

# WEST VILLAGE LANDS | SHADOW STUDY

2018.03.01



JUNE 21 07:07



JUNE 21 07:20

**LEGEND**

- CONTEXT MASSING SHADOW
- PROPOSED MASSING SHADOW
- PROPOSED MASSING
- GREEN SPACE
- POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

**WEST VILLAGE LANDS**

**SHADOW STUDY PROPOSED: JUNE 21 [UTC -4]**

01

2018-03-01









JUNE 21 08:20



JUNE 21 09:20

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates





JUNE 21 10:20



JUNE 21 11:20

**LEGEND**

CONTEXT MASSING SHADOW
  PROPOSED MASSING SHADOW
  PROPOSED MASSING
  GREEN SPACE
  POPS ( RETAIL / CAMPUS GROUNDS)

**Giannone Petricone Associates**

**WEST VILLAGE LANDS**

**SHADOW STUDY PROPOSED: JUNE 21 [UTC -4]**

**03**

2018-03-01





JUNE 21 12:20



JUNE 21 13:20

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)





Giannone Petricone Associates





JUNE 21 14:20

JUNE 21 15:20

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: JUNE 21 [UTC -4]

05





2018-03-01





JUNE 21 16:20

JUNE 21 17:20

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

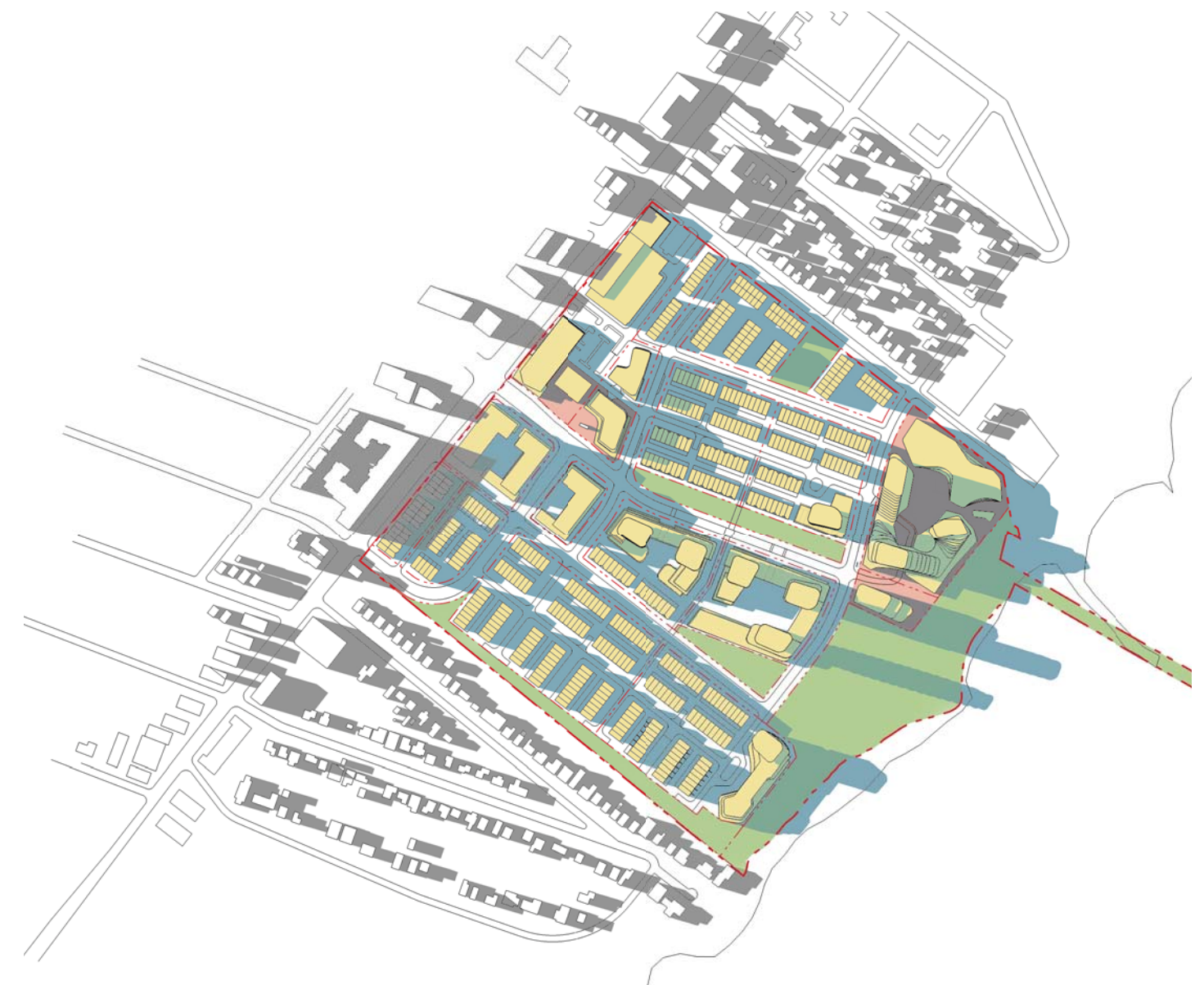
WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: JUNE 21 [UTC -4]

06

2018-03-01





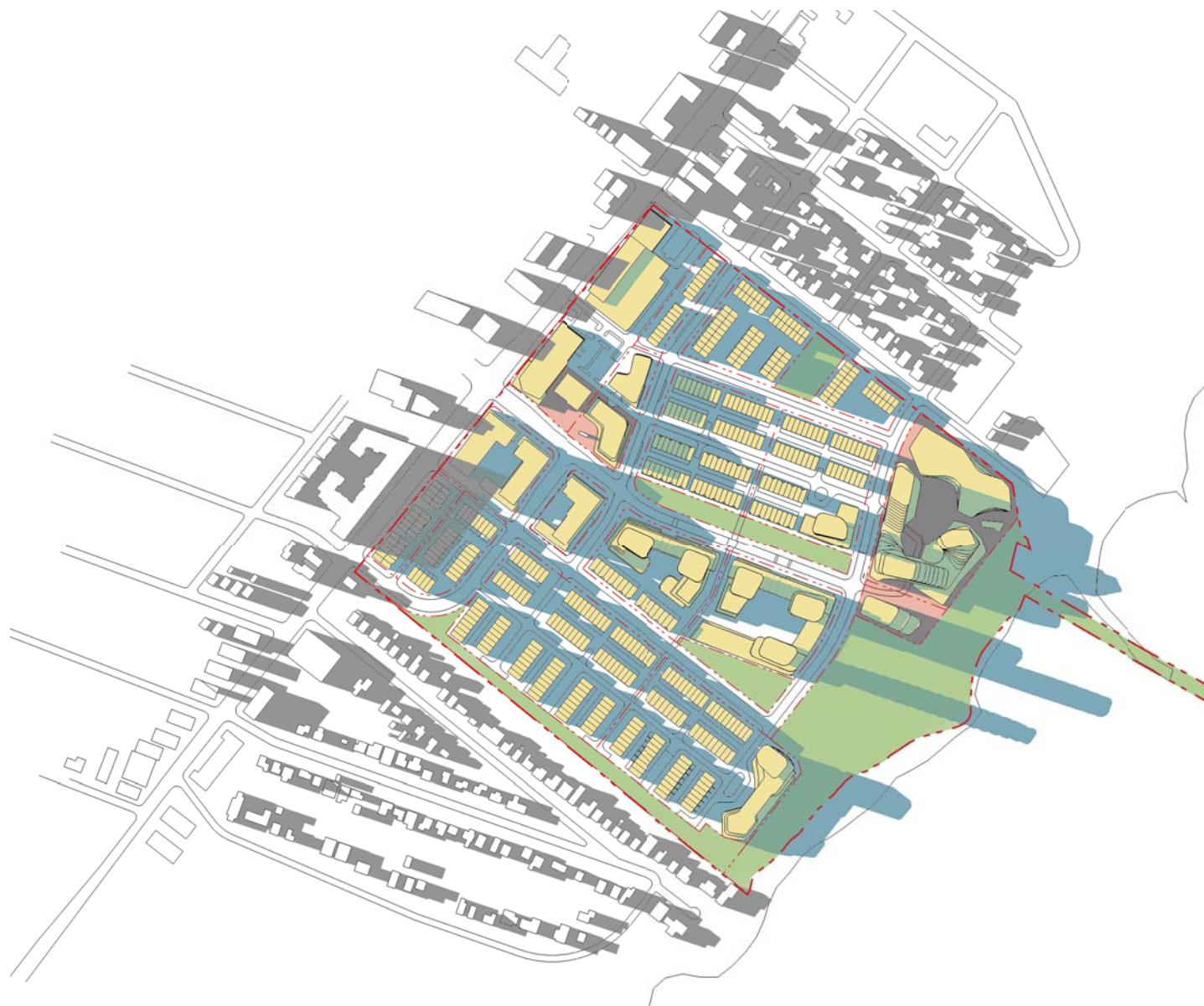
JUNE 21 18:20

JUNE 21 19:20

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates





JUNE 21 19:33

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: JUNE 21 [UTC -4]

08

2018-03-01



SEPT 21 08:35



SEPT 21 09:12

#### LEGEND

CONTEXT MASSING SHADOW
  PROPOSED MASSING SHADOW
  PROPOSED MASSING
  GREEN SPACE
  POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: SEPT 21 [UTC -4]

09

2018-03-01





SEPT 21 10:12



SEPT 21 11:12

#### LEGEND

CONTEXT MASSING SHADOW
  PROPOSED MASSING SHADOW
  PROPOSED MASSING
  GREEN SPACE
  POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

## WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: SEPT 21 [UTC -4]

10

2018-03-01







SEPT 21 12:12

SEPT 21 13:12

**LEGEND**

	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING		GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)
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Giannone Petricone Associates

## WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: SEPT 21 [UTC -4]

11



2018-03-01





SEPT 21 14:12

SEPT 21 15:12

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

## WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: SEPT 21 [UTC -4]

12



2018-03-01





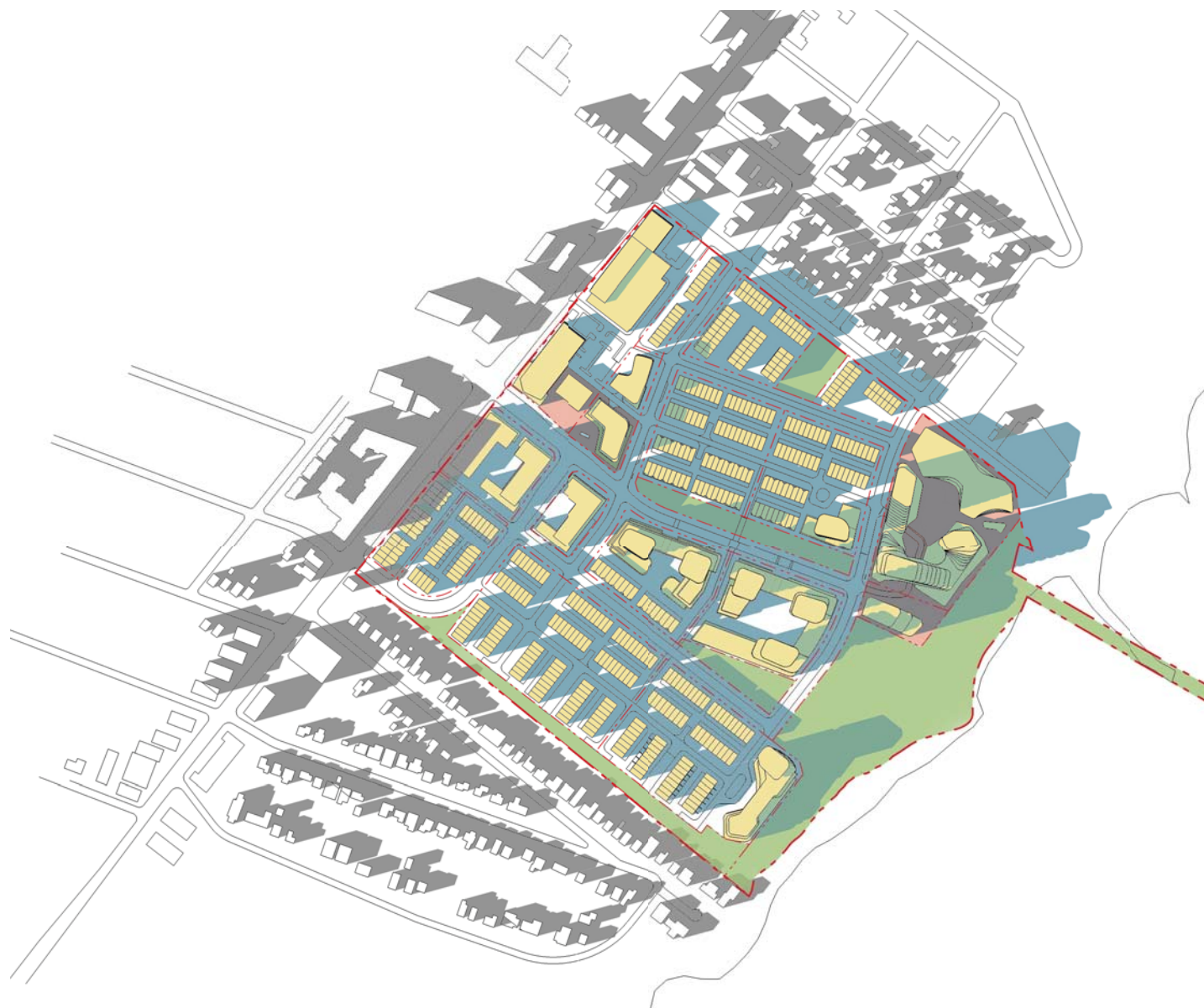
SEPT 21 16:12

SEPT 21 17:12

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates





SEPT 21 17:48

**LEGEND**

CONTEXT MASSING SHADOW
  PROPOSED MASSING SHADOW
  PROPOSED MASSING
  GREEN SPACE
  POPS ( RETAIL / CAMPUS GROUNDS)

*Giannone Petricone Associates*

**WEST VILLAGE LANDS**

**SHADOW STUDY PROPOSED: SEPT 21 [UTC -4]**

**14**



2018-03-01





DEC 21 09:19

DEC 21 10:17

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

## WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: DEC 21 [UTC -5]

15

2018-03-01





DEC 21 11:17

DEC 21 12:17

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

## WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: DEC 21 [UTC -5]

16



2018-03-01





DEC 21 **13:17**

DEC 21 **14:17**

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

**Giannone Petricone Associates**

## WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: DEC 21 [UTC -5]

**17**

2018-03-01





DEC 21 15:15

LEGEND					
	CONTEXT MASSING SHADOW		PROPOSED MASSING SHADOW		PROPOSED MASSING
			GREEN SPACE		POPS ( RETAIL / CAMPUS GROUNDS)

Giannone Petricone Associates

## WEST VILLAGE LANDS

SHADOW STUDY PROPOSED: DEC 21 [UTC -5]

18

2018-03-01



**Purpose of the Shadow Study**

A Shadow Study is required in support of this development application. Mississauga's terms of reference for Shadow Studies require development proponents to meet five criteria for the dates of June 21, September 21, and December 21. This Shadow Study is an update to the preliminary submission in August, 2017. The changes in this study reflect the changes and reconfiguration of buildings and open space design. This Shadow Study provides general findings that will be refined as the process progresses into the detailed design phase.

**Criteria 1: Ensure adequate sunlight on residential private outdoor amenity spaces**

This criterion is met if there is shadow impact for no more than two consecutive hourly test times within the space between the exterior wall of the dwelling that abuts the amenity space and the line of impact assessment on June 21 and September 21.

Shadows produced by the proposed townhouses which are 16 metres in height preserves at least two hours of direct sunlight within the “No Impact Zone” on adjacent residential private outdoor amenity spaces, north of Mississauga Road. This is especially true for June 21 and September 21 since there is no shadowing on the “No Impact Zone” throughout the day, an important attribute as more residents would use their private outdoor amenity spaces during the spring, summer, and fall months. Additionally, the northern portion of Lakeshore Road, opposite to the subject site, remains sunlit through all hours of the day on June 21 and September 21. Further detailed design will be required to determine the exact location of private residential outdoor space and appropriate measures will be taken to minimize shadows.

**Criteria 2: Ensure adequate sunlight on communal outdoor amenity areas including, children’s play areas, school yards, tot lots, and park features such as sandboxes, wading pools etc., and outdoor amenity areas used by seniors and those associated with commercial and employment areas during spring, summer, fall and winter.**

This criterion, which applies to public amenity areas that are part of the proposed development, is met if the sun access factor is at least 50% or 0.5 on June 21, September 21, and December 21. Given the early stage of design, it is not possible to calculate whether or not this criterion is satisfied. A more detailed design of open spaces and specific location of park features will determine the exact sun access factors. With that in mind, the buildings have been massed and located strategically to avoid undue shadow impacts on all proposed open spaces including the Village Square and campus grounds.

**Criteria 3: Ensure adequate sunlight on the public realm including sidewalks, open spaces, parks and plazas to maximize their use during the shoulder seasons (spring and fall).**

This criterion is met if there is no incremental shade from the proposed development at 9:12 a.m., 10:12a.m. and 11:12 a.m., and at 3:12 p.m., 4:12 p.m. and 5:12 p.m. on low and medium density residential streets; at 12:12 p.m., 1:12 p.m. and 2:12 p.m., and three consecutive times either 9:12 a.m., 10:12 a.m. and 11:12 a.m. or 3:12 p.m., 4:12 p.m. and 5:12 p.m. on mixed use, commercial, employment, and high density residential streets; and provides a sun access factor of at least 50% on public open spaces, parks and plazas on September 21.

The shadow study diagrams demonstrate that the proposed built form results in minimal shadow impact on the proposed public park at the northeast corner of Street A and Street F as well as the proposed promenade along Street B. On June 21, less than 50% of the public open space is shadowed by the proposed built form at 9:20am, subsequently, there are no shadowing on the park from 10:20am onward. Similarly, on September 21, the park remains free of shadow throughout the day until 5:12pm, where shadowing only occurs at the southern edge of the proposed open space with a sun access factor well above 50%. On December 21, minimal shadow effect occurs throughout the day and most significantly late in the afternoon from 2:17pm to sunset, as expected, when the sun is lowest in the sky and shadows are lengthiest. Similarly, POPS shown in red remain well lit throughout the day. For example, the only instance where the Sun Access factor is below 50% for the Village Square is at 9:20am on June 21, and at 9:12am, 10:12am, and 5:12pm on September 21. For the campus grounds, the open space area remains well lit until the evening hours for both June 21 and September 21. The Public Park located to the south of the site remain more than 50% sunlit at all hours of the test period on June 21, September 21, and December 21. In fact, due to the strategic placement of tall buildings on both edges of the property, the Sun Access Factor for the Public Park is well above 50% throughout the test period for all three days.

**Criteria 4: Ensure adequate sunlight on turf and flower gardens in public parks.**

This criterion is met if full sun is provided on any 7 test times on September 21, from 1.5 hours after sunrise to 1.5 hours before sunset. As mentioned in Criteria 3 above, the Public Park is nearly 100% sunlit during the test period on June 21 and September 21. The proposed development would allow for adequate sunlight during the growing season from March to October. The current landscape design is conceptual, a more detailed landscape design will further address shadow impact issues to meet this Criteria. Nonetheless, the buildings have been massed and located strategically to avoid undue shadow impacts on these spaces.

**Criteria 5: Ensure adequate sunlight on building faces to allow for the possibility of using solar energy.**

This criterion is met if there is shadow impact for no more than two consecutive hourly test times in the “No Impact Zone” i.e. the space between the front, rear and exterior side walls of the adjacent low-rise residential buildings and the respective lines of impact assessment. As mentioned in Criteria 1, the shadow casted by the proposed townhouses do not encroach into the “No Impact Zone” on the properties to the north. At this stage of design, the Shadow Study diagrams demonstrate that the proposed towers do not shadow individual low-rise buildings to the north during the test period on September 21. Additionally, the proposed townhouses along Mississauga Road do not shadow onto the properties to the north on June 21, and shadowing only occur onto the front yard at 5:12pm on September 21.

SHADOW STUDY ANALYSIS DONE BY URBAN STRATEGIES INC.

Giannone Petricone Associates