Shadow Study

51 & 57 Tannery Street and 208 Emby Drive (OPZR-104636)

Prepared for NYX Tannery LP

April 2024

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Introduction

SRM Architects + Urban Designers is pleased to submit this Shadow Study in support of the Proposed Development located at 51, 57 Tannery Street and 208 Emby Drive (the Site). The applicant proposes a residential development with heights ranging from 4 to 14 storeys. This Cover Letter will provide an overview of the methodology, summarize the shadow impacts resulting from the Proposed Development, and detail the mitigating features included in the site design.

Study Methodology

The Shadow Study was prepared according to the City of Mississauga's Standards for Shadow Studies (February, 2023). A 3D model of the Proposed Development was prepared by SRM Architects + Urban Designers. The model was placed into a 3D massing model created using data from the City's open data portal, with surrounding buildings modeled to reflect existing heights. The combined model was then geolocated to ensure accurate sun position based on the Site's latitud and longitude (43°34'48.02N, 79°42'57.96W). Astronomic north was determined in Sketchup. The images and shadows are show in relation to true / solar north.

The Sun/Shadow Study captures representative days and times as specified in the City's Standards as detailed below.

Test Date	Test Times
June 21 (UTC -4)	7:07am, hourly intervals from 7:20am to 7:20pm, and 7:33pm
September 21 (UTC -4)	8:35am, hourly intervals from 9:12am to 5:12pm, and 5:48pm
December 21 (UTC -5)	9:19am, hourly intervals from 10:17am to 2:17pm, and 3:15pm

After export, the images for each test time were edited to highlight the net new shadows cast by the Proposed Development beyond those cast by the surrounding buildings. Final images for each test time are presented on the following pages.

Shadow Impact Summary

The City's Standards require a written analysis and mitigation plan detailing how the shadow impact criteria have or have not been met and any mitigation features that have been incorporated into the design. The Standards describe five criteria for analysis, measuring sunlight on:

- Residential private outdoor amenity spaces (3.1)
- Communal outdoor amenity areas (3.2)
- Public realm (streets and open spaces) (3.3)
- Turf and flower gardens in public parks (3.4)
- Building faces to allow for the possibility of using solar energy (3.5)

Communal outdoor amenity areas and public open spaces surrounding the Site are shown on the following page together with a sun factor analysis for each space.

There are minimal impacts beyond the City's criteria for residential private amenity outdoor amenity spaces (3.1). The areas which do not meet the City's criteria are the following: The North East amenity area has a sun factor of 32.57% in September, and 4.22% in December. The central amenity area has a 48% sun factor in June, when shade would likely be more desirable. There are no impacts beyond the City's criteria for the communal outdoor amenity areas (3.2), turf and flower gardens in public parks (3.4), and building faces to allow for the possibility of using solar energy (3.5).

Within the public realm (3.3), three specific areas receive impacts beyond the City's criteria:

- The north side of Tannery Street receives shadow impacts on the boulevard at 9:12am to 12:12 on Sept 21.
- The east side of Street Broadway receives shadow impacts on the boulevard at 4:12pm and 5:12pm

The remainder of the existing and proposed public realm, including the POPS / Plaza at the corner of Tannery and Ruteledge, and the valley lands dedication are not impacted by net new shadows beyond the City's criteria.

Mitigating Features

The Proposed Development includes several design features that help to mitigate shadow impacts on the surrounding neighbourhood. The low rise built form along Tannery Street and near 45 degree angular plane reduce shadows cast onto the opposite boulevard during morning and mid-day. The overall height is limited to 14 storeys, with the tallest massing concentrated towards the centre of the block, near the southern property line, to minimise shadow impact on neighbouring properties. This increases the distance from the taller building elements, and surrounding buildings and open spaces and creates an appropriate transition in height. Finally, the building is surrounded by large open spaces to the north, east and west, and well separated from any neighbouring buildings on these sides.

Conclusion

Overall, the net new shadows cast by the Proposed Development have an acceptable impact on the surrounding neighbourhood and on the proposed public realm within the Site. The Proposed Development results in minor impacts to the boulevards on Tannery Street and and Broadway Street. Based on the sun factor analysis, the development will cast an acceptable shadow on private and communal outdoor amenity areas, public spaces, turf and flower gardens, and potential solar energy collection have been recorded. The Site's design and massing, including the near angular plane, height limits, concentration of massing, and large separation distance to neighbouring buildings on 3 sides result in a development that is compatible with the existing context.

Shadow Study - Cover Letter

Location	Tannery	POPs/Plaza	SW Amenity	Valley Land	Central Amenity	NE Amenity
Area²	**1090.97m²**	**1300.96m²**	**775.23m²**	**4073.73m²**	**324.63m²**	**1494.85m²**
September	85.66%	94.78%	84.13%	98.53%	51.73%	32.57%
June	90.96%	100.00%	71.69%	99.99%	47.93%	53.12%
December	78.20%	83.68%	100.00%	100.00%	60.40%	4.22%

Shadow Study: Sun factor for outdoor amenity areas and public spaces

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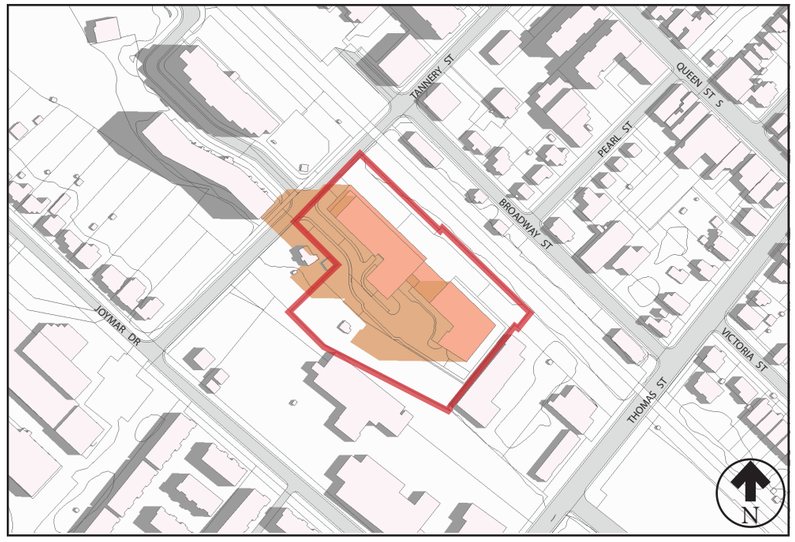
7:20am

8:20am



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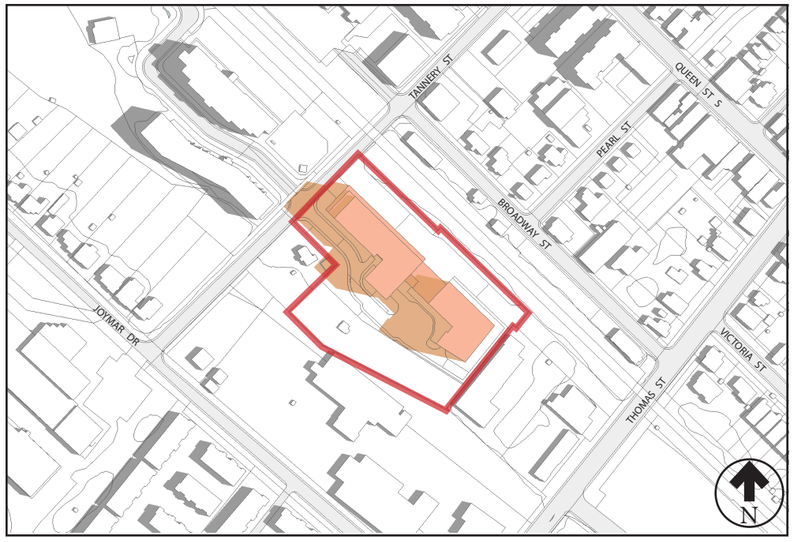

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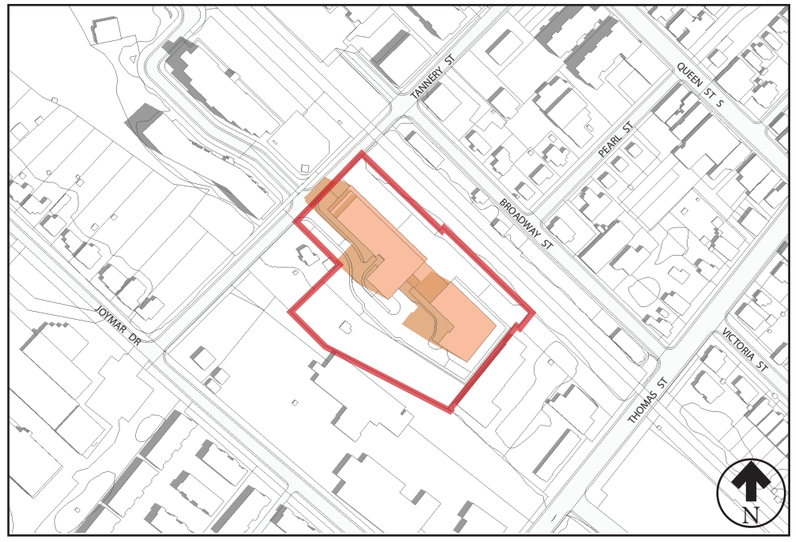

11:20am

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Subject Site

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Shadows Cast by Proposed Development

Shadow Study - June 21

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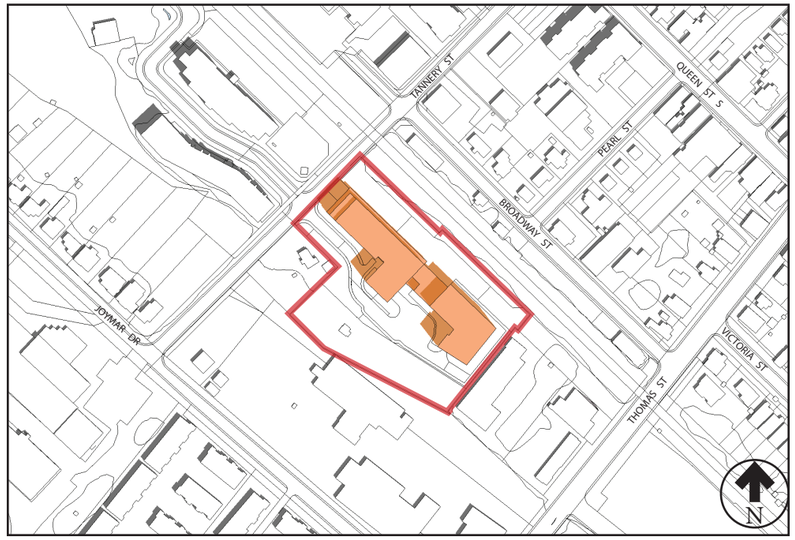

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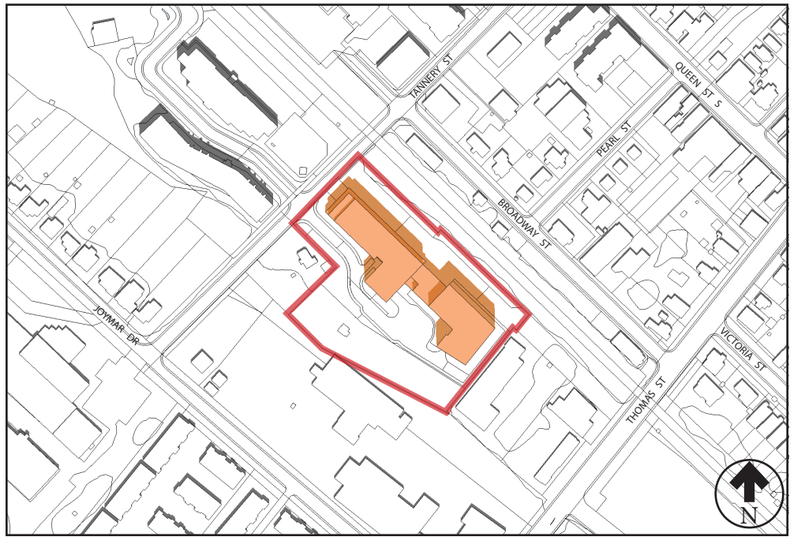

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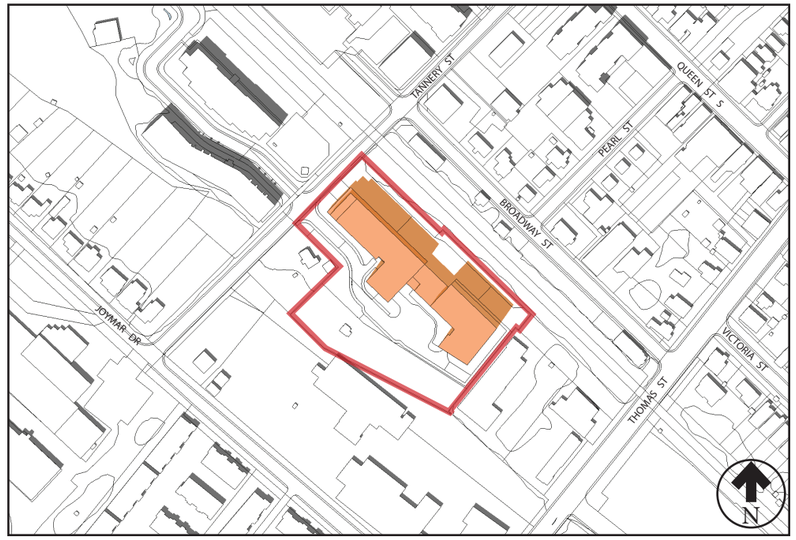

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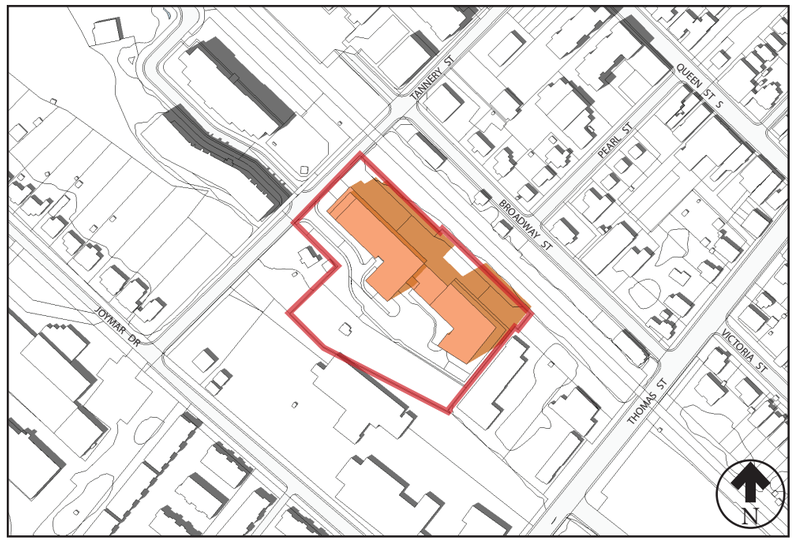

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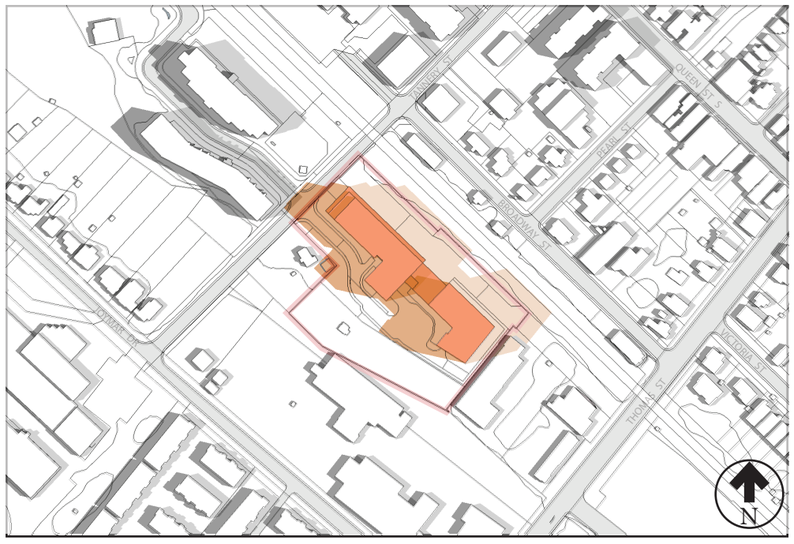

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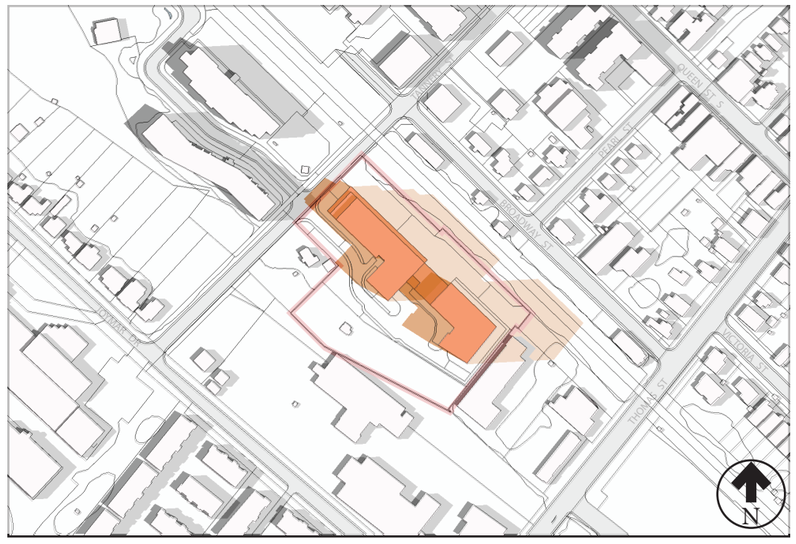

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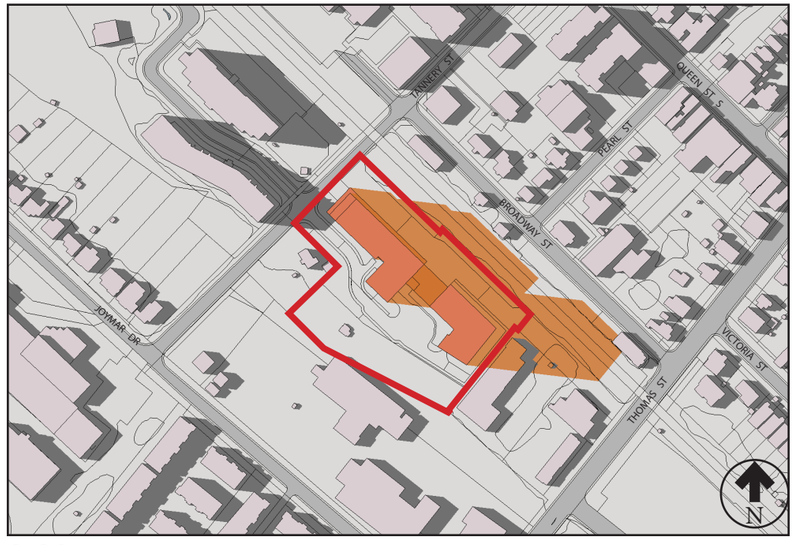

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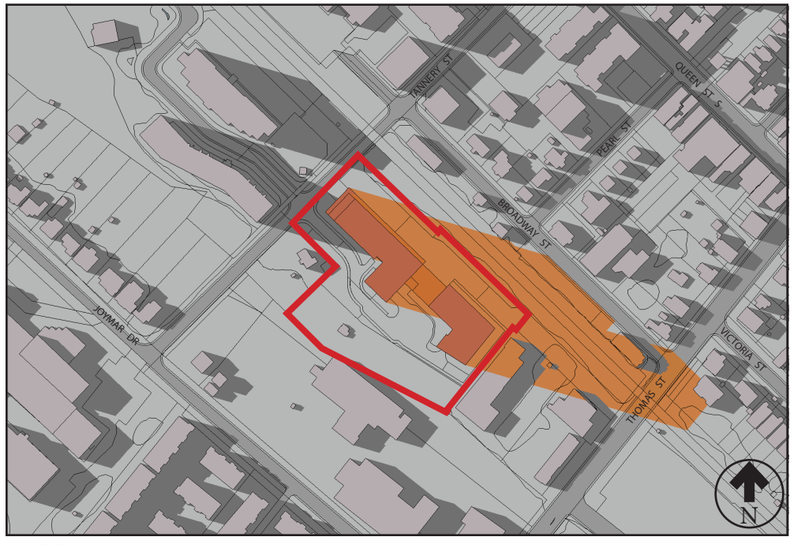

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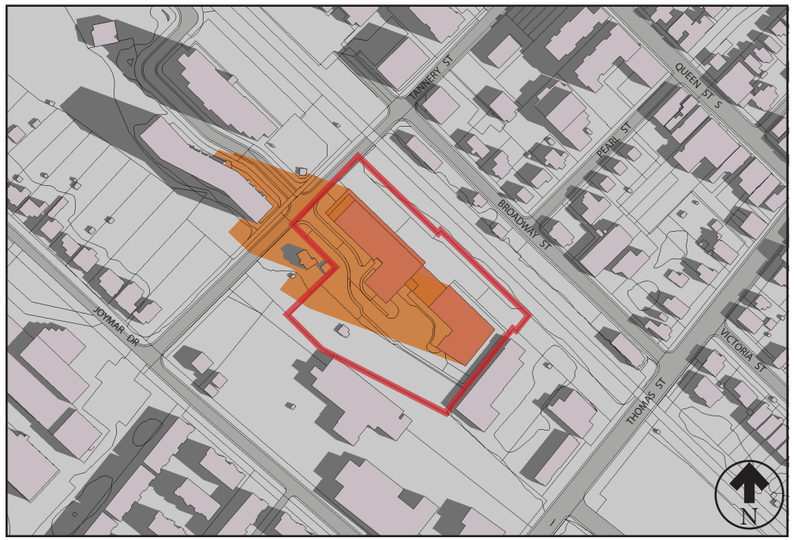

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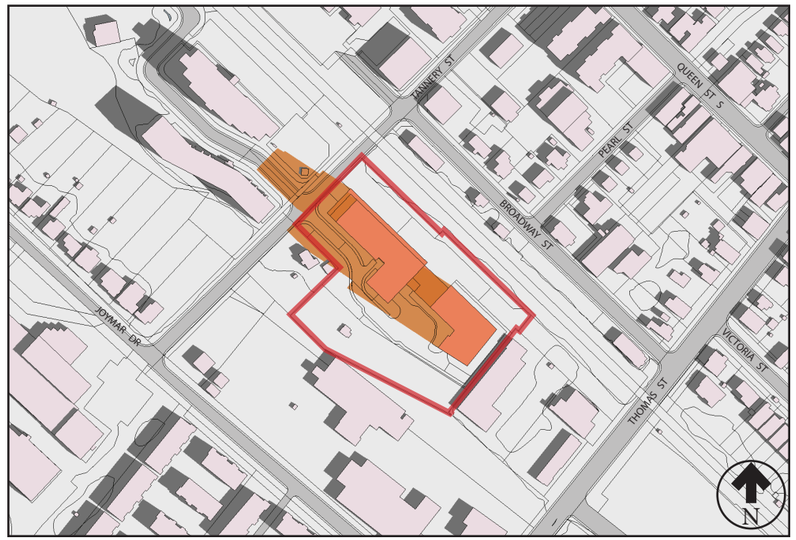

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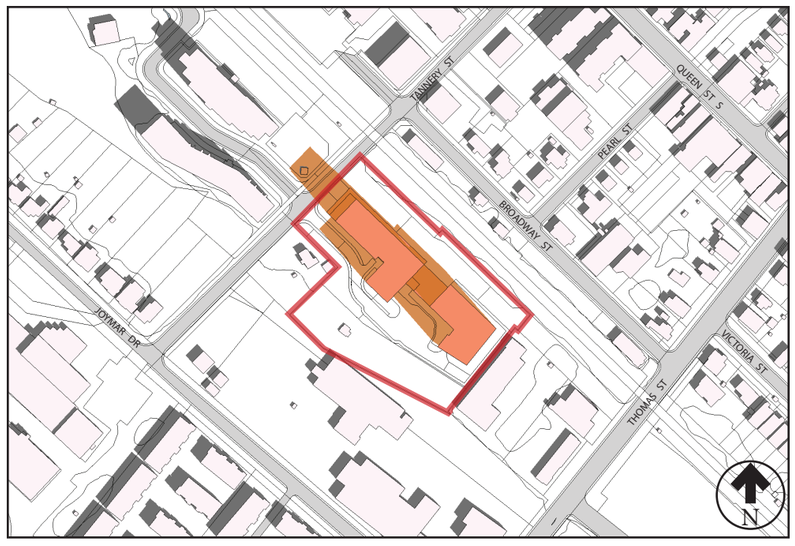

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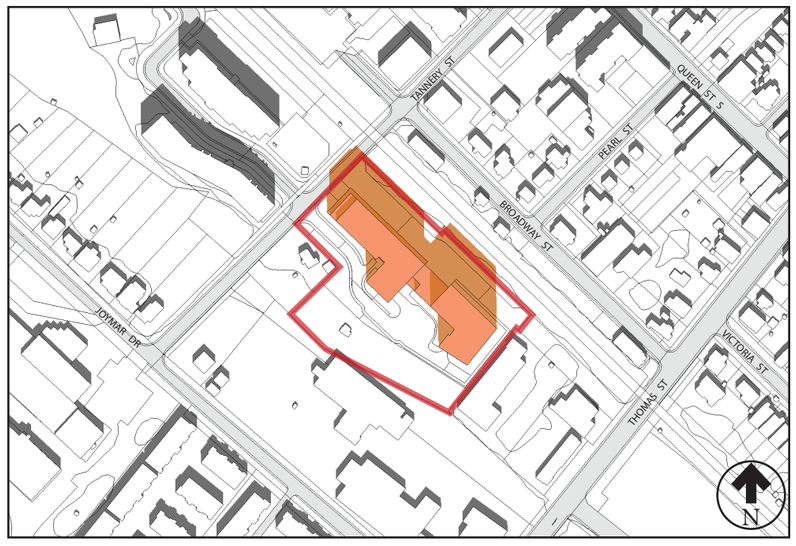

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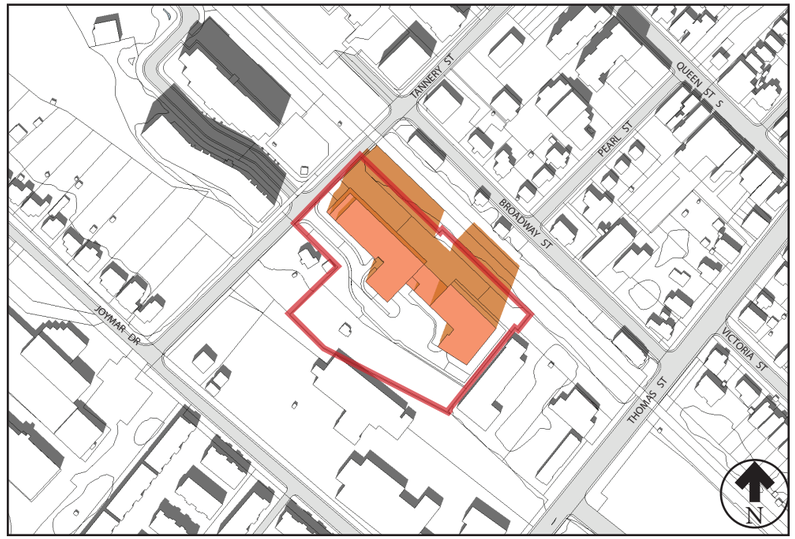

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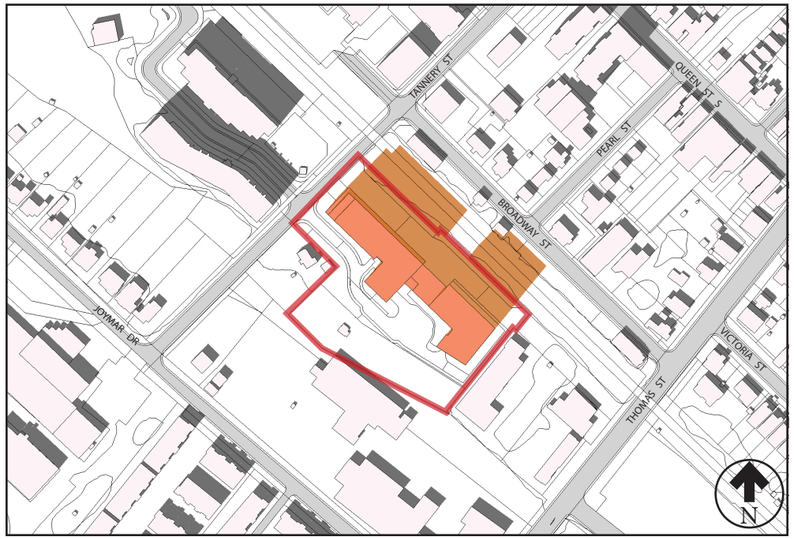

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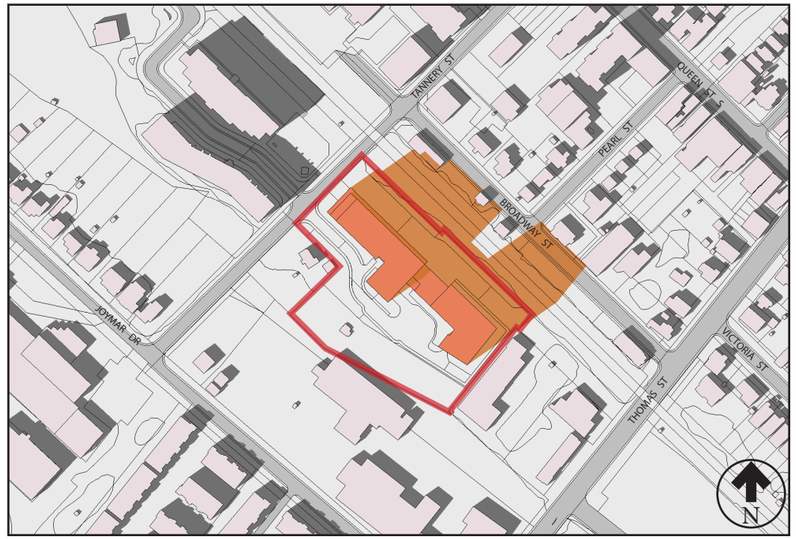

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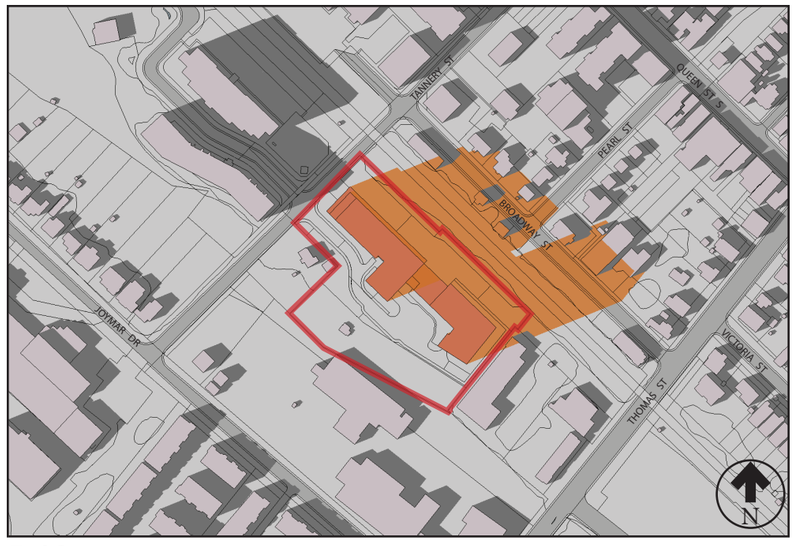

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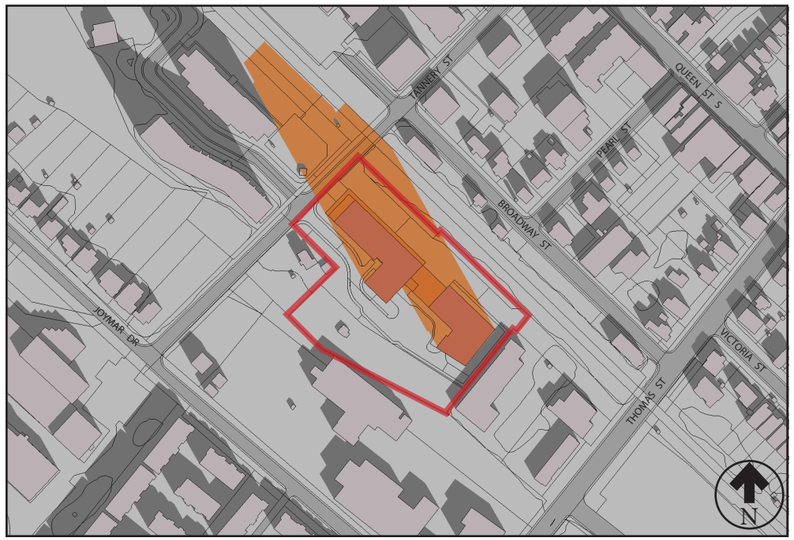

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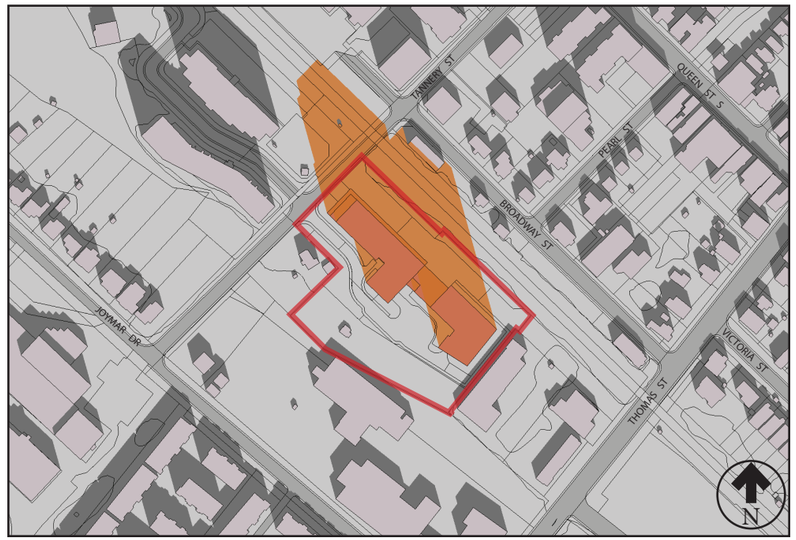

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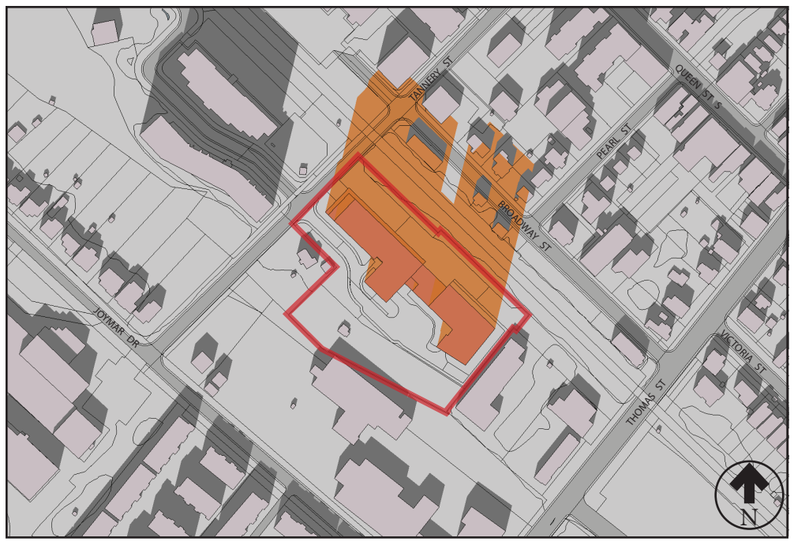

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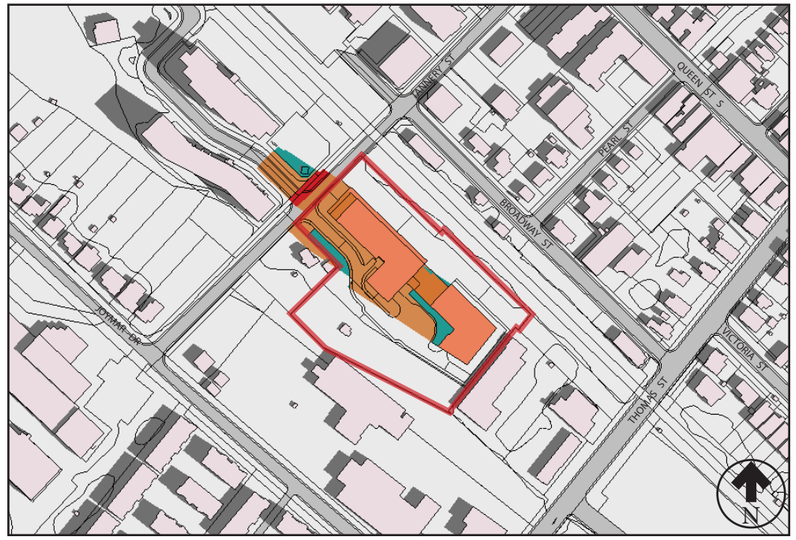

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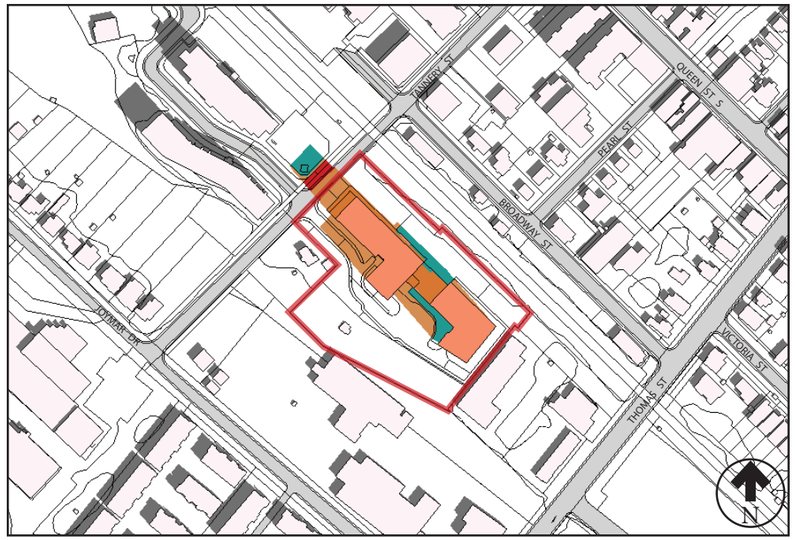

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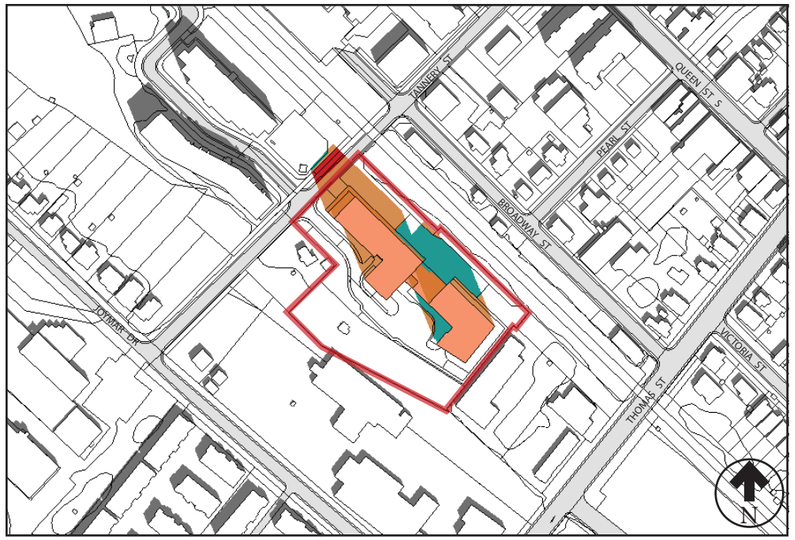

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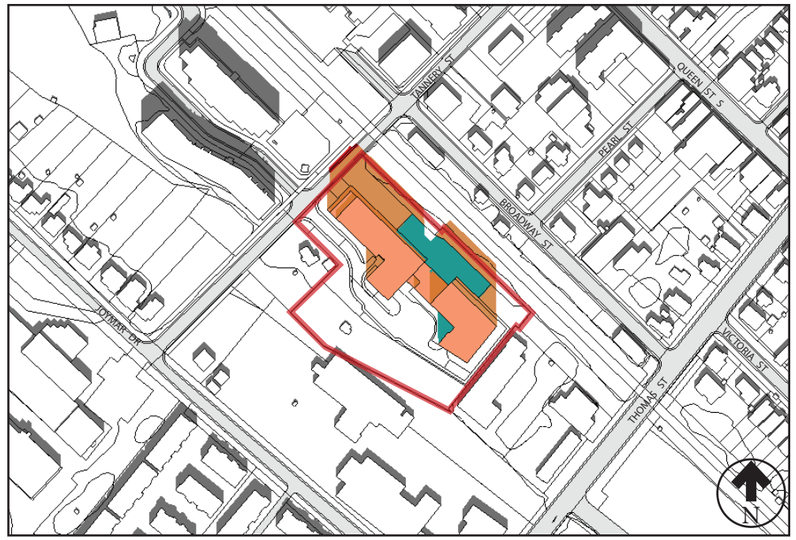

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Public Spaces and Outdoor Amenity Areas Shadow Study - September 21

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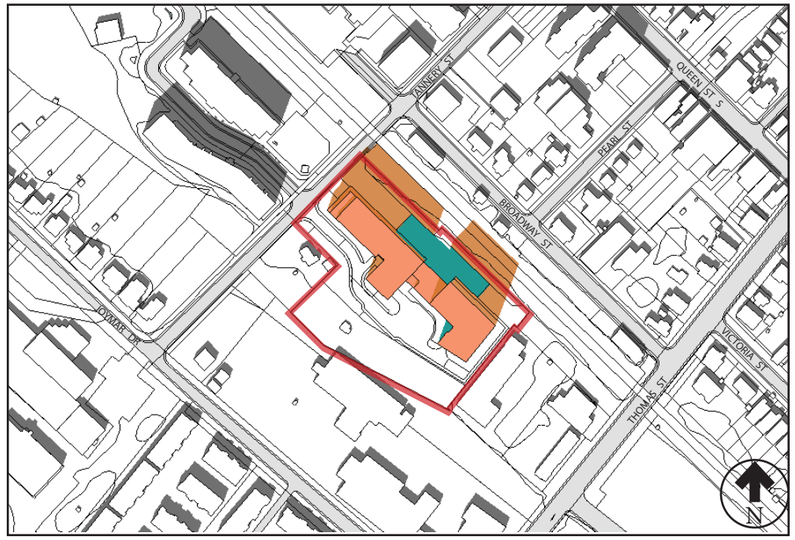

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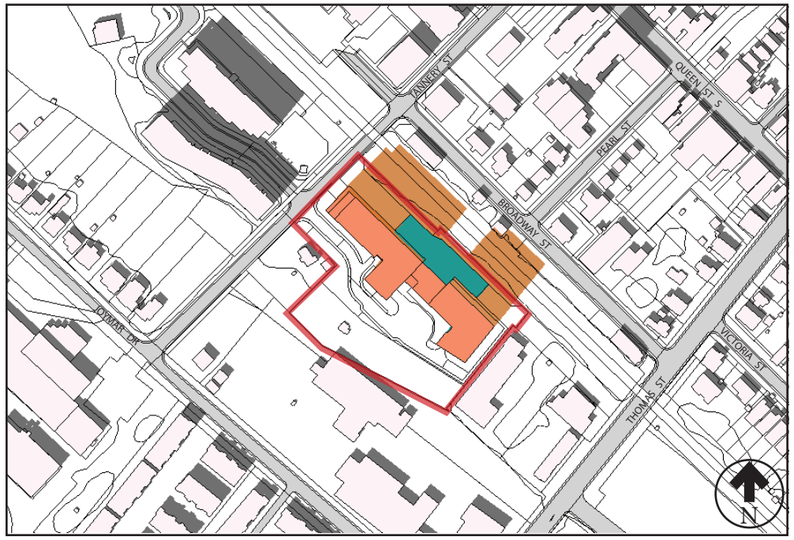

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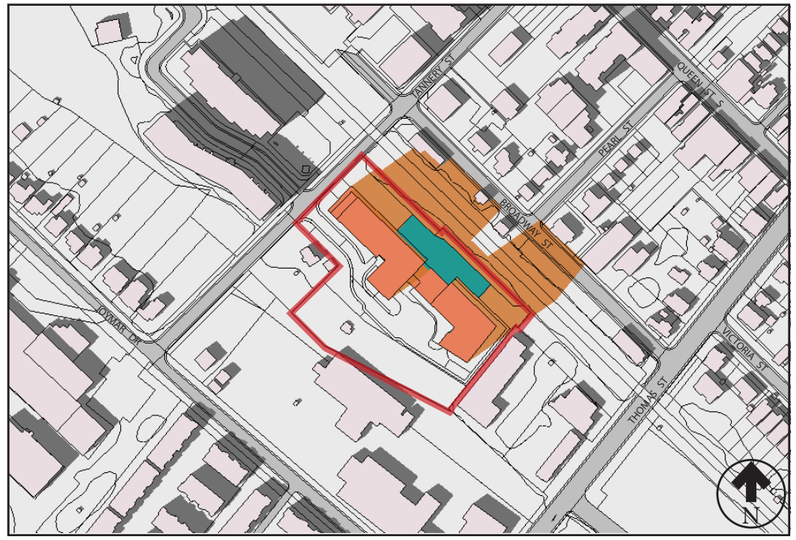

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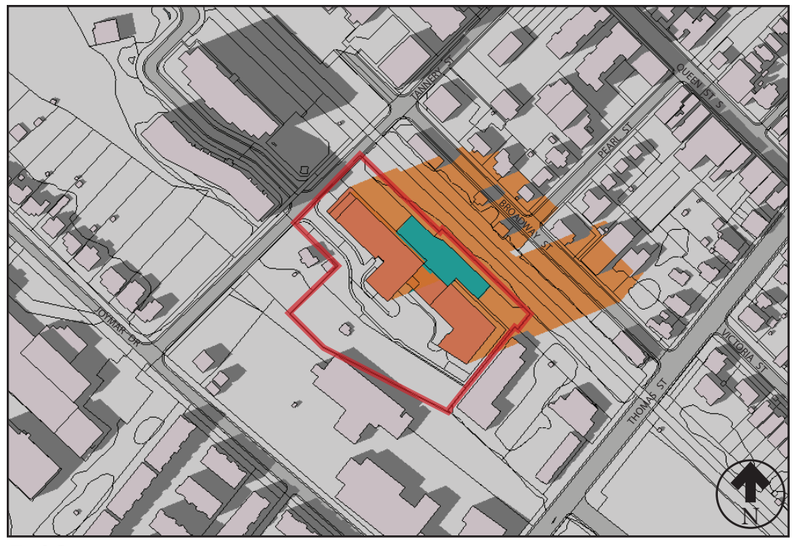

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