CitySounds –
Community Sound Survey

Report

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Executive Summary

The extensive variety of sounds in cities and their impact on listeners is rarely investigated by government agencies. Most survey and measurement projects are directed toward noise and its degree of annoyance on listeners. The *CitySounds* survey focused on the wider acoustic environment, to broaden Council's spectrum of knowledge about listener awareness and attitudes to sounds in the Central Business District (CBD) of Melbourne.

Like most inner city councils, the primary source of information available to the City of Melbourne about sound issues comes from ongoing complaint procedures and intermittent noise measurements.

The *CitySounds* survey was embedded inside a 3D model of an indicative Melbourne precinct complete with realistic visual and soundscape design. Respondents could self-navigate or be guided through the 'virtual soundscape', answering survey questions in pop-up windows at specific locations. Survey results were returned online to servers at RMIT University.[1]

CitySounds was used to determine if noise complaints were representative of wider community attitudes to the acoustic environment, and to collect more in depth information to assist Council in developing sound related guidelines, forming information campaigns, and identifying potential acoustic design interventions or other initiatives.

To access the variety of respondents required with the available resources, the *CitySounds* survey was made available directly to the public via online distribution, CD-ROMS, and at City-based libraries. In addition to general questions about sound, respondents were asked for their opinions of sounds heard at seven indicative city locations inside the virtual model; a café, two sites-of-respite, an apartment, spaces affected by air-conditioning, nightclubs and construction sites. The modular design of *CitySounds* allowed survey questions at each site to be analysed independently of the whole survey, and are reported individually in this report in sections A-K.

The *CitySounds* survey ran for seven months, supported by a communications campaign. An estimated 668 people answered all or part of the survey, producing over 3,949 reportable results.

A general observation from the survey results are for a series of *listener-scale interventions* into the City. These include providing specific sites-of-respite in the CBD, initiatives to enable people in the CBD to self-manage their sound exposure, a quieter café campaign, indications of ways to enhance patron experience in nightclubs and potentially reduce the impact of amplified music on nearby residents, changes to the use of loud-speakers on CBD streets, and suggestions to improve the design of community and industry sound management information and awareness campaigns.

[1] The model is available on-line http://www.sial.rmit.edu.au/Projects/City_Sounds.php.

CitySounds suggested a more sophisticated attitude in listeners to their acoustic environment than might generally be assumed, and an underlying interest in audible change to the various CBD locations occupied daily by people. The City of Melbourne currently undertakes many roles in determining the visual experience of individuals in City spaces and places. The *CitySounds* survey and general observations reveal opportunities for Council to make a parallel contribution to the aural experience of the City.

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Background

Aim

The aim of the *CitySounds* survey was to investigate community attitudes and awareness to a range of sounds in a variety of contexts in the Central Business District (CBD) of Melbourne.

Purpose

To provide Council with a broad scope of information to help with the development and implementation of noise management initiatives using:

- Guidelines;
- Information campaigns for residents and general community;
- Information campaigns for targeted industries e.g. entertainment, construction, retail;
- Design and management interventions; and
- Innovations identified from survey results.

Until *CitySounds,* Council relied on information gained from noise complaints to try to understand attitudes to Melbourne's soundscape. It was not known if these complaints represented the attitudes of the general community, or if they were skewed by particular types of complainants. A broader spectrum of knowledge than just negative perceptions is required if Council is to proactively address sound-related issues in the CBD, using any of the five initiative types listed above.The *CitySounds* survey also provided Council with an opportunity to highlight and raise awareness of sound and its impact on listeners in urban environments. The exit questions of *CitySounds* collected responses on this aspect of the survey (Section K).

Modular survey design and result analysis

The *CitySounds* survey was a modular design. There were 11 sections; one for the opening socio-economic and demographic questions (Section A), one for questions on general urban sound (Section B), eight related to specific urban sites (Sections C-J), and one for the exit questions (Section K). Sections C-J mirror an indicative daily journey of a listener through a range of urban acoustic environments.

The opening socio-economic and demographic data was designed to maintain backward compatibility with a previous industry-based noise survey conducted by Council.[2]

A modular design,"….enable[s] individual sections to be used independently of each other….The strength of a modular questionnaire tool is that it is possible to select individual sections to use for specific surveys."[3]

In *CitySounds*, this might enable:

- The section on cafes to be used for industry consultation and initiatives to promote better acoustic design for cafes;
- The section on apartments to inform awareness campaigns on the benefits of specific acoustic isolation or internal wall treatments;
- The sections on sites-of-respite, to assist in determining how often respondents would use such a site, and where these might be located in the city;
- Communication and management strategies tailored to the needs of generational groups in different contexts.

The modular design also lessened the impact of individuals not completing the entire survey, although the socio-economic and demographic data collected were 'tagged' to the answers of each module for each respondent, which allowed filters to be used during analysis of data.

[2] *Noise Issues in the Melbourne CCZ*. Conducted by Nexus Research, June 2003.

[3] The 1999/2000 National Survey of Attitudes to Environmental Noise Volume 1 (page 12, Section 2.5 *NAS99 Modular Questionnaire)*

Brief outline of project stages

Note that several of the following project stages overlapped, but approximately followed the order:

1. Consultation, assessment and determination of site types

Consultation with City of Melbourne staff to establish criteria for virtual precinct creation and soundscape design.
Listing of actual sites for modeling and audio recording.
Initial assessment of sites at different times of day by project team.
Initial sound recording and digital image capture as the basis for indicative site modeling.

2. Sound, image and data capture

Digital audio recording.
Digital image capture
Texture capture and library creation.

3. Virtual environment construction

Production of 3D model of site, including selected interiors.
Soundscape production in parallel with questionnaire development.
Optimisation for on-line delivery and testing.

4. Research questionnaire

Research previous local and international community noise surveys.
Development of community response questionnaire.
Development of on-line delivery system for results.

5. Survey Active

Live release and maintenance for seven months.
Survey report.

6. Survey report

The *CitySounds* survey was launched on 12 August 2004, and made available to the public approximately one week later. The survey ended on 31 March 2005.

Methodology

Community noise survey or soundscape research

Community noise surveys are traditionally undertaken to study subjective responses to major sources of noise (eg. airports or highways). These surveys tend to be text-based and rely on the ability of participants to recall past aural experiences and remembered responses. One difficulty with this memory-reliant approach is demonstrated by the following exercise: try to precisely recall the last sound you heard last night, and the first sound you heard this morning.

The *CitySounds* survey consists of 3 main elements or assets:

1. A 3D navigatable visual model of an indicative inner city Melbourne precinct with detailed urban soundscape;
2. An embedded survey;
3. A technique to send survey results from users computers to host servers at RMIT.

The reductionist model of testing respondents in a lab was avoided in favour of users responding to the survey in their daily environment. This was appropriate as *CitySounds* was investigating subjective, or qualitative, responses to sounds in a range of contexts. This was further supported by the maintenance of contextual factors discussed below.

The CitySounds embedded survey methodology is largely based on the listener-centred approach of acoustic ecology, which is the study of the relationship between individuals and communities and their acoustic environment (or soundscape). For more information on acoustic ecology, visit http://interact.uoregon.edu/MediaLit/WFAE/home/.

In his discussion of survey methodolgies, Barry Truax critiques those approaches that measure reactions to specific sources of annoyance, and are not "…concerned with broader questions of how sound functions in the community". The methodology developed for CitySounds is designed to investigate some of these functions by linking settings, sounds and listeners.

Maintaining contextual factors

The aural, visual and spatial design of the *CitySounds* virtual model maintained contextual features consistent with Melbourne's CBD that were readily identifiable to survey respondents. These elements worked in concert to construct a composite day and aural experience of an urban environment for a respondent. Using a games engine also affords an experience of time. Respondents moved through the model at walking pace, as one might move through a typical urban setting, simultaneously experiencing visual and aural aspects of the streetscape. They used their 'real-time' encounters with virtual places to recall past experience of actual places.

The methodology of *CitySounds* uses sounds collected from the sites under investigation as descriptors for the survey questions. As stated in the National Survey of Attitudes to Environmental Noise 1999/2000, U.K Dept for the Environment, Food and Rural Affairs:

> "The advantage of using more specific noise [or sound] source descriptors is the increased likelihood of obtaining accurate response data"

Soundscape design

All component sounds for the soundscape design of the *CitySounds* virtual model were recorded at specific sites around the CBD. They were selected in close consultation with the City of Melbourne to provide a convincing soundscape. For example, sounds associated with Melbourne's trams are readily identifiable by locals, but other sounds featured included busy cafés, general street ambience, air-conditioners, and staged events such as patron noise and those for the two sites-of-respite.

As an essential aspect of *CitySounds* is its soundscape, all sounds were recorded and kept at CD quality, and carefully designed to avoid looping artefacts and similar fatiguing effects.

Visual design

Council was sensitive to individual CBD businesses or precincts being recognisable in the virtual model used by *CitySounds*. This was to ensure respondents could not potentially identify a location or business within the CBD and subsequently avoid it, with possibly negative impacts on businesses or landlords.

All visual textures for *CitySounds* were collected from Melbourne's CBD buildings. Typical building envelopes and streetscapes of Melbourne were maintained. For example, the *CitySounds* model comprises laneways, and a mix of 19th and 20th century shop fronts. Bluestone is used on the pavements. Businesses were re-branded with SIAL staff and projects to provide some content. It was a frequent occurrence that people viewing the *CitySounds* survey

would ask the location of the site in the CBD. Earlier versions of the model were more populated with people, cars, street furniture and fixtures. For performance optimisation purposes, these elements were removed or substantially edited during final stages of production.

Embedded survey

Survey marker points appear in the environment as small brightly coloured pyramids.

Image: Survey marker point. When a CitySounds respondent intersected with a marker, a survey window appeared. At these points, the sounds, and spatial location related to the survey questions in the window. See next image.

After finishing a survey window, a respondent selected the 'save' button at the bottom of the window in the image above.

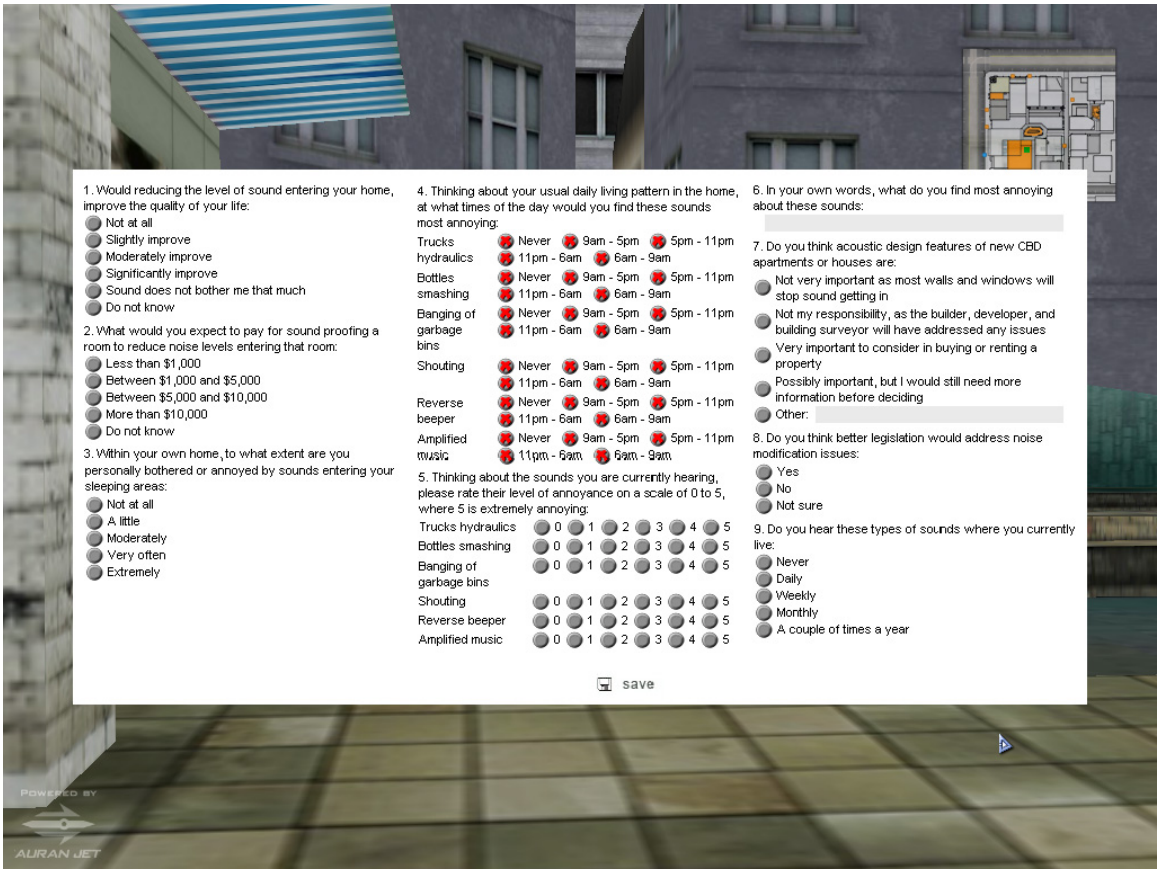


Image: survey question window that appears on screen when user intersects with marker. The save button appears at bottom of window.

At the end of the survey, or whenever respondents chose to finish by pressing escape, an exit window appeared, containing a 'send' button to forward their results to one of three servers commissioned for the project at RMIT. More than one server was used for risk management purposes. If one server was down, the software could select from another two. Ideally, one server should be situated off-site from the others to further reduce risk.

Image: exit window with final questions and send button to forward results to one of three servers commissioned for the project at RMIT.

Overview of survey questions

The *CitySounds* survey was developed in close consultation with Council over a three-month period. Approximately six major revisions were undertaken in this time.

For completeness, the socio-economic and demographic data entered by each survey respondent was kept by the software program with the answers to each individual section, allowing reporting on a site-by-site, or question-by-question basis. The project team determined the *CitySounds* survey should take approximately 20 minutes to answer, comprising 70 questions in 11 sections.

The format and language of the survey questions to investigate awareness and attitudes, and also current understanding is summarised below:

1. Awareness

of context
of own likely responses to event in particular situation
of behaviours

Questions include phrases such as '… what do you expect…', '… what do you think…', '… would you…', '… do you hear…' or '…are you aware…'

2. Attitude

to actual events

Questions include phrases such as '…are you annoyed…' or, ' …do you think (followed by qualitative options)…'

3. Understanding

of concepts
of facts about acoustic conditions and sounds

Questions include phrases such as ' …do you think (followed by quantitative options)…'

The words 'sound' and 'noise' were used interchangeably throughout the *CitySounds* survey. This was intended to encourage respondents to think broadly about their experiences of sound, not just about the affects of noise. Specific questions in *CitySounds* sought to investigate respondents understanding of sound and noise.

Access and communication

A communications campaign informed residents about the survey. For extensive distribution, the CitySounds survey could be downloaded or accessed by the following means:

- Web, best over ADSL, but possible over dial-up
- By contacting Council for a CD, that was then sent via mail
- Local libraries

Results and Findings

General Observations

The results of *CitySounds* Community Sound Survey has revealed potential opportunities for the City of Melbourne to consider for future planning and development.

These include investigating the possibility of providing quieter 'sites-of-respite' in the central business district for Melbourne's residents, workers and visitors. *CitySounds* survey findings may also inform the investigation and development of identified quieter City walking routes and the City's work with cafes and entertainment venues to ensure the comfort and experience of customers is enhanced. Providing information on how to reduce sound in Melbourne's apartments may also be valued by residents.

More information about ideas generated by the *CitySounds* survey for future City of Melbourne sound management activities are provided below.

1. Further investigation into the provision of sites-of-respite in the City

Sites-of-respite could be parkland, or developed around existing architectural conditions that protect them from major noise sources such as traffic, and plant and equipment (eg. in courtyards or laneways). The network of arcades and laneways in the CBD, and spaces in the centre of City blocks could provide the basis of a series of sites-of-respite. *CitySounds* survey respondents identified these as quiet places in the CBD (Section B, Attachment 1). Sites-of-respite could link with walking routes through the CBD . Almost 70% of respondents reported they would use a site-of-respite at least once a week or more often (Table 30). Other results indicate that usage would be highest if these sites were located within five minutes of home and/or office areas (Section F, Table 28). The types of usage reported (Section G, Table 29) suggest that to service public needs, these could operate during the day only.

2. Trial self-management strategies for quieter walking routes through the City

Over two-thirds of *CitySounds* survey respondents reported they did not avoid parts of the CBD because of loud sounds (Section B). Yet a combined percentage (70.1%) reported they were annoyed by sounds in the CBD on an average day at a frequency of 'maybe once or twice' to 'every time they are outside'. This result should also be considered with responses for sound level reduction of loud speakers used on the street (Section J, and General Observation 5). One interpretation of these results is that a new strategy combining acoustic design initiatives and an information campaign could provide CBD visitors and residents with the means to limit their exposure to annoying locations while walking around the City.

3. Quieter café campaign

Analysis indicate that CBD café and restaurant patrons would actively use information to select quieter cafes (Section E). An information campaign would obviously require the participation of café and restaurant owners prepared to manage their acoustic environments. Over half of *CitySounds* survey respondents felt that cafes had become noisier in the last three to five years (Table 21), and 35% thought this was due to their design and the increased use of glass and concrete surfaces (Table 22). A large proportion of survey respondents aged 35 years or over reported they recently had difficulty holding a conversation in a café or restaurant (77.8%) (Section E, Bullet point 5, *Age comparison*).

Choice would be a key element in an information resource, the main drivers being no change in price for better listening conditions, and the type of event or occasion they are attending (Table 27). The expectations of *CitySounds* survey respondents were reasonable; they did not expect every café to sound the same, as indicated by 89% of respondents expecting sound levels in cafes and restaurants to differ depending on their type (Table 23). Expectations of sound levels also changed depending on the nature and size of an event (Table 24).

CitySounds revealed differences in attitudes between CBD residents and non-residents, and between survey respondents of different ages. These should be considered in any targeted patron or industry campaigns. For example, Section E filter results revealed that 25.8% aged 35 years and under thought that increased noise levels in cafes were attributable to music played too loudly, compared to 8.0% of respondents aged 35 years and over (Section E, Bullet point 2).

4. Enhancing patron experience in nightclubs by managing amplified music

The *CitySounds* survey asked respondents how often they visited nightclubs, and to consider their perception and experiences of sound within nightclubs. A majority of respondents reported they regularly visited nightclubs (64.1%, Table 33) and the music was loud (85.9% - Section I, Table 35). A slightly higher proportion reported that loud music was enjoyable (58.8%) compared to those that didn't enjoy it (41.5%, Table 36). This depended on the age of respondents, with those aged 35 years and under more likely to enjoy loud music (63.8%) compared to people aged 35 years and over (43.6% - Section I, Bullet point 4, *Age comparison*).

However, 88.9% of *CitySounds* survey respondents believed that music should be managed so it is loud on the dance floor but quieter elsewhere to allow people to hold a conversation (Table 37). Such a high response indicates that sound management in nightclubs would significantly enhance, not diminish the experience for patrons. Possible flow-on effects likely to arise from controlling amplified music in nightclubs include reduced impact on residents living nearby entertainment venues.

5. Reducing the effects of street based loud-speakers on listeners

CitySounds survey respondents reported they would appreciate a reduction in the volume of amplified sound in the CBD, although not its total removal. Just over half of respondents reported that removing loud-speakers from city streets would either extremely or somewhat diminish the vibrancy of the City (51.6%), while 37% reported that removing loud-speakers would have 'no effect', or 'slightly' or 'significantly' enhance vibrancy (Section J, Table 39). While *CitySounds* respondents reported their annoyance to amplified music from shops to be evenly spread across the lower three levels of a given scale, over three-quarters (75.5%) reported that amplification should be "just loud enough to help me hear when I'm less than five metres to the loud speaker" (Table 41).

6. Design of community and industry information and awareness campaigns

The *CitySounds* survey results and summaries could assist in targeting discrete groups based on demographic, economic or site use. Several examples are provided below:

Cafes

It is generally known that the adverse affects of background sound (known as 'the cocktail party effect') on listeners increases with age. In the age comparison of Section E (Cafes), there was no difference in opinion based on age that cafes had become noisier in the last three to five years, but respondents aged 35 years and over said they would be more likely to use information about sound levels in cafes (Section E, *Age Comparison, Bullet point 6*). A targeted information campaign to this demographic is likely to be more cost effective in any future initiatives.

Apartments

It would appear that *CitySounds* respondents are interested in assessing the acoustic conditions of their properties before purchasing and renting. Respondents reported that acoustic design features in apartments are very important to consider when buying or renting a property (67.2%), suggesting they would be open to more information on this topic. This would suggest that information campaigns would be most effective if built around the time of sale or renting property. For renters, the likelihood that a landlord would not make changes to an apartment should be considered in future information campaigns.

Context, choice and expectations

A key aim of the *CitySounds* survey was to determine broader community attitudes and awareness to sound issues than was currently available to Council via complaints about noise. Council seeked to determine the extent that complaints indicated the wider community's attitudes and expectations about sound in the CBD.

For example, in Section E (Cafes) 89.8% of survey respondents said they expected different cafes to have different sound levels; that is, not all cafes will, or should be quiet or loud. Similarly, their expectations of sound levels for different occasions were also reasonable, with a gradual decrease in expected loudness from large parties to intimate dinner. In Section B, 55.3% of survey respondents reported that current activity (ie. context) determines whether something they heard could be a noise or a sound (Table 4). Also reported in this Section, was that emotional states of being stressed, angry, unwell, tired or emotionally upset were times when respondents would be most affected by sound.

In general, *CitySounds* revealed that survey respondents had reasonable expectations of various contexts and sites. This should be considered in any future information and awareness campaigns to community and industry sectors.

7. Air-conditioners

The *CitySounds* data reported in Tables 10-13 indicate a majority of survey respondents register awareness of air-conditioner sound in homes, the street, place of work or study and in cafes and restaurants. While *CitySounds* did not investigate levels of annoyance or interruption to daily activities, Council could consider further investigations or consultation to more clearly determine the impact that air-conditioning sound has on listeners. By implementing sites-of-respite, Council could acquire a trial or control site to further test the preferences of people within the CBD to these sites.

8. Apartments

Almost all *CitySounds* survey respondents reported that reducing sound levels entering their home, would improve their lives (Table 14, Section D). This suggests they may be motivated to seek information on acoustic design, and the best time for targeting renters and property buyers with acoustic design information is at the point of sale or when commencing a new lease. (Table 18, Section D). Council could consider this when developing noise-related information campaigns. Council is currently addressing the communication of acoustic design information. The expected costs by *CitySounds* survey respondents for modifying a property to reduce sound exposure could be described as ‘modest’ (Table 15, Section D).

Components of survey and analysis

The groups of survey questions embedded in the *CitySounds* 3D model were:

Report Section	Site or question type
A	Opening socio-economic and demographic
B	General questions on sound
C	Air-conditioners
D	Apartments
E	Cafes
F	Site-of-respite - 1
G	Site-of-respite - 2
H	Construction sites
I	Nightclubs
J	Loud-speakers & spruikers
K	Exit questions

Table 1: groups of survey questions

Note on results reporting

Due to technical issues, some results for questions were not reportable. The structure of this report differs slightly from the original survey.

Analysis and results by site and question type

Results for all sites and questions are reported as General Results with no filters applied, followed by results filtered for age and gender comparisons. Various filters were also applied to extract results for particular target groups and to allow comparisons between different groups. These filters and sites are summarised in Table 2 below:

		Filters					
Sites & questions	Results Section	1. Age	2. Gender	3. Resident non/resident	4. Occupation	5. Rent/own residence	6. Income
Socio-economic & demographics	A						
General questions	B						
Air-conditioners	C						
Apartments	D						
Cafes	E						
Site-of-respite - 1	F						
Site-of-respite - 2	G						
Construction sites	H						
Nightclubs	I						
Loud-speakers & spruikers	J						
Exit questions	K						

Table 2: sites and filter questions. *Shaded cell indicates a filter was applied to a site. The results for filter comparisons are reported in Sections A-K below.*

Note on Filter 1. The two groups compared here are 15-34 years of age, with 35-55+.
Note on Filter 2. In general there were few significant differences between the answers of male and female respondents. Those sites and questions where there were reportable differences were Section E (Cafés), Section B (General questions) and Section J (Loud-speakers and spruikers).

Note on Filter 4. The two groups compared here are students and workers. Around 80% of residents in the City of Melbourne are students.

Section A – Results for opening socio-economic and demographic questions

Profiles of respondents

The *CitySounds* survey was available to the public online and on CD-ROM. In the interests of accessing a wide variety of subjects answering the questions in their homes or other survey locations, there was no attempt to assemble distinct groups of respondents in controlled conditions.

A final count of 668 individuals participated in the *CitySounds* survey, although not all completed. This count was arrived at by calculating the number of times the 'exit' button was pressed on the survey. The final quantity of data used was 3,949 responses across all sections of the survey. The number of actual respondents used for each result appears as "N=*number"* in the following Tables.

Note also that due to the quantity of data collected, only summaries of data analysis are included in some of the following Sections. Collated results are available on request from report authors.

Respondent age and gender

General trends indicate the majority of *CitySounds* respondents were young (35 years and under), and were male knowledge workers or students.

1. Age profile (Table 46): most respondents were 35 years or under (59.7%) leaving 30.6% of those aged 35 years and over. These two groups are used for the age filters applied to sections B to K.

2. Gender profile (Table 47): male 59.8%, female 40.2%.

Work and income

1. Occupation (Table 61): 67.6% of survey respondents indicated their profession as, student (39.1%), professional or senior government (17.8%) or technical or skilled (10.7%). The remaining 32.3% of respondents indicated their occupations as retired, business owner/self employed, business manager/executive, sales or clerical, unemployed or home duties.

2. Working Context (Table 62): 52.5% of survey respondents worked in an office, home office or studio, while 33.9% selected 'other' as their working context, and 13.7% selected the retail industry, or a restaurant, bar or entertainment venue.

3. Income (Table 65): Almost half (49.2%) of survey respondents earned less than $39,999. The remaining 50% of respondents were fairly evenly distributed across brackets starting from $40,000, $60,000, $80,000 and $100,000+.

General residential arrangements for all respondents

1. Living arrangements (Table 63): 80.3% of survey respondents lived in either, a shared household (42.1%), alone (19.7%), or in a couple-only situation (18.5%).

2. Home ownership (Table 64): over half of survey respondents are renting (54.5%). In terms of ownership, 29.4% of respondents indicated they owned their property, and 9.4% said they were in the process of purchasing a property.

Location of respondent's residence

Residence Location (Table 48): Around a quarter of survey respondents lived in a suburb other than the City of Melbourne (35.9%), while 33.1% said they lived in the CBD or inner suburbs within City of Melbourne boundaries. Almost 18 percent of students nominated 'overseas' as their residential location (17.6%), which indicates this group were international students.

CBD residents – type, location and age of residence

1. Type and age of residence (Table 53): most residents indicated they lived in a house or apartment constructed over three years ago, while 25.3% live in accommodation constructed less than three years ago.

2. Duration of CBD residency (Table 52): most survey respondents who were CBD-based residents (58.6%) had lived in the CBD less than one year. Other stays were indicated in the range between one to three years (18.8%), and more than three years (22.6%)

CBD residents – city usage patterns

Questions were included in this Section to ascertain general types of CBD use, which could be used to make reasonable assumptions about exposure to sound, and opportunities where people could access or use design interventions, or information resources.

The results appear in Tables 54 – 60. Some major trends in the data suggest that:

Around half (50.9%) of respondents said they never worked in CBD (Table 54): This question might have been interpreted as paid work, and not include student-based study. Students represented the majority of *CitySounds* survey respondents.

A majority of CBD residents said they would perform the following activities at least once a week: dine out (35.7%, Table 55), walk in park or by river (41.7%, Table 56), shop in large CBD store (45%, Table 57), drink in a bar (43.4%, Table 58).

A majority of CBD residents never walked to work (56.5%, Table 59). This might account for tram or train usage, or result from respondent's misinterpreting a question in this Section. Just over 30.4% of CBD residents said they walked to work on a daily basis (Table 59).

Residents walked for relaxation on a daily basis (37.5% in Table 60), closely followed by another 33.3% indicating they do the same at least weekly.

Non residents: specific place and type of residence

1. Distance from CBD (Table 49) – Of those not living in the CBD, 41.3% lived more than 10km from the CBD, and mostly in houses. There was an even distribution of non-CBD residents living less than five kilometres from the CBD (29.7%) and five and kilometres from CBD (29%). Again, most indicated place of residence was a house.

2. Frequency of visitation (Table 50): 61.7% of non-CBD survey respondents visit the CBD at least daily or weekly.

3. Considering relocation (Table 51): almost the same percentage (62.7% and adjusting for different numbers of respondents to this question) indicated they would never live in the CBD. Significantly smaller proportions of survey respondents indicated they would be moving into the CBD in less than two years.

General Results

Applying filters to the opening socio-economic data generated the following results.

Frequency of CBD Use

Summaries of the data analysis suggest:

- Slight differences in usage by age. Half of the 25-34 age group visit daily (50.7%), as do around one third of the 15-24 year and 35-44 year age groups (37.6% and 36.1% respectively).
- People who visit daily are slightly more likely to live in a house less than five kilometres from the CBD (57.1%), an apartment more than five kilometres from the CBD (52.4%) and those living in an apartment between five and 10 kilometres from the CBD (53.3%).

- Slight differences by occupation were recorded. At least one third of all occupations visited the CBD daily (between 33.3% and 45.2%). Retired people and those who stated their employment as home duties (50.0%) were slightly more likely to visit monthly (38.9%).
- Slight differences depending on professional working context were recorded. Half of office workers (48.3%) and those who worked in a bar (50.0%) were slightly more likely to visit the CBD daily. Of those who worked in a home office or studio, 23.1% said they visited the CBD monthly.
- Slight differences by home ownership were recorded. Survey respondents who rented or were purchasing are slightly more likely to visit the CBD daily (45.2% and 42.3% respectively). People who owned their property or had other living arrangements were slightly more likely to visit the CBD weekly (36.9% and 47.1% respectively).
- No differences were recorded between gender, type and age of residences, living arrangements or income.

How often working in the CBD

- People with apartments less than five kilometres and between five and 10 kilometres from the CBD were slightly more likely to work there daily (42.1% and 40.0%). Those living in a house between five and 10 kilometres from the CBD were slightly more likely to work weekly in the CBD (21.6%), as are 20% of apartment dwellers living between five and 10 kilometres from the CBD). Around half of all survey respondents said they never worked in the CBD (between 40.0% and 59.1%).
- People in sales/clerical occupations (75.0%), or professional occupations (58.1%) were slightly more likely to work in the CBD daily. Over half of the student survey respondents (57.3%) and business owners/self-employed (54.5%) never worked in the CBD.
- Over half of those who worked in an office, 51.2% worked daily in the CBD, along with 44.0% of those who worked in retail and 44.4% who worked in a bar. Over half of those surveyed who worked in home offices or studios never work in the CBD (58.3%).
- Slight differences by living arrangements were observed. Almost two thirds of survey respondents in couple-only households worked daily in the city, as did 44.4% of single parents. People who lived alone (60.4%), in a shared household (54.0%) or were couples with non-dependent children (50.0%) were least likely to work in the CBD.
- Slight differences by home ownership were recorded. Over half of survey respondents who were renting said they never worked in the CBD (58.6%). Those purchasing property were more likely to work weekly in the CBD (45.5%).
- No difference was recorded by age, gender, type of residence, or income.

How often eat out for lunch or dinner in the CBD

- No major differences were recorded between groups of various ages, genders, place of residence, types of residence, occupations, professional working contexts, living arrangements, home ownership or income.

How often walk in park or by river

- No differences were recorded between people of differing age, gender, place of residence, type of residence, professional working context, or home ownership or income.
- Slight differences by occupation were recorded. The unemployed were the most likely to walk each day (66.7%), followed by business managers (37.5%) and retired people (30.0%). Those in sales and clerical occupations (66.7%) and the self-employed (50.0%) were most likely to walk weekly.
- Slight differences were noted according to living arrangements. Nearly half of single parents who participated in *Citysounds* walked daily (44.4%) as did one third of those who lived alone (33.3%). Couples with dependent children were more likely to walk monthly (47.4%).

How often shop in large store

- No differences were recorded by gender, age, place of residence, type of residence, occupation, professional working context, living arrangements or income.
- Slight differences by occupation were recorded. People in sales and clerical jobs, business managers, and the unemployed, were the most likely to shop daily (41.7%, 37.5% and 27.8% respectively).

How often go for a drink in a bar

- No differences were recorded by gender, place of residence, type of residence, occupation, professional working context, home ownership, or income.
- Younger survey respondents were slightly more likely to visit a bar weekly (46.6% of the 15-24 years, 47.1% of the 25-34 years and 40.9% of the 35-44 years). Almost two thirds of those aged 55 years and over never visited a bar.
- Slight differences were recorded according to living arrangements. Single parents were more likely to visit a bar weekly (44.4%) as were one third (33.3%) of couples with non-dependent children. People who lived alone and couple with dependent children were least likely to visit a bar (33.3% and 26.3% respectively).

How often walk to work

- No differences were recorded between the age, place of residence, occupation, professional working context, living arrangements, home ownership or income of survey respondents.
- Males were slightly more likely to walk to work more often than females, with 39.7% of males walking daily to work (compared to 18.9% of females).

How often walk for relaxation/leisure

- No differences were recorded between the age, gender, place of residence, occupation, professional working context or income of survey respondents.
- People living in apartments (both less than and more than three years old) were slightly more likely to walk for leisure daily (42.9% and 44.2% respectively) compared to around one third of those living in houses (33.3% in houses less than three years old and 30.1% of those in houses more than three years old).
- Slight differences existed between survey respondents according to their living arrangements. Around half of those who lived alone (54.2%) or in couple-only households (45.0%) walked for leisure daily. Couples with dependent children were more likely to walk weekly (31.6%) or monthly (26.3%).
- Slight differences by home ownership were recorded. People renting were likely to walk daily (41.3%), along with those who owned their property (39.0%).

Resident/non-resident comparison

- CBD residents were slightly more likely to be in the 25-34 year age group (42.9% compared to 22.0% of non-CBD residents).
- Females were just as likely to live in the CBD as males.
- No differences existed in how often CBD residents and non-residents actually used the CBD – 25.0% of residents and 29.1% of non-residents said they visit weekly.
- CBD residents were also moderately more likely to work in the CBD (56.9% compared to 23.7% of non-residents).
- CBD residents dined out slightly more frequently in the City than non-residents (31.4% of residents compared to 20.3% of non-residents eat daily in the CBD).
- No differences were recorded between CBD residents and non-residents in how often they walked in a park, shopped in a large store, went for a drink in a bar or walked for leisure in the CBD in an ‘average’ week.

- CBD residents were however moderately more likely to walk to work than non-residents. Almost half of CBD residents (49.0%) walked to work on a daily basis compared to only 22.2% of non-residents.
- No difference in the variety of occupations existed between CBD residents and non-residents.
- There were also no differences recorded in the working context between CBD residents and non-residents, with 43.1% and 40.0% respectively working in office environments.
- The living arrangements of CBD residents and non-residents were also similar, with 45.1% of residents and 41.2% of non-residents living in a shared household. Similarly, 25.5% and 18.6% respectively lived alone.
- Non-residents were slightly more likely to own their own homes (32.3% compared to 17.6% of CBD residents), whereas CBD residents were more likely to rent accommodation (72.5% of CBD residents compared to 50.7% of non-residents).
- CBD residents and non-residents had similar incomes. Around one-fifth of all survey respondents (23.5% and 20.1% respectively) earned less than $20,000, with 23.5% and 18.0% respectively earning between $20,000 and $39,999.

Section B: Results for General Questions on sound

A total of 70.1% of *CitySounds* survey respondents were annoyed by sounds maybe once or twice in an average day, to every time they were outside (Table 3). Despite this exposure, when asked if they avoided parts of the CBD because of loud sounds, 68.9% of respondents said 'no', while 31.1% said 'yes' (Table 5). This suggests only about a third of respondents took some measures to self-manage their exposure to sounds in the CBD. One explanation might be that improved city spaces and information resources to do so are required. General observations 1-3 above address the provision of these resources.

Over half of *CitySounds* survey respondents (55.3%) reported that the conditions, or context under which a sound might be perceived as a noise depended on their activity (Table 4). A similar trend is observable in Tables 6 and 7. The reported impact of sounds on survey respondents was greatest when emotional states were heightened through stress, anger or when they were physically unwell. Survey respondents said that sounds had less impact as they became busier or excited (Table 6). Table 7 shows how the impact of sound appeared to decrease as activities become more 'externalised' and required less mental focus. This trend is observable by comparing results for impact on sleeping and reading with those for house-work and exercise in Table 7.

A selection of places that survey respondents named in the city as being quieter than others includes specific retail centres, Fitzroy Gardens, Flagstaff Gardens, the Flinders Lane cafe precinct, galleries and lanes and off-street cafes, inside most buildings without loud music, lanes and arcades, Federation Square, museums and galleries, Southbank, the State Library and other libraries and the 'little' streets. A full list of these locations appears in Attachment 1.

General Results

On an average day, are you annoyed by sounds in the CBD?

	N	%
Never	128	29.9
Maybe once or twice	244	57.0
Every time I'm outside	56	13.1
Total	428	100.0

Table 3: frequency of annoyance

When you listen to the sounds in this survey, and think of the words noise and sound, do any of the following descriptions describe the difference between 'sound' and 'noise' for you:

	N	%
A sound is something I like to hear and it never disturbs me	41	18.9
Noise is something I hear and it annoys me	33	15.2
The CBD is just noise – there are no sounds I like to hear	9	4.1
It depends on what I am doing whether something I hear could be a noise or a sound	120	55.3
Other (See Attachment 1, Section B)	14	6.5
Total	217	100.0

Table 4: difference between sound and noise

Do you avoid parts of the CBD because of loud sounds?

	N	%
Yes	52	31.1
No	115	68.9
Total	167	100.0

Table 5: avoidance and loud sounds

Which places do you regularly avoid because of loud sound (you may tick more than one response)?

See Attachment 1, Section B for a list of specific places and general spaces provided by *CitySounds* survey respondents.

If you notice some places in the CBD are quieter than others, can you name these?

See Attachment 1, Section B for a list of specific places and general spaces provided by *CitySounds* survey respondents.

Thinking about the times you feel most annoyed about sounds, please complete the following questions, where 0 represents no effects and 5 represents significantly annoyed. Noise affects me more when I am:

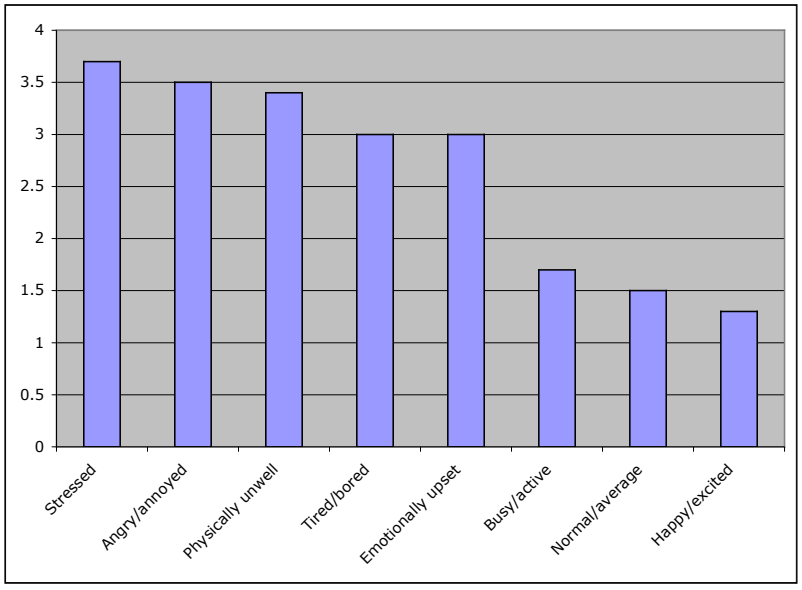


Table 6: effects of sound on emotional states. *CitySounds survey respondents were asked to rate the effect on a scale of 0 to 5 where 0 represents 'no impact' and 5 represents 'high impact'.*

Now, thinking about the activities you might undertake, please rate the effects of sounds when you are doing the following things (where 0 represents no effect and 5 represents significant impact). When do you think noise most affects you? When you are:

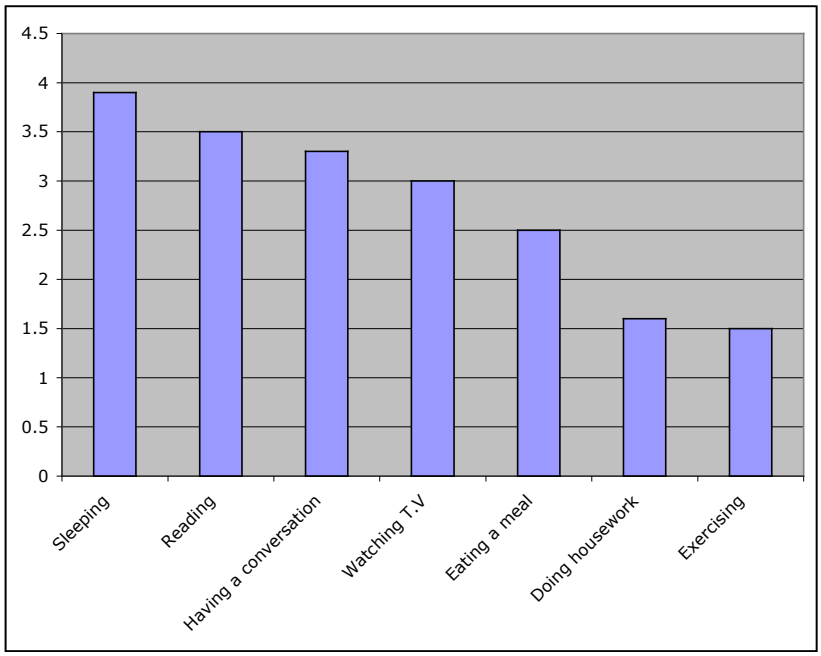


Table 7: effects of sounds on activities. *CitySounds survey respondents were asked to rate the effect on a scale of 0 to 5 where 0 represents 'no impact' and 5 represents 'high impact'.*

Age comparison

- No differences were recorded in how often survey respondents were annoyed by sounds in the CBD on an average day.
- No differences were recorded in their description of the difference between a sound and a noise.
- Around three quarters of age groups 35 years and under and 35 years and over said they did not avoid parts of the CBD because of loud sounds.
- No differences were recorded between both age groups with respect to the impact of sound when they are stressed, tired or bored, emotionally upset, happy or excited, normal or average, physically unwell or busy and active.
- No differences were recorded between each age group on the impact sounds have when they are undertaking various activities.

Gender comparison

- Males rated a marginally higher level of impact of sounds when they were watching TV than females (t_{117}=-2.30, df=115, p<.05).
- No differences were recorded between groups of survey respondents in any other questions.

CBD resident/non-resident comparison

- No differences were recorded in how often CBD residents and non-residents were bothered by sounds in the CBD in an average day.
- No difference existed between CBD residents and non-residents in their description of the difference between sound and noise.
- Neither CBD residents or non-residents tended to avoid parts of the CBD because of loud sounds.
- No differences were recorded between CBD residents and non-residents in terms of the impact of sound on them when they are stressed, tired/bored, emotionally upset, happy/excited, normal, physically unwell, busy or angry.
- In terms of the effects of sounds when they were undertaking activities, no differences were recorded between CBD residents and non-residents in the impact of sounds when they were sleeping, reading, exercising, having a conversation, watching television, doing housework or eating a meal.

Student-worker occupation comparison

- No differences were recorded in how often each group was annoyed by sounds in the CBD in an average day
- No differences were recorded between each group in their description of the difference between a sound and a noise.
- Workers living in the CBD and outside the CBD were marginally more likely to say they avoided parts of the City because of loud sounds than either group of students (V=.10, p<.05). One third of workers who lived in the CBD (33.3%) and 27.3% of those who lived outside the CBD said they avoided parts of the City, compared to only one fifth of students from each group (20.0% and 20.5% respectively).
- No differences were recorded between each group on the impact of sounds when they were stressed, emotionally upset, happy or excited, normal or average, physically unwell or busy.
- There were significant variations between the groups in the impact of sounds when they were tired or bored (Eta = .34, p<.05). On a scale of 0 to 5, students living in the CBD rated the effects of sounds when they were tired or bored between 2.3 and 2.5 points lower than any

other group. There were no differences recorded however, between workers living in or outside the CBD or students living outside the CBD.

- Similarly, there were moderate variations between these groups in the impact of sounds when they were angry or annoyed (Eta = .35, $p<.05$). In particular, students living in the CBD rated the effect of sounds around 2.3 points higher than workers who did not live in the CBD.

Section C: Air-conditioners

Over 50% of *CitySounds* survey respondents reported some awareness of air-conditioning in homes (50.6%), the street (75%), place of work or study (65.2%) and in cafes and restaurants (61.8%). These figures were calculated by tallying the results for the responses 'sometimes', 'occasionally', 'regularly' and 'always' in Tables 9 -12 below. An example drawn from Table 9 results:

	N	%
Sometimes	37	19.3
Occasionally	32	16.7
Regularly	15	7.8
Always	13	6.8
TOTAL for awareness of air-con in home	97	50.6

Table 8: accumulated results for air-conditioning in home

While this indicates air-conditioners to be a pervasive sound source in the environment, the *CitySounds* survey did not test the level of annoyance or interruption to daily activities it caused. Other items of note were that CBD residents appeared slightly more aware of air-conditioners in the home and less so at work, while non-residents were more aware of air-conditioning at work, and not so aware at home. See the CBD resident/non-resident comparison below. One interpretation of this result is that air-conditioning related noise is a key difference in soundscape experience between CBD residents and non-residents.

General Results

How often are you aware of air-conditioner sounds in the CBD?
At home:

	N	%
Never noticed	59	30.7
Never	36	18.8
Sometimes	37	19.3
Occasionally	32	16.7
Regularly	15	7.8
Always	13	6.8
Total	192	100.0

Table 9: awareness of air-conditioners at home

On the street:

	N	%
Never noticed	32	16.7
Never	16	8.3
Sometimes	63	32.8
Occasionally	43	22.4
Regularly	23	12.0
Always	15	7.8
Total	192	100.0

Table 10: awareness of air-conditioners on street

In your place of work or study:

	N	%
Never noticed	34	17.9
Never	32	16.8
Sometimes	45	23.7
Occasionally	42	22.1
Regularly	24	12.6
Always	13	6.8
Total	190	100.0

Table 11: awareness of air-conditioners at workplaceIn cafes/restaurants:

	N	%
Never noticed	24	12.4
Never	50	25.8
Sometimes	69	35.6
Occasionally	35	18.0
Regularly	13	6.7
Always	3	1.5
Total	194	100.0

Table 12: awareness of air-conditioners in cafes

While shopping:

	N	%
Never noticed	32	16.6
Never	40	20.7
Sometimes	68	35.2
Occasionally	25	13.0
Regularly	21	10.9
Always	7	3.6
Total	193	100.0

Table 13: awareness of air-conditioners while shopping

Age comparison

- No differences were recorded between the age groups in their awareness of air-conditioning at home, on the street, in place of work/study or while shopping.
- Respondents in the younger age group were slightly more likely to say they had never noticed air-conditioning sounds in restaurants and cafes than those aged 35 years and over (V=.26, p<.05). For example, 31.5% of those aged 35 years and under said they never noticed it, compared to only 15.0% of those aged 35 years and over.

Gender comparison

- No differences were recorded in responses between males and females.

CBD resident/non-resident comparison

- No differences were recorded in the level of awareness of air-conditioning between CBD residents and non-residents on the street, in restaurants and cafes, or while shopping.
- Residents were however moderately more likely to say they were regularly aware of air-conditioning at home (22.2% of CBD residents compared to 2.4% of non-residents) (V=.36, p<.05).
- CBD residents were also slightly less likely to be aware of air-conditioning in their place of work or study, with one third (33.3%) saying they never noticed it compared with 16.0% of non-residents. Similarly, 22.4% of non-residents said they regularly or always noticed air-conditioning at work, compared to only 2.8% of CBD residents (V=.27, p<.05).

Student-worker occupation comparison

- No differences were recorded in the level of awareness of air-conditioning at home, on the street, place of work or study, in restaurants and cafes, or while shopping.

Section D: Apartments

Almost all *CitySounds* survey respondents (94%) reported that reducing noise would improve their lives. This figure is a tally from Table 14 results for 'slightly improve' (16.5%), 'moderately improve' (26.6%), 'significantly improve' (51.8%). This high result suggests a significant motivation in survey respondents to seek further information or participate in programs to reduce their exposure to noise.

A large proportion of *CitySounds* survey respondents also considered acoustic design to be 'very important to consider' (67.2%, Table 18 below). This suggests that renters and purchasers would be most receptive to information about acoustic design at the time of sale or commencing a lease. The expectations of respondents with regard to the cost of implementing acoustic design modifications were modest (Table 15), but difficult to predict from this data as the question was a general one and not related to a specific change (eg. three windows in an apartment).

In relation to the sounds listed in Table 17, 74.8% of survey respondents reported they heard these sounds either daily and/or weekly, although in filter analysis, CBD residents appeared to have a higher tolerance to reverse beeping sounds. Younger people appeared to be less disturbed by smashing bottles than older people. In sleeping areas, two-thirds (59.3%) of respondents were bothered by noise 'moderately', 'very often' and/or 'extremely' (Table 16).

Respondents placed great importance on the effectiveness of legislation to address noise modifications issues (Table 19).

General Results

Would reducing the level of sound entering your home, improve the quality of your life?

	N	%
Not at all	4	2.9
Slightly improve	23	16.5
Moderately improve	37	26.6
Significantly improve	72	51.8
Sound doesn't bother me that much	2	1.4
Don't know	1	0.7
Total	139	100.0

Table 14: improved quality of life

What would you expect to pay for sound proofing a room to reduce noise levels entering that room?

	N	%
Less than $1,000	36	26.5
Between $1,000 and $5,000	48	35.3
Between $5,000 and $10,000	26	19.1
More than $10,000	4	2.9
Don't know	22	16.2
Total	136	100.0

Table 15: expected cost of sound proofing

Within your own home, to what extent are you personally bothered or annoyed by sounds entering your sleeping areas?

	N	%
Not at all	15	11.1
A little	40	29.6
Moderately	46	34.1
Very often	18	13.3
Extremely	16	11.9
Total	135	100.0

Table 16: disturbance in sleeping areas

Thinking about the sounds you currently hearing, rate their level of annoyance on a scale of 0 to 5, where 5 is extremely annoying.

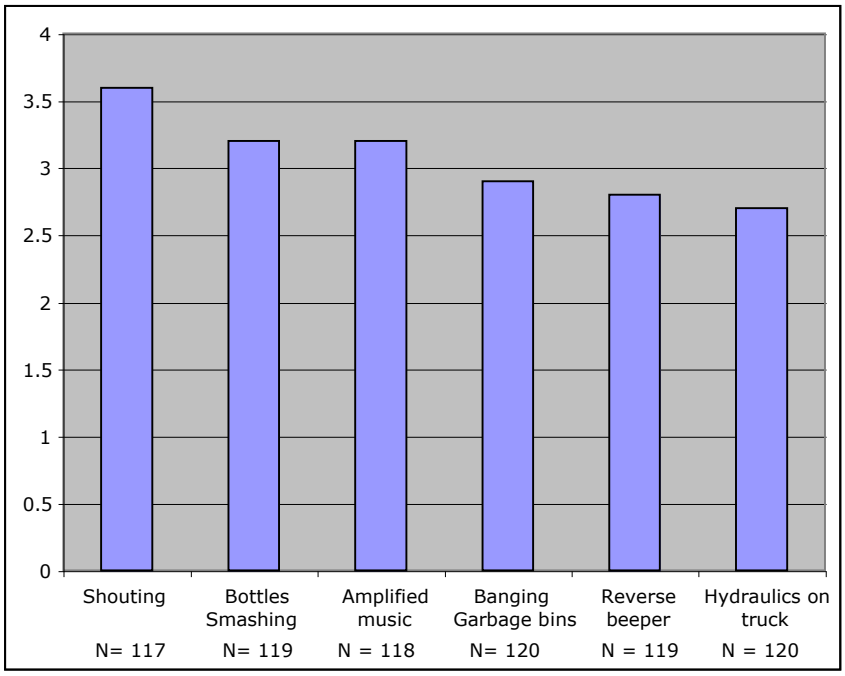


Table 17: extent of disturbance. CitySounds survey respondents were asked to rate their level of annoyance on a scale of 0 to 5 where 0 represents 'not annoying' and 5 represents 'extremely annoying'.

In your own words, what do you find most annoying about these sounds?

See Attachment 1, Section D.

Do you think acoustic design features of new CBD apartments or houses are:

	N	%
Not very important as walls/windows stop sound	4	3.3
Not my responsibility, as the builder, developer and building surveyor will have addressed any issues	9	7.4
Very important to consider in buying or renting a property	82	67.2
Possibly important but need more information	24	19.7
Other (See Attachment 1, Section D)	3	2.5
Total	122	100.0

Table 18: opinions on acoustic design features

Do you think better legislation would address noise modification issues?

	N	%
Yes	83	70.9
No	2	1.7
Not sure	32	27.4
Total	117	100.0

Table 19: opinions on legislation to address noise modification issues

Do you hear these types of sounds (listed in Table 17) where you currently live?

	N	%
Daily	59	49.6
Weekly	30	25.2
Monthly	8	6.7
A couple of times per year	14	11.8
Never	8	6.7
Total	119	100.0

Table 20: frequency of exposure

Age comparison

- No differences were recorded in attitudes about whether reducing noise levels would improve the lives of survey respondents.
- No differences were recorded in how much respondents would expect to pay for soundproofing.
- No differences were recorded in the extent to which respondents were bothered by the following: noise in sleeping areas, hydraulics on trucks, banging garbage bins, shouting, reverse beepers or amplified music.
- Older people rated their level of annoyance with the sound of bottles smashing slightly higher than younger people (t_{110}=-2.21, df=110, p<.05).
- No differences were recorded in their opinions about acoustic design features, legislation or how often they heard noises at home.

Gender comparison

- No differences were recorded in responses between males and females.

CBD resident/non-resident comparison

- CBD residents and non-residents thought similarly about whether reducing the level of sound entering their homes would improve their lives. Almost half of CBD residents said it would slightly or moderately improve their lives (44.4%) as did 46.4% of non-residents.
- Non-residents expected to pay more for soundproofing than CBD residents (V=.32, p<.05). Nearly half of CBD residents only expected to pay under $1000 (44.4%) whereas 23.7% of non-residents expected to pay between $5000 and $10,000. Non-residents however were also slightly more likely to not know how much they would expect to pay.

- CBD residents were more frequently bothered by noise entering their sleeping areas (V=.31, p<.05). One quarter of CBD residents (25.9%) said they were extremely annoyed by this, compared to 6.5% of non-residents.
- In terms of their level of annoyance with specific sounds, there were no differences recorded between CBD residents and non-residents with respect to the sound of truck hydraulics, bottles smashing, banging garbage bins, shouting or amplified music.
- CBD residents however recorded a higher tolerance for reverse beeping sounds (V=.33, p<.05) with one third rating it minimally annoying, compared to 8.3% of non-residents.
- No differences were recorded between CBD residents and non-residents in their opinions of acoustic design features, with two thirds of both groups believing that the builder or developer would have addressed this issue (68.0% and 68.7% respectively).
- Similarly, both CBD residents and non-residents thought better legislation would address noise modification issues.
- No difference in how often CBD residents and non-residents heard sounds where they lived.
- Overseas residents were the least likely to be bothered, with 31.3% saying ‘not at all’ and 31.3% saying ‘only a little’.

Occupation, Rent/Own, Income comparison

- For questions on sound proofing, no difference was recorded between occupations or home ownership.
- For questions on extent of disturbance by noise entering in sleeping area, no difference was recorded betweens occupations, home ownership or incomes.

Section E: Cafes

Over half of *CitySounds* survey respondents felt that cafes had become noisier in the last three to five years (Table 21), with the main reasons nominated being the increased use of hard surfaces in construction, and increased size of cafes (Table 22). The expectations of sound levels of survey respondents appears reasonable and changes depending on the occasion (Table 24).

A majority of respondents indicated that noise levels in cafes currently influenced their decisions in where to eat (72.8%). This figure is a combination of the results in Table 26 for 'extremely important' (30.6%) and 'slightly important' (42.2%). If information on sound levels in cafes were available in the future, 76.7% of respondents say they would use this information to influence their decisions. This result is a tally of 'yes' results and qualifiers in Table 27.

There were differences of opinion and expectations between age groups for several questions. People 35 years and under thought cafes had become noisier because music was played too loud, while those aged 35 years and over attributed the noise to construction (*Age comparison,* Bullet point 2). Older people were slightly more likely to have experienced difficulty holding a conversation in a café or restaurant (*Age comparison,* Bullet point 5). People aged 35 years and over were also more likely to be influenced by information on quiet cafes (*Age comparison,* Bullet point 7).

Differences in use of information on quiet cafés and restaurants were also revealed between residents and non-residents (*Resident/non-resident comparison,* Bullet point 6).

General Results

In relation to the noise levels in cafes over the last 3-5 years, do you think they have generally become:

	N	%
Quieter	13	6.3
Same	56	27.1
Noisier	110	53.1
Don't know/Haven't noticed	28	13.5
Total	207	100.0

Table 21: changes in cafes

If you think they have become noisier, what do you think is the <u>main</u> reason? (please tick only one response)

	N	%
Music played too loud	32	18.5
Constructed with hard surfaces like concrete and glass	62	35.8
Coffee machines and air-conditioners getting louder	13	7.5
Cafes designed larger to seat more people	35	20.2
Not sure	24	13.9
Other (See Attachment 1, Section E)	7	4.0
Total	173	100.0

Table 22: reasons for changes in cafe noise

Do you expect the sound levels in all cafes and restaurants to be:

	N	%
The same	20	10.2
Different depending on the type of café or restaurant	177	89.8
Total	197	100.0

Table 23: expectations of sound levels

What do you expect the sound levels to be for the following occasions in a restaurant or café? (0 = Very quiet; 2 = Average but not loud); 5 = Noisy)

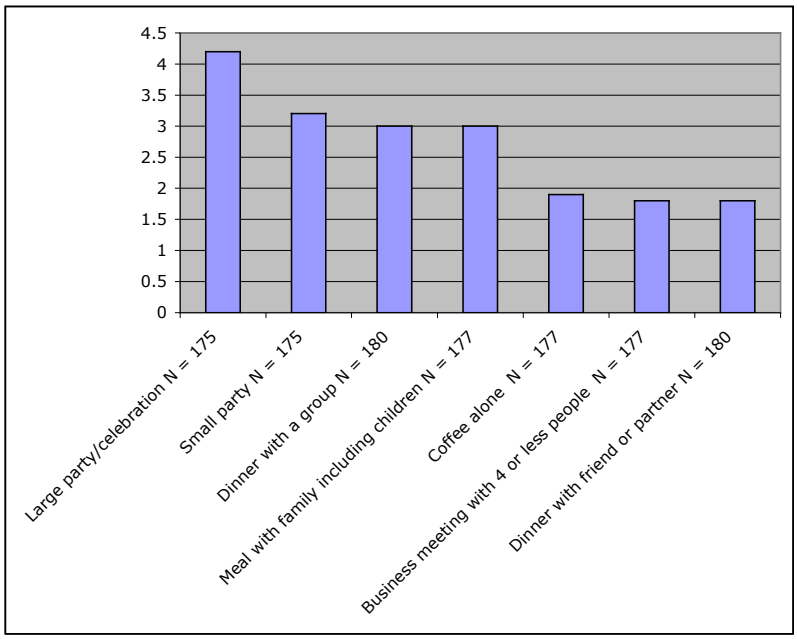


Table 24: expectation of sound levels relative to occasion. *CitySounds Respondents were asked to rate the sound level on a scale of 0 to 5 where 0 represents 'very quiet' and 5 represents 'noisy'.*

Have you recently had difficulty holding a conversation in a café or restaurant?

	N	%
No	69	39.0
Yes. Can you remember why? (See Attachment 1, Section E)	108	61.0
Total	177	100.0

Table 25: difficulty of holding conversation

To what extent is the noise level a factor in choosing a particular café?

	N	%
Extremely important	55	30.6
Slightly important	76	42.2
Not very important	30	16.7
Not important at all	7	3.9
Don't know/Never considered it	12	6.7
Total	180	100.0

Table 26: noise level as choice factor

Would information in restaurant guides or reviews about the sound levels in cafés and restaurants influence your decision to eat out?

	N	%
No, doesn't matter	32	18.2
Yes, if quality of food and prices were maintained	76	43.2
Yes, would always choose quieter place, even if more expensive	10	5.7
Yes, would consider sound levels depending on the event	49	27.8
Other	9	5.1
Total	176	100.0

Table 27: influence on sound levels in decisions

Age comparison

- No differences were recorded in opinions regarding whether cafes had become noisier or quieter.
- The different age groups did however, have quite different opinions as to why cafes had become noisier ($V=.44$, $p<.05$). Those aged 35 years and under were far more likely to think it was because music was played too loud (25.8% compared to 8.0% of those aged 35 years and over). Those aged 35 years and over however were more than twice as likely to attribute increased noise levels in cafes to their construction (58.0% compared to 24.7% of those aged 35 years and under).
- Both groups expected noise levels in cafes to vary depending on the type of café.
- No differences were recorded in their expectations of sound levels for the following events: coffee alone, a business meeting, dinner with a friend, dinner with a group, family meal, small party or a large party.

- Older people however, were slightly more likely to have experienced difficulty holding a conversation in a café or restaurant (V=.25, p<.05). Just over three quarters of those aged 35 years and over said they had experienced difficulty holding a conversation (77.8%), compared to 52.5% of those aged 35 years and under.
- Older people were also moderately more likely to place more importance on the sound level when choosing a café or restaurant (V=.33, p<.05). Almost half of those aged 35 years and over said it was extremely important (42.6%), compared with only 23.0% of those aged 35 years and under.
- Those in the younger age group were also moderately more likely to say that information about sound levels in guides or reviews would not influence their decision about where to eat (V=.31, p<.05). One quarter of those aged 35 years and under said it would not matter (23.8%), compared to only 5.2% of those in the older age group. In contrast, 57.7% of those aged 35 years and over said they would choose a quieter café or restaurant if prices and quality were maintained.

Gender comparison

- Males tended to think the sound level for a family dinner including children should be marginally lower than females (t_{142}=2.30, df=140, p<.05).
- No differences were recorded in any other questions.

CBD resident/non-resident comparison

- Non-residents were slightly more likely to believe that cafes had become noisier in the last three to five years (V=.29, p<.05) with 58.3% of non-residents compared to 32.5% of CBD residents.
- Alternatively, non-residents were moderately more likely to think the reason for cafes becoming noisier was their construction (41.5% compared to 16.7% of CBD residents) but CBD residents were more likely to not be sure why cafes were noisier (36.7% and 9.4% respectively) (V=.35, p<.05).
- No difference was recorded in their expectation of sound level in cafes, with 92.5% of CBD residents and 92.6% of non-residents believing they should vary depending on the type of café or restaurant.
- No differences were recorded between CBD residents and non-residents in their expectations of sound levels for various events.
- Both CBD residents and non-residents believed the noise level was a slightly important factor in choosing a café (48.6% and 41.6% respectively).

- Both groups had different opinions about the usefulness of information on restaurants in guides reviews (V=.29, p<.05). Almost half of non-residents said this information would influence their decision so long as quality of food and prices was maintained (49.5% compared to 24.3% of CBD residents). CBD residents however believed this information would influence their decision depending on the event (48.6% compared to 24.3% of non-residents).

Section F: Sites-of-Respite-1

If a site-of-respite were within five minutes walk of office or home, 74.4% of *CitySounds* survey respondents would use the site 'occasionally' to 'more often'. This result tallies responses for 'occasionally', 'often' and 'very often' in Table 28.

General Results

If a site-of-respite was around 5 minutes walk from your office or home, would you use it?

	N	%
Never	16	8.6
Rarely	32	17.1
Occasionally	66	35.3
Often	54	28.9
Very often	19	10.2
Total	187	100.0

Table 28: site-of-respite frequency of use

Age comparison

- No differences were recorded in frequency of use by age group.

Gender comparison

- No differences were recorded in responses between males and females.

CBD resident/non-resident comparison

- No differences were recorded between CBD residents and non-residents in how often they would use a site-of-respite (25.8% and 30.2% respectively saying they would use it often).

Section G: Sites-of-Respite-2

Almost 70% of *CitySounds* survey respondents (69.3%) reported they would use a site-of-respite at least once a week or more often (Table 30). This figure tallies responses from Table 30 for answers 'at least once a week' (40%) and 'more than once a week' (29.3%).

The majority of survey respondents reported they would use a site-of-respite to relax and eat lunch, and to meet a friend for coffee and quiet and chat (Table 29). These activities suggest that daytime only operation should be considered adequate, and that a site-of-respite could be locked after-hours for security.

General Results

Would you manage your daily routine, to spend time in such a place (you may select more than one)?

	N	%
To relax and eat lunch	107	30.8
To meet a friend for coffee and quiet chat	106	30.5
To visit before work and prepare for the day, or relax and unwind after work	49	14.1
At weekends for relaxation	48	13.8
Never	8	2.3
Other (See Attachment 1, Section G)	4	1.2
No-Answer	25	7.2

Table 29: types of activity in site-of-respite

How often would you use a place like this?

	N	%
A few times a year	19	13.6
Maybe once a month	24	17.1
At least once a week	56	40.0
More than once a week	41	29.3
Total	140	100.0

Table 30: site-of-respite frequency of use

Age comparison

- No differences were recorded in the frequency of use by age groups.

Gender comparison

- No differences were recorded between males and females.

CBD resident/non-resident comparison

- No differences were recorded relating to how often CBD residents and non-residents would use this site-of-respite.

Section H: Construction sites

A majority of *CitySounds* survey respondents believed a combination of restricting operational times, and setting a maximum noise level for operation was the best way to manage sound from a construction site (45%, Table 32). Some respondents accepted that construction noise in the CBD was inevitable (23.3%), as indicated in Table 32 results for option 'no restrictions possible because development is always occurring in the CBD'.

A list of construction sounds indicated by respondents as being the most annoying appears in Attachment 1, Section H. Reported sounds were those associated with jackhammers, reverse beeping, banging, drilling, deep rumbling bass sounds, generators, trucks, nail guns, cutting and sawing. When asked at what times these sounds were heard, answer categories included general and specific clock times, location and activity type responses.

General Results

While living or visiting in the CBD, have you been disturbed by construction site sounds in the previous:

	N	%
Week	65	44.4
Month	41	26.8
3 months	20	13.1
1 Year	24	15.7
Total	153	100.0

Table 31: construction site disturbance

In you own words, can you identify which sounds were the most annoying?

See Attachment 1, Section H.

In a CBD environment, what is the best way to manage sound from a construction or demolition site?

	N	%
Restrict days and times of operation	30	20.0
Set maximum noise level for operation	17	11.3
Combination of above	68	45.3
No restrictions possible because development is always occurring in the CBD	35	23.3
Total	150	100.0

Table 32: construction site management

Age comparison

- No differences were recorded between the two age groups with respect to how often they were disturbed by construction sounds in the CBD, nor on their views about the best way to manage sounds from construction sites.

Gender comparison

- No differences were recorded in responses between males and females.

CBD resident/non-resident comparison

- No differences were recorded between CBD residents and non-residents in their views on the best way to manage sounds from a construction site.

Occupation, rent/own, income comparisons

- No differences were recorded by age, residency, occupation, home ownership or income.

Section I: Nightclubs

Over two thirds of *CitySounds* survey respondents had visited a nightclub in the past three years (Table 33), with 68.8% of those saying they had visited within the last three months. This last figure is calculated from a tally of the first three percentage results in Table 34.

On the question relating to loudness, the combined results for the middle to top loudness ratings (3, 4 and 5) was 85.9%, indicating that a large majority of respondents perceived the music to be loud (Table 35). A slightly larger proportion of respondents (58.8% compared to 41.5%) said they enjoyed loud music (Table 36).

However, 88.9% of survey respondents believed that music should be managed so that it is loud on the dance floor but quieter elsewhere so people can hold a conversation (Table 37).

The filtered responses for this question revealed differences in opinion for management and design solutions that varied according to occupation (*Occupation comparisons,* Bullet point 3).

General Results

Have you been to a nightclub within the last 3 years?

	N	%
No	101	35.9
Yes	180	64.1
Total	281	100.0

Table 33: nightclub attendance in last 3 years

Did you go to the nightclub:

	N	%
Within last week	42	22.2
Within last month	51	27.0
Between 1 and 3 months ago	37	19.6
Between 3 and 6 months ago	16	8.5
Between 6 and 12 months ago	14	7.4
Between 1 and 3 years ago	29	15.3
Total	189	100.0

Table 34: nightclub attendance within 3 years

How would you rate the sound volume level?

	N	%
0: OK/Quiet	6	3.0
1	8	4.0
2	14	7.0
3	73	36.7
4	50	25.1
5: Too loud	48	24.1

Table 35: night-club sound level rating. *CitySounds* survey respondents were asked to rate the sound level on a scale of 0 to 5 where 0 represented 'OK/quiet' and 5 represented 'too loud'.

Do you enjoy loud music?

	N	%
Yes	162	58.5
No	115	41.5
Total	277	100.0

Table 36: enjoyment of loud music

What do you enjoy/dislike about loud music?

See Attachment 1, Section I for selected responses.

Do you think music in a nightclub should be managed so it is loud on the dance floor, but quieter elsewhere so people can hold a conversation?

	N	%
Yes	232	88.9
No	29	11.1
Total	261	100.0

Table 37: nightclub management of dance-floor sound

In a CBD environment, what is the best way to manage sound emanating from a nightclub?

	N	%
Restrict hours of operation	13	5.0
Set maximum noise level for operation	56	21.4
Combination of above	49	18.7
Better designed premises so no sound is emitted	108	41.2
No restrictions because nightclubs are in the CBD	36	13.7
Total	262	100.0

Table 38: nightclub management of sound

Age comparison

- Younger people were slightly more likely to have been to a nightclub more recently than older people ($V=.25$, $p<.05$). Almost three quarters of those aged 35 years and under had been to a nightclub in the past three years (72.9%) compared to 43.8% of those aged 35 years and over.
- Among those who had been to a nightclub, there was no difference with respect to how long since their last visit.
- No differences were recorded in their rating of the sound level in nightclubs.

- Those aged 35 years and under were slightly more likely to enjoy loud music (63.8%) compared to people aged 35 years and over (43.6%) (V=.19, p<.05).
- People aged 35 years and over were marginally more likely to think that music should be quieter elsewhere than on the dance floor (95.9% compared to 85.0% of those aged 35 years and under) (V=.16, p<.05).
- No differences were recorded in their opinions about the best way to manage nightclub sounds.

Gender comparison

- No differences were recorded in responses between males and females.

CBD resident/non-resident comparison

- No differences were recorded between CBD residents and non-residents in terms of when they last visited a nightclub.
- No differences were recorded between CBD residents and non-residents in their rating of the sound level in nightclubs (29.4% of residents and 22.4% of non-residents said it was too loud).
- Over half of both age groups said they enjoyed loud music.
- Both age groups believed music should be loud on the dance floor and quieter elsewhere.
- CBD residents and non-residents both believed the best way to manage sounds from a nightclub was through better designed premises (45.2% and 39.8% respectively).

Occupation comparisons

- In relation to how long since *CitySounds* survey respondents had visited a night-club, moderate variations existed by occupation (V=.31, p<.05). Of those who had visited a nightclub recently, 28.0% of students had visited in the last week as had 35.7% of those working in sales or clerical occupations. Of the business owners or self-employed respondents who had visited recently, 50.0% said it had been between one and three years ago, as did 37.5% of respondents working in technical/skilled professions.
- No differences were recorded on the rating of sound volume.
- In relation to managing sound emanating from nightclubs, students and those in sales or clerical occupations were somewhat more likely to think there should be no restrictions (22.4% and 27.8% respectively) (V=.31, p<.05). Half of those who were retired thought a maximum noise level should be set (53.3%), while business owners and self-employed

people (81.8%), business managers or executives (80.0%) thought noise should be managed through the better design of premises.

Income comparisons

- No significant differences were recorded between income groups to any questions on nightclubs.

Section J: Loud-speakers and spruikers

Just over half of *CitySounds* survey respondents reported that removing loud-speakers from city streets would either extremely or somewhat diminish the vibrancy of the CBD (51.6%). This figure is calculated by tallying responses for 'extremely diminish' (18.1%) and 'somewhat diminish' (33.5%) responses in Table 39. A combined total of 37% of survey respondents believed that removing speakers would have no effect (14.6%) or only 'slightly enhance' (13.2%) or 'significantly enhance' (9.2%) the vibrancy of the CBD.

While these figures suggest a balance of opinions on loudspeakers in the CBD, a large percentage of respondents reported that amplified sounds should be perceptible less than five metres from their source (75.5%, Table 41).

Level of reported annoyance of amplified music from shops was fairly low, being evenly grouped across the three lower ratings (0, 1 and 2), giving a combined total of 62.9% for these ratings (Table 40).

While just over half of *CitySounds* survey respondents thought that spruikers and buskers did not add to the vibrancy of the CBD, the responses to management options for raw results does not indicate any strong opinions for options presented (Table 43). However, some slight and marginal differences appeared in age, gender, and occupation filters.

General Results

If loud speakers were removed from the streets of the CBD, what effect do you think it would have on the CBD's vibrancy and experience?

	N	%
Extremely diminish	63	18.1
Somewhat diminish	117	33.5
No effect	51	14.6
Slightly enhance	46	13.2
Significantly enhance	32	9.2
Not sure/don't know	40	11.5
Total	349	100.0

Table 39: loud-speaker effects on city's vibrancy

On a scale of 0 to 5, where 5 represents extremely annoyed, what is your usual reaction to hearing music from shops?

Level of annoyance	N	%
0: never annoyed	43	12.5
1	78	22.7
2	95	27.7
3	69	20.1
4	41	12.0
5: extremely annoyed	17	5.0

TOTAL	343	100

Table 40: level of annoyance caused by loudspeakers. CitySounds survey respondents were asked to rate their level of annoyance on a scale of 0 to 5 where o represented 'never annoyed' and 5 represented 'extremely annoyed'.

If amplification is used by a busker, spruiker or shop owner, how loud should it be?

	N	%
Loud enough to help me hear less than 5 metres from speaker	253	75.5
Loud enough to catch attention from the other side of the street	57	17.0
Loud enough to catch attention from half a block away	25	7.5
Total	335	100.0

Table 41: loudspeaker impact on streetscape

Do you think that spruikers and buskers add to the experience and vibrancy of the CBD?

	N	%
Yes. Describe how. (See Attachment 1, Section J)	80	29.3
No	138	50.5
Don't know	55	20.1
Total	273	100.0

Table 42: spruiker and busker impact on city's vibrancy

Do you think spruikers and buskers:

	N	%
Should be allowed in the CBD with levels controlled by the Council.	83	31.8
Should be allowed in the CBD, but without amplification.	70	26.8
Should be managed as to what times, places and level of amplification they use.	108	41.4
Total	261	100.0

Table 43: spruikers and buskers use of amplification

Age comparison

- Survey respondents aged 35 years and under were slightly more likely to think that removing loud-speakers would extremely diminish the vibrancy of the CBD (V=.25, p<.05). Almost one quarter thought this (22.4%) compared to only 10.4% of people aged 35 years and over. In contrast, those in the older age group were more than three times likely to say that removing loud-speakers would significantly enhance the city experience (16.7% and 5.1% respectively).
- Respondents aged 35 years and over were marginally more likely to think that amplification should only be loud enough to hear less than five metres from the speaker (86.0% compared to 74.5%) (V=.15, p<.05).
- Respondents aged 35 years and over had a slightly higher level of annoyance with music coming from shops (t_{286}=286, df=284, p<.05).

- Those in the older age group (38.7%) were slightly more likely to believe that spruikers and buskers added to the vibrancy of the CBD compared to people aged 35 years and under (26.9%) (V=.16, p<.05).
- No differences were recorded in their attitudes about the conditions under which spruikers or buskers should be allowed.

Gender comparison

- Females had a slightly higher tolerance of the amplification used compared to males (V=.16, p<.05), with 9.1% of females believing it should be loud enough to catch their attention half a block away compared to only 2.5% of males.
- Males were slightly more likely to think that spruikers and buskers should be allowed so long as levels were controlled by Council (36.0% compared to 25.0% of females). Females on the other hand tended to think they should be allowed, but without amplification (35.2% compared to 18.0% of males).

CBD resident/non-resident comparison

- No differences were recorded between CBD residents and non-residents in their views about loud speakers diminishing the City's vibrancy, with 55.8% and 49.8% respectively believing it would 'extremely' or 'somewhat' diminish if they were removed.
- Both CBD residents and non-residents had similar levels of annoyance with music from shops.
- Both CBD residents (76.8%) and non-residents (79.3%) felt that amplification should be loud enough to hear less than five metres from the speaker.
- Half of both CBD residents and non-residents believed that spruikers and buskers did not add to the experience and vibrancy of the City.
- Both CBD residents (32.5%) and non-residents (33.3%) thought spruikers and buskers should be allowed with levels controlled by Council.

Occupation comparison

- No differences were recorded in the attitudes of survey respondents towards the effect of removing spruikers and buskers on the vibrancy of the CBD.
- No differences were recorded in their level of annoyance with the level of music from shops.
- Slight differences were recorded in how loud each group thought amplification should be if used (V=.19, p<.05). Both workers living in and outside the CBD were slightly more likely to

think amplification should be loud enough to hear less than five metres from the speaker (92.3% and 86.5% respectively). Students living in the CBD however thought amplification should be loud enough to hear from the other side of the street (45.5% compared to 17.5% of students not living in the CBD)

- No differences were recorded in whether each group thought spruikers should be allowed in the CBD.
- No differences were recorded in their opinions of whether spruikers or buskers should be allowed in the CBD.

Section K: Exit questions about survey

Most *CitySounds* respondents reported the survey had made them either more aware of sounds in the CBD (43.1%), or about the same (40.1%, Table 44).

Although the difference between responses to expected sounds in the CBD before moving in were not large, a greater number responded it was 'exactly as expected' (46.8%, Table 45), while 31.7% responded it was 'louder than expected'.

General Results

To what extent has this survey made you aware of sounds in the CBD?

	N	%
More aware	85	43.1
About the same	79	40.1
Less aware	33	16.8
Total	197	100.0

Table 44: impact of survey on awareness of sounds

If you are a resident of the CBD of Melbourne, how would you describe your expectations and experience of the soundscape on moving into the CBD?

	N	%
Louder than expected	44	31.7
Exactly as expected	65	46.8
Quieter than expected	30	21.6
Total	139	100.0

Table 45: expectations on CBD sound of new residents

You may make general comments here…

See Attachment 1, Section K.

Age comparison

- No differences were recorded in whether the *CitySounds* survey had made respondents more aware of sounds in the CBD, and for CBD residents there was no difference in their description of sounds upon moving into the City.

Gender, occupation and rent/own comparison

- No differences were recorded by gender, occupation or home ownership.

CBD resident/non-resident comparison

- Non-residents were slightly more likely to say the CitySounds survey had made them more aware of sounds in the City (46.5% compared to 31.6% of residents; V=.28, p<.05).
- No differences were recorded between CBD residents and non-residents on their expectation of sounds moving into the CBD.

Income comparisons

- Lower income earners and people with incomes between $40,000 and $59,999 were reasonably more likely to think that living in the CBD was noisier than they expected (43.3% and 60.0% compared to 20.8% of people who earned $100,000+) (V=.31, p<.05). One fifth of people who earned less than $20,000 also thought it was quieter than they expected, as did 25.0% of those who earned between $60,000 and $79,999.

APPENDIX A:

Results of opening socio-economic and demographic questions

What is your age?

	N	%
< 15 years	32	9.7
15 – 24 years	112	33.9
25 – 34 years	85	25.8
35 – 44 years	41	12.4
45 – 54 years	28	8.5
55+ years	32	9.7
Total	330	100.0

Table 46: age

Are you:

	N	%
Female	123	40.2
Male	183	59.8
Total	306	100.0

Table 47: gender

Are you currently a resident of the CBD of Melbourne?

	N	%
CBD	57	17.6
City of Melbourne (not CBD)	50	15.5
Another Melbourne suburb	116	35.9
Town or district in country Victoria	14	4.3
Another Australian state	29	9.0
Overseas	57	17.6
Total	323	100.0

Table 48: residence location

Choose the category that best describes your current place of residence:

	N	%
House < 5km from CBD	62	23.9
House between 5 & 10km from CBD	60	23.2
House > 10km from CBD	93	35.9
Apartment < 5km from CBD	15	5.8
Apartment between 5 & 10km from CBD	15	5.8
Apartment > 10km from CBD	14	5.4
Total	259	100.0

Table 49: residence distance from CBD

This question relates to how you use a CBD. You may choose more than one category.

Do you:

	N	%
Visit daily	79	32.9
Visit weekly	69	28.8
Visit monthly	41	17.1
Varies	15	6.3
Visit annually	16	6.7
Do not visit/None of the above	20	8.3
Total	240	100.0

Table 50: frequency of visitation

I am considering moving into the CBD of Melbourne:

	N	%
Within next year	25	10.2
Between next 1-2 years	20	8.2
2 or more years	46	18.9
Never	153	62.7
Total	244	100.0

Table 51: decision to relocate to CBD

CBD residents : How long have you lived in the CBD?

	N	%
Less than 1 year	78	58.6
1 – 3 years	25	18.8
More than 3 years	30	22.6
Total	133	100.0

Table 52: duration of CBD residency

Choose the category that best describes your place of residence and its age:

	N	%
Apartment < 3 years old	32	19.3
Apartment > 3 years old	37	22.3
House < 3 years old	10	6.0
House > 3 years old	58	34.9
Warehouse renovated in previous 3 years	7	4.2
Other	22	13.3
Total	166	100.0

Table 53: age of residence

Describe how often you do the following in the CBD in an average week:

Go to work

	N	%
Daily	57	33.7
Weekly	18	10.7
Monthly	8	4.7
Never	86	50.9
Total	169	100.0

Table 54: frequency of working in CBD

Eat out for dinner or lunch

	N	%
Daily	41	24.0
Weekly	61	35.7
Monthly	46	26.9
Never	23	13.5
Total	171	100.0

Table 55: frequency of dining in CBD

Walk in a park or by the river

	N	%
Daily	38	22.6
Weekly	70	41.7
Monthly	39	23.2
Never	21	12.5
Total	168	100.0

Table 56: frequency of walking in CBD

Go shopping a large store

	N	%
Daily	26	15.4
Weekly	76	45.0
Monthly	49	29.0
Never	18	10.7
Total	169	100.0

Table 57: frequency of shopping in CBD

Go for a drink in a bar

	N	%
Daily	15	9.0
Weekly	72	43.4
Monthly	33	19.9
Never	46	27.7
Total	166	100.0

Table 58: frequency of bar visitation in CBD

Walk to walk

	N	**%**
Daily	51	30.4
Weekly	12	7.1
Monthly	10	6.0
Never	95	56.5
Total	168	100.0

Table 59: frequency of walking to work

Walk for relaxation, exercise or leisure

	N	%
Daily	63	37.5
Weekly	56	33.3
Monthly	31	18.5
Never	18	10.7
Total	168	100.0

Table 60: frequency of general walking in CBD

What is your main occupation (please tick only the response that best describes your current situation)?

	N	%
Student	99	39.1
Retired	19	7.5
Home duties	3	1.2
Technical or skilled	27	10.7
Sales or clerical	15	5.9
Business owner or self-employed	17	6.7
Business manager or executive	15	5.9
Professional or senior government	45	17.8
Unemployed	13	5.1
Total	253	100.0

Table 61: occupations

Which category best describes your professional working context?

	N	%
Office	98	40.5
Retail, restaurant or café	28	11.6
Bar or entertainment venue	5	2.1
Home office or studio	29	12.0
Other	82	33.9
Total	242	100.0

Table 62: working context

What are your residential living arrangements?

	N	%
Live alone	51	19.7
Shared household	109	42.1
Single parent with dependent children	8	3.1
Couple only	48	18.5
Couple with dependent children	29	11.2
Couple with non-dependent children	14	5.4
Total	259	100.0

Table 63: living arrangements

In relation to your place of residence, do you:

	N	%
Rent	139	54.5
Own the property	75	29.4
Purchasing	24	9.4
Other	17	6.7
Total	255	100.0

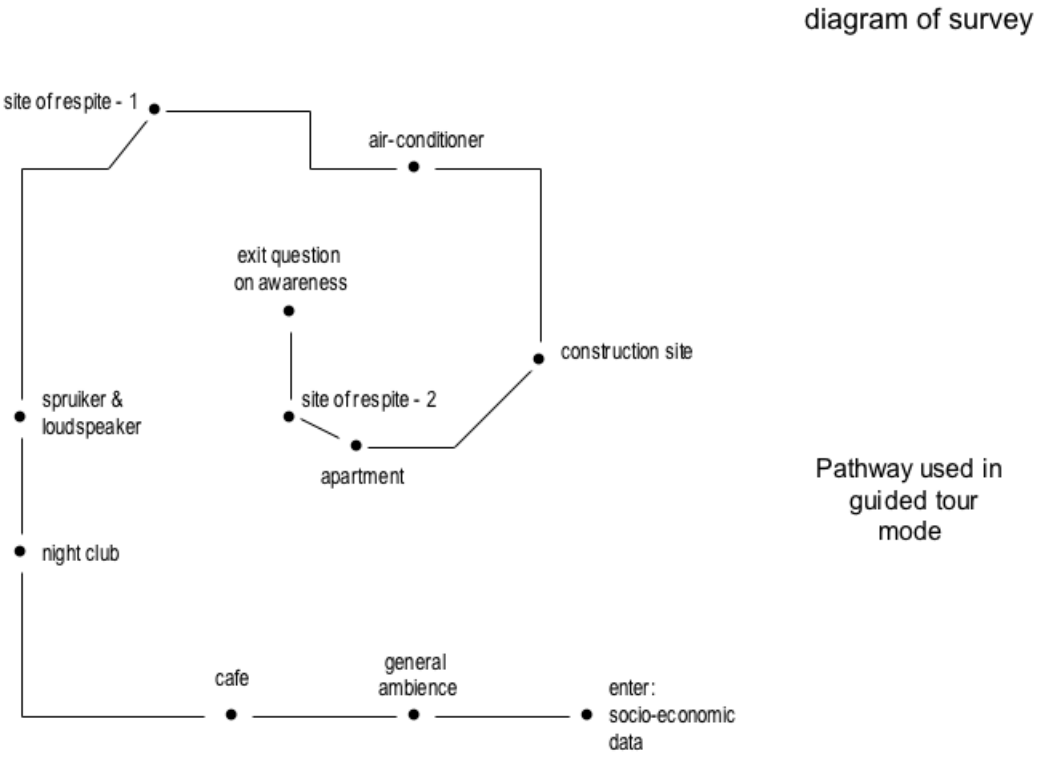
Table 64: home ownership

Which bracket best describes your household income?

	N	%
Less than $20,000	52	29.9
$20,000 - $39,999	48	19.3
$40,000 - $59,999	42	16.9
$60,000 - $79,999	35	14.1
$80,000 - $99,999	29	11.6
$100,000+	43	17.3
Total	249	100.0

Table 65: income

APPENDIX B: Schematic of survey for guided tour



SIAL Sound Studios, RMIT University

Attachment 1 – Respondents' text answers

Section B – General questions on sound

When you listen to the sounds in this survey, and think of the words noise and sound, do any of the following descriptions describe the difference between 'sound' and 'noise' for you:

Respondents' answers for 'other' in users' own formatting appears next. Answers were truncated by text limit of software, and included:

"A sound is something that is not loud and is considered part of the normal, cities have sounds that are a result of their existence - noise is something, I LOVE SOUND BUT IT BECOMES ANNOYING WHEN I'M TIRED AFTER WORK ITS FULL, it doesn't bother me, it is something everyone does, technically noise is a random distribution of frequencies within in a given, the urban environment's noises are a characteristic sound - this is Melbourne."

Which places do you regularly avoid because of loud sound (you may tick more than one response)?

Respondents' answers for 'other' in users' own formatting were:

"loads of carparks with their annoying sound when gates close and open, noise sources on certain streets or laneways near the Queen Victoria precinct near the Russell St intersection."

If you notice some places in the CBD are quieter than others, can you name these?

Most responses received for libraries, laneways and parks, some for Southgate, and front of State Library. Respondents' answers for 'other' in users' own formatting were:

"Alleys, art gallery, libraries (13 responses), Australia on Collins, Carlton gardens churches, Collins Place, Collins St the top end, Collins street, Elizabeth street, Fitzroy gardens, Flagstaff Gardens, Flinders Lane Cafe precinct, galleries and lanes and off-street cafes, gardens, in various parks, by the Yarra River & Southbank, inside most buildings where no loud music is played, inside public gardens and buildings, lanes and arcades, laneways, laneways rather than Swanston St, laneways, State library grounds, library, art gallery and very fancy restaurants, little street and laneways, NGV, South Bank , park and gardens, parks (ie. out the front of the State library), parks, away from busy roads, Federation Square, parks, gardens, small cafes in side streets, parks, library, churches, Mingarra in Collins St, parks, libraries, onboard transport, river walk, pubic gardens, uni, Shopping arcades or malls, Shopping centres, book shops, some laneways, don't know the names, Southbank, ACMI, Southbank, State Library, Parks, Southgate, parks and gardens, squares in between buildings (eg. such as those at the top of Collins St."

SECTION D – Apartments

In your own words, what do you find most annoying about these sounds?

Respondents' answers in their own words and formatting included:

"#2-4 represent sounds of anger, aware of the danger they pose, can't work on it when it is from other places, constancy of noise - knowing that they may not stop for some time or never, disturbance of sleep, conversation, concentration and calm, human inconsideration behind them, interruption to sleep, invasion of solitude, no respect, sounds like this are avoidable, not usually necessary (eg. shouting and repetitive beeping), people don't think, piercing and surprising nature, shouting can be emotionally upsetting, the fact that as a sense, I was not entirely aware of them, the heavy, low bass sound. Thump, thump, thump. Incessant. Uncontrollable, the most annoying are caused by the actions on inconsiderate people, they occur when I'm trying to go to sleep, unrequested sound, you can't escape them at home, you cannot think."

Do you think acoustic design features of new CBD apartments or houses are:
Other (please state)

Respondents' answers in their own words and formatting were:

"I don't know, what's acoustic?, should be mandatory, existing venues of entertainment should not be obliged to change the hours.

Section E – Cafes

If you think they have become noisier, what do you think is the <u>main</u> reason? (please tick only one response)

Three responses received for 'other':

"All of the above, more people go and talk there, people are louder and more obnoxious, constantly competing to be heard."

Have you recently had difficulty holding a conversation in a café or restaurant?
Yes Can you remember why?

Respondents' answers in their own words and formatting appear next. Some answers were truncated by text limit of software. Answers included:

"Background chatter and loud music, because of the level of noise - mostly from voices, cafe's music was set too loud, couldn't hear my own thoughts!!, footpath table - truck stopped at traffic lights was very loud, hard surfaces, hard surfaces reflecting sound, I am always told "pardon??", I am partly deaf, it was over-crowded, we were crammed in like sardines, with people coming in and…, just the noise of people around me/us, LIVE MUSIC TOO LOUD, loud businesspeople holding business meetings, loud music, music is much to loud that even yelling you still won't be heard, music too loud, noise pollution excessive (music earbashing), poor acoustic design of venue…, loud music & patrons speaking loudly in order to overcome the music and general noise, small cafe, lots of customers coupled with the noise of clattering dishes, sound bouncing off the floors and walls, space not designed to accommodate ambient sounds, surrounded by two large groups of people with adults and excitable children, the music was too loud, too many people, too many people and music, too much background noise, voices, music, too much reflected noise, too noisy, too reverberant, wine bar, music too loud."

Section F: Site of Respite – 1

Compared to other sounds in the CBD, do you think the sounds in this place are:
(you may choose more than one)

Answers received for 'other' appear next in respondents' own formatting:

"They are very science fiction and real, slightly creepy, different but I prefer the idea of peace, wind chimes are irritating, quieter, they are both annoying although I'm more used to the sounds in the CBD, will get annoying after a while, arty, excellent, fantastic."

Section G: Site of Respite – 2

Would you manage your daily routine, to spend time in such a place?

Three responses received for 'other' appear next in respondents' own formatting:

"i would like to have a space like this to use for socialising - including with food and drink. however I accept that this would probably turn it into a noisy area", "occasionally to be away from people", "detour on my way somewhere else."

Section H: Construction Sites

In you own words, can you identify which sounds were the most annoying?
[Respondent answer]

A selection in respondents' own formatting included;

"back up alarms, banging, drilling, cranes lifting materials, beep, beeping of trucks backing up, and jack hammering, circular sawing, cherry pickers jack hammers, compacting, crane whistles, truck beeping, jack hammers, drilling, electric tools and constant banging of hammer, heavy machinery drilling or cutting concrete, loud machine like repetitionnail guns and cutting metal, sharp high pitched, the sound of trucks running, vehicles reversing, jack hammers, motors running and noise from exhausts and general continuous non specific noise and vibrations."

Section I: Nightclubs

What do you enjoy/dislike about loud music?

A selection in respondents' own formatting included;

"After effects, annoying, bass, bass lines, floor vibration good!, better atmosphere, can't hear each other - have to shout, can't hear the music or hear people speaking, can't hold a conversation, can't speak to others, cannot talk, good to dance with though as you feel the whole rhythm in your body!, coming from cars driving past or stationary, from shops, difficult to communicate, dislike tinnitus, dislike as it hurts my ears, dislike when it makes my ears ring afterwards, feeling the bass, gets me hyper...loud music, good fun if no need to talk, headache, hurts ears, stifles conversation, I dislike the extremely high decibel levels played, I don't like when I can't talk, enjoy loud music because the bass is more evident, I like the heavy beat, but not the noise disruption outside of a club or enclosed space, if I'm in the mood for it and it's the kind I like I can loose myself in it, inhibits my ability to think clearly. Fairly destructive to meaningful conversation, it's like blowing my head up, it makes my heart race, loud music is great to dance to, makes you want to dance, pain, buzzing ears afterwards, puts me in the mood for dancing and having fun, some music is intended to be played loud and is enjoyable simply for that fact, sometimes it's repetitive or too noisy where you cannot hold a conversation, stressful rather than relaxing, the uplifting and positive energy it encourages, wall of sound, you can feel the music rather than just hear it, you end up with an earache after just half an hour!!."

Section J: Loud-speakers and spruikers

Do you think that spruikers and buskers add to the experience and vibrancy of the CBD?
Yes (please describe how)

Respondents' answers for 'other' in users' own formatting appears next. Answers were truncated by text limit of software, and included:

"Activity, add excitement, add interest to the shoppers outside, always trying to catch attention, because they are live advertisements, can buy on the spot if cheap, gives people someone to laugh at, gives colour and experience different…, gives it a city feel, I don't go downtown to feel alone, IT'S PART OF LIFE IN CBD, it gives life to Melbourne, it promotes business, makes the place feel alive, more live, need to sell product, never seen anything like them before, personal, sense of life, sometimes funny, They add character and humour …., they add to the atmosphere, they can be entertaining …, they let us learn how to speak like…, they talk a lot of crap people don't…, we live in a free market."

Section K: Exit questions

You may make general comments here:

Respondents' general comments appear next with some truncated by text limit of software. General comments included:

"An interesting and fun approach to a survey, as a person of society this interactive sound survey has given me greater self knowledge as related to the understanding…", creative use of sound effect on 3D architecture modelling for the environmental survey, excellent work SIAL, found it made me think!, Found the noise the same all through. Someone walking along maybe the system was defective????, grease and oil the tram tracks for when they swap over, great idea. like to see more surveys on other topics, great survey, only improvement that when you walk into chimes area, make clear an alternate respite place is coming…, how about house and car alarms - very stressful noise pollution, I hope this will go to some use improving our CBD, I think there should have been a section focussing on trams. I find this noise intensely frustrating and have often…, I would like to get involved with working with SME to combat annoying noise, if a shop is playing loud music I refuse to go in. They play music way too loud, interesting way to coax information, make it faster and smoother, no idea how to use it, please make it possible to move more quickly throughout the virtual CBD, it was painfully slow, thanks, thanks for the opportunity, I hope many residents give you feedback but somehow I doubt it, this is an excellent survey. I am a different person, due to the realisation of what was obviously just normal, why make this so slow? Could be done in 1/10th of the time if it didn't have the silly walk thru the city…, would be keen to see if any actions result from this survey."