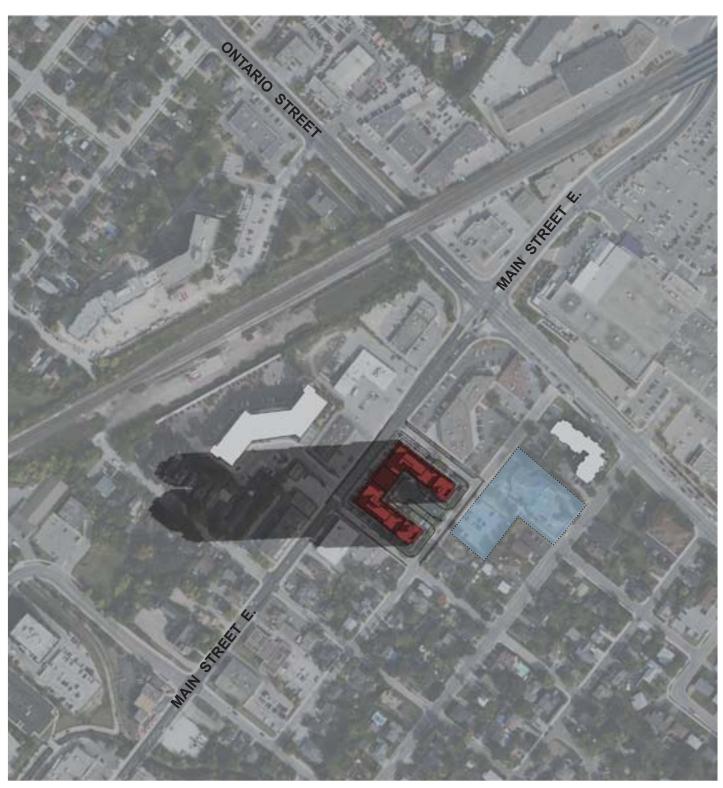
SUN/SHADOW STUDY: (APRIL 21 • SPRING)

The content of the following appendix is a graphical study of the Spring shadow effect of the proposal upon the surrounding area. The impact is studied at the specific time period and assessment criteria noted in SECTION 4.1 - IMPACT ASSESSMENT CRITERIA and APPENDIX 1.0 - SHADOW IMPACT SCHEDULE of this document of the proposed development. The times for this period are under Eastern Daylight Time. (UTC -4:00)

Date: December 2, 2024

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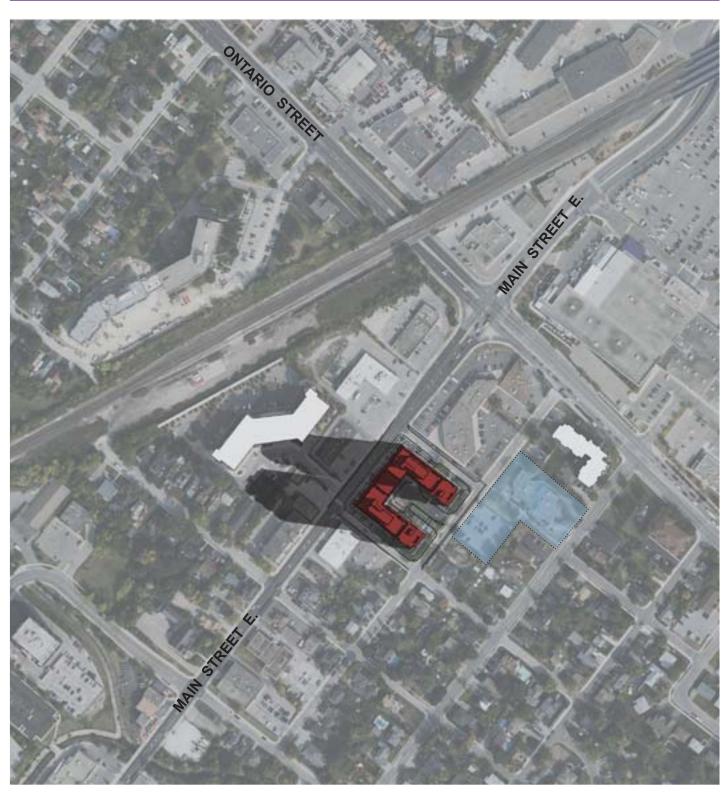
388 Main Street East, Milton, Ontario



APRIL 21, 8:00 AM

UTC: (-04:00)

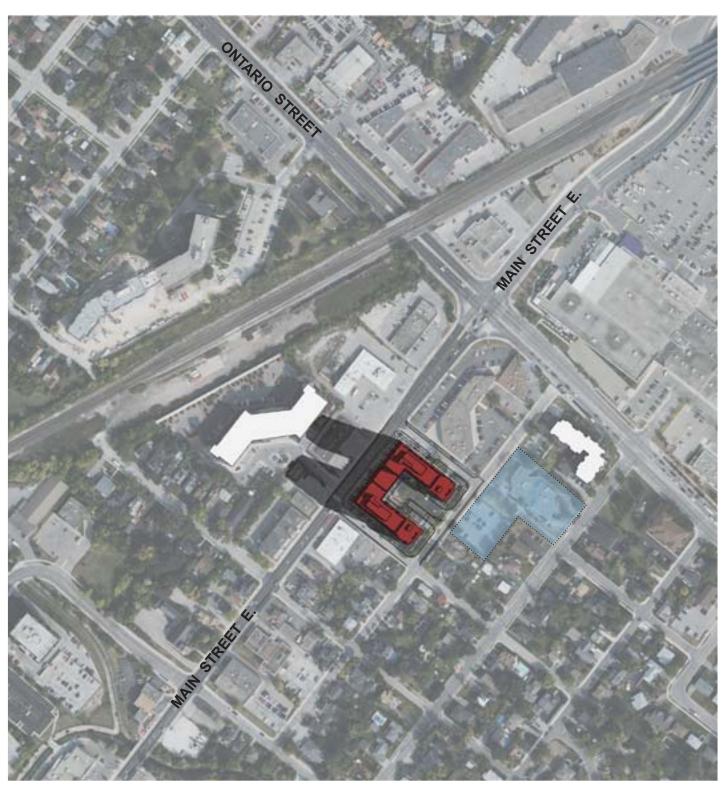




APRIL 21, 9:00 AM

UTC: (-04:00)

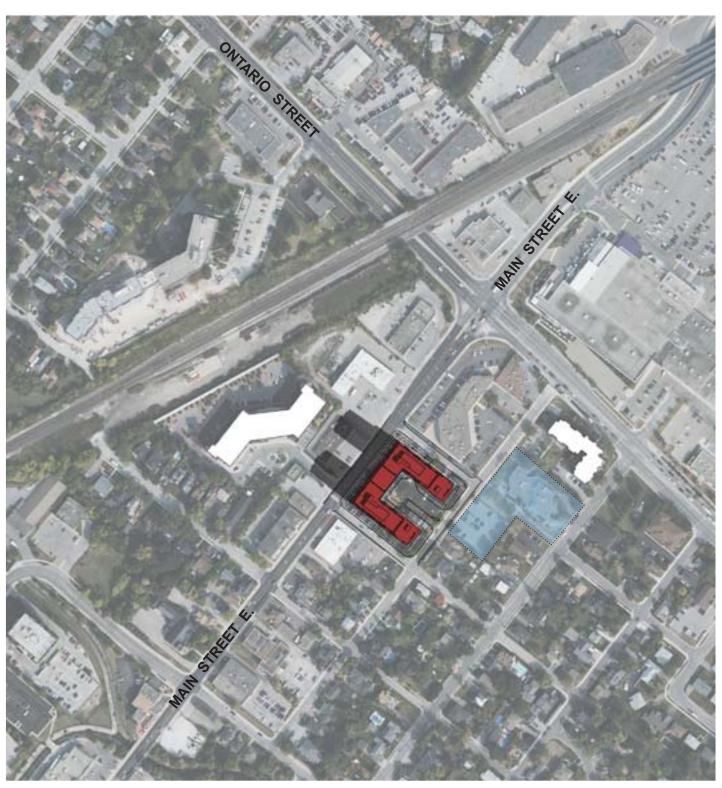




APRIL 21, 10:00 AM

UTC: (-04:00)



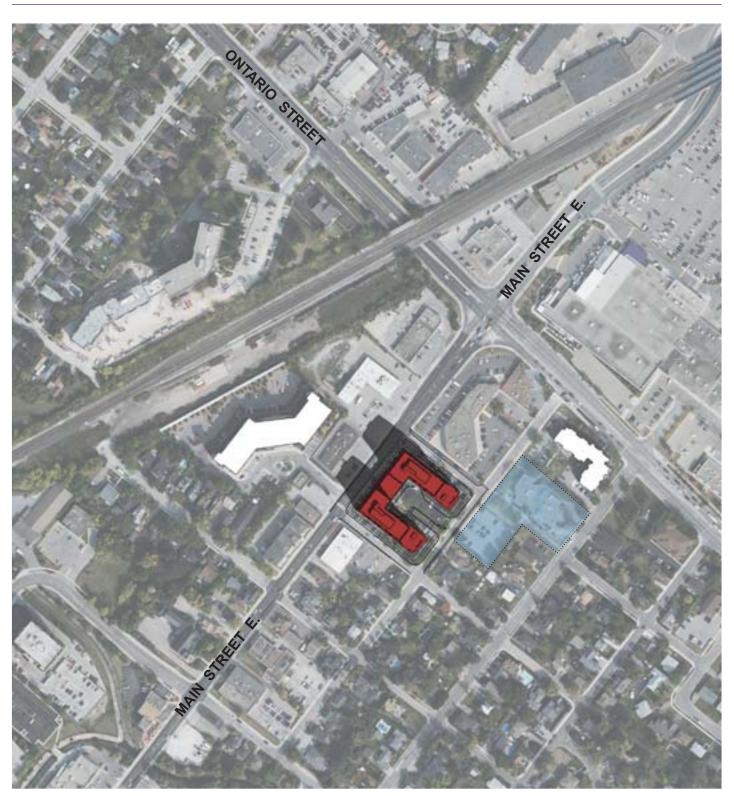


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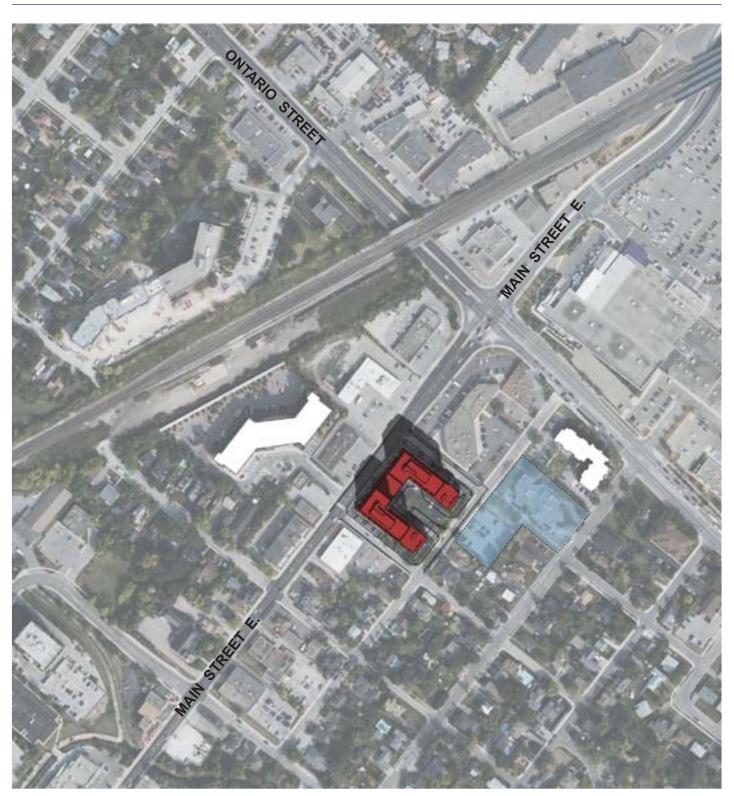
KNYMH File # 22063 v.1.0 Date: December 2, 2024



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UTC: (-04:00)



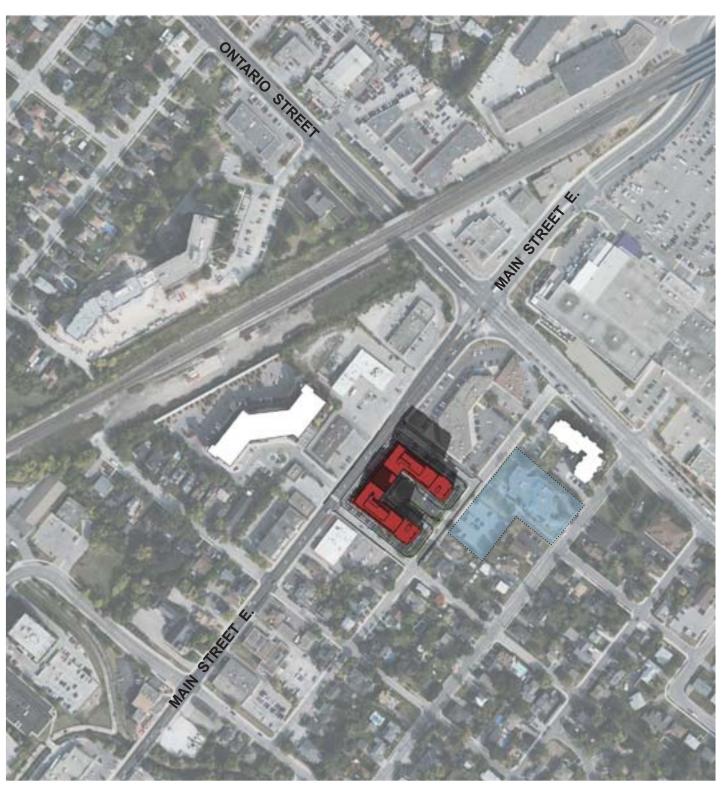


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Date: December 2, 2024

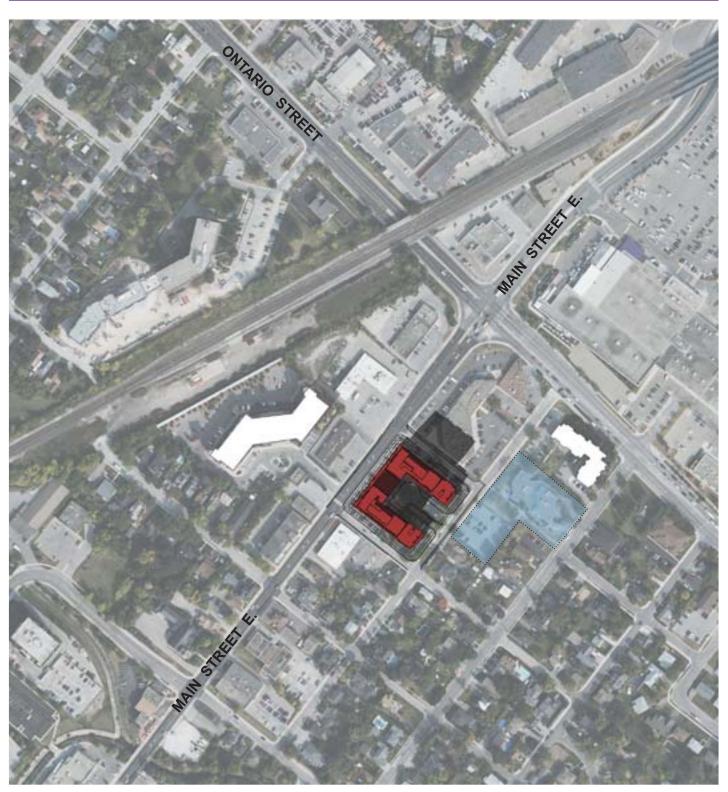


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KNYMH File # 22063 v.1.0 Date: December 2, 2024

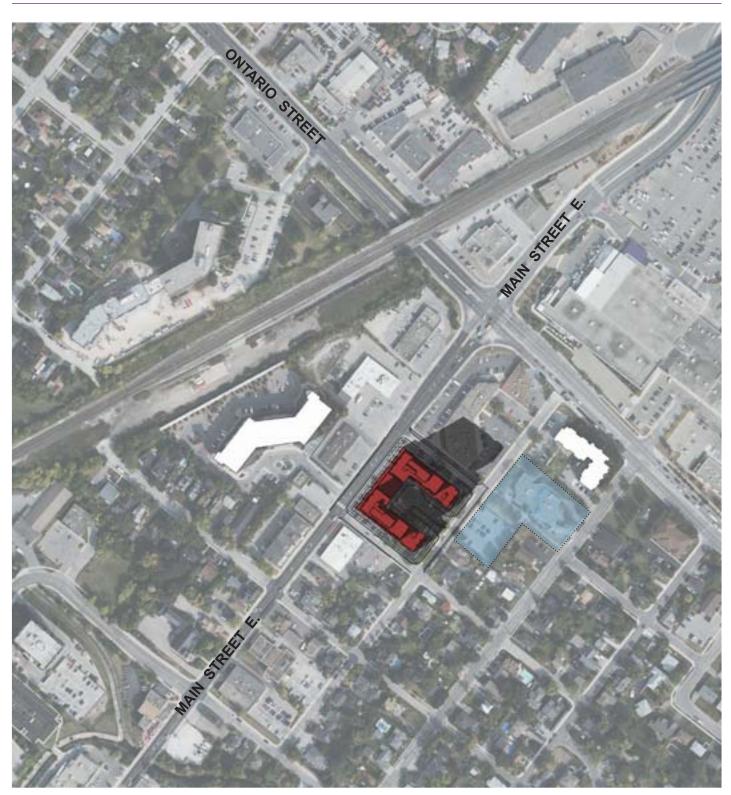


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UTC: (-04:00)



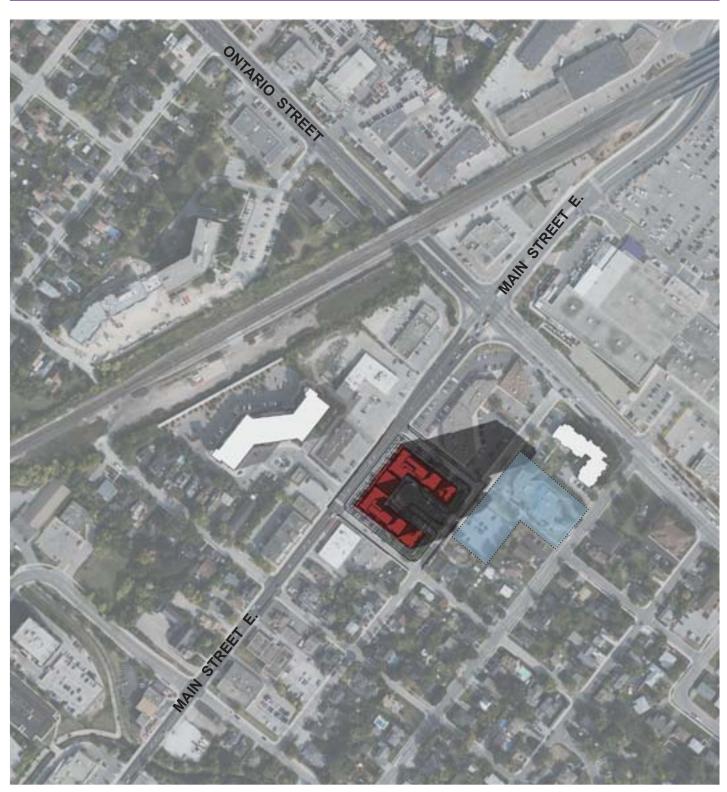
KNYMH File # 22063 v.1.0 Date: December 2, 2024



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UTC: (-04:00)



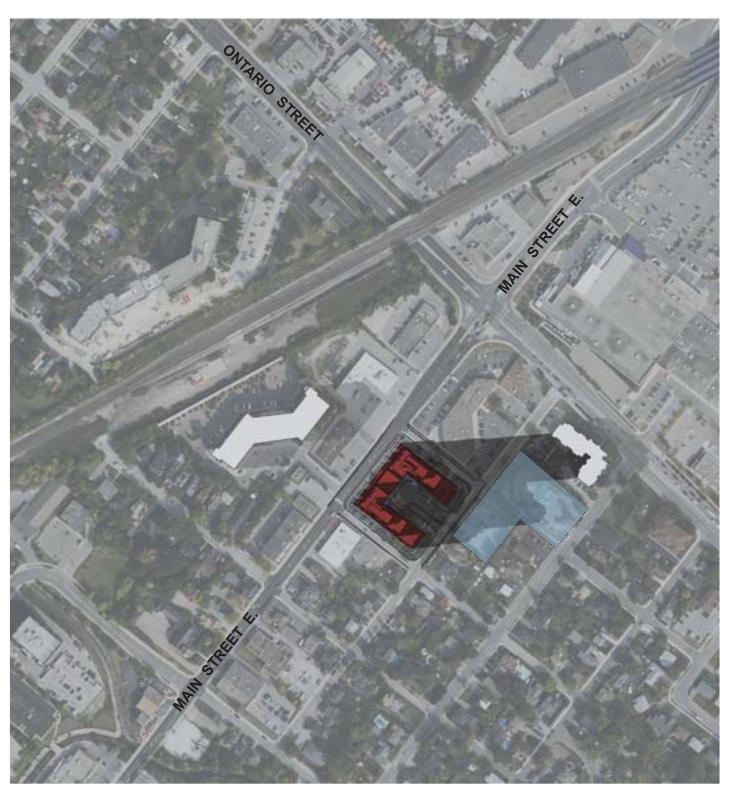


APRIL 21, 5:00 PM

UTC: (-04:00)



KNYMH File # 22063 v.1.0 Date: December 2, 2024



APRIL 21, 6:00 PM

UTC: (-04:00)



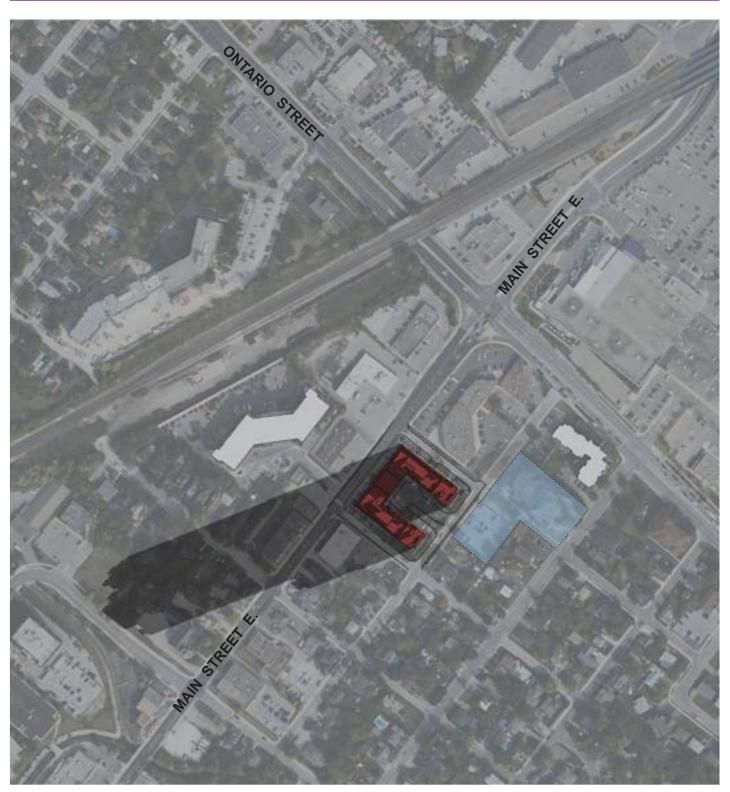
FIGURE A1.2 - SHADOW IMPACT GRAPHICS JUNE 21

SUN/SHADOW STUDY: (JUNE 21 • SUMMER)

The content of the following appendix is a graphical study of the Summer shadow effect of the proposal upon the surrounding area. The impact is studied at the specific time period and assessment criteria noted in SECTION 4.1 - IMPACT ASSESSMENT CRITERIA and APPENDIX 1.0 - SHADOW IMPACT SCHEDULE of this document of the proposed development. The times for this period are under Eastern Daylight Time. (UTC -4:00)

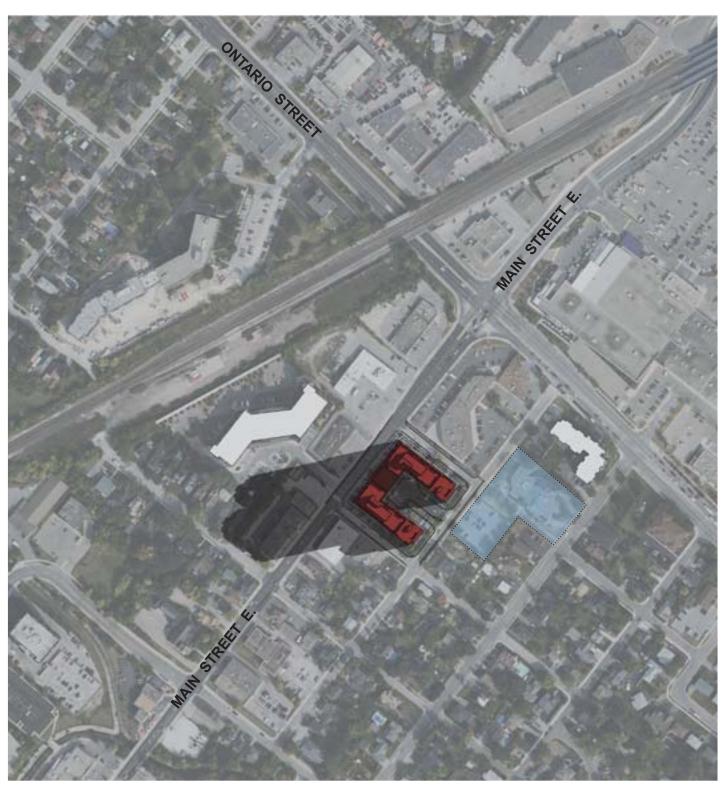
Date: December 2, 2024

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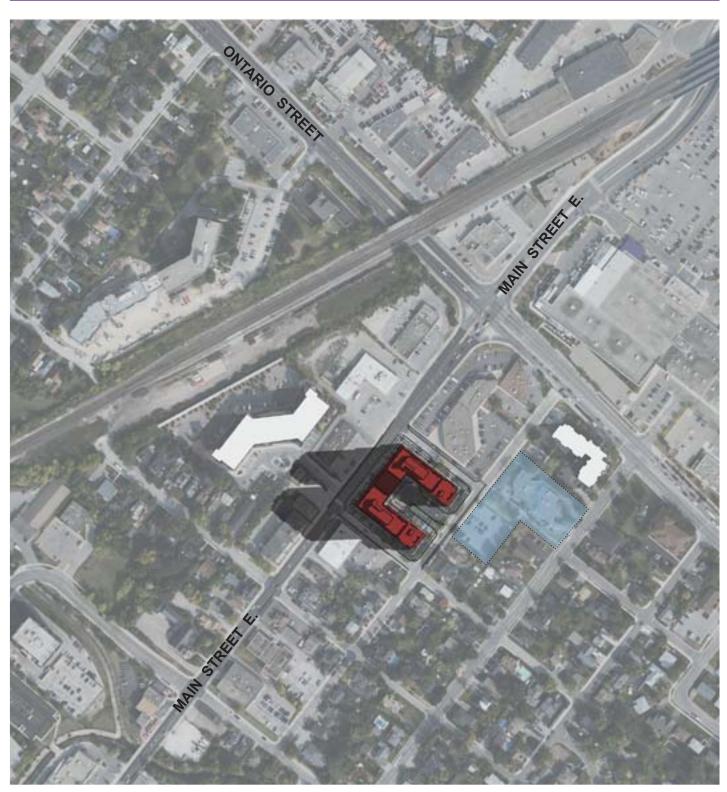
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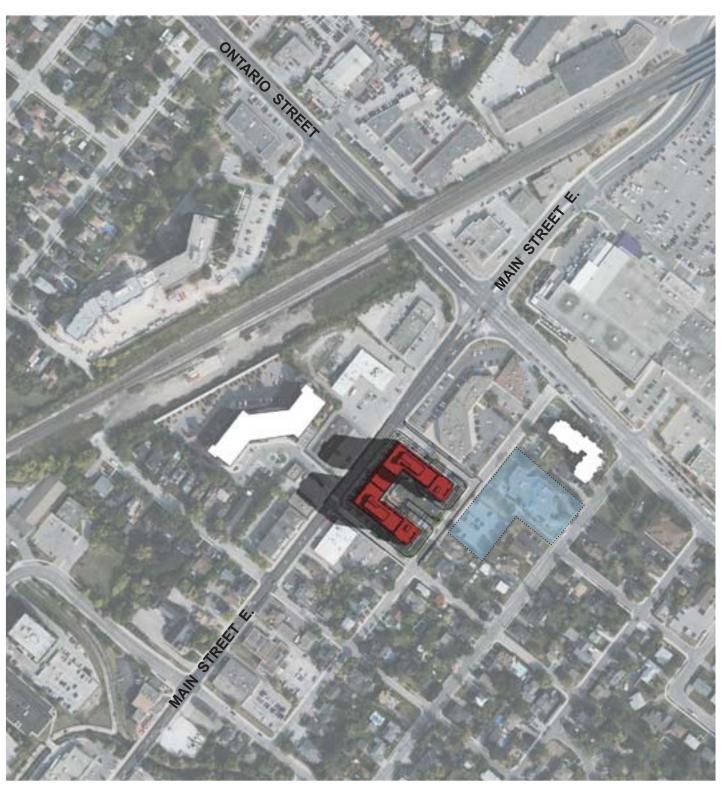
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JUNE 21, 9:00 AM



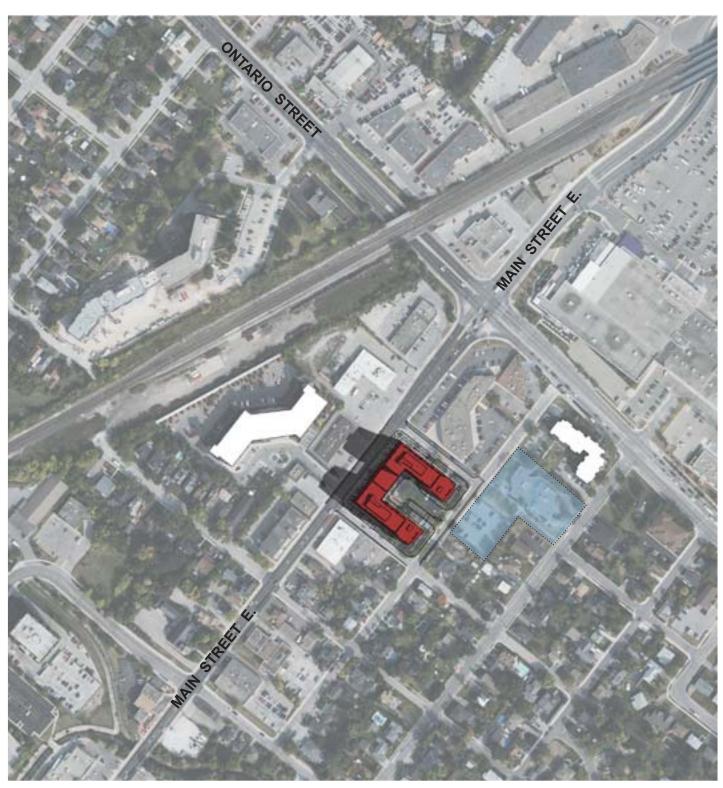


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KNYMH File # 22063 v.1.0 Date: December 2, 2024



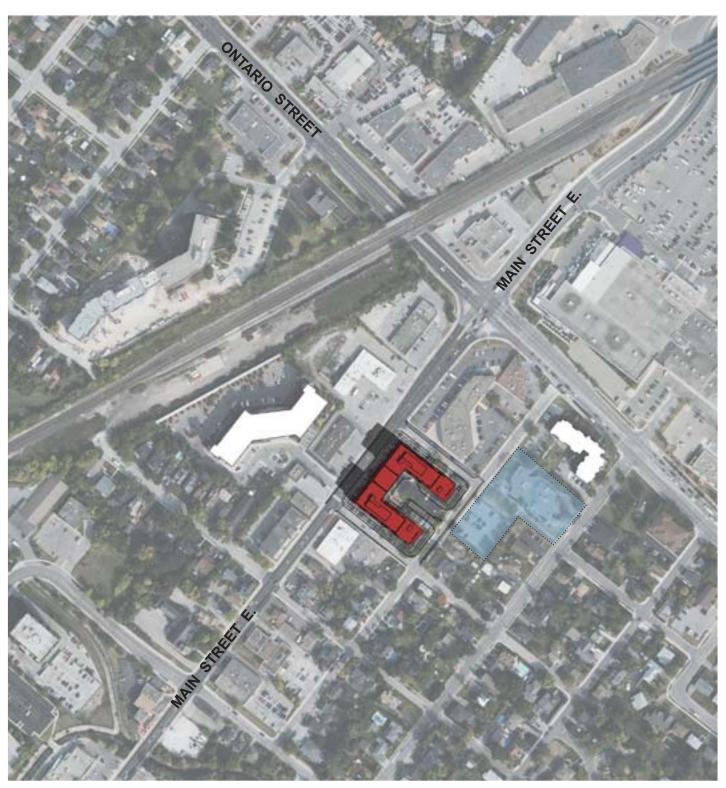
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KNYMH File # 22063 v.1.0

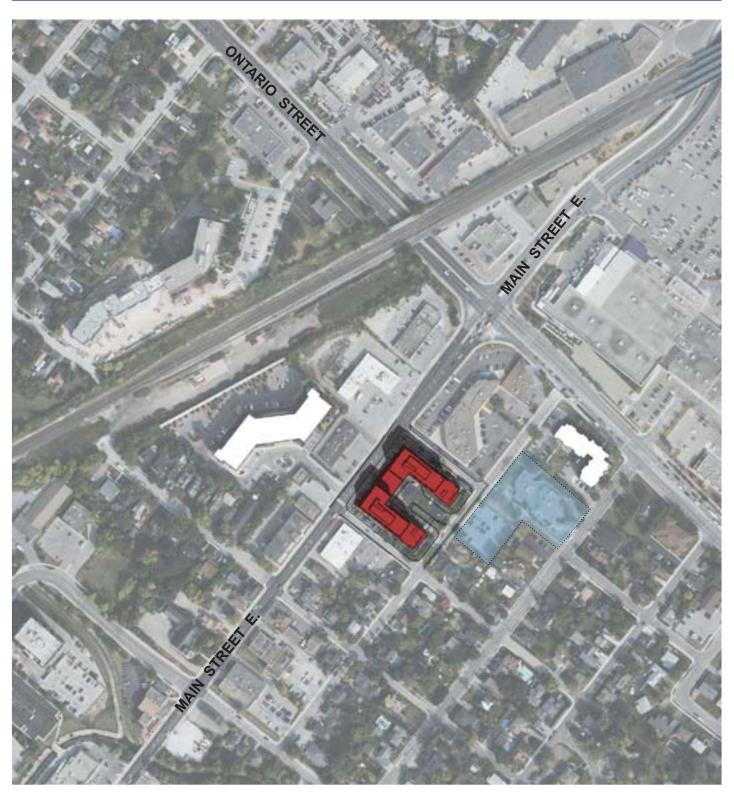
Date: December 2, 2024



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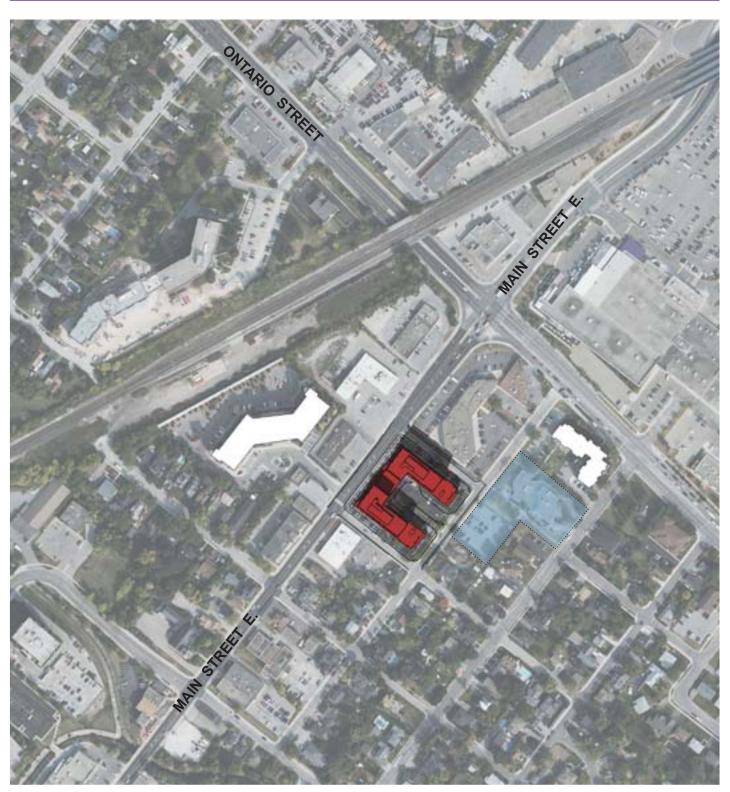
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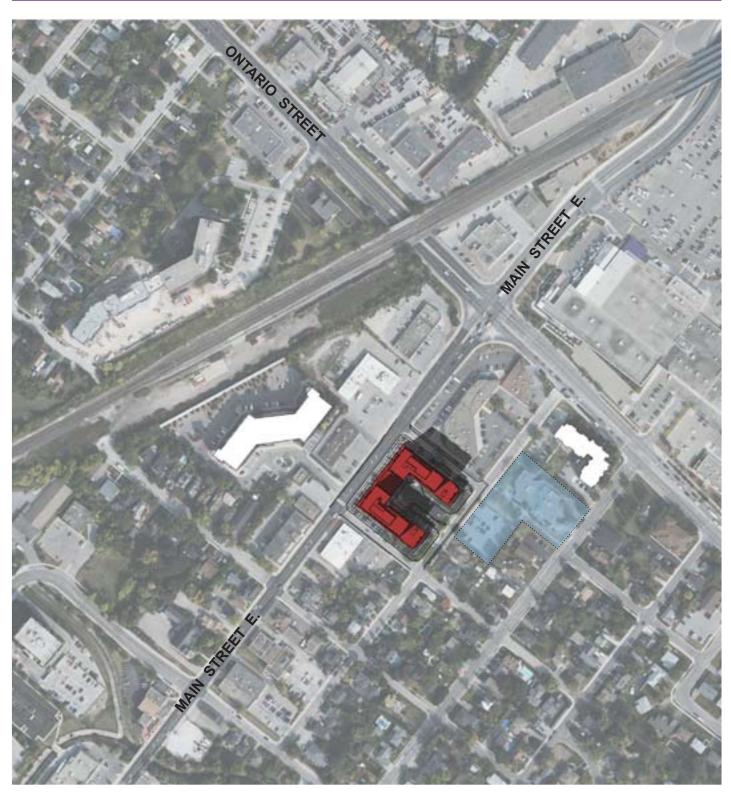
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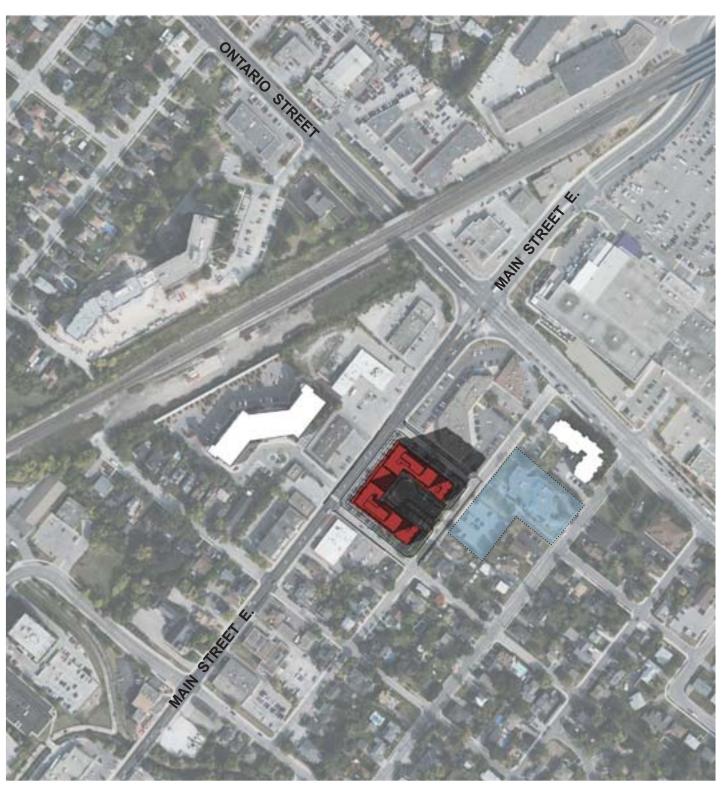
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JUNE 21, 3:00 PM





JUNE 21, 4:00 PM



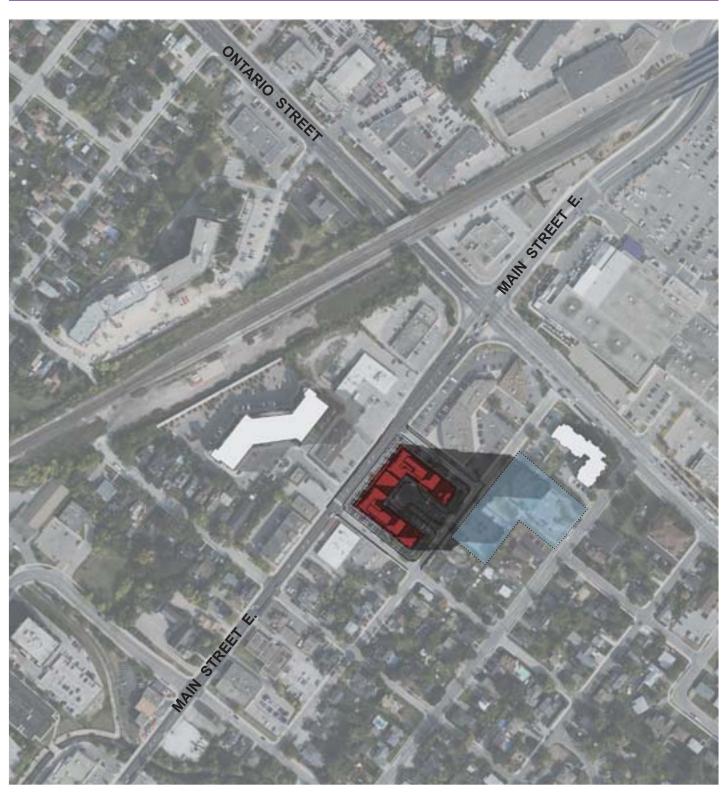


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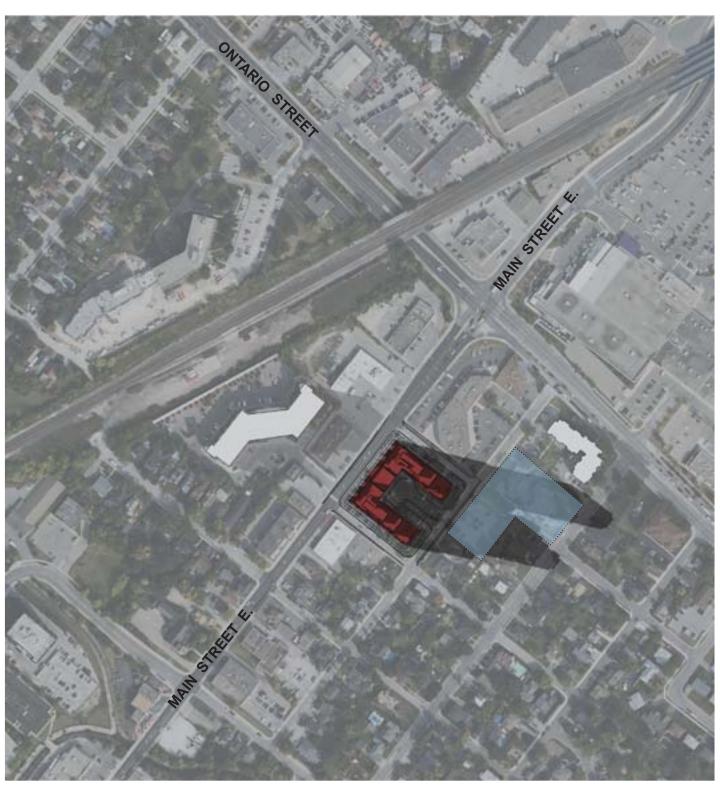


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JUNE 21, 7:00 PM

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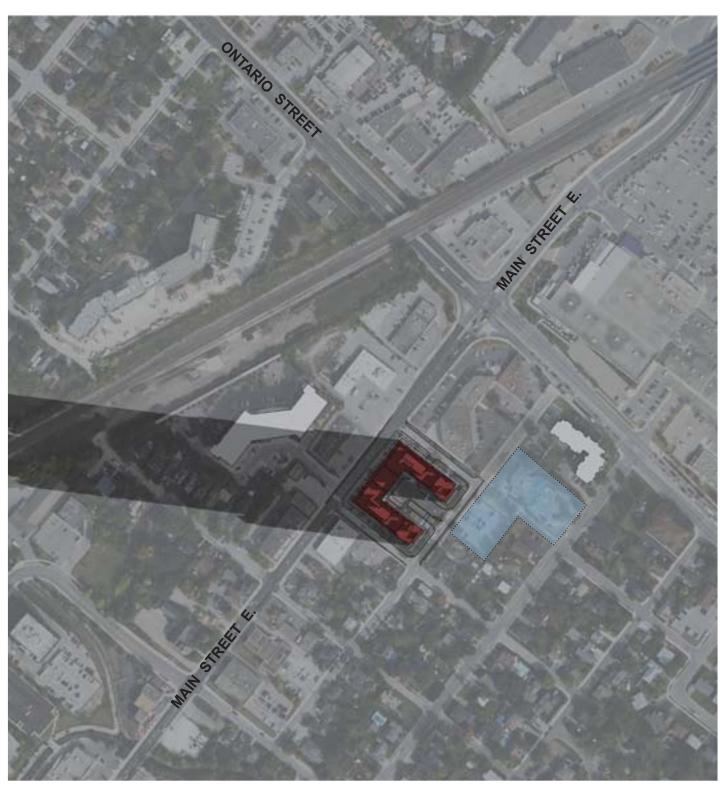
Date: December 2, 2024

FIGURE A1.3 - SHADOW IMPACT GRAPHICS SEPTEMBER 21

SUN/SHADOW STUDY: (SEPTEMBER 21 • FALL)

The content of the following appendix is a graphical study of the Fall shadow effect of the proposal upon the surrounding area. The impact is studied at the specific time period and assessment criteria noted in SECTION 4.1 - IMPACT ASSESSMENT CRITERIA and APPENDIX 1.0 - SHADOW IMPACT SCHEDULE of this document of the proposed development. The times for this period are under Eastern Daylight Time. (UTC -4:00)

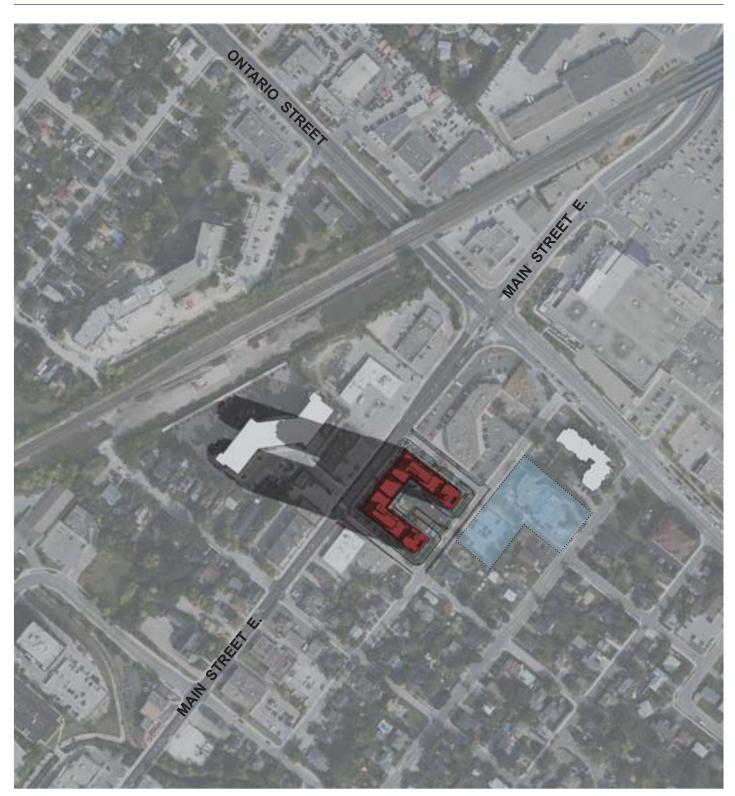
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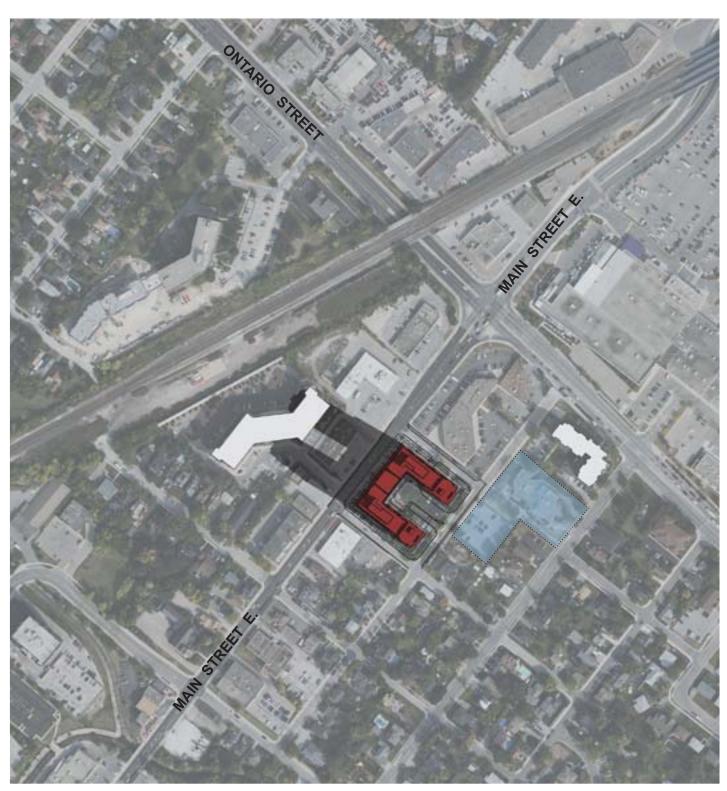




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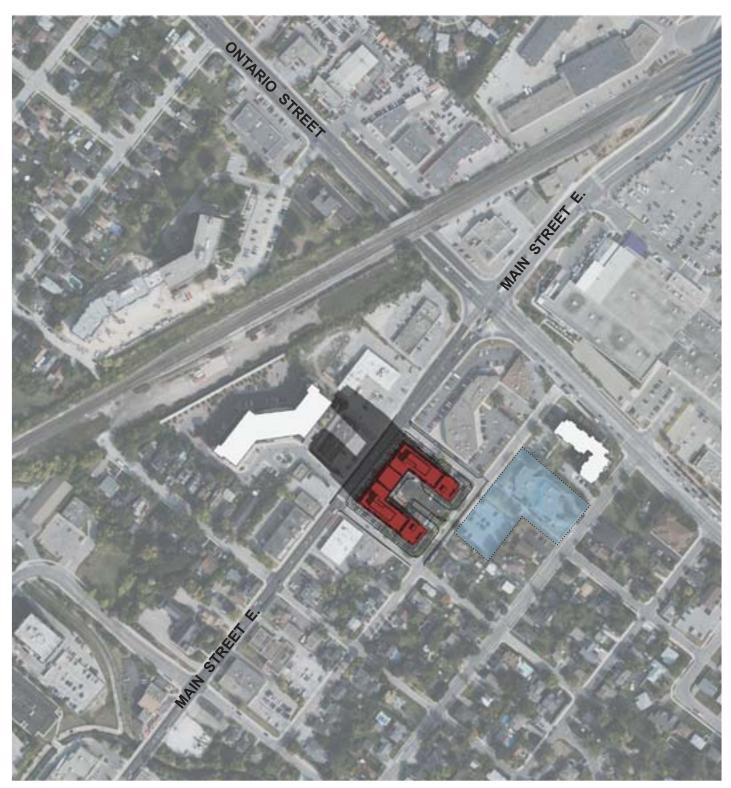




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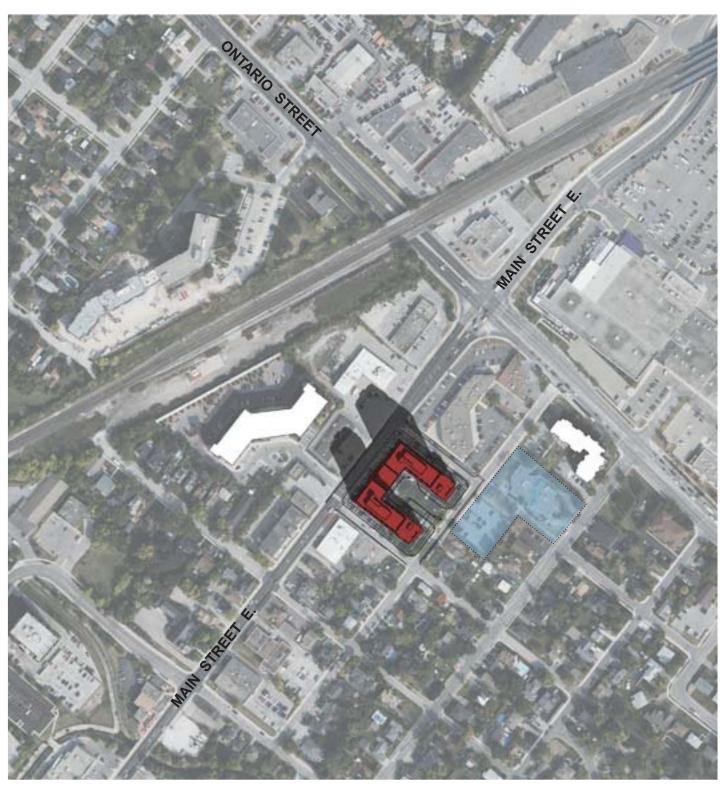




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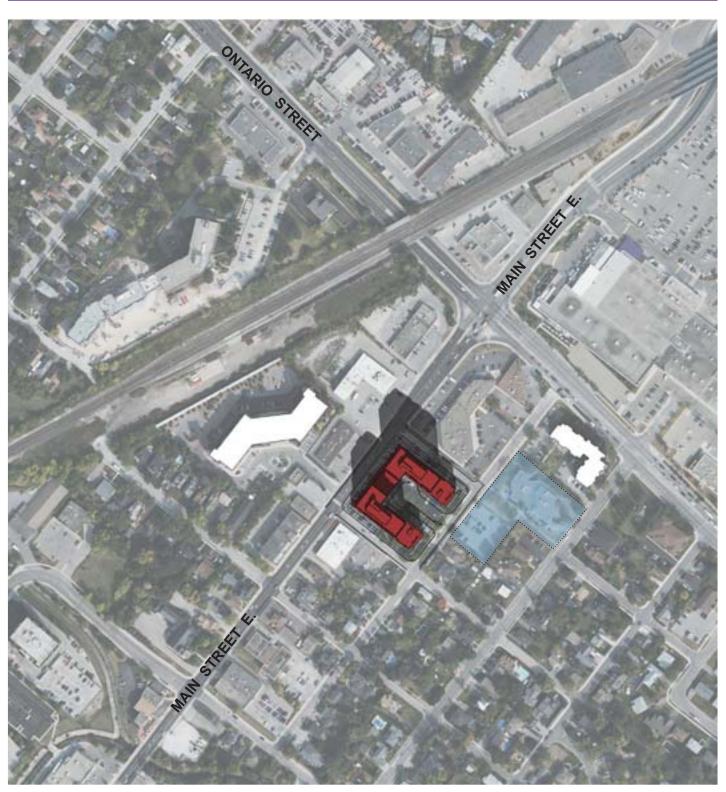




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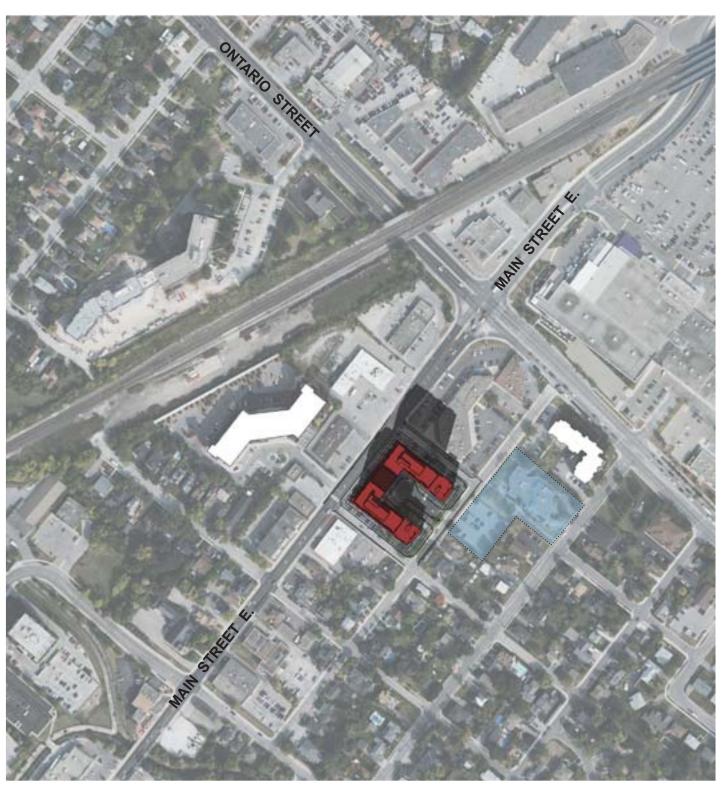




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UTC: (-04:00)

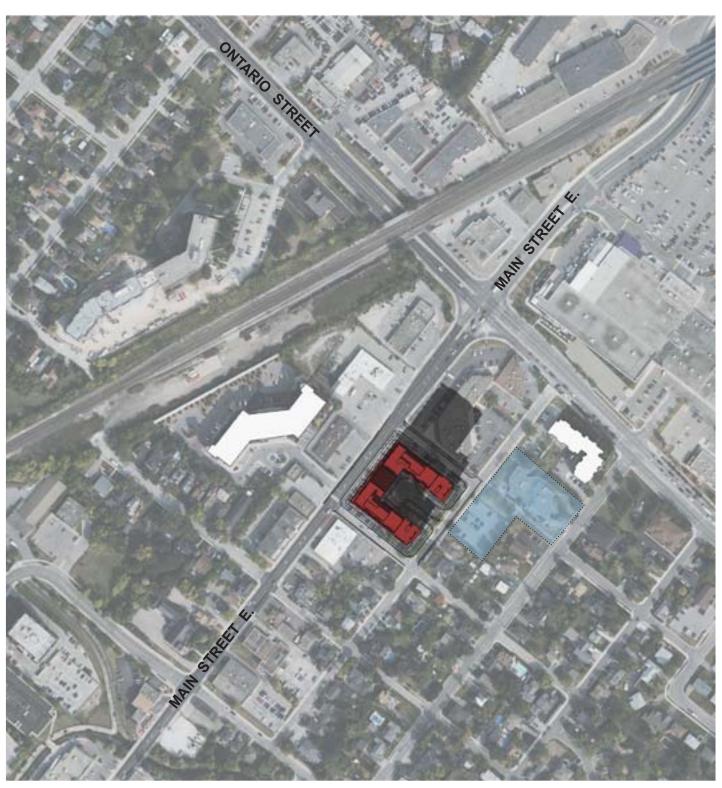




SEPTEMBER 21, 2:00 PM

UTC: (-04:00)



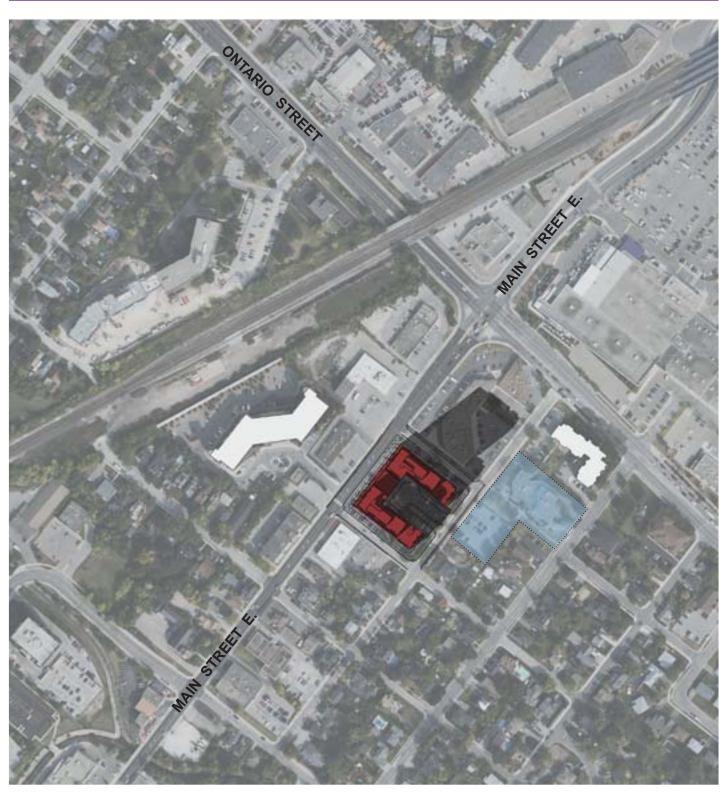


SEPTEMBER 21, 3:00 PM

UTC: (-04:00)



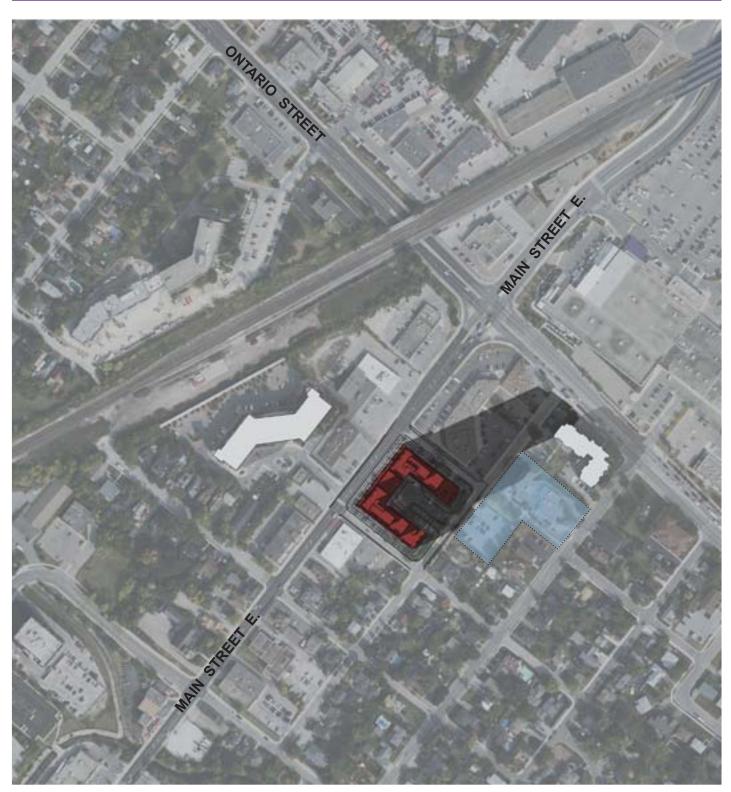
KNYMH File # 22063 v.1.0 Date: December 2, 2024



SEPTEMBER 21, 4:00 PM

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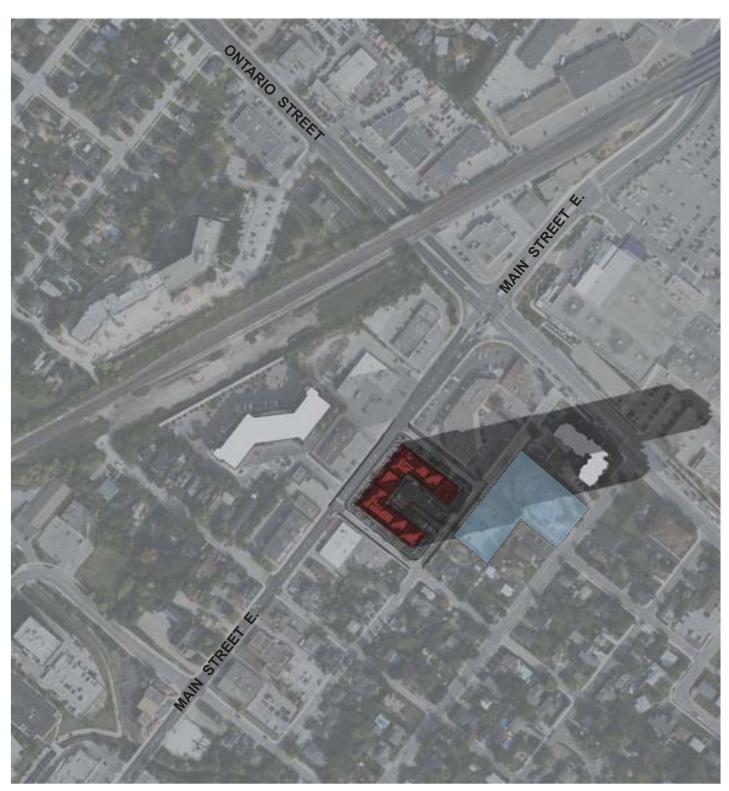




SEPTEMBER 21, 5:00 PM

UTC: (-04:00)





SEPTEMBER 21, 6:00 PM

UTC: (-04:00)



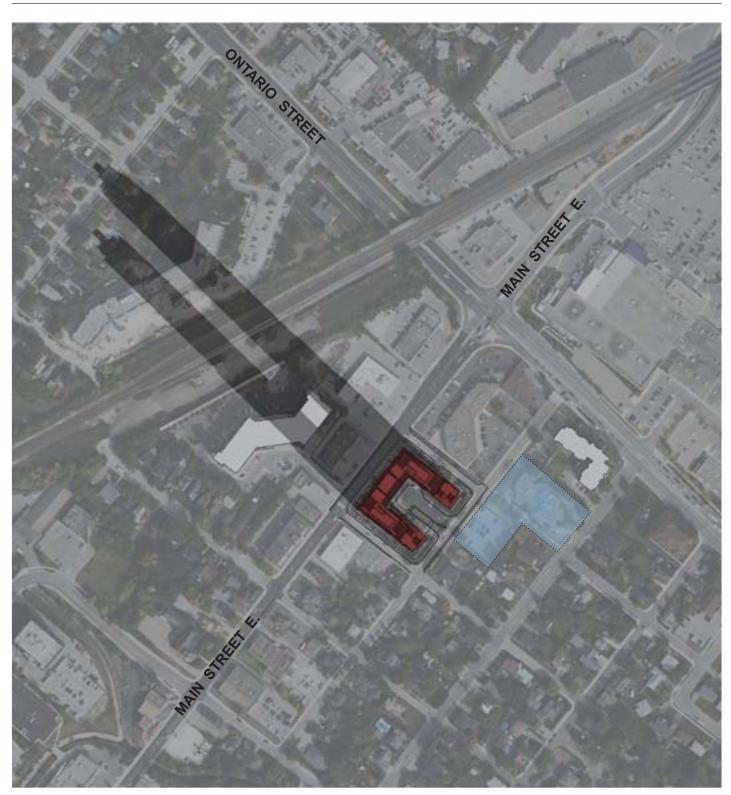
FIGURE A1.4 - SHADOW IMPACT GRAPHICS DECEMBER 21

SUN/SHADOW STUDY: (DECEMBER 21 • WINTER)

The content of the following appendix is a graphical study of the Winter shadow effect of the proposal upon the surrounding area. The impact is studied at the specific time period and assessment criteria noted in SECTION 4.1 - IMPACT ASSESSMENT CRITERIA and APPENDIX 1.0 - SHADOW IMPACT SCHEDULE of this document of the proposed development in addition to an 'as of right' comparative mass permitted by the Zoning by-law for the subject land. The times for this period are under Eastern Daylight Time. (UTC -5:00)

Date: December 2, 2024

P: 905-639-6595 | F:905-639-0394 | E: info@knymh.com A1.4-1



DECEMBER 21, 9:00 AM

UTC: (-05:00)

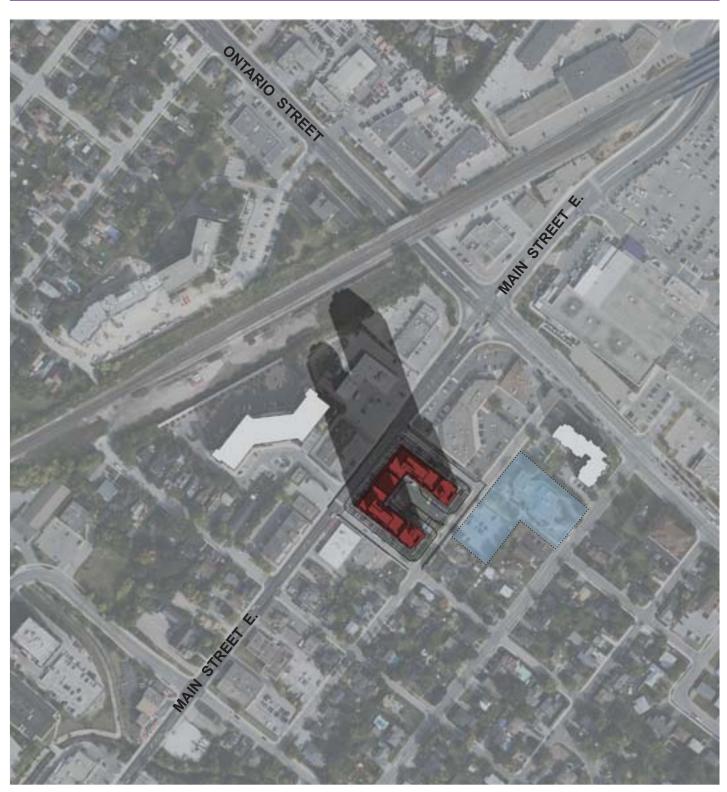




DECEMBER 21, 10:00 AM

UTC: (-05:00)





DECEMBER 21, 11:00 AM

UTC: (-05:00)

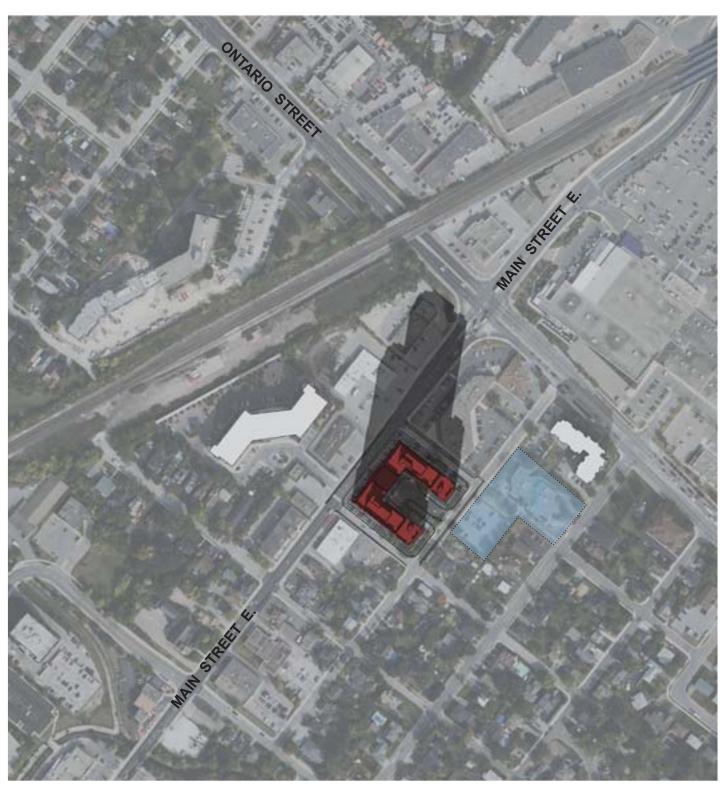




DECEMBER 21, 12:00 AM

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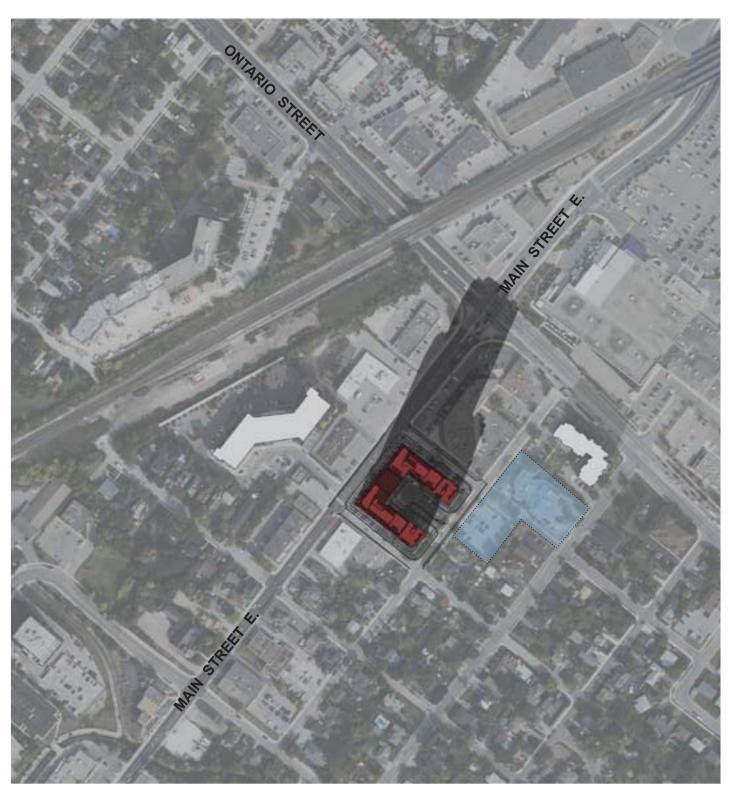




DECEMBER 21, 1:00 PM

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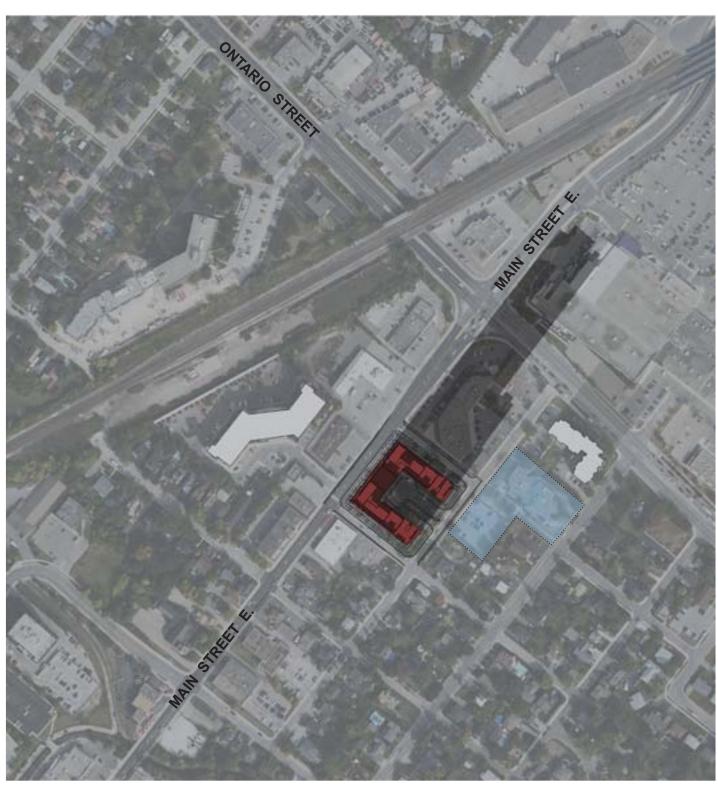




DECEMBER 21, 2:00 PM

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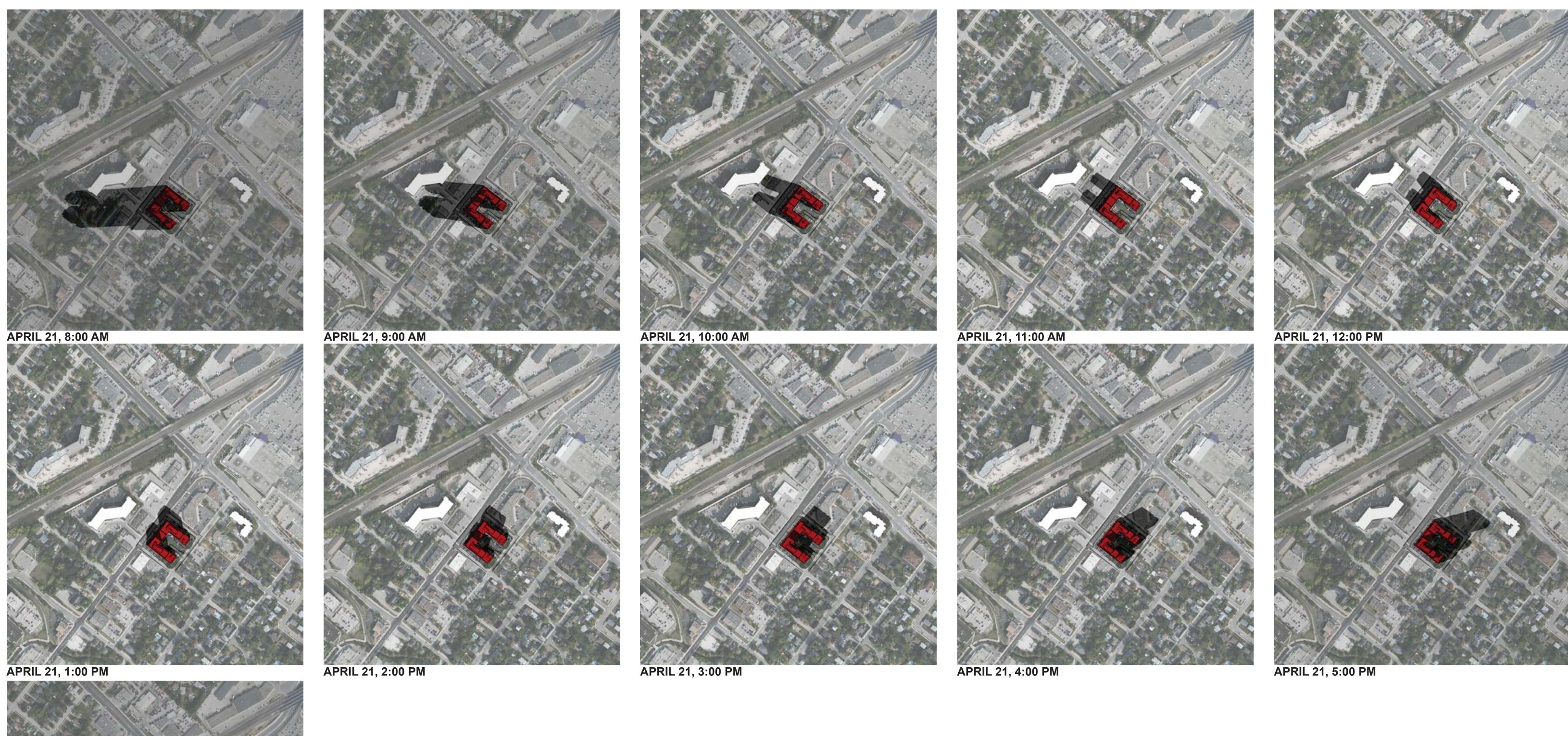


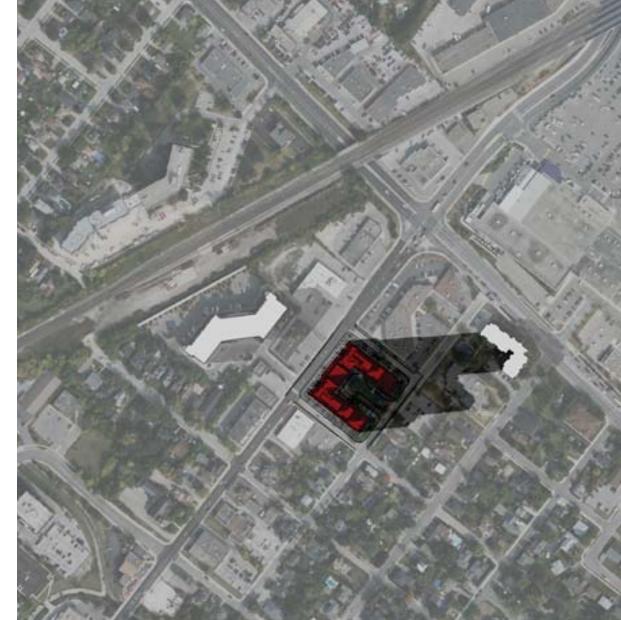


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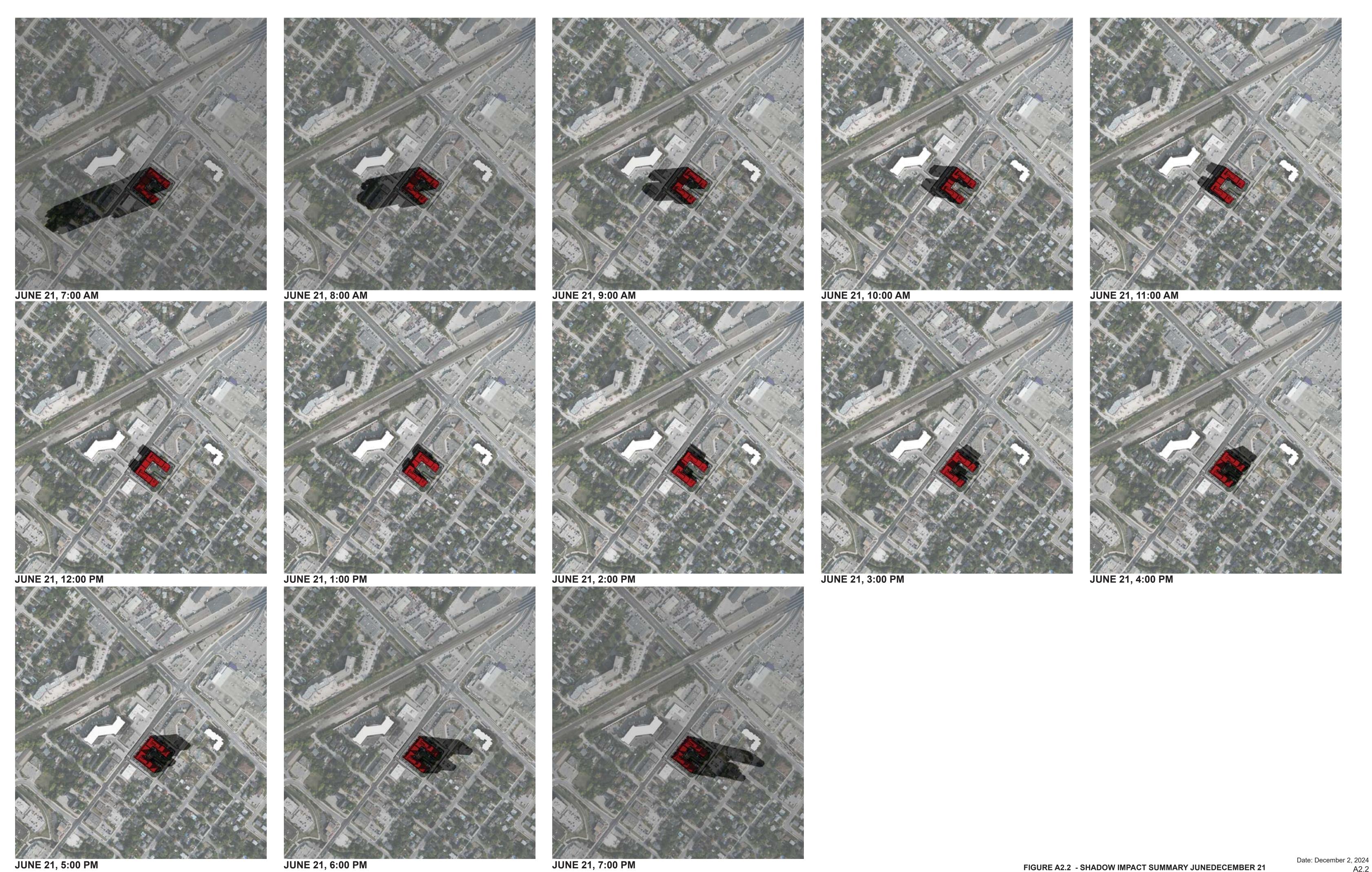




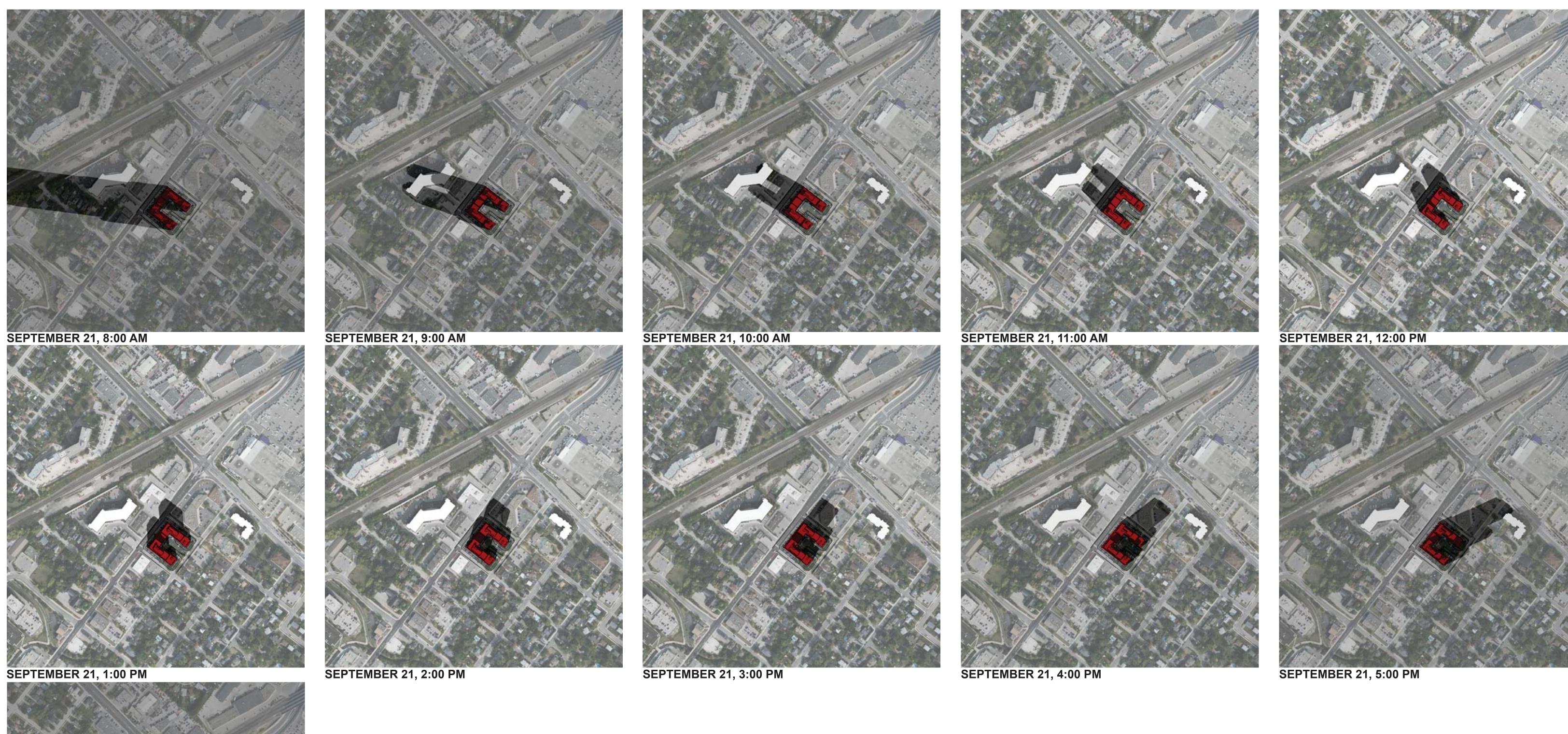


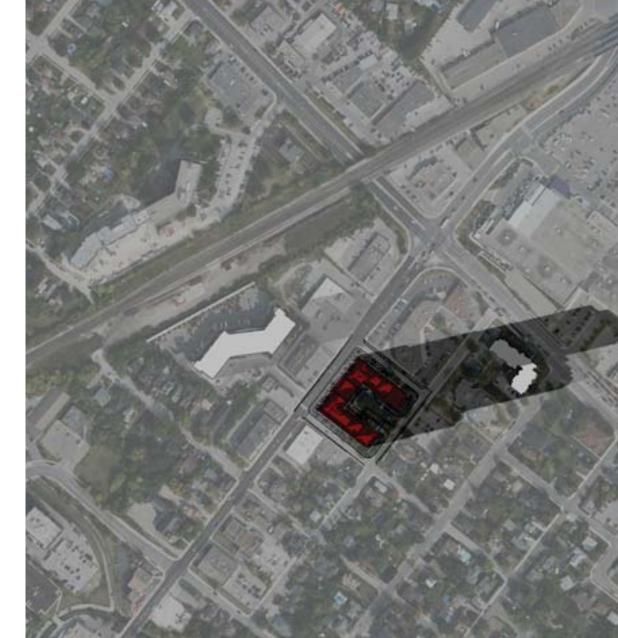
APRIL 21, 6:00 PM FIGURE A2.1 - SHADOW IMPACT SUMMARY APRILDECEMBER 21

Date: December 2, 2024









SEPTEMBER 21, 6:00 PM FIGURE A2.3 - SHADOW IMPACT SUMMARY SEPTDECEMBER 21

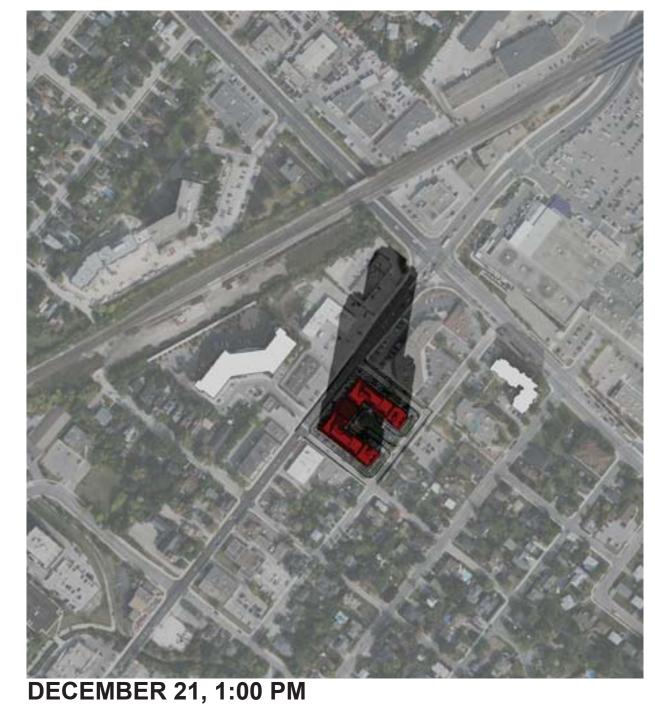


Date: December 2, 2024









Date: December 2, 2024 A2.4

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