

## AIR CONDITIONER NOISE UPDATE

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### EXECUTIVE SUMMARY

In 2013 April, Notice of Motion 2013-14 directed Administration to undertake a review of noise standards and associated placement provisions for residential air conditioners and other household equipment. As a result, Administration reviewed citizen service requests, best practice research from other municipalities and conducted engagement with stakeholders including Planning and Building Approvals and an acoustical engineering firm, reporting back through PFC2014-0148. Subsequently, at the 2014 March 10 Combined Meeting of Council, Administration was directed to further conduct targeted public engagement and explicitly address the issue of vibration and low frequency noise. Based on the findings from the targeted public engagement process, and low frequency noise testing in the community, Administration is recommending an amendment to the Community Standards Bylaw to address vibration and low frequency noise from air conditioners and other household equipment, along with two noise measurement procedural changes to further enhance the residential noise standards enforcement process.

### ADMINISTRATION RECOMMENDATION(S)

That the Planning & Urban Development Committee recommends that Council:

1. Give three readings to the attached proposed bylaw to amend the Community Standards Bylaw #5M2004 (Attachment 1).

### RECOMMENDATION OF THE SPC ON PLANNING AND URBAN DEVELOPMENT, DATED 2014 SEPTEMBER 10:

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That Council give three readings to proposed Bylaw **52M2014** to amend the Community Standards Bylaw #5M2004 (Attachment 1).

### Opposition to the Recommendation:

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Opposed: J. Magliocca

### PREVIOUS COUNCIL DIRECTION / POLICY

On 2013 April 22, Council adopted NM2013-14, as amended; directing Administration to review appropriate placement provisions of residential air conditioners and other household equipment within Land Use Bylaw 1P2007, including but not limited to prohibiting installation of air conditioner units and other household equipment in the side-yard setback of new and existing homes; review appropriate acceptable noise levels and methods of measuring noise within the Community Standards Bylaw; investigate potential solutions to address the impact of air conditioners and other household equipment that have a demonstrable impact on the health and quality of life of adjacent neighbours; conduct public and stakeholder consultation and report to Council through Priorities and Finance Committee no later than 2014 February.

On 2014 March 10, Council referred Report PFC2014-0148 back to Administration to conduct targeted public engagement and explicitly address the question of vibration and low frequency noise, and return to Council through the SPC on Planning and Urban Development by 2014 September.

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### **BACKGROUND**

Excessive noise within a residential environment can be regarded as a form of pollution and adversely impact quality of life. The City of Calgary Community Standards Bylaw 5M2004 regulates noise concerns using sound pressure measured in decibels using the A-weighted scale. The bylaw sets a continuous noise level maximum of 65 decibels (dBA) during the day-time (7am-10pm) and 50 (dBA) during the night-time (10pm – 7am) within a residential development.

In 2013 there were a total of 226 service requests received through 311 involving air conditioners and other household equipment noise levels, with the majority of requests made during the spring and summer seasons. Thus far in 2014, Animal & Bylaw Services is on pace for similar service request totals, with 170 service requests to date. Of the service requests received, 67 per cent involve air conditioning units, with the remainder consisting of primarily generators and fans.

Over 75 per cent of these service requests are resolved through voluntary compliance. This process typically involves an officer phone call to the owner of the equipment in question, ensuring awareness of noise level restrictions. Of the remaining service requests, an additional 15 per cent are addressed through additional officer contact, including further phone contact with an officer; with the remaining 10 per cent of requests requiring noise measurement at the site, or the facilitation of a good neighbour agreement, and or further follow-up action.

### **INVESTIGATION: ALTERNATIVES AND ANALYSIS**

Historically, noise measurement enforcement for air conditioning units and household appliances has been based on the A scale (dBA). The A scale filters out low-frequency noise and provides a reading for the relative loudness of noise perceived by the human ear in decibels. For instance, a typical mid-sized airplane would register 140 dBA, a diesel truck would register 90 dBA, while many air conditioning units can range between 50 and 70 dBA. This measurement provides a sense of what we would typically consider a disruptive sound, however does not necessarily reflect vibration, or lower frequency noise. Due to the fact that many air conditioning units and household appliances emit low frequency noise, vibration can become a concern for neighbours depending on the level involved.

Through the leadership of Council, Administration conducted targeted citizen engagement into the issue of air conditioning and household equipment noise, including the issue of vibration, as a means of enhancing The City's response to air conditioning and household appliance noise issues.

#### Targeted Public Engagement Summary

Public engagement was conducted with citizens who initiated a service request regarding noise from air conditioners and other household equipment for all of 2013 and up to 2014 August 18. Citizens were contacted by phone and asked a series of questions regarding their experience, along with an opportunity to provide further comments. The engagement generated 140 respondents out of a possible 242 (Attachment 2).

#### *Key Findings*

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- 60 per cent of responses were related to air conditioner concerns, with the remainder relating to primarily generators or fans.
- 46 per cent of respondents identified vibration as a key noise concern that was impacting their quality of life.
- Lack of sleep, irritability and the inability to relax and enjoy outside space were identified as primary negative impacts by the respondents.
- Request for a process by which citizens may have their noise concerns addressed in situations where noise levels do not exceed the allowable noise limit, or “nuisance” situations that although not as severe, can still cause discomfort.
- Consideration for the needs of citizens that require specific household equipment for medical reasons when enforcing noise provisions of the bylaw.

### Targeted engagement findings primarily highlighted the need to:

- 1) Explicitly address the issue of vibration within the enforcement process; and
- 2) Explore noise measurement procedural changes, to support:
  - a. “Nuisance” complaints, or instances in which the measured noise level does not exceed the bylaw limit, however does still represent an irritant to a neighbour.
  - b. Ensure consideration, discretion for individuals with specific medical requirements that require the operation of certain household equipment within the noise investigation process.

### **1) Vibration Measurement Testing / Bylaw Amendment**

The C scale of noise measurement is considered to be the international standard in effectively measuring low frequency noise / vibration. While C scale use in other jurisdictions is not widespread, both Victoria and Vancouver set a C scale maximum of 70 (dBC) during the daytime and 65 (dBC) during the night-time for sound devices, musical instruments or voice amplification equipment within commercial areas. In terms of residential applications, The City of New Orleans is considered best practice, using a blanket C scale maximum for all residential areas which equates to approximately 70 dBC during the daytime and 60 dBC during the night-time based on the measurement requirements of the Community Standards Bylaw.

Based on the New Orleans best practice C scale threshold and consultation with an acoustical engineering expert, Animal & Bylaw Services officers conducted a pilot project, measuring noise complaints relating to air conditioners and other household equipment based on low frequency vibration (dBC) between June and August of 2014.

A summary of the 25 Calgary residential noise measurements taken between 2014 July and August showed a range on the C scale between 57.8 dBC and 75.8 dBC (Attachment 3) with 8

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of the 25 residential air conditioner units found to be over the proposed noise thresholds based on New Orleans best practice levels.

Based on these findings, Administration is recommending an amendment to the Community Standards Bylaw to address vibration and low frequency noise from air conditioners and other household equipment (Attachment 1); setting a C scale maximum for residential areas of 70 dBC during the daytime and 60 dBC during the night-time. This amendment will serve to address feedback from citizens that air conditioning and household equipment vibration is an issue and requires incorporation into the existing bylaw, and ensure officers have the ability to intervene in such instances to ensure resolution.

### **2) Procedural Changes**

Feedback from the targeted citizen engagement process also highlighted the importance of providing an alternate approach to address the small number of air conditioning and household equipment issues that are not addressed through education or voluntary compliance and also do not lend themselves to existing enforcement practices, as they do not exceed bylaw noise measurement thresholds (or best practice thresholds that exist in other jurisdictions). In such instances it is recognized that even low level noise can adversely impact the quality of life of certain individuals on a nuisance basis.

In order to address cases where the noise level does not exceed the allowable limit but continues to result in a nuisance, concerned citizens will now be able to:

- a) Document the circumstances regarding the source of noise.
- b) Log the frequency of occurrences and impacts that the noise is having on them.
- c) Submit the documentation to Animal & Bylaw Services, via their existing officer contact, for forwarding to the City of Calgary Law Department for review.
- d) The Law Department will assess each situation on a case by case basis and determine if there is sufficient evidence to proceed through the court system.

This new process will subsequently provide an avenue for the small number of service requests that are not resolved through standard education or enforcement practices and utilize the court system to provide additional response options.

Targeted citizen engagement feedback further illustrated that while the maintenance of community standards is key, it is also important to exercise discretion when dealing with a citizen that may require the operation of certain household equipment in order to manage a medical condition. For instance, multiple sclerosis or thyroid conditions can result in sensitivities to temperature and make the use of air conditioning units an important component of symptom relief. As a result of this feedback, Administration is modifying existing noise investigation processes to ensure consideration for medical needs is incorporated and appropriate discretion exercised in such instances. Specific resolution approaches will be determined on a case by case basis based on the individual needs of those involved.

In summary, based on the findings from the targeted citizen engagement process, low frequency vibration testing and review of C scale best practices, Administration is instituting a

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new practice to support complaints below the enforcement threshold and ensure consideration in noise investigations for individuals with specific medical needs. Further, Administration is recommending an amendment to the Community Standards Bylaw #5M2004, to address ongoing low frequency vibration concerns, subsequently enhancing The City's response to air conditioning and household equipment noise concerns.

### **Stakeholder Engagement, Research and Communication**

Administration engaged citizens who initiated service requests regarding noise from air conditioner units and household equipment for 2013 and 2014 (up to August 18<sup>th</sup>) to obtain specific information on their concerns and subsequent impact. The engagement process received 140 respondents out of a possible 242; with a detailed summary of the findings outlined in Attachment 2. Animal & Bylaw Services officers further conducted a pilot testing low frequency vibration on service requests between June and July of 2014. Findings from the testing and consultation with an acoustical engineering firm, Patching Associates Acoustical Engineer Ltd., subsequently informed the development of an amendment to the Community Standards Bylaw which incorporates testing for low frequency noise. The Law Department was consulted throughout this process and was involved with the development of the bylaw amendment.

### **Strategic Alignment**

This report aligns with Council's Fiscal Plan for Calgary 2012-2014, "Investing in great communities and a vibrant urban fabric."

### **Social, Environmental, Economic (External)**

Excessive noise can reduce quality of life in a variety of ways, including limiting sleep, damaging relationships with neighbours and impacting work performance. Further, the prevention of noise pollution is an important component of a broader commitment to environmental stewardship within the municipality.

### **Financial Capacity**

#### **Current and Future Operating Budget:**

Resourcing for the implementation of the recommended bylaw amendment and will be addressed through the existing Animal & Bylaw Services operating budget.

#### **Current and Future Capital Budget:**

Not applicable.

### **Risk Assessment**

Incorporation of targeted citizen engagement feedback along with consultation with the Law Department serves to mitigate potential risks associated with this report.

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**REASON(S) FOR RECOMMENDATION(S):**

Based on the findings from the targeted public engagement process, and low frequency noise testing in Calgary communities, Administration is recommending an amendment to the Community Standards Bylaw to address vibration and low frequency noise from air conditioners and other household equipment, along with two noise measurement procedural changes to further enhance the residential noise standards enforcement process.

**ATTACHMENT(S)**

1. **Proposed Bylaw 52M2014**
2. Summary of Targeted Public Engagement
3. Summary of Low Frequency Noise Measurements