



MEMO

To:	City of Waterloo
From:	MHBC Planning
Date:	September 5, 2024
File:	OPA/ZBA file number to be assigned
Subject:	1 Dunbar Rd N – Shadow Study

ACDF Architects prepared the enclosed Shadow Images, in consideration of the City's Terms of Reference.

Spring and Fall Equinox

Morning

- Shadows fall to the west and northwest in the morning as the sun is rising (8 am) and both shorten and move towards the east as the morning progresses
- By 11 am, only the two immediately adjacent properties on either street are impacted, with the shadows having moved off the majority of 6 Roslin Avenue North.

Afternoon

- By noon, there are minor shadows falling on 4 Roslin Avenue North, and the north portion of 9 Dunbar Road North is in full sun.
- By 1 pm, the shadows only impact 7 Dunbar Road North and are largely contained within the site, or fall onto Dunbar Road North
- By 2 pm, only 7 Dunbar Road North is impacted and only the south portion of the lot (the side yard) and south portion of the rear yard. The shadows have moved entirely off the property by 3 pm through until sunset - approximately 7:30 pm in March and 7:20 pm in September (we note that there are shadows cast by existing vegetation during the growing season, as well as existing buildings along both streets).
- Properties to the east along Erb Street West are not impacted by shadows until 2 pm
- 7 Dunbar Road North has sun in the first part of the morning and then again in the afternoon, offering a balance of sun and shadow during the typical spring and fall day.

Summer

In the summer the sun is higher in the sky and the shadows are typically shorter.

Morning

- Shadows fall to the northwest in the early morning, impacting 4 Roslin Avenue North and a small portion of 7 Dunbar Road North.
- By 10 am, shadows have moved and impact portions of the rear yards of 4 Roslin Avenue North and 7 Dunbar Road North – but no other properties.

Afternoon

- By noon, the shadows are largely contained within the site, with a small portion along the side yard of 7 Dunbar Road North. The majority of that property is in full sun (other than shadows that may be cast by existing vegetation, and other existing homes along the two streets).
- By 2 pm, shadows have moved entirely off the site, and do not impact any other property.
- There are no further shadow impacts on the properties on Roslin Avenue North or Dunbar Road North resulting from the proposed development.
- By 4 pm, the shadows have moved across Dunbar Road North and fall on a portion of 138 Erb Street West, though the majority of that property is not impacted.

Winter

The sun is much lower in the sky in winter, and December 21 generally represents one of the shorter days of the year (as it relates to sunlight), with approximately 6.5 hours less sunlight than June 21.

In the morning, shadows fall to the northwest and north, including shadows from the existing low rise buildings on Erb Street, Roslin Avenue and Dunbar Road.

By noon, the shadows are moving to the northeast, generally impacting properties along Dunbar Road North. By 4 pm, the shadows have moved off to the east, and no longer impact the adjacent properties or properties further north on Dunbar Road North.



SEPTEMBER 3rd 2024

OPA/ZBA SUBMISSION - SUN STUDY

1 DUNBAR Rd N - WATERLOO



8H



9H



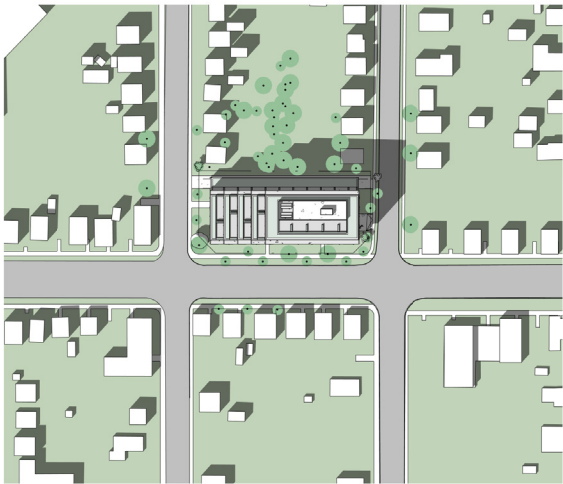
10H



11H



12H



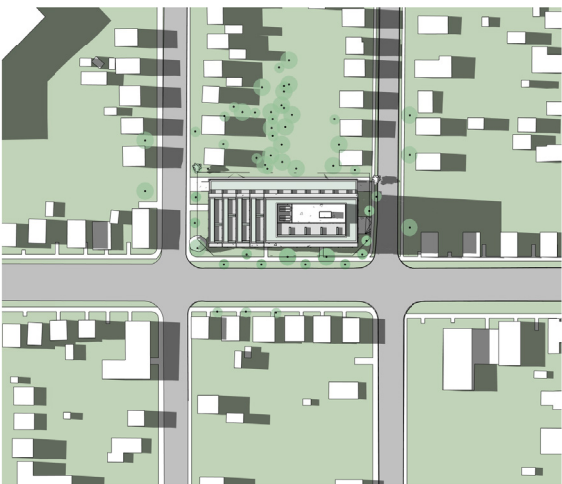
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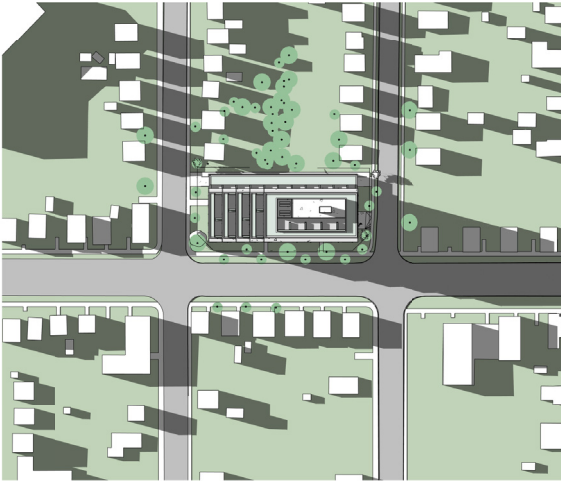
14H



15H



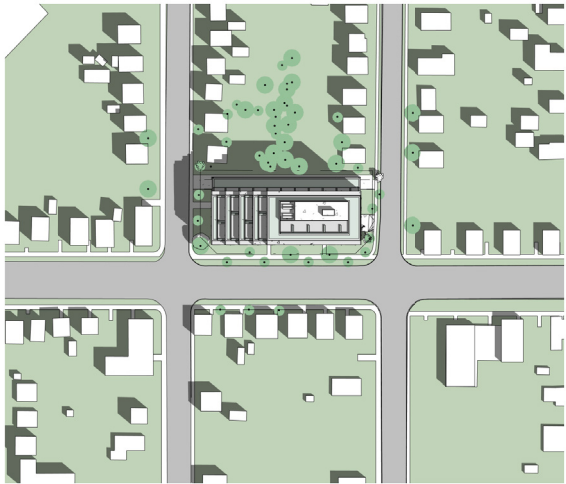
16H



17H



8H



9H



10H



11H



12H



13H



14H



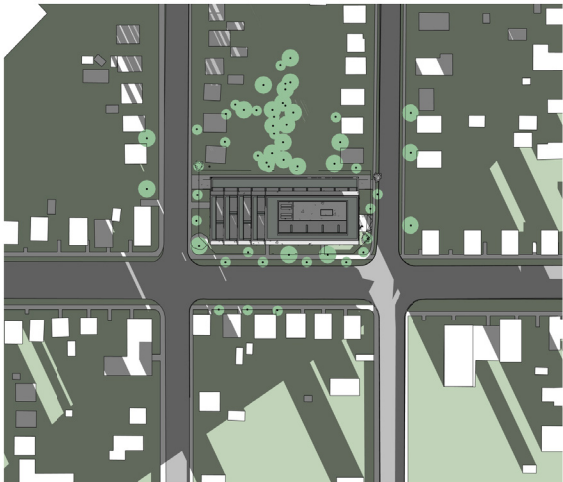
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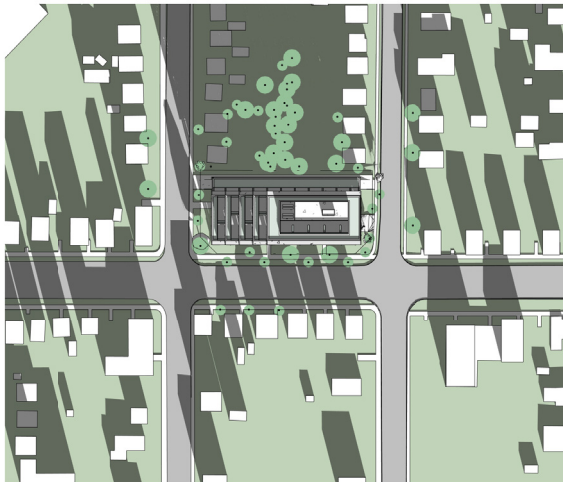
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17H



8H



9H



10H



11H



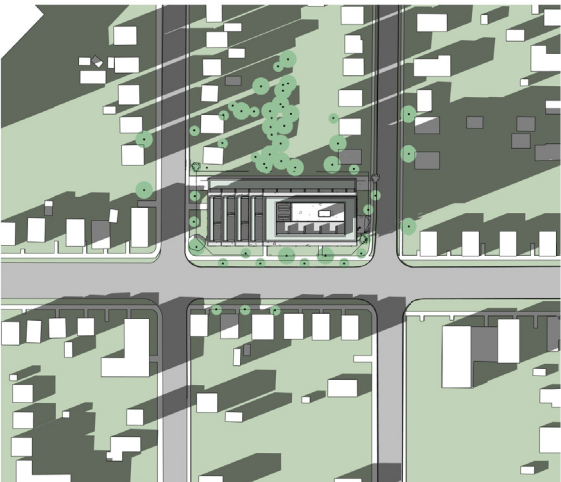
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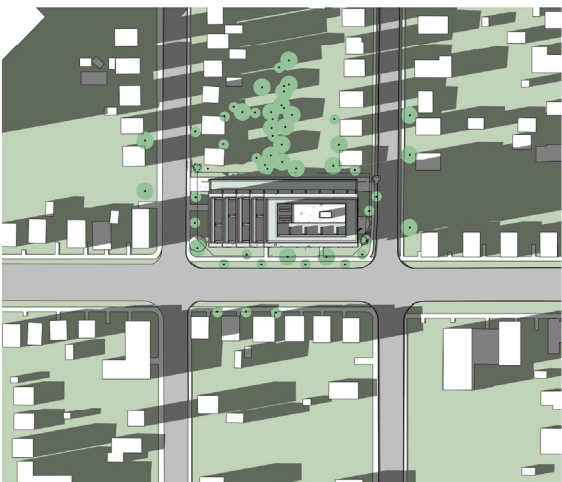
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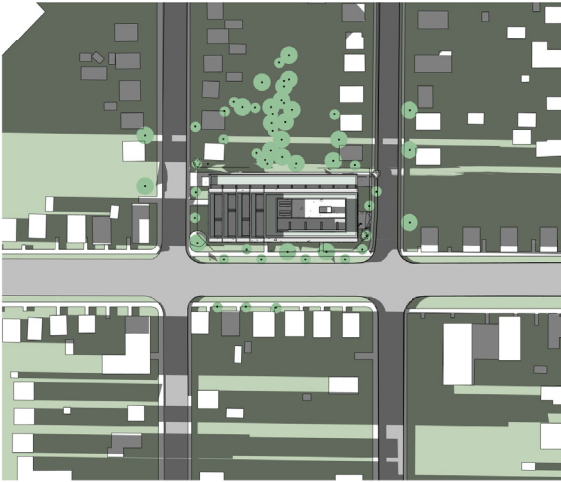
14H



15H



16H



17H