

REPORT TITLE: HOBART TOWN HALL BALLROOM - ACOUSTICS**REPORT PROVIDED BY:** Group Manager City Government & Customer Relations
Deputy General Manager**1. Report Purpose and Community Benefit**

1.1. The purpose of this report is to respond to the following Council resolution from its meeting held on 22 June 2015;

That: 1. A report be prepared documenting the quality of acoustics for the Hobart Town Hall ballroom.

2. The report should identify any deficit in audio and instrumental acoustic quality and make recommendations as to how improved levels of instrumental and speech intelligibility can be achieved and what steps need to be taken to achieve these outcomes.

3. The report further address the costs associated with the recommendations made.

1.2. As a usable venue, the Town Hall ballroom is a popular location for a wide range of functions including weddings, receptions, cocktail functions, floral shows, concerts and meetings, with the historical setting and unique presentation setting it aside from other spaces available for hire.

2. Report Summary

2.1. The Council resolution arose from a notice of motion put forward by the Lord Mayor, which was prompted by feedback from the public regarding the poor acoustic quality of the venue for speaking engagements and some musical events.

2.2. Following the Council resolution consultant engineers, NVC (Noise Vibration Consulting) were engaged to provide an acoustic assessment of the ballroom.

2.3. The assessment was conducted from January to April 2016 and focused on establishing the current acoustic conditions of the ballroom and creating an acoustic model of the space which allowed for simulations of various remedial options. Their report is provided at Attachment A.

2.4. A range of measures have been recommended by the consultants which are covered in more detail in Section 5 of this report.

2.5. The findings of the report conclude that:

- 2.5.1. The background noise level is not causing intelligibility when the PA is used however unamplified speech and musical performances will be adversely affected by the background noise level.
- 2.5.2 The high reverberation time of 2.8 seconds is the most significant factor and to improve the acoustics in the ballroom treatment to improve the reverberation time is required.
- 2.6. Upon its opening, the Town Hall ballroom was used for society events such as concerts, grand balls and organ recitals.
- 2.7. Of note is the optimum suitability acoustics of the ballroom for organ recitals.
- 2.8. The uniqueness of the space and its importance to the City has been acknowledged over many years, highlighted by the focus on restoring and preserving it for future generations.
- 2.9. The passage of time and the changes that brings with it present challenges in terms of the type of activities which are suitable for the ballroom, without negatively impinging on the historic fabric of the room.
- 2.10. A range of measures suggested by the consultant can be suitably accommodated and will deliver improvements for users of the space. Others however are not recommended at this stage as they involve material changes to existing historical treatments within the room.

3. Recommendation

That:

1. ***The report prepared by NVC (Noise Vibration Consulting) in respect to the Town Hall Acoustic Assessment be received and noted.***
2. ***The following measures, as recommended by the consultant, be endorsed, at an estimated cost of \$10,000, as a means of improving the acoustics of the Town Hall Ballroom:***
 - 2.1. ***Upgrade the sash window glazing to 10mm laminated.***
 - 2.2 ***Seal the sash windows around the perimeter with a silicone sealant (this will mean they are no longer operable).***
 - 2.3 ***Improve the sealing system on the internal glazing leaf.***
 - 2.4 ***Replace the current balcony door set and frame with a heavy door set that is well sealed around the entire perimeter when shut.***

4. Background

- 4.1. The consultant's assessment identified the main cause of the poor acoustics in the ballroom as the volume to seating capacity being very high. A reduced volume could be achieved by having a lower ceiling and / or raked seating, neither of which are achievable for the ballroom.
- 4.2. Due to the mixed use of the ballroom for a range of speech and music conditions, the assessment worked on a compromise between speech and music conditions with a leaning towards good speech conditions.
- 4.3. The current acoustic quality of the ballroom was measured under several conditions. The results identified that:
 - 4.3.1. The reverberation time was determined to be 2.8 seconds; ideally the time for speech is 1.0 seconds and 1.12 seconds for music. The design target for the ballroom, which is a compromise between good speech and music conditions, is 1.2 seconds.
 - 4.3.2. Background noise levels from traffic on Macquarie Street were found to be a secondary effect which will impact on both speech and music quality, where amplification is not used.

5. Proposal and Implementation

- 5.1. The results of the assessment reflect that use of the ballroom for speaking engagements presents the most significant problems.
- 5.2. The assessment report concluded that several remedial actions could be employed to reduce the reverberation time in the space and provide some improvement to the background noise levels.
- 5.3. These actions include the use of additional surface treatments that are "soft" and provide high sound absorption and include the provision of porous or panel absorbers, curtains and window blinds.
- 5.4. Specifically the recommendations include the following additional installations in the ballroom:
 - 5.4.1. 100mm panels in the eastern alcoves of the ballroom and in the lower section of all wall alcoves.
 - 5.4.2. Heavy weight, high drape curtains to the upper level of the eastern and western walls. (For classical music the curtains should be retracted on both sides, and for speech or amplified music have them fully drawn).
 - 5.4.3. Upgrade the sash window glazing to 10mm laminated.

- 5.4.4. Seal the sash windows around the perimeter with a silicone sealant (this will mean they are no longer operable).
- 5.4.5. Improve the sealing system on the internal glazing leaf.
- 5.4.6. Replace the current balcony door set and frame with a heavy door set that is well sealed around the entire perimeter when shut.
- 5.5. Those treatments which are recommended include those outlined in clauses 5.4.3 to 5.4.6 above.
- 5.6. These measures will have no material effect on the presentation of the ballroom and will deliver practical improvements to the acoustics within the space.
- 5.7. In addition to these improvements, the consultant has recommended that:
 - 5.7.1. The public address (PA) system be specifically tuned to two separate settings to accommodate music and speech.
 - 5.7.2. When using the PA system, the performer should be on the stage and not on the longer side wall.
- 5.8. In terms of the remaining recommended treatments, which involve the provision of curtains and the installation of modified acoustic performance materials, these are not supported at this time as they would have an impact on the material fabric and appearance of the ballroom.
 - 5.8.1. The blinds in the ballroom have also been upgraded since preparation of the consultant's report.

6. Strategic Planning and Policy Considerations

- 6.1. The availability of suitable community spaces for use and the preservation of our heritage buildings supports the following goals within the Strategic Plan 2015-2025:
 - 6.1.1. Economic development, vibrancy and culture;
 - 6.1.2. Strong, safe and healthy communities; and
 - 6.1.3. Unique heritage assets are protected and celebrated.

7. Financial Implications

- 7.1. Funding Source and Impact on Current Year Operating Result
 - 7.1.1. The proposed works have been costed in the order of \$10,000 and can be accommodated within the current operating plan.

8. Legal, Risk and Legislative Considerations

8.1. There are no legal considerations arising from this report.

9. Delegation

9.1. This matter is reserved to the Council.

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.



Margaret Johns
**GROUP MANAGER CITY
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Heather Salisbury
DEPUTY GENERAL MANAGER

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Attachment A: Consultants Report - Town Hall Acoustic Assessment