



June 8, 2020

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City of Burlington
426 Brant Street
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**West End Home Builder's Association | Community Planning, Regulation and Mobility Committee Agenda
Item 5.3, Report PL-08-20 – Shadow and Wind Studies**

Attn: Kevin Arjoon, City Clerk

This is further to correspondence City Council received on January 15th, 2020 from Kirstin Jensen, Manager of Planning & Government Relations with West End Home Builders' Association ("WE HBA") regarding the shadow and noise study guidelines review currently being undertaken by the City of Burlington.

Since this submission to the City in January, there have been several HDLC meetings at which it is intended, in part, to provide the building industry with updates on ongoing city planning initiatives. The HDLC Committee is specifically intended to provide the City with an opportunity to bring the industry up to speed on the status of City initiatives and also to provide the building industry with an opportunity to provide its insight on these matters. The HDLC Committee process is designed to foster communication, transparency, and cooperation.

On behalf of its members, WE HBA submitted its comments in January to identify issues that are of concern with the proposed shadow and wind studies guidelines, based on the information that was available at that time. Since January, WE HBA nor its members have been contacted by the City to discuss the comments provided or to provide further input into the process of developing guidelines that are appropriate and address the concerns of all stakeholders. The lack of further discussion on this item is quite different from what we experienced during the preparation of the Tall Building Guidelines. At that time, we attended at least six (6) meetings with City Planning staff to review concerns and finalize the guidelines into a format that worked for all stakeholders involved.

On May 28th, 2020, one of our members wrote to senior City staff expressing serious concerns with the current review process and requested that these matters be deferred until such time as the City has had an opportunity to consult with the building industry further. As shadow and wind study guidelines are not an urgent matter, particularly in the middle of the COVID-19 pandemic, we were disappointed to receive the following response from the City stating:

"The City received, and acknowledged receipt of, comments submitted by the West End Home Builders Association (formerly Hamilton-Halton Builders' Association (HHHBA)) on January 15, 2020 (see attached). This was following a consultation period from December 13th, 2019 to January 15th, 2020, which included an extension to the original deadline for comments at the request of HHHBA.

Also, a summary of the feedback from the public and stakeholders and the consultant's response is included as Appendix D to the staff report, which as noted below, will be

available for review later today. The feedback received has informed revisions and refinements to the guidelines and terms of reference documents. You can access a copy of the staff report when it is available through the City's web page.

After reading the staff report and appendices, if you still have concerns, you may make a request to delegate to the June 9th virtual meeting of the Community Planning, Regulation and Mobility Committee, or submit additional feedback for the Committee's consideration. You can access information about how to do that using the link above."

As this demonstrates, the City's efforts to consult with the building industry were conducted during the holiday season, and while WE HBA did provide its comments on January 15th, 2020, City staff did not reach out further to discuss the matters and concerns that we raised. Our members will be most directly impacted by these guidelines. As an industry that represents over 7% of the national GDP and will be one of the most important components in Burlington's COVID-19 recovery, we are disappointed by this approach and commentary.

Further to the City's response noted above and as these matters will not be deferred, this represents our only opportunity to provide comments, on the record, to the City of Burlington.

Generally, we note that the consultants retained by the City of Burlington have relied primarily on a review of "best practices" used by other selected municipalities. This review formed the basis of the proposed guidelines. The rationale for the selection of the municipalities that have been polled is not provided in PL-08-20, nor are these municipalities identified. The report also does not confirm that shadow and wind studies are generally required by the selected municipalities nor does it identify under what circumstances the guidelines may apply. Therefore, we are in an unfortunate situation requiring us to provide comments on a series of technical guidelines in the absence of any context or rationale. At this time, we are therefore only able to comment on technical aspects related to the proposed guidelines which are included in Appendix A and B to this letter.

However, we must take this opportunity to confirm that guidelines are just that – guidelines. Guidelines are intended to provide a general understanding of the concerns the municipality may have while also providing direction to the public (including the building industry) as to how these technical matters are to be considered and analyzed. Section 5.0 of PL-08-20 indicates that an amendment to the City's Official Plan may be considered to implement the guidelines. We strongly disagree with this suggestion. The intention of guidelines is specifically to provide guidance, as they are an evolving document of best practices within the planning community. With that intent, guidelines are periodically updated and refined to address local circumstances. They are also intended to be applied judiciously on a project by project basis. Should the shadow and wind study guidelines become policy, each and every time a change is made, an official plan amendment will be required. Not only is this process extremely cumbersome and time consuming, it serves no public benefit.

In conclusion, we reiterate our request that the consideration of the shadow and wind study guidelines be deferred until such time as the City has effectively consulted with WE HBA and its members to resolve the concerns that we have brought to your attention, both now and in January. Attached you will find Appendices A and B, providing technical feedback on the proposed shadow and wind study guidelines. WE



HBA would like the opportunity to discuss the provided commentary with Staff prior to approval of the guidelines by Council.

Sincerely,



Kirstin Jensen, MPI, MA
Manager of Planning & Government Relations
West End Home Builders' Association

c.c. Mayor Marianne Meed Ward
Members of Council
Heather MacDonald, Director & Chief Planner, Department of City Building
Jamie Tellier, Manager of Urban Design
Todd Evershed, Urban Designer



Appendix A

Technical Comments on Pedestrian Level Wind Study Guidelines and Terms of Reference, March 2020 (Brook McIlroy & City of Burlington):

In summary, our concerns are as follows:

- Twelve (12) storeys is a reasonable height to trigger a wind tunnel (single building).
- For large sites (greater than 3 acre) or sites with multiple buildings, the height to trigger a wind tunnel should be eight (8) to ten (10) storeys; five (5) storeys is too low.
- Need to specify a minimum of 16 wind directions for analysis.
- Need a minimum of two (2) seasons in analysis.
- Coverage of analysis should extend a minimum of one (1) block away from site; it should not be based on building height.
- Computational Fluid Dynamic testing cannot simulate gust winds properly. City needs to provide a mean wind speed for safety.
- Adjusting text on the usage of landscaping to improve wind conditions.
- Allow for a Future Configuration if deemed necessary by the City.
- They need a definition of Quantitative Assessment.
- City should provide RGB values for colors they want us to use. Colors they use in example are hard to read for some people.

More specifically the following provides some of the details of the above-noted concerns including requested text changes identified in italics:

Page 3

Section 2.1 - 1st bullet - The range of 5 to 11-storeys, as per Table 2.1, should be clearly stated here.

Section 2.1 - 2nd bullet - 12-storeys is a reasonable height to trigger a wind tunnel study.

Section 2.2 - 1st bullet - 5-storeys for multiple buildings is too low to trigger a wind tunnel study. Consider 8 to 10-storeys as a more reasonable trigger for a quantitative study.

Section 2.3 - 1st bullet - Wind tunnel test if proposed building(s) exceed height of surroundings by 3 or more storeys.

Section 2.4 - 1st bullet - Too strict a requirement, especially should a building be centrally located within a 3 ha site. Add a statement to allow need for a test is at the discretion of City staff.

Page 6

Right column - 1st bullet - Consider this wording: *Wind data input should include a minimum of 16 wind directions for the region to account for the probability of occurrence of wind at critical pedestrian locations for the seasons defined in Section 3.1.*

Right column - 4th bullet - ... *should be assessed for two seasons for all areas of interest...*]

Page 8



5th bullet - Coverage is far too small. If a 5-storey building is tested current statement implies that sensors no further than 15m away are needed. Revise the minimum to state: *A minimum sensor coverage area of 1 typical city block away from the project site shall be used.*

Page 9

Section 4.2 - 3rd paragraph - Can't simulate nor assess gust conditions in CFD simulations. The guidelines therefore need to provide a mean wind speed and acceptance frequency for safety for application in CFD based assessments.

Section 4.2 - 7th paragraph - ... *high levels of activity between...*

Section 4.2 - 9th paragraph - Add sentence: *In some cases, City staff can deem uncomfortable winds in areas of low frequency use, such as laneways, loading areas, etc. as an acceptable condition.*

Page 12

Last bullet - Replace all text from "These elements cannot replace..." to the end of the paragraph, with:

City staff shall have the discretion to accept the use of soft landscaping as wind mitigation. It may not sufficiently mitigate strong wind impacts (e.g., winds rated unsafe) if placed in the extreme wind area but can be effectively used to enhance wind comfort in less windy areas.

By strictly saying that trees and landscaping cannot be used as mitigation completely precludes the use of landscaping to improve low wind speed areas from, for example, Standing to Sitting.

Page 14

Section 6.2 - point b, after 2nd bullet - Consider the following text: *The proposed configuration needs to include all approved buildings and those under construction as identified by City staff.*
OR

Include a configuration described as Future. This extra test configuration would be at the discretion of City staff who would identify future developments being considered within 350m of the proposed development site.

Section 6.4 - 1st bullet - ... *to ensure mitigation measures provide winds adequate for the intended use.*

Page 15

2nd paragraph - ... *is the use of computer simulation 3D modelling...*

5th paragraph - ... *but remain attached to the stem throughout the winter season giving the tree the wind effect of full foliage.*

Between 6th & 7th paragraph - Must include definition of Quantitative Study for comparison to "qualitative" definition.



Page 16

On legend & colors - Dark colour of dots for Sitting and Leisurely Walking obscure sensor number. City guidelines should provide the RGB numbers for the sensor dot colours to provide consistency in report submissions.



Appendix B

Technical Comments on Shadow Study Guidelines and Terms of Reference, March 2020 (Brook McIlroy & City of Burlington):

WE HBA has significant concerns with the shadow study guidelines, as proposed. There are four (4) overriding major concerns that must be addressed prior to their completion:

1. The proposed guidelines cannot be satisfied unless a comprehensive 3D model is available to potential applicants from the City. This was noted in the original comments from WE HBA. The response from staff to this matter is included in Appendix D, Row #9 stating "This is outside of the scope of this study. The City may choose to explore the development of a digital model." The guidelines cannot be satisfied without the City's model. Many other municipalities make money off this, as they charge the applicant for the use of their model.

2. Many of the guidelines are incorrectly written as policy that will unintentionally negatively impact the goals and objectives of the City of Burlington and the building industry. As noted in correspondence from WE HBA, guidelines are intended to provide a general understanding of the concerns the municipality may have while also providing direction to the public (including the building industry) as to how these technical matters are to be considered and analyzed. Section 5.0 of PL-08-20 indicates that an amendment to the City's Official Plan may be considered to implement the guidelines. We strongly disagree with this suggestion. The intention of guidelines is specifically to provide guidance, as they are an evolving document of best practices within the planning community. With that intent, guidelines are periodically updated and refined to address local circumstances. They are also intended to be applied judiciously on a project by project basis. Should the shadow and wind study guidelines become policy, each and every time a change is made, an official plan amendment is required. Not only is this process extremely cumbersome and time consuming, an official plan amendment to include the specific wording included in the guidelines is counterintuitive and fails to serve.

3. While the guidelines are specifically intended to provide the framework for the evaluation of shadow impacts within the public realm, the guidelines include a requirement that matters outside of the public realm including rooftops and yards between the property line and the façade of a building be considered and evaluated.

4. The guidelines suggest that detailed potential shadow impacts for any/all yards that may be affected (regardless of the degree) must be specifically and individually studied. This is an extraordinary request that to the best of knowledge is not required by any municipalities in the GTA. It is not possible to satisfy this requirement in the absence of a 3D model and this is an extraordinary request that could involve the analysis of hundreds of lots. As shadows generally pass over a typical lot within a two-hour time period, this level of analysis is not informative and is extremely costly to undertake. This guideline must be eliminated; and,

More specifically the following provides some of the details of the above-noted concerns including requested text changes identified in italics:



- **Section 1.4 When is a Sun Shadow Study Required** - suggests that subdivision applications be included in the list of applications to which these guidelines would apply. This is inappropriate as built form is not included within a draft plan of subdivision.
- **Section 1.4 When is a Sun Shadow Study Required** - includes Committee of Adjustment applications (height increase). The City may wish to include this in the event that the proposed minor variance proposes a height that is significantly greater than the existing zoning permissions. This should not be a requirement for other types of minor variances.
- **Section 2.1 Introduction** states that one of the triggers for a shadow study is additional height. Again, as stated above for minor variance applications, a study should only be required if the proposed height of the building is dramatically greater than the existing zoning permissions.
- **Section 3.2 Study Test Dates** - this list should delete either March or September as the shadows at both times of year are virtually identical. We recommend that September 21st be maintained and March 21 deleted as September has higher daily temperatures than March and is a time of warmer weather. As has been determined by LPAT on many occasions, the results from studies on December 21st are of limited value and it does not put any value on studies at this time of year, primarily because there is very little sunlight during the winter as existing land uses already shadow one another and insofar as school yards and parks are concerned, students are not in school for most of that month and pedestrian activity is low due to the inclement weather.
- **Section 3.3 Study Test Dates** - lists the study test times. The inclusion of 8:00 am and 7:00 pm is of little benefit and should be eliminated.
- **Section 4.1 Introduction** - We note that the proposed Sun Access Factor (SAF) measurement criteria have been pulled directly from the guidelines in Mississauga, Richmond Hill and Guelph. While an SAF of 0.50 is fairly common, please clarify the rationale and significance of the 0.22 factor included in the Burlington guidelines. How was this factor determined and what is its significance?
- **Section 4.2 Key Civic and Cultural Spaces** - assumes that applicants are aware of the heights of all buildings. Without a 3D model, this assumption is incorrect, and the detailed study recommended cannot be completed.
- **Section 4.3 Private Outdoor Amenity Spaces** - Very problematic. Again, as noted above, March 21st should be eliminated and replaced with September 21st. At the scale of a typical shadow study the evaluation requested in Figures 4.1 and 4.2 cannot be accommodated and this level of detail far exceeds the best practices followed by municipalities that we are familiar with. We will not and cannot agree to the suggestion that a lot by lot analysis of shadow impacts be prepared. Even if this was to be done, in the absence of a consolidated 3D model and the City's confirmation of all property lines, this cannot be successfully completed. Generally, this level of detail is not required, and the consideration of private spaces goes beyond the scope of these guidelines and should be deleted.
- **Section 4.4 Parks and Open Spaces** - The September 21st date is the best to use as this is the time of year that parks are active (not March and December). The requirement to meet a SAF of 0.50 in December is extraordinary and should be deleted as this is the shortest day of the year.
- **Section 4.5 Places Where Children Play** - This section is written as a policy, not a guideline and should be revised accordingly. We also note that an SAF of 0.50 is unusually restrictive. The requirement for analysis on both March 21st and September 21st is redundant and the City should choose one date or the other.



- **Section 4.6 Public Realm and Sidewalks** needs to be reconsidered as it conflicts with the figures on page 26 and only the public realm should be included.
- **Section 5.1 Design Strategies for Shadow Mitigation** - This section reads as policy and should be revised in a guideline format while the specific metrics included appear to be arbitrary and should be verified.
- **Section 6.0 Submission Format** - Subsection 6.1 should eliminate either March 21st or September 21st as the shadows on both days are generally the same
- **Section 6.3 Shadow Drawings** - This section requires the format of each drawing to at least 8.5 X 11". Does this mean that each image must be 8.5 X 11", or does it mean that only one image is permitted on a page and all pages must be 8.5 X 11"? Please clarify. This section fails to recognize that in some instances there may be existing buildings and features that create situations where the minimum SAF of 0.50 has already been compromised. This cannot be confirmed without a detailed 3D model from the City of Burlington. In respect of the colour overlays that are requested, the shadows cast by existing buildings on all surfaces cannot be completed for the entire area in the absence of a 3D model from the City. We also note that the "net new shadows cast by proposed building(s) on roof surfaces" is beyond the scope of these guidelines as they are intended to consider the pedestrian realm. The end result of all of the requested colour overlays may be drawings that are very difficult to show and interpret.
- **Section 6.4 Configurations** - Please confirm what is considered to be a "significant topographic feature". The analysis of the potential impacts on such a feature cannot be analyzed in the absence of a detailed 3D model from the City of Burlington. The requirement that "any proposed developments as identified by the City of Burlington" should be reconsidered. Proposals can change at any time. This is a very unusual request that may provide misleading and counterproductive findings. This requirement should be eliminated.
- **Glossary** - In the definition of boulevard, the words "building face" should be replaced with "property line" as these guidelines are prepared to address pedestrian thermal comfort. The definition of Sun Access Factor should be revised as a measure of "average sun coverage" not "penetration".

