SUN SHADOW STUDY ANALYSIS

2083 OLD LAKESHORE

BURLINGTON, ON

MIXED-USE DEVELOPMENT

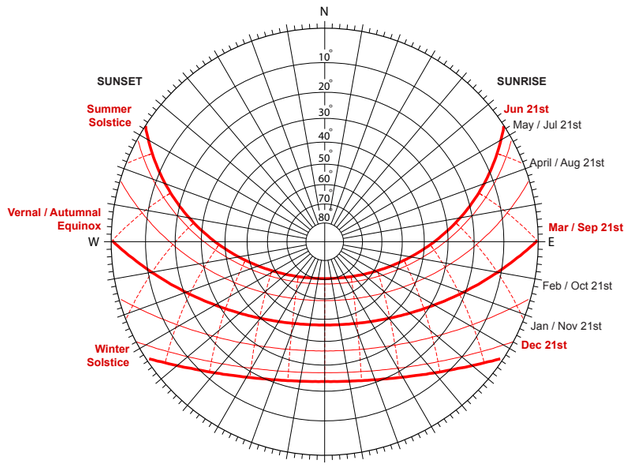
PROJECT NO. 22-047

OCT 18, 2024

KIRKOR

01 TERM OF REFERENCE

Figure 3.1 - Sterographic Sunpath Diagram (Latitude 43N)



Burlington, Ontario 43.3255° N, 79.7990° W

4.0 Shadow Impact Criteria

4.1 Introduction

Shadow Impact Criteria cannot be applied universally due to unique site specific and surrounding built form and land use attributes. Five unique Shadow Impact Criteria have been developed to respond to desired uses. As such, each area will include unique evaluation criteria with different times, dates, and standards.

Shadow Impact Criteria will specify:

- How a criterion is fulfilled; and,
- The test dates and times the criterion applies.

Shadow Impact Criteria are organized by the application of the concepts Net New Shadows and Sun Access Factor (SAF).

Net New Shadows are incremental shadows that exceed the existing building shadows.

Sun Access Factor (SAF) is a measure of sun penetration on a given area, during a specified time frame, calculated as follows:

1. Measure the total area (A_T) of the feature (e.g. boulevard, private outdoor amenity or park space).
2. Measure the area exposed to sunshine ($A_{S(test)}$) at each of the hourly test times.
3. Calculate the average area exposed to sunshine ($A_{S(interval)}$) over each hourly interval as the mean between the ($A_{S(test)}$) at the beginning of the interval, and at the end of the interval.
4. Find the overall average area exposed to sunshine ($A_{S(average)}$) by dividing the sum of the ($A_{S(interval)}$) values by the number of hourly intervals (e.g. hourly measurements between 09:00 and 18:00 = 9 intervals).
5. Find the SAF by dividing the $A_{S(average)}$ by A_T (passes if > the specified standard; i.e. 0.22 or 0.50).

This section provides some example shadow drawings that show how to measure for calculating SAF (Figures 4.1 and 4.2). See Appendix B for example calculations.

6.0 Submission Format

A technical report shall be prepared upon the completion of the Shadow Study. In General, the report should address the following items set out in Sections 6.1 - 6.6, inclusive:

Submissions shall be completed to the satisfaction of the Community Planning Department.

6.1 Study Drawings

Required Shadow Study drawings include the following test dates and times:

Spring and Fall Equinoxes:

- March 21st, hourly increments between 09:00 – 18:00; and,
- September 21st, hourly increments between 09:00 – 18:00.

Winter and Summer Solstices:

- December 21st, hourly increments between 11:00 – 15:00; and,
- June 21st, hourly increments between 08:00 –19:00.

Some test dates and times will be for illustrative purposes only. Calculations and accompanying drawings are required only for the specified dates and times required for each of the applicable Shadow Impact Criteria.

6.2 Base Mapping

Because shadow impacts are greatest to the north and east, the base mapping must include a study area with a minimum coverage area of:

- 4 times the building height to the north;
- 6 times the building height to the east;
- 3 times the building height to the west; and,
- 1.5 times the building height to the south.

Identification of shadow-sensitive areas as defined in Section 4.0 or by City staff.

6.3 Shadow Drawings

Shadow Studies should show a complete set of shadow drawings for each of the dates and times listed in Section 6.1 together with calculation drawings for each applicable Shadow Impact Criteria. The drawings shall include the following graphic standards:

- 2-Dimensional planimetric view with true north oriented to the top of the drawing;
- Stated scale with scale bar;
- Format each drawing with a single image to at least 8.5” x 11” size;
- Submissions must be generated in full colour;
- Indicate the following features within the study area as defined in Section 6.2:
  - Development site boundaries (red dashed lines);
  - Footprint and mass of the building(s) proposed (thick black solid lines);
  - Footprint and mass of existing buildings (thin black solid lines);
  - Any Parks, Natural Heritage Systems, Major Parks or Open Space designated lands, Key Civic and Cultural Spaces, or Places where Children Play (thick green dashed lines);
  - Public Realm and Sidewalks (thin black solid lines); and,
  - Private Outdoor Amenity Space (thick pink dashed lines).

Reference graphic standard examples illustrated in Section 4.0 and Appendix A.

Based on 3D simulations, Shadow Study diagrams should include colour-coded shadows cast from the proposed buildings and all existing buildings within the study area, conforming to the following graphic standards:

- Shadows cast by existing buildings on all surfaces (black/grey);
- Net New Shadows cast by proposed building(s) on ground surfaces (blue);
- Net New Shadows cast by proposed building(s) on roof surfaces (purple); and,
- Shadows no longer proposed resulting from proposed changes (beige).

Where calculations are required to show conformance with the applicable Shadow Impact Criteria, shadow coverage at each test time (in m^2) should be noted either next to the applicable shadow drawing, or in a chart.

All graphic elements including shadow colours should be illustrated in a printed legend.

TERM OF REF.

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Site Boundary

Open Space

Proposed Development

Active Development Application

Under Construction

CONTEXT MAP
TERM OF REF.

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02

SPRING EQUINOX



- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
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- Existing Buildings

0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 9:00

SPRING EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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- Net New Shadows cast on roof surfaces
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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 10:00

SPRING EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 11:00

- Net New Shadows cast on roof surfaces
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SPRING EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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KIRKOR
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Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 12:00

SPRING EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

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KIRKOR
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Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 13:00

SPRING EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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KIRKOR
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Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 14:00

SPRING EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

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KIRKOR
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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 15:00

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SPRING EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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KIRKOR
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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 16:00

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SPRING EQUINOX
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KIRKOR
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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 17:00

SPRING EQUINOX
SHADOW ANALYSIS

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KIRKOR
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Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
MARCH 21st @ 18:00

SPRING EQUINOX
SHADOW ANALYSIS

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KIRKOR
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03

FALL EQUINOX



0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 9:00

- Net New Shadows cast on roof surfaces
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FALL EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS



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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 10:00

FALL EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS



0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 11:00

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FALL EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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KIRKOR
ARCHITECTS AND PLANNERS



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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 12:00

FALL EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS



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2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 13:00

FALL EQUINOX
SHADOW ANALYSIS

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KIRKOR
ARCHITECTS AND PLANNERS



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2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 14:00

FALL EQUINOX
SHADOW ANALYSIS

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KIRKOR
ARCHITECTS AND PLANNERS



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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 15:00

FALL EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
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KIRKOR
ARCHITECTS AND PLANNERS



0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 16:00

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FALL EQUINOX
SHADOW ANALYSIS

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BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS



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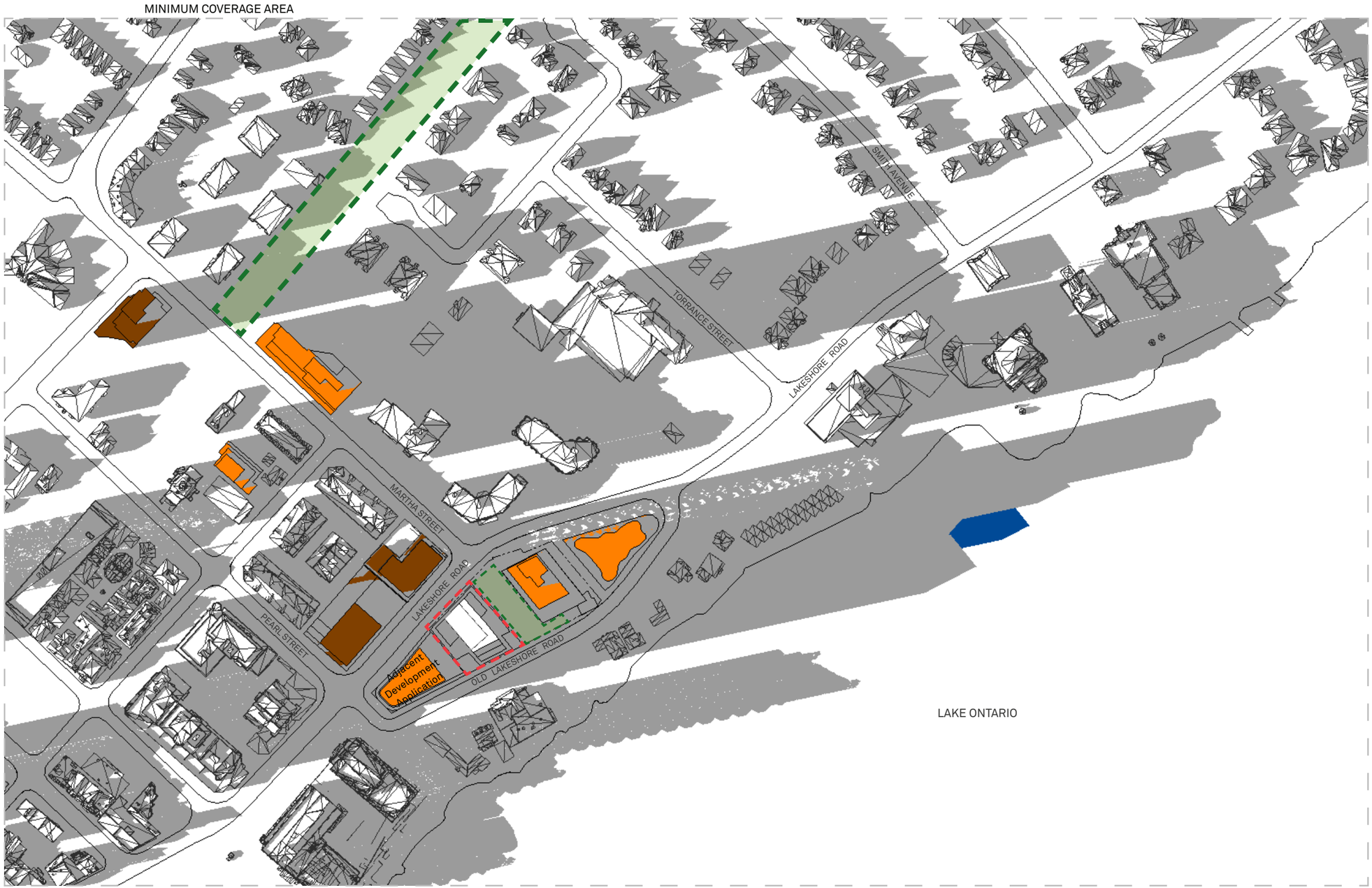
2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 17:00

FALL EQUINOX
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS



0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
SEPTEMBER 21st @ 18:00

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FALL EQUINOX
SHADOW ANALYSIS

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BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS

04

WINTER SOLSTICE



- Net New Shadows cast on roof surfaces
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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
DECEMBER 21st @ 11:00

WINTER SOLSTICE
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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KIRKOR
ARCHITECTS AND PLANNERS



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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
DECEMBER 21st @ 12:00

WINTER SOLSTICE
SHADOW ANALYSIS

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KIRKOR
ARCHITECTS AND PLANNERS



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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
DECEMBER 21st @ 13:00

WINTER SOLSTICE
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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KIRKOR
ARCHITECTS AND PLANNERS



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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
DECEMBER 21st @ 14:00

WINTER SOLSTICE
SHADOW ANALYSIS

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ARCHITECTS AND PLANNERS



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Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
DECEMBER 21st @ 15:00

WINTER SOLSTICE
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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KIRKOR
ARCHITECTS AND PLANNERS

05 SUMMER SOLSTICE



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0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 8:00

SUMMER SOLSTICE
SHADOW ANALYSIS

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2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 9:00

SUMMER SOLSTICE
SHADOW ANALYSIS

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2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 10:00

SUMMER SOLSTICE
SHADOW ANALYSIS

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ARCHITECTS AND PLANNERS



0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 11:00

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SUMMER SOLSTICE
SHADOW ANALYSIS

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KIRKOR
ARCHITECTS AND PLANNERS



0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 12:00

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SUMMER SOLSTICE
SHADOW ANALYSIS

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KIRKOR
ARCHITECTS AND PLANNERS



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SUMMER SOLSTICE
SHADOW ANALYSIS

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KIRKOR
ARCHITECTS AND PLANNERS



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- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 14:00

SUMMER SOLSTICE
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-40

KIRKOR
ARCHITECTS AND PLANNERS



- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 15:00

SUMMER SOLSTICE
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-41

KIRKOR
ARCHITECTS AND PLANNERS



- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 16:00

SUMMER SOLSTICE
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-42

KIRKOR
ARCHITECTS AND PLANNERS



- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

0m 25m 50m 100m

Scale = 1:2,750

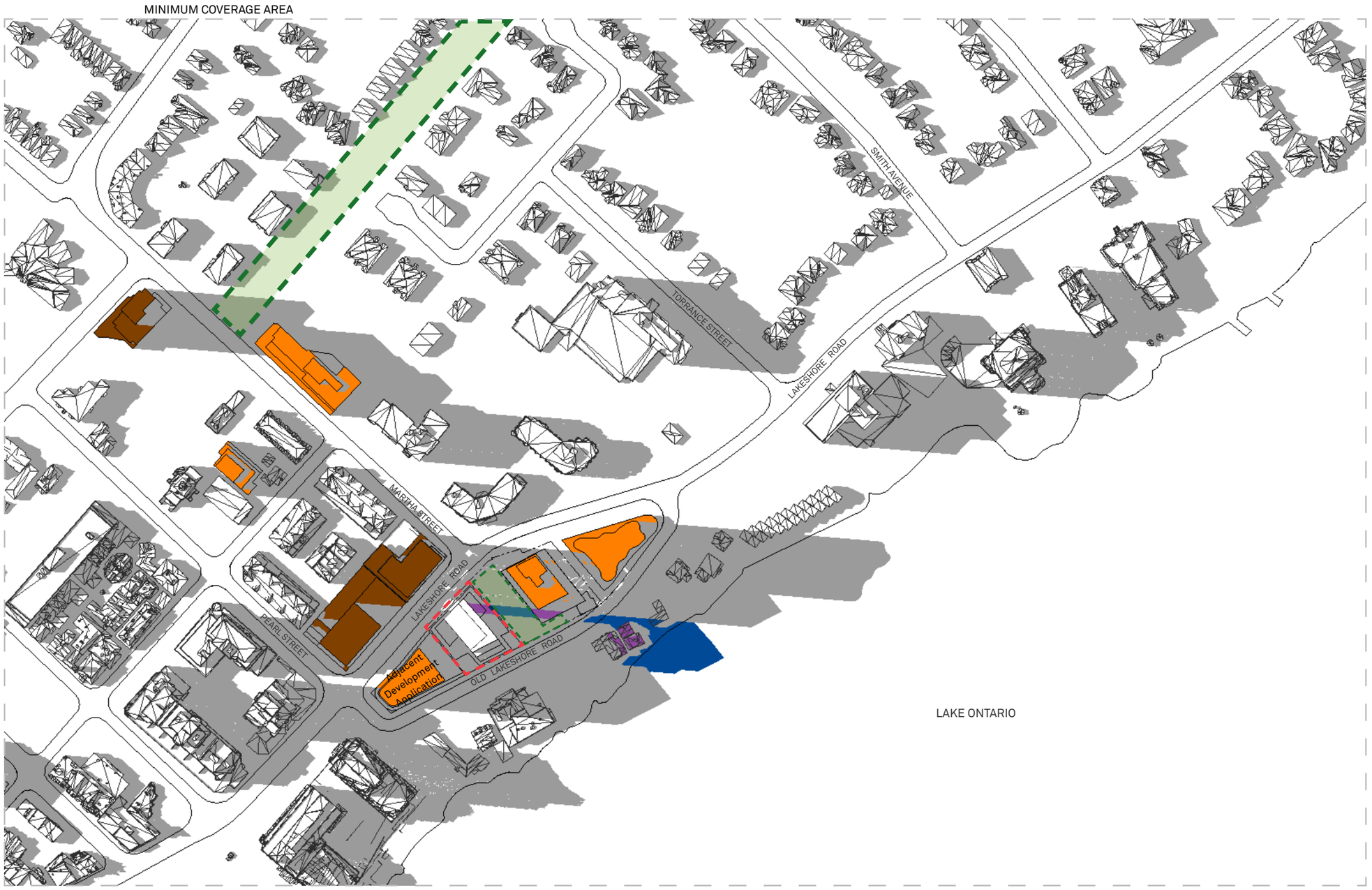
2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 17:00

SUMMER SOLSTICE
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-43

KIRKOR
ARCHITECTS AND PLANNERS



- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

0m 25m 50m 100m

Scale = 1:2,750

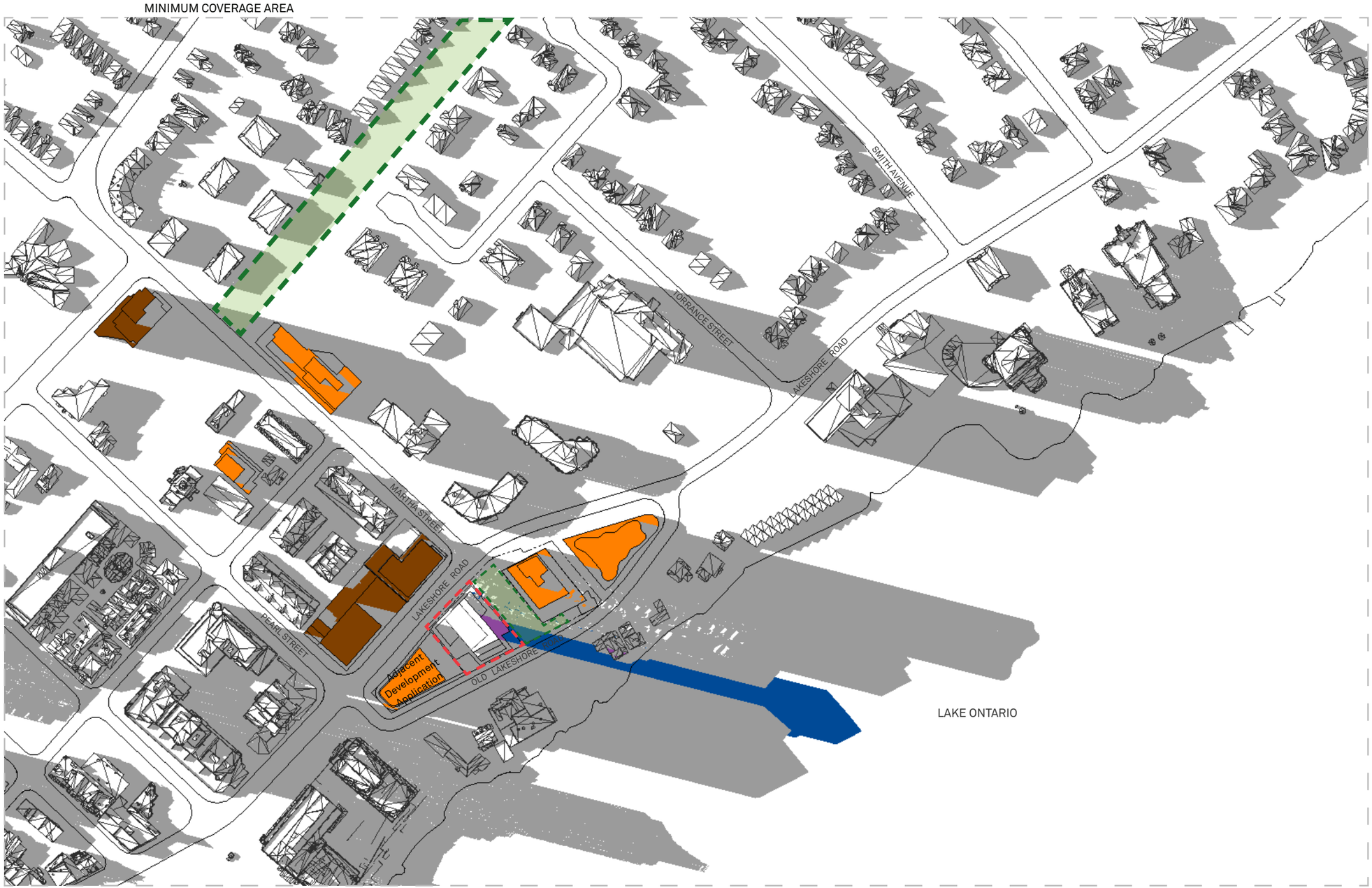
2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 18:00

SUMMER SOLSTICE
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-44

KIRKOR
ARCHITECTS AND PLANNERS



- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

0m 25m 50m 100m

Scale = 1:2,750

2083 OLD LAKESHORE, BURLINGTON, ONTARIO
JUNE 21st @ 19:00

SUMMER SOLSTICES
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-45

KIRKOR
ARCHITECTS AND PLANNERS

06

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS



- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

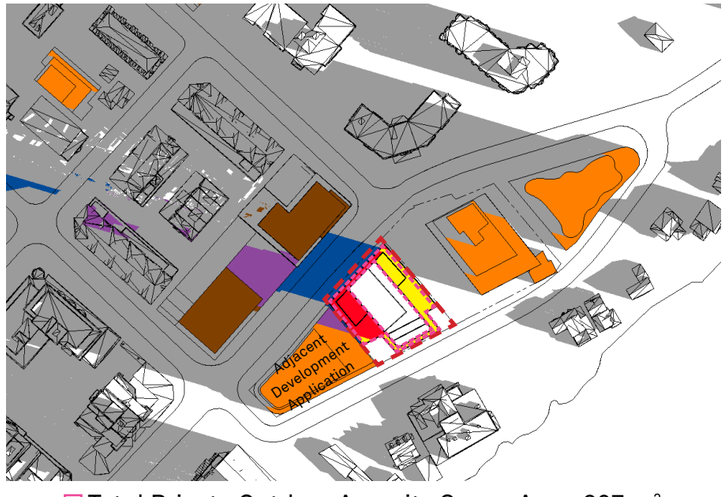
CONTEXTMAP
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-47

KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 09:00



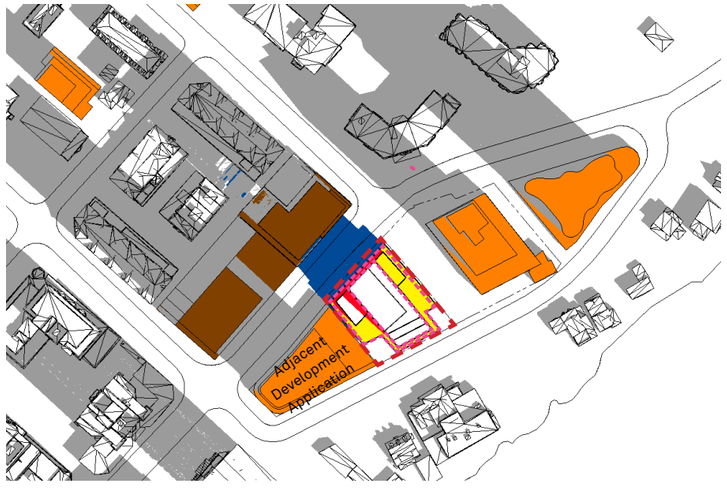
☐ Total Private Outdoor Amenity Space Area: 807 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 437 m^2
■ Area in Shadow: 370 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 10:00



☐ Total Private Outdoor Amenity Space Area: 807 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 498 m^2
■ Area in Shadow: 309 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 11:00



☐ Total Private Outdoor Amenity Space Area: 807 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 576 m^2
■ Area in Shadow: 231 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 12:00



☐ Total Private Outdoor Amenity Space Area: 807 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 581 m^2
■ Area in Shadow: 226 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

☐ Site Boundary

☐ Open Space

☐ Private Outdoor Amenity

☐ Minimum Coverage Area

☐ Proposed Development

■ Active Development Application

■ Under Construction

☐ Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (A) SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
23-047
OCT 18, 2024
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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 13:00



☐ Total Private Outdoor Amenity Space Area: 807 m²
Area Exposed to Sunshine ($A_{s(test)}$): 412 m²
Area in Shadow: 395 m²

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 14:00



☐ Total Private Outdoor Amenity Space Area: 807 m²
Area Exposed to Sunshine ($A_{s(test)}$): 216 m²
Area in Shadow: 591 m²

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 15:00



☐ Total Private Outdoor Amenity Space Area: 807 m²
Area Exposed to Sunshine ($A_{s(test)}$): 97 m²
Area in Shadow: 710 m²

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 16:00



☐ Total Private Outdoor Amenity Space Area: 807 m²
Area Exposed to Sunshine ($A_{s(test)}$): 101 m²
Area in Shadow: 706 m²

Net New Shadows cast on roof surfaces

Net New Shadows cast on ground Surfaces

Shadows cast by existing buildings on all surfaces

Site Boundary

Open Space

Private Outdoor Amenity

Minimum Coverage Area

Proposed Development

Active Development Application

Under Construction

Existing Buildings

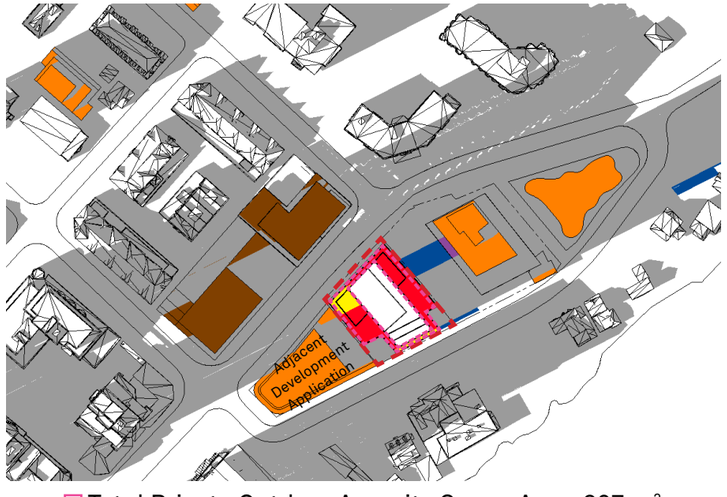
PRIVATE OUTDOOR AMENITY SPACE (A) SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
23-047
OCT 18, 2024
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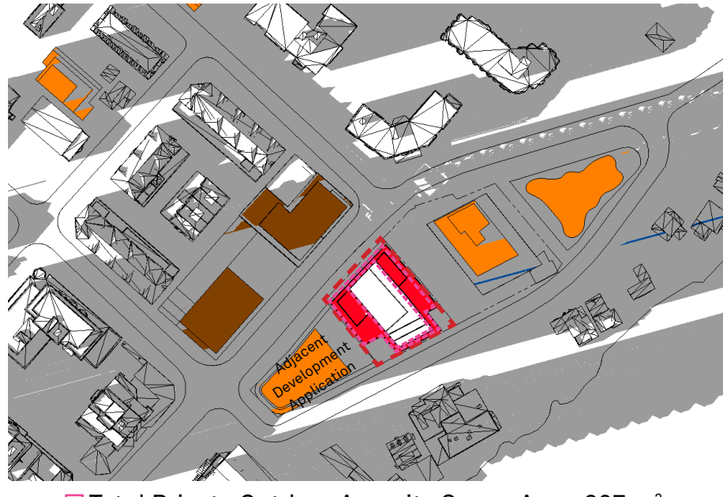
KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 17:00



- Total Private Outdoor Amenity Space Area: 807 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 154 m^2
- Area in Shadow: 653 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 18:00



- Total Private Outdoor Amenity Space Area: 807 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 0 m^2
- Area in Shadow: 807 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (A)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
23-047
OCT 18, 2024
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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st

1. Total area of private outdoor amenity space (A_T)= 807 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 437 m^2
10:00 ($A_{s(test)-10:00}$)= 498 m^2
11:00 ($A_{s(test)-11:00}$)= 576 m^2
12:00 ($A_{s(test)-12:00}$)= 581 m^2
13:00 ($A_{s(test)-13:00}$)= 412 m^2
14:00 ($A_{s(test)-14:00}$)= 216 m^2
15:00 ($A_{s(test)-15:00}$)= 97 m^2
16:00 ($A_{s(test)-16:00}$)= 101 m^2
17:00 ($A_{s(test)-17:00}$)= 154 m^2
18:00 ($A_{s(test)-18:00}$)= 0 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (437 m^2 + 498 m^2) /2 = 467.5 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (498 m^2 + 576 m^2) /2 = 537 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (576 m^2 + 584 m^2) /2 = 578.5 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (584 m^2 + 412 m^2) /2 = 498 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (412 m^2 + 216 m^2) /2 = 314 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (216 m^2 + 97 m^2) /2 = 156.5 m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (97 m^2 + 101 m^2) /2 = 99 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (101 m^2 + 154 m^2) /2 = 127.5 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (154 m^2 + 0 m^2) /2 = 77 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 2855 m^2 / 9 = 317.22 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 317.22 m^2 / 807 m^2 = 0.39

0.39 is greater than 0.22. Therefore, the SAF meets the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

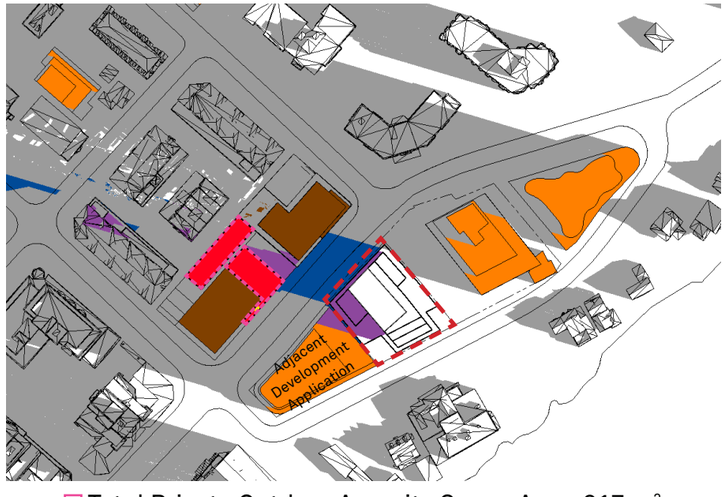
PRIVATE OUTDOOR AMENITY SPACE (A) SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-51

KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 09:00



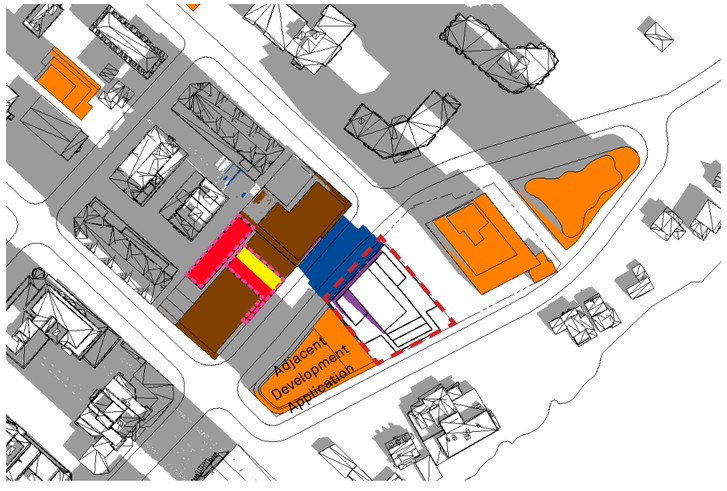
☐ Total Private Outdoor Amenity Space Area: 817 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 5 m^2
■ Area in Shadow: 812 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 10:00



☐ Total Private Outdoor Amenity Space Area: 817 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 242 m^2
■ Area in Shadow: 575 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 11:00



☐ Total Private Outdoor Amenity Space Area: 817 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 191 m^2
■ Area in Shadow: 626 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 12:00



☐ Total Private Outdoor Amenity Space Area: 817 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 0 m^2
■ Area in Shadow: 817 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

☐ Site Boundary

☐ Open Space

☐ Private Outdoor Amenity

☐ Minimum Coverage Area

☐ Proposed Development

■ Active Development Application

■ Under Construction

☐ Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (B) SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-52

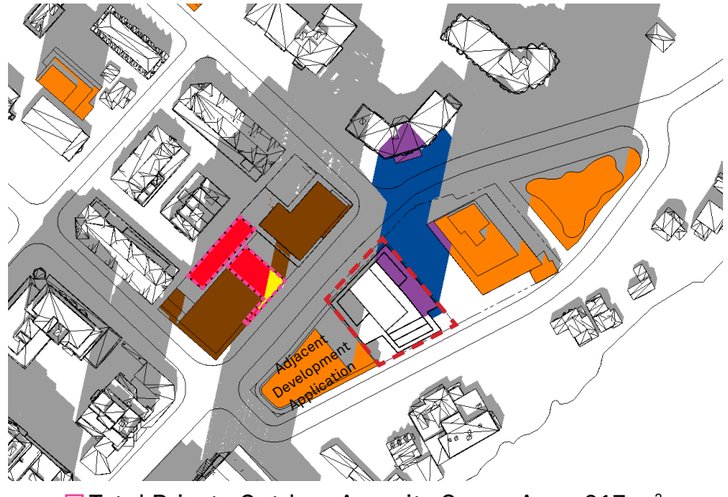
KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 13:00



- Total Private Outdoor Amenity Space Area: 817 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 0 m^2
- Area in Shadow: 817 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 14:00



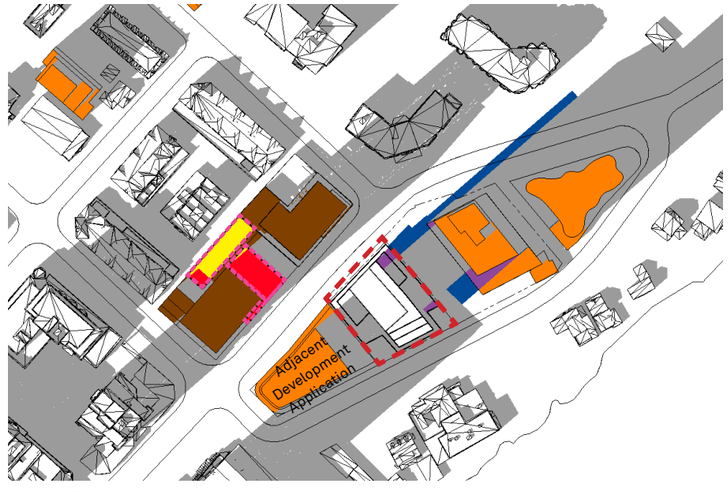
- Total Private Outdoor Amenity Space Area: 817 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 93 m^2
- Area in Shadow: 724 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 15:00



- Total Private Outdoor Amenity Space Area: 817 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 285 m^2
- Area in Shadow: 532 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 16:00



- Total Private Outdoor Amenity Space Area: 817 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 368 m^2
- Area in Shadow: 449 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

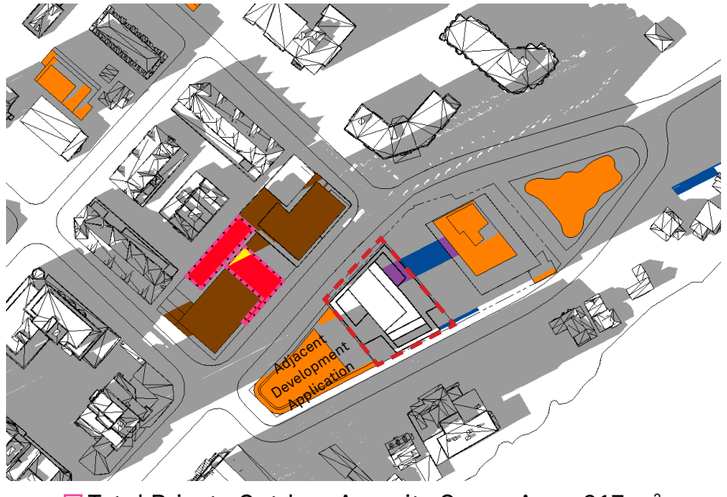
PRIVATE OUTDOOR AMENITY SPACE (B)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
23-047
OCT 18, 2024
P-53

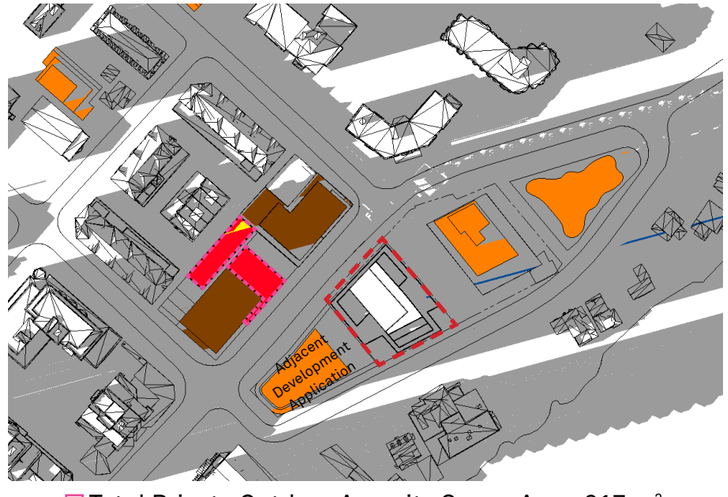
KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 17:00



- Total Private Outdoor Amenity Space Area: 817 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 36 m^2
- Area in Shadow: 781 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 18:00



- Total Private Outdoor Amenity Space Area: 817 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 26 m^2
- Area in Shadow: 791 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (B)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
23-047
OCT 18, 2024
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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st

1. Total area of private outdoor amenity space (A_T)= 817 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 5 m^2
10:00 ($A_{s(test)-10:00}$)= 242 m^2
11:00 ($A_{s(test)-11:00}$)= 191 m^2
12:00 ($A_{s(test)-12:00}$)= 0 m^2
13:00 ($A_{s(test)-13:00}$)= 0 m^2
14:00 ($A_{s(test)-14:00}$)= 93 m^2
15:00 ($A_{s(test)-15:00}$)= 285 m^2
16:00 ($A_{s(test)-16:00}$)= 368 m^2
17:00 ($A_{s(test)-17:00}$)= 361 m^2
18:00 ($A_{s(test)-18:00}$)= 26 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (5 m^2 + 242 m^2) /2 = 123.5 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (242 m^2 + 191 m^2) /2 = 216.5 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (191 m^2 + 0 m^2) /2 = 95.5 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (0 m^2 + 0 m^2) /2 = 0 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (0 m^2 + 93 m^2) /2 = 46.5 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (93 m^2 + 285 m^2) /2 = 189 m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (285 m^2 + 368 m^2) /2 = 326.5 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (368 m^2 + 361 m^2) /2 = 364.5 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (361 m^2 + 26 m^2) /2 = 193.5 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 1555.5 m^2 / 9 = 172.83 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 172.83 m^2 / 817 m^2 = 0.21

0.21 is less than 0.22. Therefore, the SAF does not meet the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

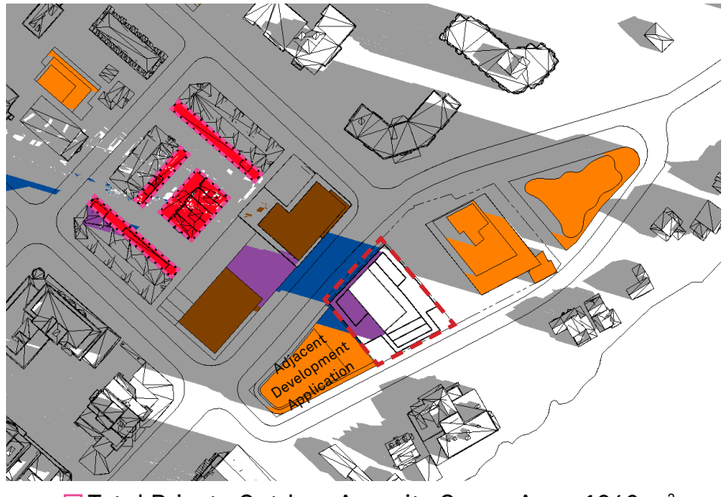
PRIVATE OUTDOOR AMENITY SPACE (B) SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
23-047
OCT 18, 2024
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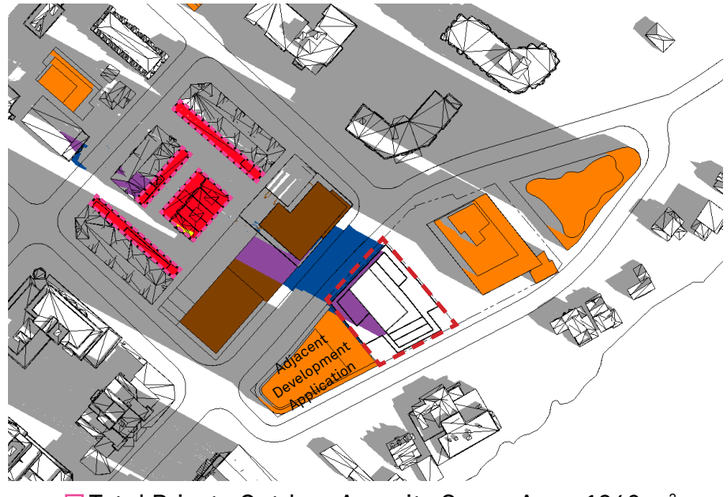
KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 09:00



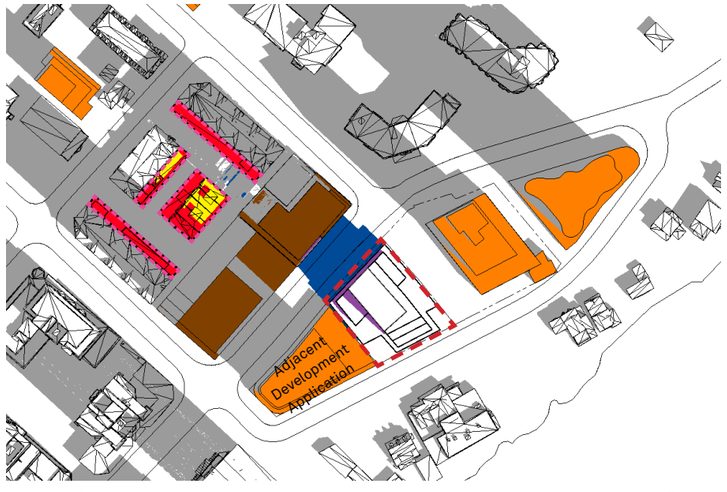
☐ Total Private Outdoor Amenity Space Area: 1346 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 0 m^2
■ Area in Shadow: 1346 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 10:00



☐ Total Private Outdoor Amenity Space Area: 1346 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 17 m^2
■ Area in Shadow: 1329 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 11:00



☐ Total Private Outdoor Amenity Space Area: 1346 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 227 m^2
■ Area in Shadow: 1119 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 12:00



☐ Total Private Outdoor Amenity Space Area: 1346 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 182 m^2
■ Area in Shadow: 1164 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

■ Site Boundary

■ Open Space

■ Private Outdoor Amenity

■ Minimum Coverage Area

■ Proposed Development

■ Active Development Application

■ Under Construction

☐ Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (C)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 13:00



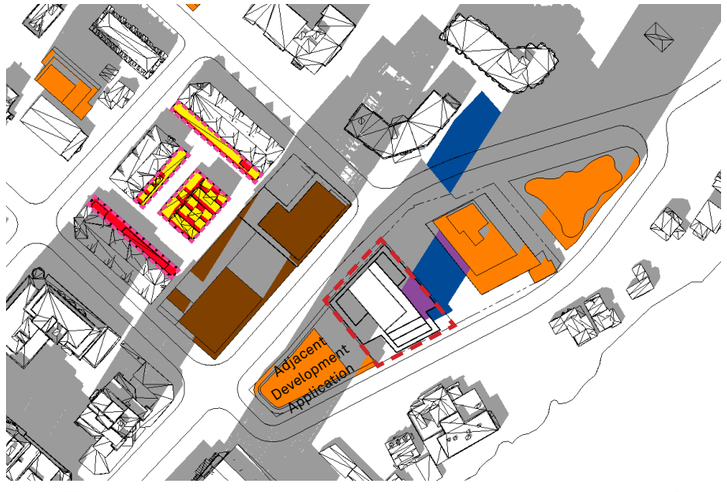
- Total Private Outdoor Amenity Space Area: 1346 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 70 m^2
- Area in Shadow: 1276 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 14:00



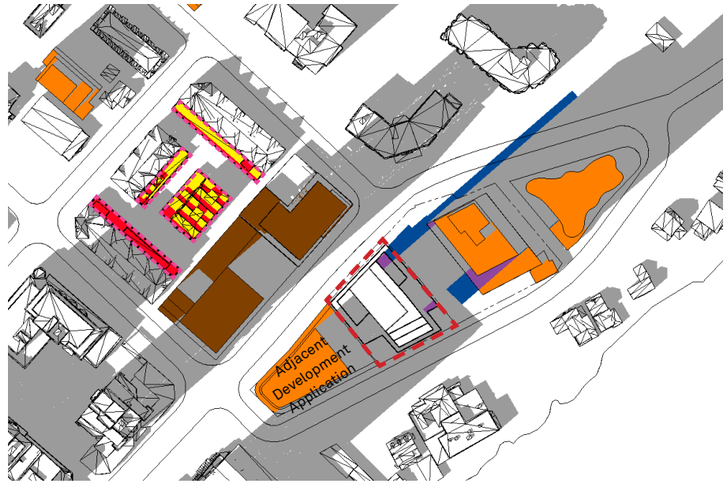
- Total Private Outdoor Amenity Space Area: 1346 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 442 m^2
- Area in Shadow: 904 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 15:00



- Total Private Outdoor Amenity Space Area: 1346 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 637 m^2
- Area in Shadow:709 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 16:00



- Total Private Outdoor Amenity Space Area: 1346 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 559 m^2
- Area in Shadow: 787 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

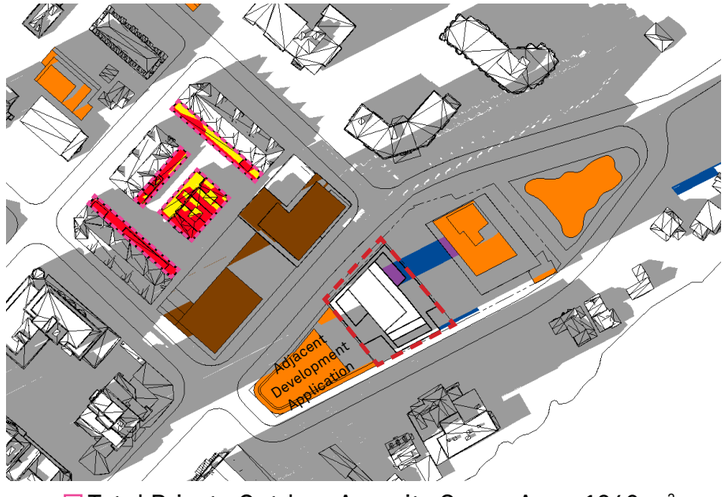
PRIVATE OUTDOOR AMENITY SPACE (C)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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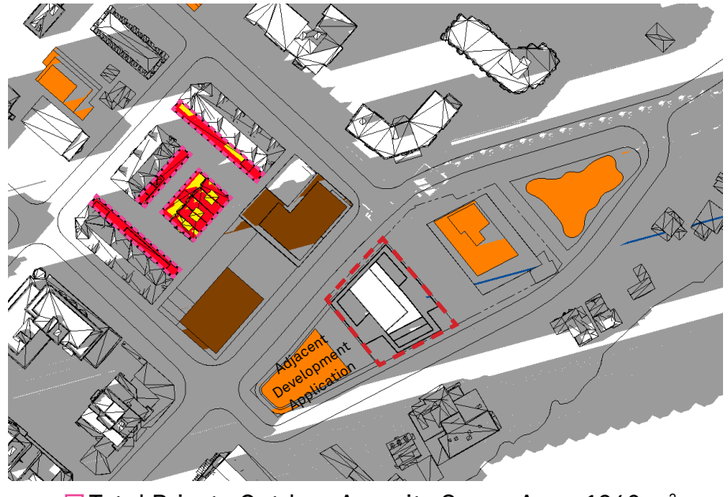
KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 17:00



- Total Private Outdoor Amenity Space Area: 1346 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 322 m^2
- Area in Shadow: 1024 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 18:00



- Total Private Outdoor Amenity Space Area: 1346 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 174 m^2
- Area in Shadow: 1172 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (C)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st

1. Total area of private outdoor amenity space (A_T)= 1346 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 0 m^2
10:00 ($A_{s(test)-10:00}$)= 17 m^2
11:00 ($A_{s(test)-11:00}$)= 227 m^2
12:00 ($A_{s(test)-12:00}$)= 182 m^2
13:00 ($A_{s(test)-13:00}$)= 70 m^2
14:00 ($A_{s(test)-14:00}$)= 442 m^2
15:00 ($A_{s(test)-15:00}$)= 637 m^2
16:00 ($A_{s(test)-16:00}$)= 559 m^2
17:00 ($A_{s(test)-17:00}$)= 322 m^2
18:00 ($A_{s(test)-18:00}$)= 174 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (0 m^2 + 17 m^2) /2 = 8.5 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (17 m^2 + 227 m^2) /2 = 122 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (227 m^2 + 182 m^2) /2 = 204.5 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (182 m^2 + 70 m^2) /2 = 126 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (70 m^2 + 442 m^2) /2 = 256 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (442 m^2 + 637 m^2) /2 = 539.5 m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (637 m^2 + 559 m^2) /2 = 598 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (559 m^2 + 322 m^2) /2 = 440.5 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (322 m^2 + 174 m^2) /2 = 248 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 2543 m^2 / 9 = 282.55 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 282.55 m^2 / 1346 m^2 = 0.18

0.18 is less than 0.22. Therefore, the SAF does not meet the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

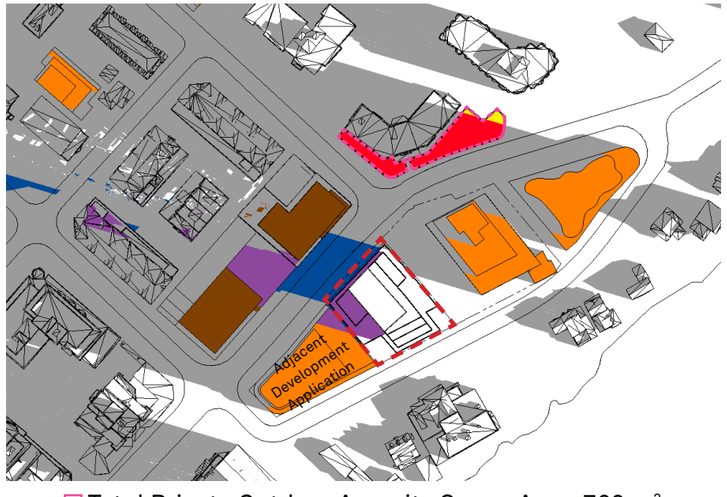
PRIVATE OUTDOOR AMENITY SPACE (C) SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 09:00



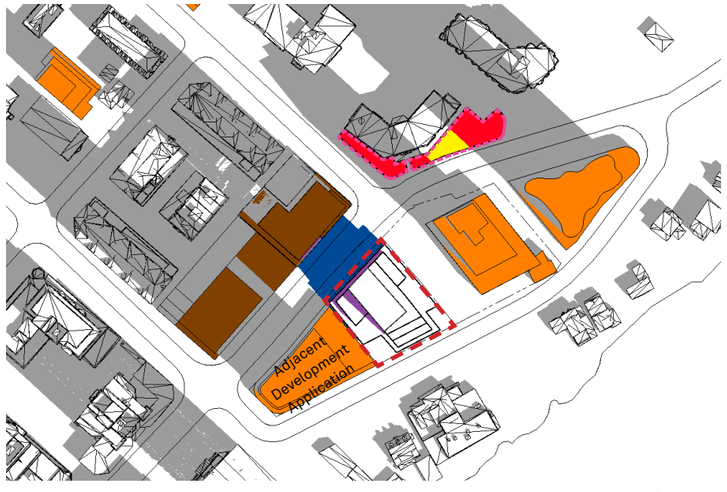
☐ Total Private Outdoor Amenity Space Area: 760 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 47 m^2
■ Area in Shadow: 713 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 10:00



☐ Total Private Outdoor Amenity Space Area: 760 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 35 m^2
■ Area in Shadow: 725 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 11:00



☐ Total Private Outdoor Amenity Space Area: 760 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 161 m^2
■ Area in Shadow: 599 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 12:00



☐ Total Private Outdoor Amenity Space Area: 760 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 508 m^2
■ Area in Shadow: 252 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

☐ Site Boundary

☐ Open Space

☐ Private Outdoor Amenity

☐ Minimum Coverage Area

☐ Proposed Development

■ Active Development Application

■ Under Construction

☐ Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (D) SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 13:00



☐ Total Private Outdoor Amenity Space Area: 760 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 103 m^2
■ Area in Shadow: 657 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 14:00



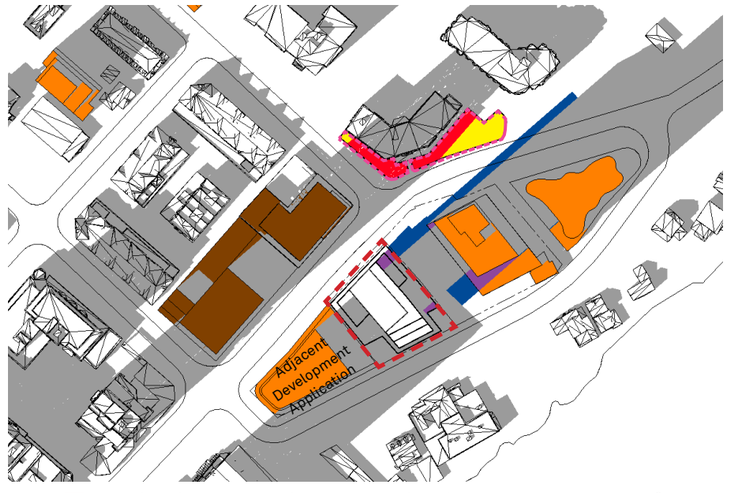
☐ Total Private Outdoor Amenity Space Area: 760 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 54 m^2
■ Area in Shadow: 706 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 15:00



☐ Total Private Outdoor Amenity Space Area: 760 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 158 m^2
■ Area in Shadow: 602 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 16:00



☐ Total Private Outdoor Amenity Space Area: 760 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 338 m^2
■ Area in Shadow: 422 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

☐ Site Boundary

☐ Open Space

☐ Private Outdoor Amenity

☐ Minimum Coverage Area

☐ Proposed Development

■ Active Development Application

■ Under Construction

☐ Existing Buildings

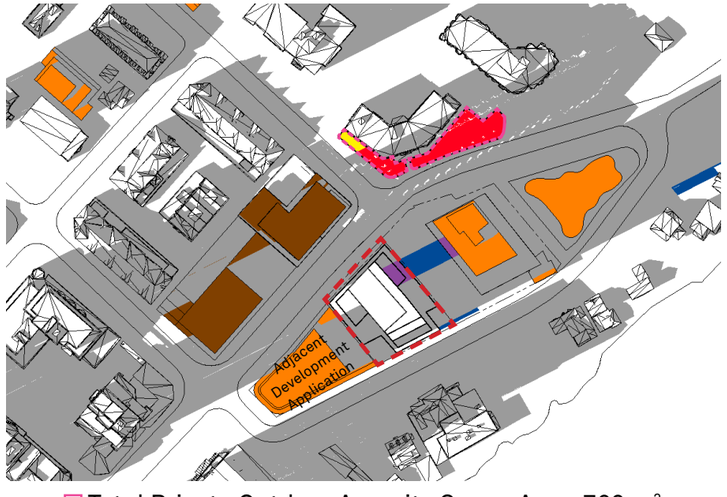
PRIVATE OUTDOOR AMENITY SPACE (D)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 17:00



- Total Private Outdoor Amenity Space Area: 760 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 59 m^2
- Area in Shadow: 701 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 18:00



- Total Private Outdoor Amenity Space Area: 760 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 84 m^2
- Area in Shadow: 676 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (D)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st

1. Total area of private outdoor amenity space (A_T)= 760 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 47 m^2
10:00 ($A_{s(test)-10:00}$)= 35 m^2
11:00 ($A_{s(test)-11:00}$)= 161 m^2
12:00 ($A_{s(test)-12:00}$)= 508 m^2
13:00 ($A_{s(test)-13:00}$)= 103 m^2
14:00 ($A_{s(test)-14:00}$)= 54 m^2
15:00 ($A_{s(test)-15:00}$)= 158 m^2
16:00 ($A_{s(test)-16:00}$)= 338 m^2
17:00 ($A_{s(test)-17:00}$)= 59 m^2
18:00 ($A_{s(test)-18:00}$)= 84 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (47 m^2 + 34 m^2) /2 = 40.5 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (34 m^2 + 161 m^2) /2 = 97.5 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (161 m^2 + 508 m^2) /2 = 334.5 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (508 m^2 + 103 m^2) /2 = 305.5 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (103 m^2 + 54 m^2) /2 = 78.5 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (54 m^2 + 158 m^2) /2 = 106 m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (158 m^2 + 338 m^2) /2 = 248 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (338 m^2 + 59 m^2) /2 = 198.5 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (59 m^2 + 84 m^2) /2 = 71.5 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 15480.5 m^2 / 9 = 164.5 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 14.5 m^2 / 760 m^2 = 0.22

0.22 is equal to 0.22. Therefore, the SAF meets the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

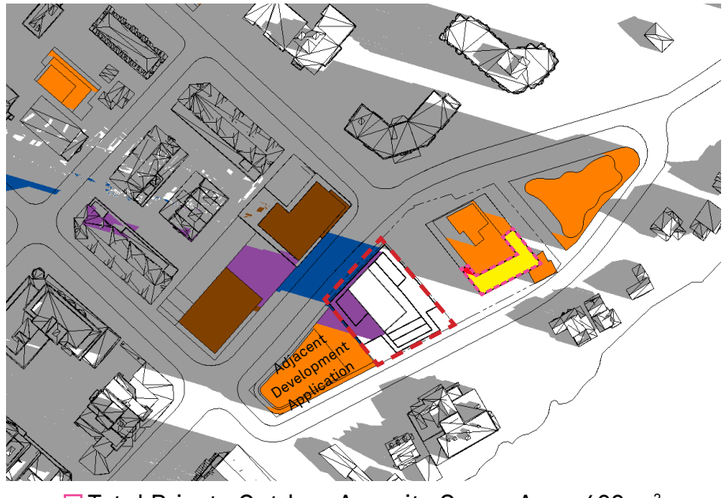
PRIVATE OUTDOOR AMENITY SPACE (D)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 09:00



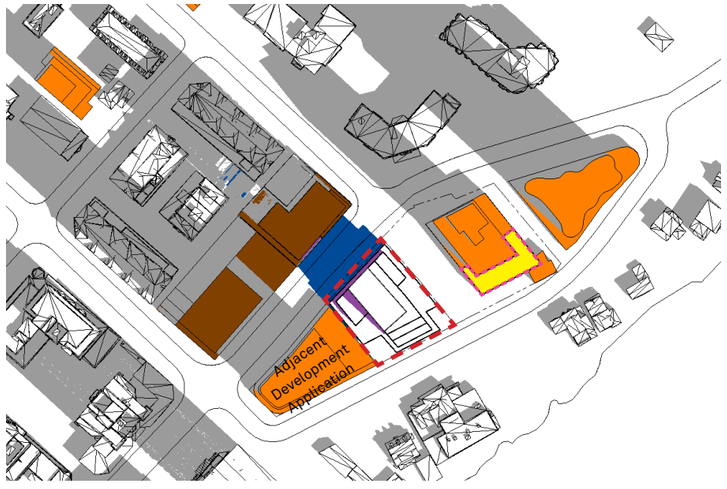
☐ Total Private Outdoor Amenity Space Area: 403 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 387 m^2
■ Area in Shadow: 16 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 10:00



☐ Total Private Outdoor Amenity Space Area: 403 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 393 m^2
■ Area in Shadow: 10 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 11:00



☐ Total Private Outdoor Amenity Space Area: 403 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 400 m^2
■ Area in Shadow: 3 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 12:00



☐ Total Private Outdoor Amenity Space Area: 403 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 393 m^2
■ Area in Shadow: 10 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

Site Boundary

Open Space

Private Outdoor Amenity

Minimum Coverage Area

Proposed Development

Active Development Application

Under Construction

Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (E)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 13:00



☐ Total Private Outdoor Amenity Space Area: 403 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 368 m^2
■ Area in Shadow: 35 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 14:00



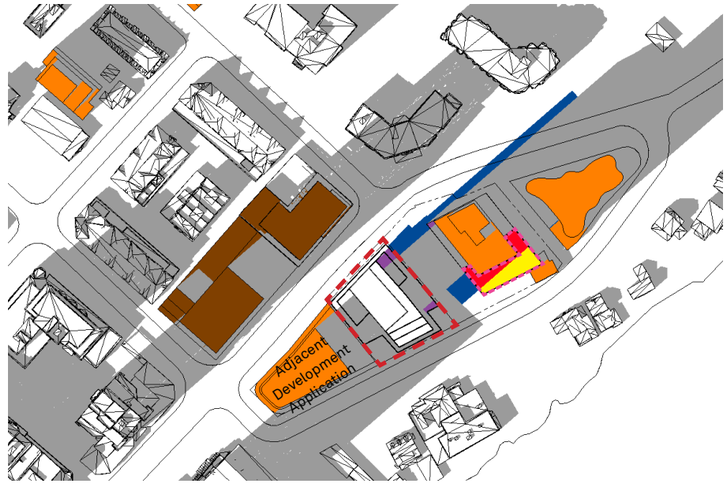
☐ Total Private Outdoor Amenity Space Area: 403 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 349 m^2
■ Area in Shadow: 54 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 15:00



☐ Total Private Outdoor Amenity Space Area: 403 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 329 m^2
■ Area in Shadow: 54 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 16:00



☐ Total Private Outdoor Amenity Space Area: 403 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 221 m^2
■ Area in Shadow: 182 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

Site Boundary

Open Space

Private Outdoor Amenity

Minimum Coverage Area

Proposed Development

Active Development Application

Under Construction

Existing Buildings

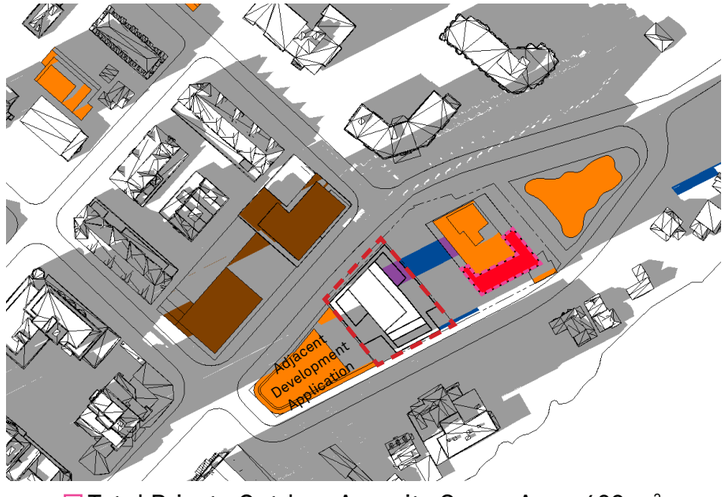
PRIVATE OUTDOOR AMENITY SPACE (E)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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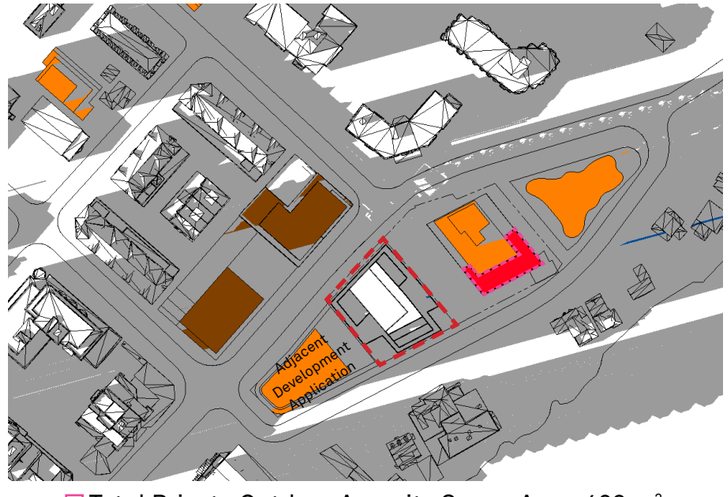
KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 17:00



- Total Private Outdoor Amenity Space Area: 403 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 0 m^2
- Area in Shadow: 403 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 18:00



- Total Private Outdoor Amenity Space Area: 403 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 0 m^2
- Area in Shadow: 403 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (E)
SHADOW ANALYSIS

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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st

1. Total area of private outdoor amenity space (A_T)= 403 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 387 m^2
10:00 ($A_{s(test)-10:00}$)= 393 m^2
11:00 ($A_{s(test)-11:00}$)= 400 m^2
12:00 ($A_{s(test)-12:00}$)= 393 m^2
13:00 ($A_{s(test)-13:00}$)= 368 m^2
14:00 ($A_{s(test)-14:00}$)= 349 m^2
15:00 ($A_{s(test)-15:00}$)= 329 m^2
16:00 ($A_{s(test)-16:00}$)= 211 m^2
17:00 ($A_{s(test)-17:00}$)= 0 m^2
18:00 ($A_{s(test)-18:00}$)= 0 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (387 m^2 + 393 m^2) /2 = 390 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (393 m^2 + 400 m^2) /2 = 396.5 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (400 m^2 + 393 m^2) /2 = 396.5 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (393 m^2 + 368 m^2) /2 = 380.5 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (368 m^2 + 349 m^2) /2 = 358.5 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (349 m^2 + 329 m^2) /2 = 339 m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (329 m^2 + 211 m^2) /2 = 275 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (211 m^2 + 0 m^2) /2 = 110.5 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (0 m^2 + 0 m^2) /2 = 0 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 2646.5 m^2 / 9 = 294.06 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 294.06 m^2 / 403 m^2 = 0.73

0.73 is greater than 0.22. Therefore, the SAF meets the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

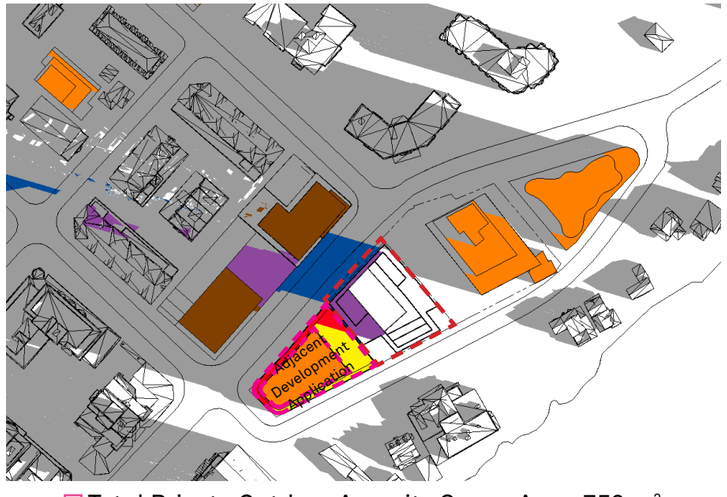
PRIVATE OUTDOOR AMENITY SPACE (E) SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

Scale
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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 09:00



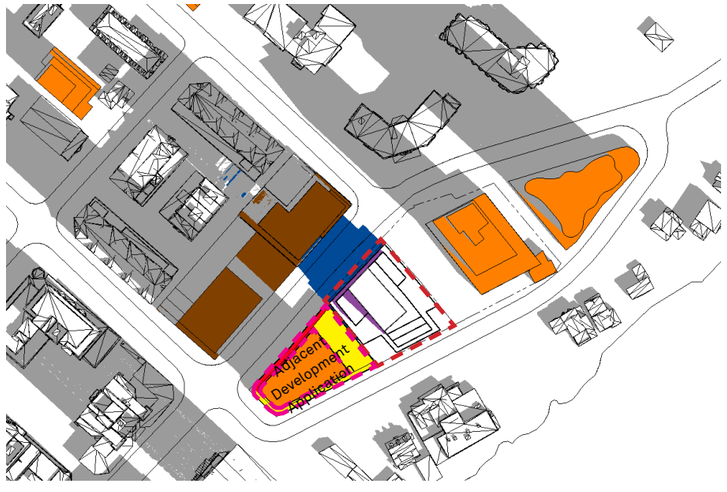
☐ Total Private Outdoor Amenity Space Area: 753 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 493 m^2
■ Area in Shadow: 260 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 10:00



☐ Total Private Outdoor Amenity Space Area: 753 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 589 m^2
■ Area in Shadow: 164 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 11:00



☐ Total Private Outdoor Amenity Space Area: 753 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 613 m^2
■ Area in Shadow: 140 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 12:00



☐ Total Private Outdoor Amenity Space Area: 753 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 549 m^2
■ Area in Shadow: 204 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

☐ Site Boundary

☐ Open Space

☐ Private Outdoor Amenity

☐ Minimum Coverage Area

☐ Proposed Development

■ Active Development Application

■ Under Construction

☐ Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (F)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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KIRKOR
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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 13:00



☐ Total Private Outdoor Amenity Space Area: 753 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 339 m^2
■ Area in Shadow: 414 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 14:00



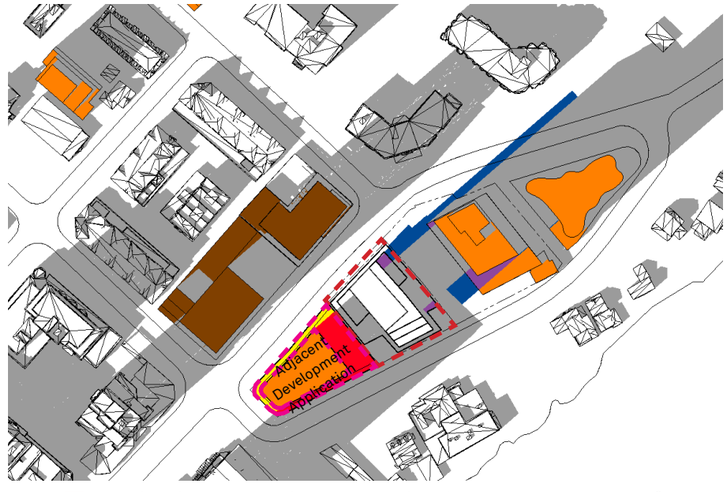
☐ Total Private Outdoor Amenity Space Area: 753 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 203 m^2
■ Area in Shadow: 550 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 15:00



☐ Total Private Outdoor Amenity Space Area: 753 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 69 m^2
■ Area in Shadow: 684 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 16:00



☐ Total Private Outdoor Amenity Space Area: 753 m^2
■ Area Exposed to Sunshine ($A_{s(test)}$): 203 m^2
■ Area in Shadow: 550 m^2

■ Net New Shadows cast on roof surfaces

■ Net New Shadows cast on ground Surfaces

■ Shadows cast by existing buildings on all surfaces

☐ Site Boundary

☐ Open Space

☐ Private Outdoor Amenity

☐ Minimum Coverage Area

☐ Proposed Development

■ Active Development Application

■ Under Construction

☐ Existing Buildings

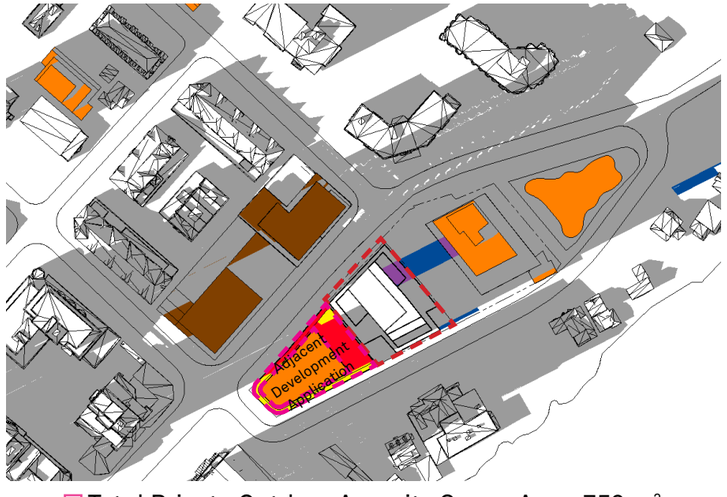
PRIVATE OUTDOOR AMENITY SPACE (F)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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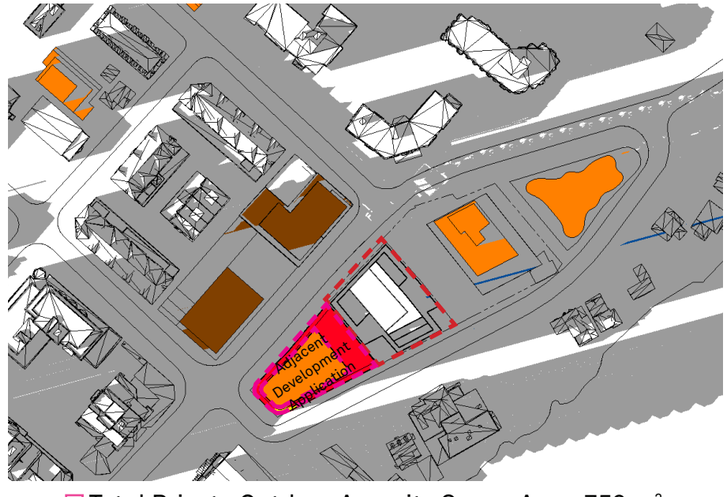
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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 17:00



- Total Private Outdoor Amenity Space Area: 753 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 257 m^2
- Area in Shadow: 496 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st @ 18:00



- Total Private Outdoor Amenity Space Area: 753 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 24 m^2
- Area in Shadow: 729 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PRIVATE OUTDOOR AMENITY SPACE (F)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Private Outdoor Amenity Space - March 21st

1. Total area of private outdoor amenity space (A_T)= 753 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 493 m^2
10:00 ($A_{s(test)-10:00}$)= 589 m^2
11:00 ($A_{s(test)-11:00}$)= 613 m^2
12:00 ($A_{s(test)-12:00}$)= 549 m^2
13:00 ($A_{s(test)-13:00}$)= 339 m^2
14:00 ($A_{s(test)-14:00}$)= 203 m^2
15:00 ($A_{s(test)-15:00}$)= 69 m^2
16:00 ($A_{s(test)-16:00}$)= 203 m^2
17:00 ($A_{s(test)-17:00}$)= 257 m^2
18:00 ($A_{s(test)-18:00}$)= 24 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (493 m^2 + 589 m^2) /2 = 541 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (589 m^2 + 613 m^2) /2 = 601 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (613 m^2 + 549 m^2) /2 = 581 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (549 m^2 + 339 m^2) /2 = 444 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (339 m^2 + 203 m^2) /2 = 271 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (203 m^2 + 69 m^2) /2 = 136 m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (69 m^2 + 203 m^2) /2 = 136 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (203 m^2 + 257 m^2) /2 = 230 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (257 m^2 + 24 m^2) /2 = 140.5 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 3080.5 m^2 / 9 = 342.28 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 342.28 m^2 / 753 m^2 = 0.45

0.45 is greater than 0.22. Therefore, the SAF meets the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

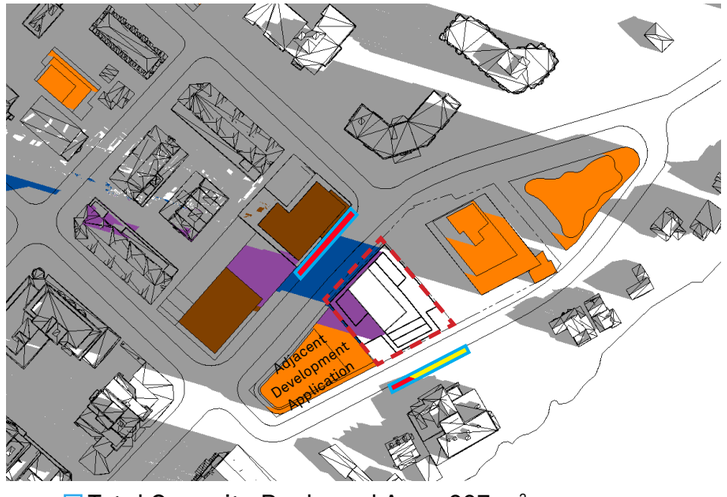
PRIVATE OUTDOOR AMENITY SPACE (F)
SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 09:00



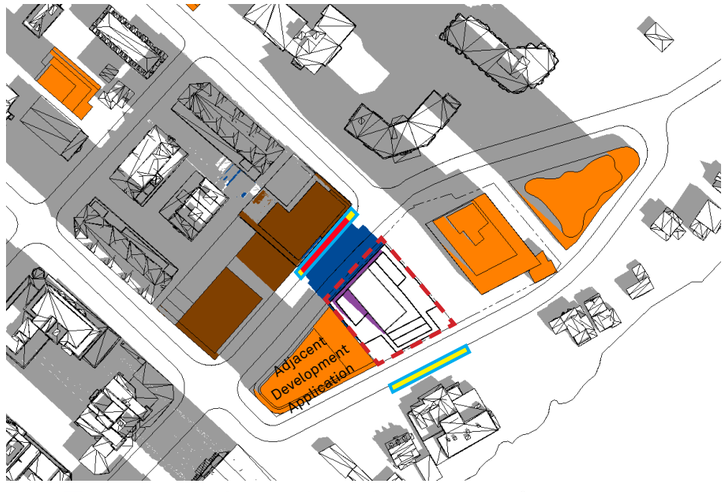
- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 141 m^2
- Area in Shadow: 166 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 10:00



- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 203 m^2
- Area in Shadow: 104m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 11:00



- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 199 m^2
- Area in Shadow: 108 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 12:00



- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 236 m^2
- Area in Shadow: 71 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PUBLIC REALM AND SIDEWALKS SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 13:00



- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 202 m^2
- Area in Shadow: 105 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 14:00



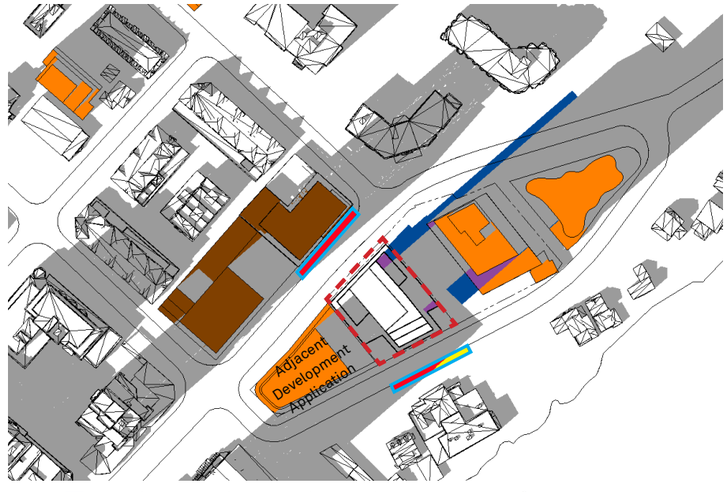
- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 177 m^2
- Area in Shadow: 130 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 15:00



- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 307 m^2
- Area in Shadow: 0 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 16:00



- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 101 m^2
- Area in Shadow: 206 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

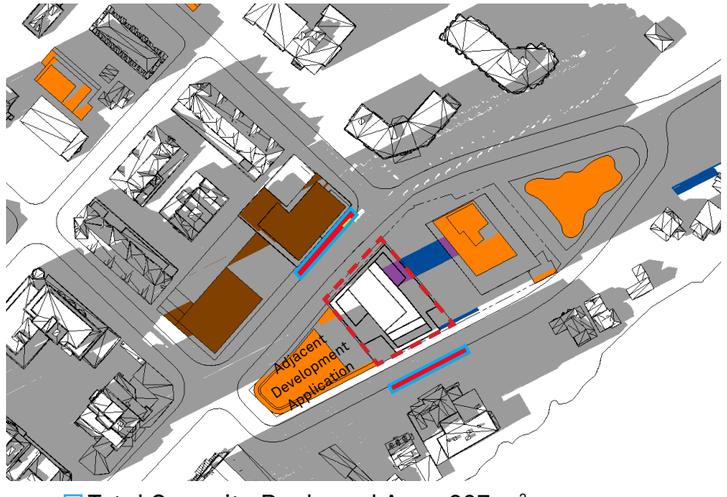
PUBLIC REALM AND SIDEWALKS SHADOW ANALYSIS

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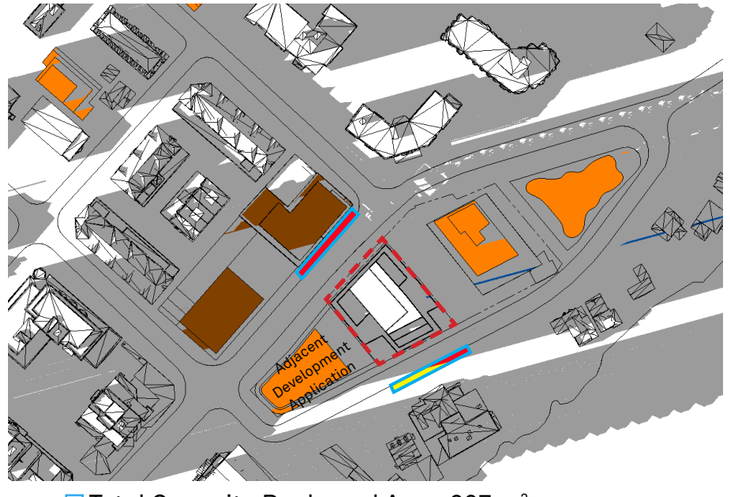
KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 17:00



- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 58 m^2
- Area in Shadow: 249 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st @ 18:00



- Total Opposite Boulevard Area: 307 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 130 m^2
- Area in Shadow: 177 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PUBLIC REALM AND SIDEWALKS SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Public Realm and Sidewalks - March 21st

1. Total area of opposite boulevard (A_T)= 307 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 141 m^2
10:00 ($A_{s(test)-10:00}$)= 203 m^2
11:00 ($A_{s(test)-11:00}$)= 199 m^2
12:00 ($A_{s(test)-12:00}$)= 236 m^2
13:00 ($A_{s(test)-13:00}$)= 202 m^2
14:00 ($A_{s(test)-14:00}$)= 177 m^2
15:00 ($A_{s(test)-15:00}$)= 307 m^2
16:00 ($A_{s(test)-16:00}$)= 101 m^2
17:00 ($A_{s(test)-17:00}$)= 58 m^2
18:00 ($A_{s(test)-18:00}$)= 130 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (141 m^2 + 203 m^2) /2 = 172 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (203 m^2 + 199 m^2) /2 = 201 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (199 m^2 + 236 m^2) /2 = 217.5 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (236 m^2 + 202 m^2) /2 = 219 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (202 m^2 + 177 m^2) /2 = 189.5 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (177 m^2 + 307 m^2) /2 = 242m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (307 m^2 + 101 m^2) /2 = 204 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (101 m^2 + 58 m^2) /2 = 79.5 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (58 m^2 + 130 m^2) /2 = 94 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 1618.5 m^2 / 9 = 179.83 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 179.83 m^2 / 307 m^2 = 0.59

0.59 is greater than 0.50. Therefore, the SAF meets the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

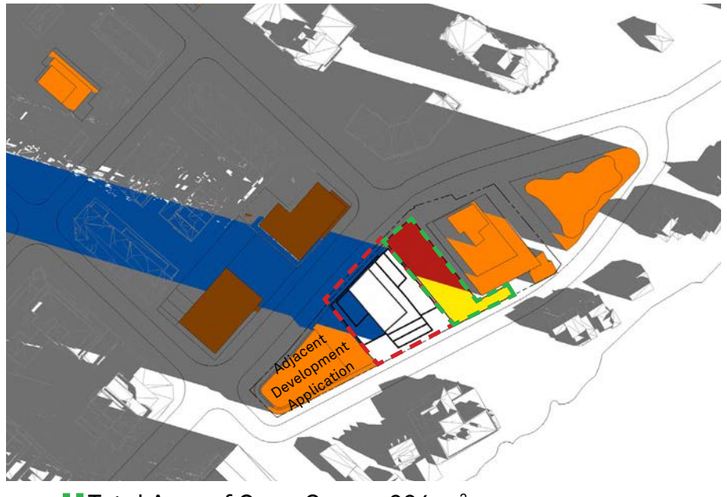
PUBLIC REALM AND SIDEWALKS SHADOW ANALYSIS

2083 OLD LAKESHORE, BURLINGTON, ON

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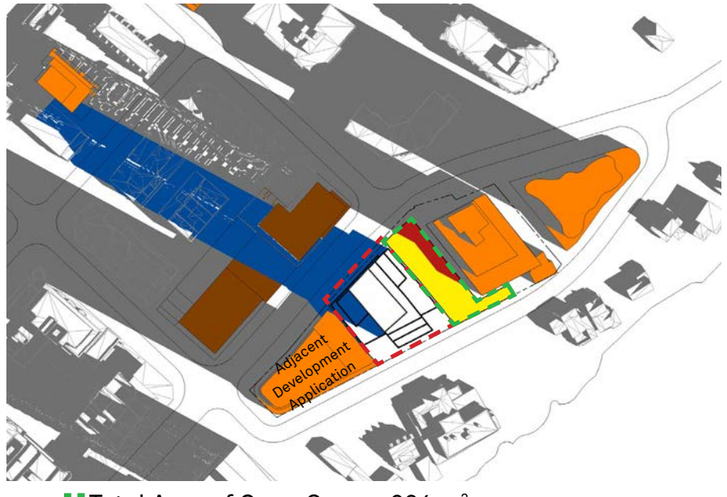
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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 09:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 432 m^2
- Area in Shadow: 562 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 10:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 747 m^2
- Area in Shadow: 247 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 11:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 994 m^2
- Area in Shadow: 0 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 12:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 971 m^2
- Area in Shadow: 23 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

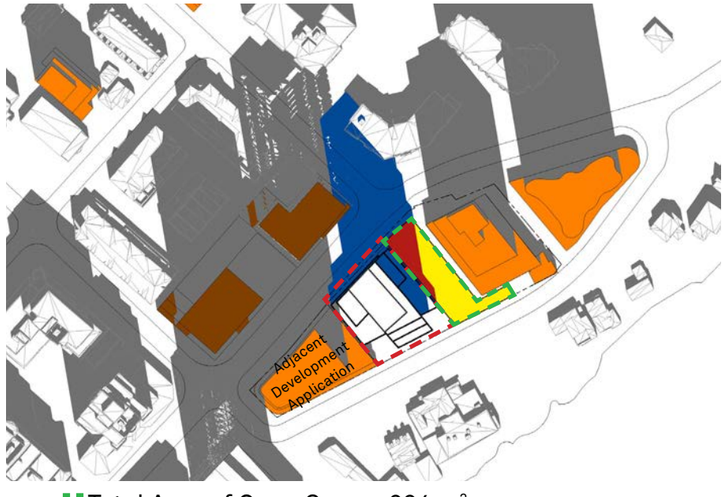
PARKS AND OPEN SPACES
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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KIRKOR
ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 13:00



Total Area of Open Space: 994 m^2
Area Exposed to Sunshine ($A_{s(test)}$): 693 m^2
Area in Shadow: 301 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 14:00



Total Area of Open Space: 994 m^2
Area Exposed to Sunshine ($A_{s(test)}$): 442 m^2
Area in Shadow: 552 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 15:00



Total Area of Open Space: 994 m^2
Area Exposed to Sunshine ($A_{s(test)}$): 308 m^2
Area in Shadow: 686 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 16:00



Total Area of Open Space: 994 m^2
Area Exposed to Sunshine ($A_{s(test)}$): 226 m^2
Area in Shadow: 768 m^2

Net New Shadows cast on roof surfaces

Net New Shadows cast on ground Surfaces

Shadows cast by existing buildings on all surfaces

Site Boundary

Open Space

Private Outdoor Amenity

Minimum Coverage Area

Proposed Development

Active Development Application

Under Construction

Existing Buildings

PARKS AND OPEN SPACES
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 17:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 93 m^2
- Area in Shadow: 901 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st @ 18:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 17 m^2
- Area in Shadow: 977 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PARKS AND OPEN SPACES
SHADOW ANALYSIS

2083 OLD LAKESHORE,
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ARCHITECTS AND PLANNERS

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - March 21st

1. Total area of open space (A_T)= 994 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 432 m^2
10:00 ($A_{s(test)-10:00}$)= 747 m^2
11:00 ($A_{s(test)-11:00}$)= 994 m^2
12:00 ($A_{s(test)-12:00}$)= 971 m^2
13:00 ($A_{s(test)-13:00}$)= 693 m^2
14:00 ($A_{s(test)-14:00}$)= 442 m^2
15:00 ($A_{s(test)-15:00}$)= 308 m^2
16:00 ($A_{s(test)-16:00}$)= 226 m^2
17:00 ($A_{s(test)-17:00}$)= 93 m^2
18:00 ($A_{s(test)-18:00}$)= 17 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (432 m^2 + 747 m^2) /2 = 589.5 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (747 m^2 + 994 m^2) /2 = 870.5 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (994 m^2 + 971 m^2) /2 = 982.5 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (971 m^2 + 693 m^2) /2 = 832 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (693 m^2 + 442 m^2) /2 = 567.5 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (442 m^2 + 308 m^2) /2 = 375 m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (308 m^2 + 226 m^2) /2 = 267 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (226 m^2 + 93 m^2) /2 = 159.5 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (93 m^2 + 17 m^2) /2 = 55 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 4698.5 m^2 / 9 = 522.06 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 522.06 m^2 / 994 m^2 = 0.53

0.53 is greater than 0.50. Therefore, the SAF meets the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

PARKS AND OPEN SPACES
SHADOW ANALYSIS

2083 OLD LAKESHORE,
BURLINGTON, ON

Scale
23-047
OCT 18, 2024
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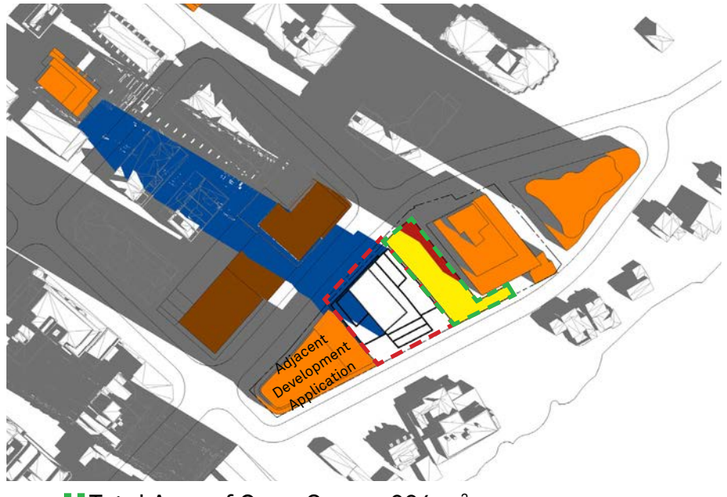
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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 09:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 464 m^2
- Area in Shadow: 530 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 10:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 813 m^2
- Area in Shadow: 181 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 11:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 994 m^2
- Area in Shadow: 0 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 12:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 951 m^2
- Area in Shadow: 43 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

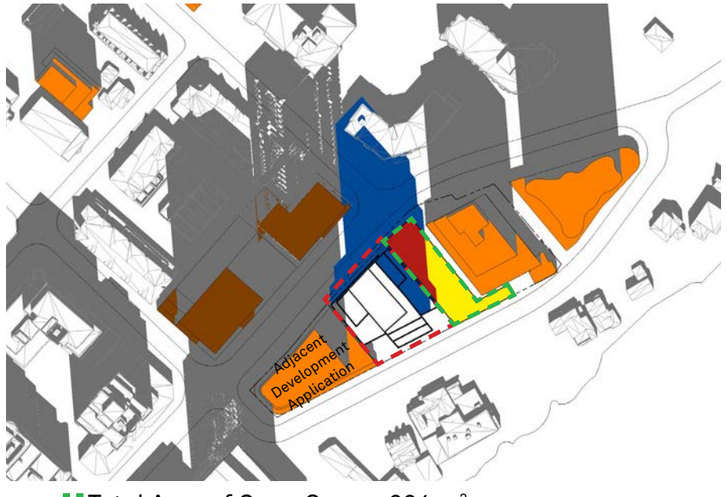
PARKS AND OPEN SPACES
SHADOW ANALYSIS

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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 13:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 608 m^2
- Area in Shadow: 386 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 14:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 402 m^2
- Area in Shadow: 592 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 15:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 282 m^2
- Area in Shadow: 712 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 16:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 194 m^2
- Area in Shadow: 800 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
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PARKS AND OPEN SPACES
SHADOW ANALYSIS

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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 17:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 17 m^2
- Area in Shadow: 977 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st @ 18:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 17 m^2
- Area in Shadow: 977 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
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- Active Development Application
- Under Construction
- Existing Buildings

PARKS AND OPEN SPACES
SHADOW ANALYSIS

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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - September 21st

1. Total area of open space (A_T)= 994 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

09:00 ($A_{s(test)-09:00}$)= 464 m^2
10:00 ($A_{s(test)-10:00}$)= 813 m^2
11:00 ($A_{s(test)-11:00}$)= 994 m^2
12:00 ($A_{s(test)-12:00}$)= 951 m^2
13:00 ($A_{s(test)-13:00}$)= 608 m^2
14:00 ($A_{s(test)-14:00}$)= 402 m^2
15:00 ($A_{s(test)-15:00}$)= 282 m^2
16:00 ($A_{s(test)-16:00}$)= 194 m^2
17:00 ($A_{s(test)-17:00}$)= 17 m^2
18:00 ($A_{s(test)-18:00}$)= 17 m^2

Number of test times = 10

3. The averages for the nine one-hour intervals ($A_{S(interval)}$):

09:00-10:00 ($A_{s(interval)-09:00-10:00}$) = (464 m^2 + 813 m^2) /2 = 638 m^2
10:00-11:00 ($A_{s(interval)-10:00-11:00}$) = (813 m^2 + 994 m^2) /2 = 903 m^2
11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (994 m^2 + 951 m^2) /2 = 972 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (951 m^2 + 608 m^2) /2 = 779 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (608 m^2 + 402 m^2) /2 = 505 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (402 m^2 + 282 m^2) /2 = 342 m^2
15:00-16:00 ($A_{s(interval)-15:00-16:00}$) = (282 m^2 + 194 m^2) /2 = 238 m^2
16:00-17:00 ($A_{s(interval)-16:00-17:00}$) = (194 m^2 + 17 m^2) /2 = 105 m^2
17:00-18:00 ($A_{s(interval)-17:00-18:00}$) = (17 m^2 + 17 m^2) /2 = 17 m^2

Number of test times = 9

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 4500.31 m^2 / 9 = 500.03 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 500.03 m^2 / 994 m^2 = 0.5031

0.5031 is greater than 0.50. Therefore, the SAF meets the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
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- Minimum Coverage Area
- Proposed Development
- Active Development Application
- Under Construction
- Existing Buildings

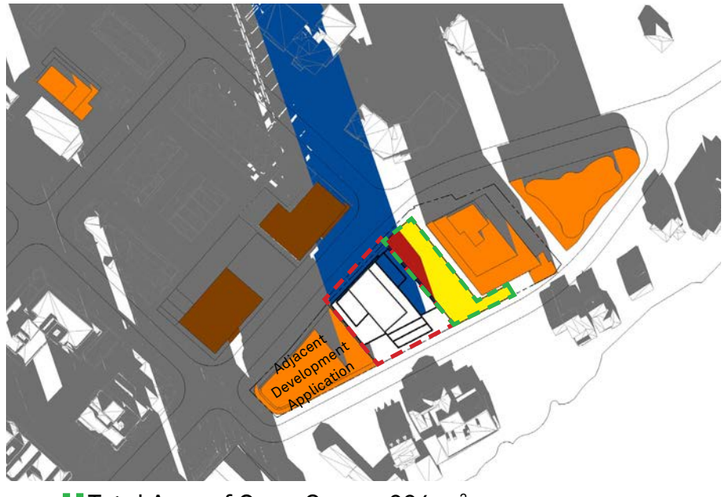
PARKS AND OPEN SPACES
SHADOW ANALYSIS

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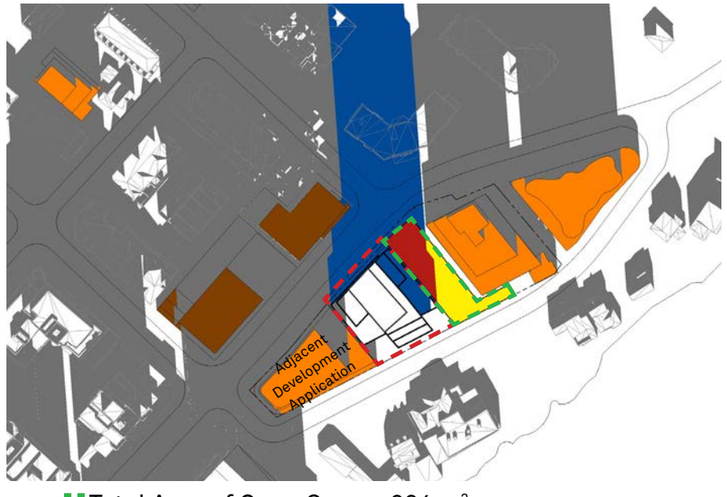
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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - December 21st @ 11:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 464 m^2
- Area in Shadow: 530 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - December 21st @ 12:00



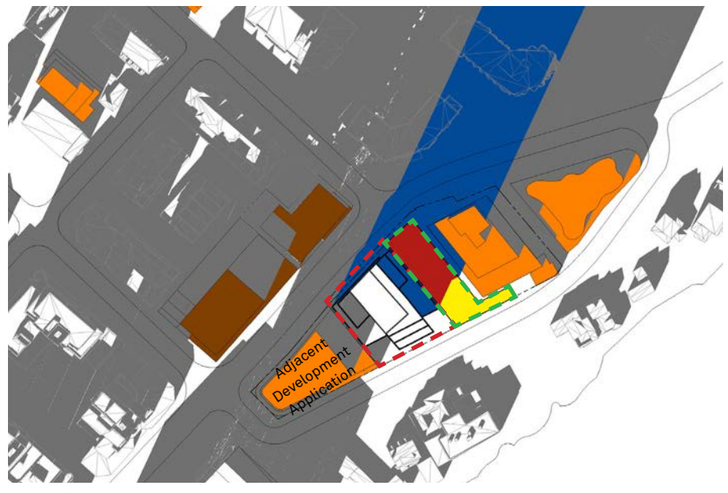
- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 813 m^2
- Area in Shadow: 181 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - December 21st @ 13:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 994 m^2
- Area in Shadow: 0 m^2

SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - December 21st @ 14:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 951 m^2
- Area in Shadow: 43 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
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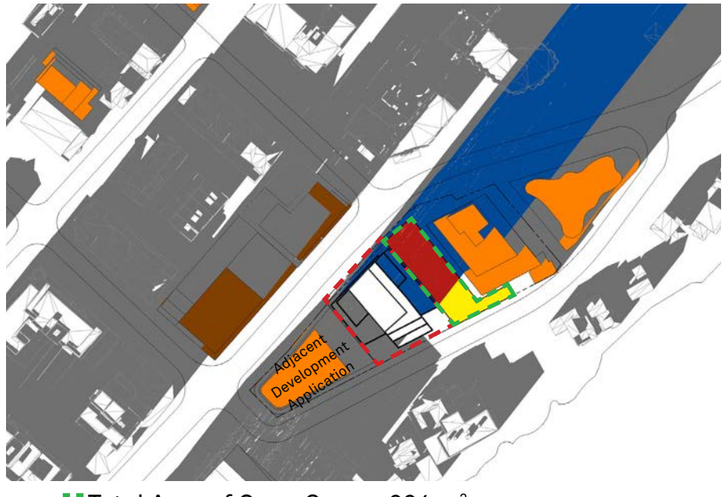
PARKS AND OPEN SPACES
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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - December 21st @ 15:00



- Total Area of Open Space: 994 m^2
- Area Exposed to Sunshine ($A_{s(test)}$): 608 m^2
- Area in Shadow: 386 m^2

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
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PARKS AND OPEN SPACES
SHADOW ANALYSIS

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SUN ACCESS FACTOR CALCULATIONS AND ANALYSIS
Parks and Open Spaces - December 21st

1. Total area of open space (A_T)= 994 m^2

2. Areas exposed to sunshine at each hourly test time ($A_{s(test)}$).

11:00 ($A_{s(test)-11:00}$)= 771 m^2
12:00 ($A_{s(test)-12:00}$)= 556 m^2
13:00 ($A_{s(test)-13:00}$)= 447 m^2
14:00 ($A_{s(test)-14:00}$)= 391 m^2
15:00 ($A_{s(test)-15:00}$)= 361 m^2

Number of test times = 5

3. The averages for the four one-hour intervals ($A_{S(interval)}$):

11:00-12:00 ($A_{s(interval)-11:00-12:00}$) = (771 m^2 + 556 m^2) /2 = 664 m^2
12:00-13:00 ($A_{s(interval)-12:00-13:00}$) = (556 m^2 + 447 m^2) /2 = 502 m^2
13:00-14:00 ($A_{s(interval)-13:00-14:00}$) = (447 m^2 + 391 m^2) /2 = 419 m^2
14:00-15:00 ($A_{s(interval)-14:00-15:00}$) = (391 m^2 + 361 m^2) /2 = 376 m^2

Number of test times = 4

4. The overall average area in sunshine ($A_{S(average)}$) = [Sum of ($A_{S(interval)}$)]/[# of intervals]
= 1960.95 m^2 / 4 = 490.24 m^2

5. SAF = ($A_{S(average)}$) / A_T
= 490.24 m^2 / 994 m^2 = 0.4932

0.4932 is lower than 0.50. Therefore, the SAF does not meet the criteria.

- Net New Shadows cast on roof surfaces
- Net New Shadows cast on ground Surfaces
- Shadows cast by existing buildings on all surfaces
- Site Boundary
- Open Space
- Private Outdoor Amenity
- Minimum Coverage Area
- Proposed Development
- Active Development Application
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- Existing Buildings

PARKS AND OPEN SPACES
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