

## Dragnea, Irina

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**From:** David Garner s.22(1) Personal and Confidential  
**Sent:** Monday, September 03, 2018 11:20 PM  
**To:** Public Hearing  
**Subject:** Re: Speaker presentation file  
**Attachments:** Garner - Agenda Item 4.pdf

Hello City Clerk's Office,

I detected a significant error in my Friday submission, corrected here in the attached file (the respective dates are indicated at the bottom of each page of the PDF).

I hope it is possible to replace my earlier submission with this one.

I apologize for creating this hassle.

Thank you.

Cheers,  
Dave Garner

> On 31-08-2018, at 4:00 PM, Public Hearing <[PublicHearing@vancouver.ca](mailto:PublicHearing@vancouver.ca)> wrote:

>

> Hi Mr. Garner,

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> We will be distributing your comments to the Councillors and Mayor, and they will also be posted online on Tuesday (of course with any private information taken out).

>

> Kind regards,

>

> City Clerk's Office

> City of Vancouver

> Email: [publichearing@vancouver.ca](mailto:publichearing@vancouver.ca)

> Website: [vancouver.ca/publichearings](http://vancouver.ca/publichearings)

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> -----Original Message-----

> From: David Garner s.22(1) Personal and Confidential

> Sent: Friday, August 31, 2018 3:59 PM

> To: Public Hearing

> Subject: Speaker presentation file

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> Hello,

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> Attached please find my written comments re:

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> Public Hearing, September 5, 2018 Comment on Agenda Item 4: REZONING: Amendments to the Zoning and Development By-law Regarding the RM-8A/8AN Districts for Townhouse Areas in Cambie Corridor and Grandview-Woodland

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> Will you distribute this to the councillors, or should I Email it to them?

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> Thank you.

>

> Sincerely,

> Dave Garner

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## Public Hearing, September 5, 2018

### Comment on Agenda Item 4: REZONING: Amendments to the Zoning and Development By-law Regarding the RM-8A/8AN Districts for Townhouse Areas in Cambie Corridor and Grandview-Woodland

David Garner

This comment is focussed on “Draft RM-8A and RM-8AN GUIDELINES”, Section 4.15.1 Acoustics (Page 13 of 16 of Appendix E of Policy Report dated July 6, 2018):

#### 4.15 Acoustics

- 4.15.1 A development permit application for a dwelling use in the RM-8N District requires evidence in the form of a report and recommendations prepared by a licensed professional acoustical engineer, demonstrating that the noise levels in those portions of the dwelling units listed below, do not exceed the noise levels expressed in decibels set opposite such portions of the dwelling units. For the purposes of this section the noise level is the A-weighted 24-hour equivalent (Leq) sound level and will be defined simply as the noise level in decibels.

Portions of dwelling units	Noise levels (Decibels)
Bedrooms	35
Living, dining, recreation rooms	40
Kitchen, bathrooms, hallways	45

This Guideline fails to set noise limit requirements for common or limited common outdoor living spaces such as children’s play areas, decks, courtyards, gardens, balconies etc., despite the decades long existence of such Canadian and International guidelines. This is curious given that outdoor activity is a defining characteristic of life in Vancouver and given that RM-8A and RM-8AN zoning is targeted at families and children are known to be particularly negatively impacted by long term noise exposure.

This comment speaks to:

- (1) Health impacts of exposure to noise, especially for children
- (2) Summary of Canadian and International residential outdoor living area noise guidelines

(3) Noise mitigation measures are available

(4) Action Council should consider taking

Note: entries underlined in blue are hyperlinks to references on the internet

**(1) Health impacts of exposure to noise:**

Noise (unwanted sound) is *not* merely an annoyance. Toronto Public Health [\[Toronto-2017\]](#) recently prepared an extensive review of the evidence of negative health effects of long term exposure to noise. Table 1 summarizes recent review literature [\[Garner-2018 p62\]](#) and highlights the particular susceptibility of children to adverse health effects from long term exposure to traffic noise.

Strength of Evidence of Association	Exposure to Road Traffic Noise Wellbeing or Health Outcome <small>[references]</small>				
Sufficient	<b>Sleep Disturbance</b> <sup>[1,2]</sup> <ul style="list-style-type: none"> <li>• Highly sleep disturbed</li> <li>• Awakening</li> </ul>	<b>Annoyance</b> In children <sup>[3]</sup> In adults <sup>[5]</sup>	<b>Speech Intelligibility</b> <sup>[9]</sup>	<b>Cognitive Impairment In Children:</b> <sup>[3]</sup> <ul style="list-style-type: none"> <li>• Reading comprehension</li> <li>• Long-term memory</li> <li>• Standardized test performance</li> </ul>	
Suggestive but insufficient	<b>Sleep Disturbance</b> <ul style="list-style-type: none"> <li>• Highly sleep disturbed In children <sup>[3]</sup></li> <li>• In girls <sup>[4]</sup></li> <li>• Awakening In girls <sup>[4]</sup></li> </ul>	<b>Cardiovascular Disease</b> <ul style="list-style-type: none"> <li>• Hypertension <sup>[6]</sup></li> <li>• Hypertension in children <sup>[3, 7]</sup></li> <li>• Cardiovascular mortality <sup>[6]</sup></li> <li>• Heart attack <sup>[6]</sup></li> <li>• Stroke <sup>[8]</sup></li> </ul>	<b>Auditory</b> <sup>[3,10]</sup> <ul style="list-style-type: none"> <li>• Noise induced hearing loss</li> </ul>	<b>Psycho-Social Effects In Adults:</b> <ul style="list-style-type: none"> <li>• Unipolar Depression <sup>[6]</sup></li> </ul> <b>In Children:</b> <sup>[3]</sup> <ul style="list-style-type: none"> <li>• Hyperactivity</li> <li>• Loss of sense of wellbeing</li> </ul>	<b>Pregnancy and Birth Outcomes:</b> <sup>[11]</sup> <ul style="list-style-type: none"> <li>• Pre-term birth</li> <li>• Small for gestational age</li> </ul>
Inadequate and insufficient		<b>Other:</b> <sup>[6]</sup> <ul style="list-style-type: none"> <li>• Breast Cancer</li> </ul>	<b>Auditory:</b> <sup>[10]</sup> <ul style="list-style-type: none"> <li>• Tinnitus</li> </ul>	<b>Psycho-Social Effects In Children:</b> <sup>[3]</sup> <ul style="list-style-type: none"> <li>• Anxiety and depression</li> </ul>	<b>Pregnancy and Birth Outcomes:</b> <sup>[12]</sup> <ul style="list-style-type: none"> <li>• Low birth weight</li> </ul>

**Table 1**  
*Wellbeing and health outcomes associated with exposure to road traffic noise and strength of evidence.*

**References:**

- |   |   |   |
|---|---|---|
| 1 <a href="#">[McGuire-2017]</a>        | 5 <a href="#">[Guski-2017 open acc]</a> | 9 <a href="#">[US EPA-1973]</a>             |
| 2 <a href="#">[Basner-2017]</a>         | 6 <a href="#">[Seidler-2016]</a>        | 10 <a href="#">[Kowalska-2017 open acc]</a> |
| 3 <a href="#">[Stansfeld-2015 open]</a> | 7 <a href="#">[Dzhambov-2017]</a>       | 11 <a href="#">[Nieuwen-2017 open acc]</a>  |
| 4 <a href="#">[Weyde-2017 open acc]</a> | 8 <a href="#">[Perschagen-2017]</a>     | 12 <a href="#">[Smith-2017 open acc]</a>    |

**(2) Summary of Canadian and International residential outdoor living area noise guidelines**

Table 2 shows that although Canadian guidelines for noise at outdoor living areas of residences have been available for more than 35 years and World Health Organization (WHO) guidelines have been in place for about 20 years, the City of Vancouver fails to even reference these in its building development bylaws.

	City of Vancouver	CMHC/NRC (1981)	Ontario (2013)	UK BS 8233: 2014	WHO (1999)
	L <sub>Aeq,24h</sub>	L <sub>Aeq,24h</sub>	07:00 - 23:00 L <sub>Aeq,16h</sub>	07:00 - 23:00 L <sub>Aeq,16h</sub>	07:00 - 23:00 L <sub>Aeq,16h</sub>
<b>Outdoor Living Area</b>		55	55	55	55*

**Table 2**

The City of Vancouver specifies noise requirements for residential developments based on CMHC guidelines **[CMHC-1981]** except that the CMHC requirement for outdoor living spaces such as children’s play areas, patios, roof gardens, etc, is **not** specified by the City. Ontario **[NPC-300]**, the UK **[BSI-2014]** and WHO **[WHO-1999 p47]** guidelines include outdoor living spaces and are based on 16 hour daytime equivalent continuous sound pressure levels.

\*The WHO set an aspirational guideline for outdoor living areas of new developments at 40 dB(A)

Furthermore, the WHO guidelines are more adapted to family activity by having different noise limits at daytime versus nighttime. WHO has indoor living area impulse noise (eg. Air horns, Jacobs brakes, railcar coupling) guideline limits for nighttime and Ontario has both indoor and outdoor guideline impulse noise limits for both daytime and nighttime.

**(3) Noise mitigation measures are available**

Exposure to excessive noise in outdoor living areas of residential developments can usually be eliminated by careful building design that pays attention to this problem **[Garner-2018 p65]**. Most of the proposed RM-8A/8AN Districts will be shielded by apartment forms lining the arterials, which should make it relatively easy to design

townhouses that meet Canadian outdoor living space noise guidelines; this may be slightly more challenging at a site on Grandview Highway and along w King Edward.

It should be noted that most (but not all) building designs that mitigate against road traffic noise are also effective at somewhat mitigating exposure to traffic related air pollution [**Garner-2018** p73]

**(4) Action Council should consider taking**

- With respect to this specific zoning district, the CMHC/NRC outdoor living area noise limit of 55 dB(A) should be added to Section 4.15.1 Compliance with this guideline should not be onerous.
- More generally, the acoustic limits for existing residential zoning districts should be reviewed and updated. In 2005, the City of Vancouver commissioned a study [**Garner-2018** p94, City of Vancouver **FOI-1, FOI-2**] of traffic noise along arterial streets outside the downtown peninsula. Of 35 sites studied, none had  $L_{Aeq,24h} < 59$  dB(A), and 69% had  $L_{Aeq,24h} > 65$  dB(A) which most people would experience as more than twice as loud as the CMHC/NRC guideline of 55 dB(A). Both zoning districts and rezonings to CD-1 located along arterial streets would be challenged to mitigate noise exposure, but it is far from impossible as has been shown in other jurisdictions.

The negative health impacts of long term exposure to noise at residences, especially on children, are unlikely to go away by just ignoring them.