



100 John West Way  
Aurora, Ontario  
L4G 6J1  
(905) 727-3123  
aurora.ca

Town of Aurora

# General Committee Report

No. PDS23-126

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**Subject:** Strategies for Minimizing Negative Impacts of Residential Infill Construction

**Prepared by:** Wm. Jean – Manager Building Division/CBO

**Department:** Planning and Development Services

**Date:** October 3, 2023

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## Recommendation

1. That Report No. PDS23-126 be received for information.

## Executive Summary

The purpose of this report is in response to Council's request that staff be directed to review our existing by-laws and provide a report to Council on possible improvements including penalties, which would benefit affected residents for new building construction in established residential areas.

This report provides information and strategies regarding nuisance issues on infill residential properties.

- Residential infill development is building activity in established residential neighbourhoods.
- Residential infill development may create nuisance issues and existing legislation on the issues needs to be reviewed.
- Dust from construction can cause a nuisance to the neighbourhood.
- A Departmental procedure has been established to deal with vibration issues for both Planning Act developments and non Planning Act developments.

- Strategies have been established for minimizing negative impacts of residential construction.
- A Pre-Screening Questionnaire for construction or demolition has been created.
- Creation of a Residential Infill Website
- Improve communication with residents with the implementation of a Residential Infill Construction Site Public Notice.
- Review the current Enforcement and Penalties practices.

## **Background**

On May 25, 2021, Council directed staff to review our existing by-laws and provide a report to Council on possible improvements, including penalties, which would benefit affected residents for construction of new builds in older residential areas due to nuisance issues during construction such as noise, vibrations, and dust.

## **Analysis**

**Residential infill development is building activity in established residential neighbourhoods.**

Residential infill housing for the purposes of this report consists of the following scenarios:

- construction of a new house on a vacant lot
- demolition of an existing house and construction of a new house on an existing lot
- demolition where there is no proposed construction of a replacement new house
- the construction of an addition or additions to an existing house where the combined total area of the additions is 100 square metres or more

Residential infill development is an important process which allows the built environment of the Town's existing neighbourhoods to continually evolve. The Town, its residents and builders are all partners in this on-going process. When demolition and construction activity increases, the potential for negative impacts associated with the process increases as well. This is especially the case in existing neighbourhoods. A

survey was performed seeking information from a number of Ontario municipalities on their practices. The results are listed in Attachment 1.

**Residential infill development may create nuisance issues and existing legislation on the issues needs to be reviewed.**

The process of demolishing a house in existing neighbourhoods and constructing a new house creates challenges for both the neighbourhood and the builder. Residents who reside in close proximity to construction sites can be negatively impacted by nuisance issues such as noise, vibration, dust, debris, property standards and the parking of cars and construction vehicles on the street and on the right of way. Builders, when working in a very closed environment face these issues with how construction affects existing properties. This results in Town staff having to deal with complaints from the neighbourhood residents. With the increase in construction activity in established neighbourhoods, there is more impact. The Building Division is usually the first point of contact when construction site issues arise. The Building Inspector will normally discuss the issue with the builder to gain voluntary compliance. However, if enforcement is necessary, the matter is referred to the appropriate Division to resolve the matter.

**Dust from construction can cause a nuisance to the neighbourhood.**

Dust from construction activity is generally caused by cutting stone, rock, concrete, tile and insulation. Also, significant volumes of dust are created during demolition and excavation. These activities happen not only on residential infill projects, but also for a simple landscaping project to install tiling or concrete on a driveway or walkway.

Nuisance dust, created by residential construction activities, is currently unregulated in the Town. Several Provincial Ministries are responsible for dust-related issues and concerns. Through the *Environmental Protection Act*, the Ministry of the Environment and Climate Change (MOECC) regulates contaminants released to the natural environment by industrial and commercial facilities. These facilities must apply for an environmental approval through the MOECC. Facilities that have air emissions, including particles emitted into air such as dust, must comply with Ontario's Local Air Quality Regulation (O.Reg 419/05). This regulation does not apply to residential construction activities. The local Board of Health may investigate general dust complaints if a complainant indicates a possible health hazard. Public Health Inspectors then investigate the complaint to determine if a health hazard exists. Under the Health Protection and Promotion Act, they may also notify the MOECC of the complaint and investigate if there are environmental concerns. The *Occupational Health and Safety*

*Act* regulates dust if it is a hazard to workers and requires that either dust be adequately controlled or that workers are given personal protective equipment. The *Environmental Protection Act* regulates dust produced in facilities and generally does not address construction dust.

There are no general regulations regarding construction dust in the Town's Property Standards Bylaw for projects, such as some home construction, home renovations, and landscaping work that usually produce dust at low levels. The following are the number of dust related complaints for the past five years.

Table 1: Construction Dust Complaint Data from Town of Aurora By-law Enforcement Division

	2017	2018	2019	2020	2021	2022	Total
<b>Construction dust-related complaints</b>	4	2	2	4	8	12	32

A survey was conducted with 22 Ontario municipalities to determine their practices on dust mitigation measures. This survey is attached to this report as Attachment 1. The approach taken to regulate dust from residential buildings varies for each municipality examined.

Due to the low number of dust complaints, it is recommended that the current complaint process be maintained.

**A Department procedure has been established to deal with vibration issues for both Planning Act developments and non Planning Act developments.**

Vibrations emanate from two general types of development: i) development that is permitted under the Planning Act (e.g., residential subdivisions and any other large developments, and ii) non-Planning Act development (e.g., driveway repaving, parking lot paving).

The Town currently does not have a Vibration Policy to address vibration issues from Planning Act developments or non-Planning developments such as additions or new construction in residential areas.

## Development Applications through the Planning Act

In general, vibration issues are a civil matter between the complainant and the person(s) allegedly causing the vibration issue. The Town's Building Bylaw currently has a clause where the Chief Building Official may require a Vibration Study prior to the issuance of a building if he/she deems the construction method may cause vibration issues on neighbouring lands. Further, it is proposed that the Town establish a Vibration Departmental Practice for Planning Act developments (Attachment 3). This will be included in the Town's Site Plan Control Application Guide. It will involve the activities that can cause vibrations, the impacts that vibrations can have, the challenges of regulating vibrations, and the range of sensitivity to vibration that people can experience. The Practice will set out vibration limits depending on the types of structures that may be impacted by the anticipated vibrations. This requirement will be included in Site Plan Control and Development Agreements.

Under this Practice, proponents of development applications are required to provide a "Vibration Impact Assessment," prepared by a Professional Engineer. Based on the construction methods that would be employed, this assessment would estimate the vibrations that would be caused. The assessment would demonstrate what vibrations might be expected within a "zone of influence."

The Practice would set limits on vibration as set out in the below Table, which vary depending on whether the vibrations caused were expected to impact buildings which are considered more sensitive to vibration impacts. These values are recommended limits normally used in Canada in assessing the limit when a building is affected by vibrations. There are no specific standards for vibrations in Canada. These vibration limits are taken from the City of Toronto Vibration Control Bylaw.

1. For dwellings with concrete foundations, wood framed, drywall finish or equivalent, the maximum Peak Particle Velocity (PPV) is 5 mm/sec.
2. For structures that are particularly sensitive to vibrations due to their age or construction technique the maximum Peak Particle Velocity (PPV) is 3 mm/sec.

Peak Particle Velocity (PPV) is the favoured method to determine if vibration due to construction will cause damage to a building. To provide a perspective on these values, the following are vibration levels and their effects:

Vibration Level	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibrations.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

Based on this data, it is noted that at a PPV of 0.3 mm/s, people will perceive vibrations. However, it would take a vibration energy of 17 times or 5 mm/s to potentially cause any damage to a building.

### **Construction Applications not requiring Planning Approvals**

The following outlines three options for consideration to address vibration from construction not requiring Planning approval.

#### **1. Take no action and continue to monitor vibration complaints.**

Due to the low number of vibration complaints received for non-Planning Act developments, no further action may be necessary from the Town at this time. Information from the Bylaw Enforcement Division has indicated that over the past 2 years there has been only three (3) vibration complaints. Staff would take an educational approach to vibration complaints to achieve voluntary compliance with contractors or property owners directly. In the event that damage is sustained to an adjacent property due to vibration, property owners would need to pursue the matter through the courts.

#### **2. The Town's Noise By-law to be amended to include vibration control.**

Many municipalities have vibration control incorporated into their Noise By-law. The City of Toronto has established a Vibration Control Bylaw under the Toronto Municipal Code,

which requires a Vibration Control Form as part of the building permit application package. The Vibration Control Form is primarily for building and structures from construction and demolition and does not address vibration impacts from non-Planning Act development (e.g. driveway or parking lot paving).

The Region of York municipalities were surveyed to determine on how they deal with vibration issues from construction activities on non-Planning Act developments within their communities. All York municipalities regulate sound, vibration, or nuisance that cause disturbance to residents directly through their Noise By-laws except for the Town of Newmarket and the Town of Aurora.

The definition of “sound” within the by-law is, “the sensation produced by stimulation of the organs of hearing by vibrations transmitted through the air or other medium.” In order to properly enforce vibration under the Noise By-law, an amendment to the definition of “sound” will be required. In addition to this amendment, new regulations will need to be proposed to meet the compliance objectives of the By-law.

Under this option, Council would also have an opportunity to increase regulations specifically pertaining to vibration. This could include by-law provisions which requires vibration to be monitored on large sites that employ construction methods which can result in vibrations being transmitted to neighbouring properties. Other vibration-producing activities (e.g. pile driving) on smaller residential sites could also be clearly established within the regulations of the by-law. Should Option 3 be pursued, an updated Noise By-law would be prepared and presented to Council at a future date.

However, due to the low number of vibration complaints received for non-Planning Act developments, it is recommended that the status quo be continued, and no further action is necessary from the Town at this time. Town staff would continue to monitor complaints received in relation to vibration for non-Planning Act developments. Staff would take an educational approach to vibration complaints to achieve voluntary compliance with contractors or property owners directly. In the event that damage is sustained to an adjacent property due to vibration, property owners would need to pursue the matter through the courts. Research was done by reviewing the best practices of other municipalities and it should be noted that the procedures to be implemented are the same as currently used by the Town of Newmarket.

**Strategies have been established for minimizing negative impacts of residential construction.**

The following will be a number of recommendations for a comprehensive inter-divisional strategy to address the issues associated with the construction and demolition of residential buildings in existing neighbourhoods. These proposed recommendations procedures will minimize nuisance issues such as garbage, dust and impacts on the street.

The overall objective is to minimize the impact of residential infill construction activity by implementing new procedures and policies. The goal is also to improve communication with residents.

Research was done by reviewing the best practices of other municipalities and it should be noted that the procedures to be implemented are the same as currently used by the City of Toronto.

**A Pre-Screening Questionnaire for construction or demolition has been created**

In 2019, after consultations between the Building Division and Operations Division, a Pre-Screening Questionnaire was created (Attachment 2 to this report). This is to ensure that permit holders who may wish to use the Town's Right of Way obtain the necessary Road Occupancy Permit from Operations to utilize Town lands during construction and to post securities in the event damage is done to Town lands. Since the implementation of this questionnaire, the number of incidents regarding damaged Town lands have significantly decreased.

**Creation of a Residential Infill website**

To provide information and to further communicate with the Public, an online source for residential infill will be created in the Building Division website. On this site, residents can get details of the proposed construction, as well as, providing information on the Town's Residential Infill property.

**Improve communication with residents with the implementation of a Residential Infill Construction Site Public Notice**

Currently, the building permit placard is the only on-site communications tool to provide the public with basic information about a residential infill project. Builders often post their company name and information on-site; however, there is nothing to provide the public with guidance on how they can obtain further information (such as the permit



search website) on the Town approvals related to the project. As a result, the public does not have immediate information which can help them understand the construction project and resolve issues should they arise.

The objective of the proposed residential infill construction site public notice is to provide the public with a gateway to “real time” information concerning the Town’s approvals and enforcement activities.

The Building Code requires only that the permit be posted on site. It does not authorize the inclusion of additional information on the permit placard. There is a positive obligation on the Chief Building Official to issue the permit if all applicable law as defined by the Building Code has been met. A municipal by-law cannot interfere with this process, or conflict with the requirements of the *Building Code Act* or the Building Code. In keeping with the first principles of the infill initiative, the proposed requirements for the public notice to be posted as a construction site are intended to be run parallel with the permit process as a separate and distinct municipal requirement. The proposed Infill Notice will not in any way, nor is it intended to, regulate construction; rather, it has the purpose of disseminating key information regarding the project to the public.

A number of North American cities already require that construction sites contain notices, signs, or placards providing the public with information about the construction or demolition occurring on-site. The objectives of the proposed Infill Notice are consistent with the other jurisdictions; namely, to help foster clarity about the rules and support good construction practices for infill construction and disseminate information to the public. The content of the proposed public notice, including builder contact information and a rendering of the proposed construction, is also consistent with the requirements of other jurisdictions. It is recommended that the Building By-law be amended to reflect this new procedure.

Information contained on the proposed notice would include project-specific information such as:

- Site address
- Builder’s company name
- Builder’s working telephone number and email address
- Building permit number and date of issuance
- Building general contact information

The notice would also contain information on areas such as tree protection, parking, dust, litter, and noise. Implementation of the Infill Notice will result in each residential

infill construction site containing information on the specific hours when the operation of equipment generating noise in residential areas is permitted. It has been designed to not only assist in communication with residents, but as an instrument to communicate construction practices, so that the project has a minimal impact on neighbours.

Part of the infill strategy is improved communication with the residents. The following actions will facilitate easy and understandable public access to information including:

The public notice shall be posted on-site where there is a permit to construct or demolish a building which meets the residential infill criteria. The proposed requirements set out that applicants for residential infill projects must submit project-specific information to the Building Division. The Division will then provide the applicants with a document (either electronic or non-electronic) containing the specific design and information for the public notice related to the infill project. The applicant will then be responsible for manufacturing, installing, and maintaining the public notice on-site in accordance with the provisions of the Building By-law.

### **Review the current Enforcement and Penalties practices**

The Building Division is frequently the first point of contact for the public when a construction site issue arises. When a Building inspector addresses the issue onsite, compliance is often achieved following a verbal warning. Where subsequent enforcement is required for a nuisance-related issue, the Building Inspector refers the matter to the appropriate division to handle the matter, usually By-law Enforcement. Enforcement of orders, however, may be time consuming and sometimes relies on the court system to achieve compliance. For some issues, where the offence is continuing and more immediate enforcement is required, orders are not always the most effective tool. A potential strategy would be the greater use of tickets as an enforcement tool. Divisions of the Town such as By-law Enforcement, currently, use tickets issued by Provincial Offences Officers to enforce by-law infractions (e.g. parking) because they can be issued on the spot, with immediate impact. Increased use of tickets may be part of developing the proposed strategy for a more effective tool to gain compliance. However, based on the number of complaints received in the past, it is the recommendation that the status quo in enforcement be maintained.

### **Advisory Committee Review**

Not Applicable.

## **Legal Considerations**

Pursuant to sections 128 and 129 of the Municipal Act, municipalities have authority to regulate and prohibit matters relating to noise, odour, vibration and public nuisances. The Town currently has a Noise By-law, which was recently updated, dealing with noise regulation. The Town's Occupancy and Encroachment of Highways By-law has prohibitions relating to fouling of highways. The Town does not currently have by-laws or other regulations dealing with matters of vibration or public nuisances. As discussed in the report, certain matters relating to dust and health hazards are regulated by the MOECC, MOL and the local Board of Health.

## **Financial Implications**

Should Council recommend that staff increase enforcement as per Option 2 in this report, there will be incremental cost requirements to the Town including one-time costs for the purchase of necessary vibration monitoring equipment and ongoing operating costs for the training and certification of staff. If approved, these incremental costs will be included in the appropriate proposed capital or operating budget for Council's review and approval.

With regards to the Construction Site Public Notice, no fee is required. As these costs are expected to be minimal, the Building Division would absorb and manage any associated costs of providing this Notice to the applicant.

## **Communications Considerations**

The Town will inform residents about the information contained in this report by posting it to the Town's website. If Council approves the recommendations in this report, the Building Division will work with the Communications team to create a Residential Infill webpage on [aurora.ca](http://aurora.ca), as well as the Residential Infill Construction Site Public Notice.

Strategies in this report if approved by Council will be posted on the Building Division's website.

## **Climate Change Considerations**

While the intent of this report is to minimize affects of noise and vibration on adjacent properties due to construction and the recommendations contained herein do not directly affect carbon dioxide emissions, buildings and their construction together do

account for 36 percent of global energy use and 39 percent of energy-related carbon dioxide emissions annually, according to the United Nations Environment Program. The recommendations in this report do not impact the Town's ability to adapt to a changing climate.

## **Link to Strategic Plan**

The recommendations support the Strategic Goal of Supporting Exceptional Quality of Life

## **Alternative(s) to the Recommendation**

1. Council to provide direction.

## **Conclusions**

With regards to dust, noise and vibration issues it is recommended that the current practices be maintained for these types of complaints due to the low amount received.

To address the issues of impact of nuisance issues on properties in proximity to established neighbourhoods, staff is recommending that a number of recommendations be put in place to ensure existing residents are minimally impacted and informed during infill residential construction.

## **Attachments**

Attachment 1 – Survey of municipalities on Nuisance issues

Attachment 2 – Pre-Screening Questionnaire for Construction or Demolition

Attachment 3 – Departmental Practice – Vibration Assessment for Planning Developments

## **Previous Reports**

N/A

## **Pre-submission Review**

Agenda Management Team review on September 14, 2022

## **Approvals**

Approved by Marco Ramunno, Director, Planning and Development Services

Approved by Doug Nadorozny, Chief Administrative Officer