

Delegation April 24, 2018
Planning and Development Meeting- Official Plan
Joseph A. Gaetan B.G.S

Mr. Chairman, Mr. Mayor, Councilors, City Staff, Fellow citizens and attendees:

The main reason I am here today is because I believe that we are losing control over our community and the nature of development in our downtown area. Some of you have said this Official Plan is for the next 50 years or so, and while that may be the case, it is also the case that what will happen in the near term (5-8 years), will be irreversible.

In the past I have commented on the 374 Martha St., 421 Brant St., 2082-2090 James St. developments and the Official Plan and have made known my position, which is to delay approval of the Official Plan, which is why I am here again today.

During a public event in January I had a brief conversation about building shadows with a gentleman who also attended the rally that took place in front of city hall.

That discussion resulted in my researching the subject of shadows in greater detail.

The premise of my presentation today is, what looks good on paper, may not be so good in reality.

The accompanying Power Point presentation contains important information that will hopefully guide you in your decision making. The presentation contains the results of that research and additional information that may shed some light on the impact of existing policies as well as issues that are not to my knowledge covered in any policy:

To better understand shadow effect, the writer undertook a shadow study of 421 Brant St., 409 Brant St., 374 Martha St., 2082-2090 James St., and 2042 Lakeshore Rd. and the current tallest building in Burlington located at 551 Maple, that has been historically used as a proxy site for condominium development studies.

POWER POINT PRESENTATION STARTS HERE:

Slide1: Cover sheet

Slide 2:

Contains the following statement from the City of Burlington Tall Building Guidelines

S.1.3: The objective of the guideline is to provide best practices related to building height, massing, transitions, sun / shadowing, and building articulation to promote and encourage high-quality tall building proposals.

Slides 3 to 5: Contains excerpts from the "Rationale" section of the City of Toronto Tall Building Guidelines

Slide 3:

Rationale: Access to direct sunlight improves the usability and enjoyment of outdoor spaces and allows trees and vegetation to thrive. Tall buildings can adversely affect the environmental quality of surrounding areas through the loss of sky view and by the overshadowing of adjacent streets, parks, and public or private open spaces.

Slide 4: Rationale (cont'd):

Loss of sky view reduces access to light, which affects the comfort, quality, and use of the public realm. humid summers, and cold, grey winters. In summer, shade from trees and light breezes make the public realm more comfortable.

In the shoulder seasons, spring and fall, access to direct sunlight and shelter from the wind become very important to improve the comfort, usability, and enjoyment of outdoor spaces.

Slide 5: Rationale (cont'd):

Required Sun/Shadow studies focus on the importance of access to sunlight during these seasons. The review of other times of day and other seasons may be required depending on the type and shadow sensitivity of adjacent uses. For tall buildings, protecting sky view and access to sunlight is generally achieved through good street proportion, overall massing, generous tower setbacks and separation distances.

Slide 6: Context Intro slide**Slide 7:**

Contains a chart showing the average number of sunshine days for this area of the province from December to March. All data averages are from the period of 1982 to 2010.

Source: <https://www.currentresults.com/Weather/Canada/Cities/sunshine-annual-average.php>

Slide 8:

Is a photo depicting the lack of sunshine, taken from the 20th floor of 551 Maple on April 16 at 10:05 am.

Slide 9:

Is a photo depicting the effect that clouds can have on our city.

The photo was taken from the 20th floor of 551 Maple on April 10 at 11:22 am.

The area marked in red is sunlit, while most of the remaining area is affected by cloud cover.

Note the difference in effect and the density of the shadow that is present at the bottom right corner of the photo that is cast from the tall building located at 1270 Maple Crossing Blvd.

Slide 10:

This slide depicts one of the many wind effects that are attributed to tall buildings.

Slide 11:

This photo shows the actual effect of winds graphically shown in slide 10. The photograph was taken at ground level at 551 Maple on April 14, 2018 at 15:51.

Slide 12:

Contains Wind Chill Data for this area of the province for the period of November through March. All data is from the period of 1982 to 1981

Source: <https://www.currentresults.com/Weather/Canada/Cities/wind-chill-annual-average.php>

Slide 13:

This photo was taken on April 14, 2018 at 10:25 am

Slide 14:

Contains the following statement from the City of Burlington Tall Building Guidelines

2.3 Shadows/Sky Views

- a) The height and massing of the podium (**not including the tower**) should ensure a minimum of five consecutive hours of sunlight on the opposite side of the street at the equinoxes (March 21 and September 21) except where existing conditions preclude.
- b) The height and massing of the podium shall ensure a minimum of five consecutive hours of sunlight over more than 60% of a park or playground area or a public open space at the equinoxes (March 21 and September 21).

Slide 15:

This slide is a graphical depiction of the length of shadows that would be cast from a 70 meter high building, geo-located at 551 Maple Ave on December 21, March 21, July 21 and Sep 21.

Note: The shadows from a building of that height at that geo-location would be longest on the Dec 21 (Solstice) and March 21 (Equinox).

Per S. 2.3 (a) of the City of Burlington TBG requires that the required hours of sunlight be only based on the equinoxes of (March 21 and September 21 equinoxes)

Slide 16:

This picture was taken from the 20th storey of the building located at 551 Maple Ave on March 26 2018 at 07:15 and depicts the shadows cast from both 551 Maple Ave and 1270 Maple Crossing Blvd.

Note: The shadow on the left is cast beyond Augustus Dr. a distance of 480.31 meters or 1575.81 ft.

Slide 17:

This picture was taken from the 5th storey of the building located at 551 Maple Ave on March 13, 2018 at 10:00 am and depicts the shadow that is cast by 551 Maple Ave.

Slide 18:

This is a cropped copy of the shadow study picture, extracted from the 2082-2090 James St. development shadow study.

Note: The amount of shadow that would be cast on James St on March 21 at 12:30.

Note: The writer communicated his concerns regarding the over-shadowing of James St. to Council and Planning in separate correspondence.

Slide 19:

This slide contains a picture of the shadows that are cast from the building known as 360 on Pearl. The

photo was taken at March 17, 2018 at 15:22 and is self-explanatory.

This area is affected by shadows throughout the day, from the existing building at 360 Pearl, and will be subjected to the cumulative shadows cast from 374 Martha St., 2042 Lakeshore Rd., and the shadows that would be cast, should a Tall Building be constructed at 2069 Lakeshore Rd.

Slide 20:

This slide shows the relationship between City Hall and the proposed buildings at 409 and 421 Brant St. Wind studies could determine the presence of “Venturi” effect. A wind study could identify wind related issues that could result in design changes aimed at mitigating the “Venturi” effect.

POWER POINT PRESENTATION ENDS HERE

Summary:

Shadow and wind effect are two factors that can have negative effects on the surrounding area. When shadowing and wind effect is not adequately, evaluated, planned or taken for granted, they can effect habitation, street use, pedestrian safety, and may contribute to anti-social behavior.

When you consider this area of Ontario has a sunshine average of 34.75% and 28 wind-chill days between December and March of each year, the nature and type of buildings, how they are spaced, and where they are located in relation to each other is critical to the enjoyability and livability of our downtown. While the subjects of the study were in the area from Maple Ave to Martha St., the observations and concerns would apply anywhere a Tall Building is being considered.

During the course of my research I came across policies from other Ontario municipalities that would augment or enhance the current City of Burlington Tall Building Guidelines. As an example the current guidelines:

Are silent on the cumulative effect of shadowing

Are silent on wind effect

Cover shadowing on Sep 21 and March 21, but excludes Dec 21

Do not contain standard criteria for shadow study submissions

Information on the policies that cover the above may be found in:

The City of Toronto-Tall Building Guidelines

1.0 Site Context S. 1.4 Sunlight and Skyview p. 21

4.0 Pedestrian Realm S 4.3 Pedestrian Level Wind Effect p.60

The Mississauga-Standards for Shadow Studies Document

To my knowledge, no tall building has failed to pass the shadow and sky view tests as defined in section 2.3 of the Burlington Tall Building Guidelines (TBG).

Example: The shadow study for 421 Brant St. arrived at the following conclusion: ***“In summary, based on my review of the March, June, and December 21st shadows, and having due regard for shadow duration, seasonal variations, time of day, and the context of downtown neighbourhoods containing primarily commercial uses in an urban building form, it is my opinion that incremental ground level shadowing resulting from the proposed development over and above the subject site’s height limit is limited and reasonable”.***

The proposed building located at 421 Brant as planned, will be 94.05 meters or 308.563 feet high.

The City of Burlington TBG S. 2.3 Shadows/Sky Views states:

- a) The height and massing of the podium **(not including the tower)** should ensure a minimum of five consecutive hours of sunlight on the opposite side of the street at the equinoxes (March 21 and September 21) except where existing conditions preclude.
- b) The height and massing of the podium shall ensure a minimum of five consecutive hours of sunlight over more than 60% of a park or playground area or a public open space at the equinoxes (March 21 and September 21).

A shadow study for this site for the Dec 21 (Solstice) shows the shadow cast for this building will commence at 07:51, thereafter casting its shadow northward on Brant St, sweeping eastward to James St. past John St. until the sun sets at 16:43. The shadows reach their peak positions twice at 09:00 and 15:44. This building will continuously cast a shadow on the subject area for 8 hours and 52 minutes.

But what about cumulative shadow effect or the shadow effect of multiple buildings or wind effect? The building proposed for 421 Brant, is a 23 storey building 94.05-meter-high structure, that will be twinned by a 24-story building to the south? The City of Burlington's city hall is an elliptical building form, a form that is known to be an effective form for reducing wind loads on buildings, which is a good thing. However, since our TBG is devoid of wind policy, wind studies are not required for the two tall buildings to determine if their combined placement will result in "Venturi" effect. Venturi effect may show an increase in wind speed near ground-level which would be undesirable during certain times of the year.

(Passages between buildings can be responsible for increased wind speed near ground-level that can cause wind nuisance for pedestrians (Wiren 1975; Gandemer 1975; Lawson 1980; Stathopoulos and Storms 1986; Stathopoulos and Wu 1995; To and Lam 1995; ASCE 2003; Blocken et al. 2007a).

Source: A numerical study on the existence of the Venturi-effect in passages between perpendicular buildings B. Blocken^a, P. Moonen^b, T. Stathopoulos^c, F. ASCE, J. Carmeliet^d, e * Corresponding author

Unlike Toronto's TBG that contains criteria on, wind and cumulative effect, found in: **(S 1.4 (a) ...Consider the cumulative effect of multiple towers on resulting shadowing..." P21 and S. 4.0 Pedestrian Realm S 4.3 Pedestrian Level Wind Effect p.60).**

Burlington's Tall Building Guidelines has no such requirements.

Recommendation:

In the past council have opined on their responsibility to approve the current iteration of the OP. Much work has been done and the city is close to the finish line and the legacy of that approval will hinge on the document itself and the policies that will determine whether a given development is in the best interest of Burlington long-term.

It is my opinion there is more good than bad in the plan, but some crucial details and policies should be added and tested before we go further.

My statement today is a snapshot of what should be considered in our supporting policies. The lack of guidelines for a given area (i.e. wind or standardized shadow studies) leave us exposed to the whims of a

building designer, while failing to protect our greatest asset “space” and how those spaces may or may not be used due to lack of policy.

Regards,

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Source Material:

Mississauga-Standards for Shadow Studies

http://www6.mississauga.ca/onlinemaps/planbldg/UrbanDesign/ShadotudiesFinal_Feb2012.pdf

Toronto-Tall Building Guidelines

<https://www.toronto.ca/legdocs/mmis/2013/pg/bgrd/backgroundfile-57177.pdf>