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Improving models for urban soundscape systems

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Abstract

Large-scale urban soundscape systems offer novel environments for electroacoustic compos-ers, sound artists and sound designers to extend their practice beyond concert halls, art gal-leries and screen-based digital media. One such system with 156 loudspeakers was installed in 1991 on the Southgate Arts and Leisure Precinct in central Melbourne. Over the next 15 years another three large multichannel soundscape systems were installed on other sites close to the first. A fifth system was established for a single work of art in 2006. Despite this private and public investment in sound art estimated at over one million Australian dollars, several systems are no longer in operation while some remaining systems require technical and cura-torial development to ensure their continued cultural presence. To investigate why some sys-tems had failed, interviews were conducted with key players in the development and operation of the five systems. A report from the interviews was produced and is the basis of this paper framing critical issues for improving models of urban soundscape practice. Following a brief overview of related studies in urban sound practices, and descriptions of the system and origi-nal study, key themes that emerged from the interviews are examined.

Situating urban soundscape practice

Recent papers on sound art provide historical overviews tracing the development of sound works for public space (Tittel, 2009; Licht, 2009; Olmeda, 2012) along with terms useful to discussions on the practice of creating sound works for urban spaces. The term sound art is applied to sounds created with artistic intentions as opposed to sounds used for marketing or informational purposes, and usually introduced into public space using loudspeakers. Some writers and creators also use the terms sound sculpture or sound performance. Discussion of the terms soundscape compo-sition and sound design appears below.

Many of the papers focus on a specific location or region close to the author. This is due in part to the site specificity of sound works (Tittel, 2009, p. 58), and also due to the complexities in representing a multichannel sound work in a busy urban set-ting as compared to the communicational effect of an image depicting a work of art or a building. Along similar lines this paper contributes to the international picture from the local perspective of five systems installed in central Melbourne. As Licht observes:

> Sound art holds the distinction of being an art movement that is not tied to a specific time period, geographic location or group of artists, and was not named until dec-ades after its earliest works were produced (Licht, 2009, p. 3).

Licht traces the roots of sound art from the 1920s through the next 90 years, touching on early developments in radio, through to contemporary visual artists working with sound, contemporary classical music, performance art, installation practices, architecture and acoustic ecology.

As a practice located outside of defined settings such as a gallery or concert hall, new spatial descriptors are useful. Odland and Auinger describe the notion of a 'sonic commons' as 'any space where many people share an acoustic environment and can hear the results of each other's activities, both intentional and unintentional' (Odland & Auinger, 2009, p. 64). Tittel introduces the notion that public sound art is an example of 'sonification and artistic treatments in our surroundings' (Tittel, 2009, p. 57) that colour situations and contexts in ways substantially different from those created through visual art or music. Klein also raises ideas of spatial transformation through the concept of 'embedded spaces' as:

> Acoustic art in public spaces basically involves installing a space in another existing space, both physically and sensorially, and metaphysically and mentally (as a space for reflection and emotion) – an interior space in an exterior space, so to speak. The original quality of sound art, which cannot be achieved by either music or the visual arts, lies in the oscillation of interior and exterior space (Klein, 2009, p. 101).

In a similar line of thought, it is worth recalling Truax's definition of the term 'soundscape' to include both 'an environment of sound (or sonic environment) with emphasis on the way it is perceived and understood by the individual, or by a society', and 'abstract constructions such as musical compositions and tape montages, particularly when considered as an artificial environment' (Truax, 1999). Urban soundscape systems are both environments of sound and abstract constructions. The loudspeaker arrays contribute to the environment of sound in the urban setting by delivering composed-designed creative works.

Olmeda cites a number of useful terms and key stages in the development of public sound art. The concept 'citizen of the work' describes the listener who 'is not necessarily aware of the artistic purpose of the sounds produced in each particular space' (Olmedo, 2012, p. 48). Unlike concert music, there is no agreed contract between the work and an intentional participant: a person who has checked the time, date, location of the performance, turned off his or her mobile phone and agreed to give at least an appearance of attention to the work. Thus, 'we have an audience that takes part in the work [...] [who] might lose his frontal position to gain a central one, around which the artistic project was developed' (Olmeda, 2012, p. 50). In part, this situation grew from events such as John Cage or Max Neuhaus happenings, involving 'people outside the realm of art who just happened to be in the location where the event took place: in the streets or public spaces of the cities' (Olmeda, 2012, p. 50). Projecting sound art into the scale of a city, and touching on the work of

the Situationists, Olmeda makes the insightful observation that sound installations are '"moments" and not monuments [which] is one of the most powerful aspects of this creation in the city. Through these "moments" public art may transform the collective imagination of the citizens' (Olmeda, 2012, p. 52).

Drawing on Umberto Eco's notion of the open work, Harries presents the notion of 'ecologies of engagement rather than fixed compositions' (Harries, 2013, p. 3) to identify other settings for auditory experience than performance in interior spaces. Rather than creating a work, the artist is in fact designing an 'ecology of engagement', with consideration to be given to the user, the role of the user, the creator's control/guidance, time, space and social context. 'The "work" here is emergent, occurring as a result of a given "ecology" that includes the totality of the environment in which the audience and the work meet' (Harries, 2013, p. 4). In a similar vein, projects from the Urban Sound Institute (USIT) in Sweden maintain a focus on creating public sound works dealing with the relationship between architectural, social and auditory representation. Extending Pierre Schafer's concept of the acousmatic they introduce the term 'acousmatic modelling' describing how one approaches:

> [...] the relation and interaction between two acousmatic sound environments, as a tool when dealing with this problem. The concept of acousmatic modelling opens a vast field of opportunities related to issues regarding site-specific, simulated and manipulative forms of expression (Hellström, Sjösten, Hultqvist, Dyrssen & Mossenmar, 2011, p. 10).

Even a brief survey of recent literature reveals a rich lexicon emerging from urban sound practice. Terms and themes useful to the conversation, such as sonic commons, embedded spaces, citizen of the work, moments not monuments, ecologies of engagement and acousmatic modelling, point to a differentiation between urban sound works and those created for galleries, concerts, games or radiophonics.

The local context

Several of the urban sites in Melbourne and individual creative works to 2006 were included in the Australian Sound Design Project (ASDP), led by Dr Ros Bandt (Bandt 2001). This unique resource for sound design practice across Australia comprises a website, database, sound, images and publications related to the work of over 200 artists. The ASDP includes entries for the Southgate Soundscape System (Bandt, 2006a), installed by Les Gilbert's company Sound Design Studios, and *Proximities* (Bandt, 2006b) by David Chesworth and Sonia Leber. The Southgate precinct itself was the subject of a paper by Stevens and Dovey; however, the actual soundscape system rates only a brief mention in a single sentence:

> The river's edge is lined with scheduled entertainment venues and saturated with
> choreographed street theatre, public artworks and illusory soundscapes, intended to
> attract a well-heeled clientele and to frame leisure within a context of consumption
> (Stevens & Dovey, 2004, p. 352).

In describing his installation for the Australian Centre for the Moving Image in *Soundscape,* Nigel Frayne (2004, p. 18) refers to 'architectural sound' and his interest in creating a voice for the institution. More recently, Jonathan Marshall (2009) produced a critical analysis of Chesworth and Leber's installation practice, including *Proximities,* and discussion of urban sonic experience. This author's work *Canopies,* which appeared on the Southgate system in 2000, is discussed in Harvey (2008, p. 71-79).

The five soundscape systems – 1991-2007

For the purposes of this discussion, the soundscape systems are divided into two categories: *artwork specific* and *curatorial.* The first term refers to systems used for a single work of art and carries the name of the sonic work. For example, *Proximities* is used for the system at Birrarung Marr. The system at the Australian Centre for the Moving Image (ACMI) was used only for *Soundscapes for Australian Centre for the Moving Image.* The second term – curatorial – refers to systems that can support more than one work. Systems in both categories use the same technology; however, the curatorial systems will have a computer or other enabling technologies to play more than one creative work. A curated programme of new or existing works could be installed on such a system. Curatorial systems were installed at Southgate, Signal and Federation Square North Atrium. The focus of this paper is on the curatorial systems.

The Southbank Soundscape System (Figure 1a) was installed as part of the construction during 1991. The 156 speakers were visually integrated into the building fabric and concealed as design features across three different heights. The lowest level had 64 speakers in a line on the balustrades close to the river. The 44 middle level speakers where attached in groups of four speakers on each of 11 light poles (Figure 1b). The upper level contained 48 speakers in a line along a first floor balcony. During the first 10 years of operation the system was used for events, commissions and everyday use with works by David Chesworth, Nigel Frayne, Les Gilbert and the author. The system was effectively decommissioned in the mid-2000s when the computer used to control the system was removed; however, many of the loudspeakers remain in place.

The ACMI system (Figure 2) was also installed during the construction phase of Federation Square and opened in 2002. This system was placed through the foyers and public toilets in five zones and was active until 2008-09 when it was decommis-

Figure 1a: Southgate Soundscape system. The circular objects on the balustrades are loudspeakers.

Figure 1b: Southgate Soundscape system light poles and balcony. The circular objects at the top of the pole are loudspeakers. An upper balcony speaker can be seen in the background attached to the building.

Figure 2: ACMI Federation Square, location of the system now decommissioned. The speakers were hidden in the ceiling.

Figure 3: Proximities, William Barak Bridge. The speakers are concealed in the walls of the bridge.

Figure 4: Signal System. The line of speakers can be seen in the upper foreground stretching down the site in a line.

Figure 5:
North Atrium Federation
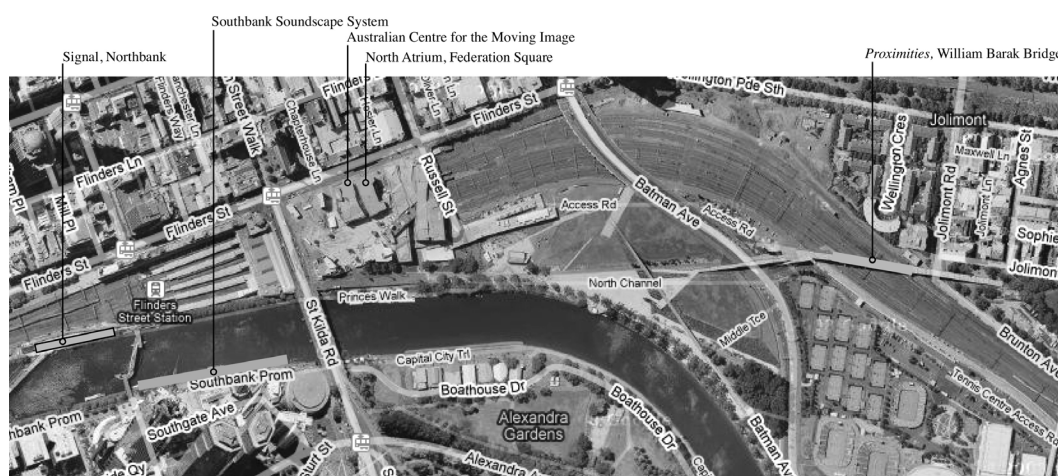*Square. The speakers are*
fixed to glass walls.

Figure 6: Map of central Melbourne showing locations of the five systems.

sioned during renovations to the building. *Proximities* by David Chesworth and Sonia Leber (Figure 3) was commissioned by the Victorian Government for the 2006 Melbourne Commonwealth Games. This single work of art uses a 24-channel system on the William Barak Bridge, which connects Birrarung Marr to the Melbourne Cricket Ground (MCG). The piece plays daily between 8:00 am and 11:00 pm.

Two systems installed in 2007 are both still in use. Opposite Southgate on the Yarra River is Signal[1] (Figure 4), a creative studio for young people aged 13 to 20. This system is used for occasional live music, sound works managed through the City of Melbourne's ArtPlay centre, and for soundscapes accompanying media exhibitions on a large screen near the system. The second system was installed in the North Atrium of Federation Square (Figure 5) for the fifth anniversary of the site in 2007, and comprised a 20-channel system including four subwoofers installed on the glass walls of the atrium. Designed as a sound stage it was originally intended for night-time use when cafes and the nearby National Gallery of Victoria were closed. It is occasionally used for performances and installations, and sometimes for music played from CD. That is not works created or adapted to the multichannel system.

Other permanent urban electroacoustic works of art exist close to those in the study. A speaker system has been installed under a covered walkway between Hamer Hall and the Arts Centre Melbourne and is used to transmit live audio from productions running in the adjacent performance venues. Another soundscape work, *Transient Frequencies*, was commissioned from Carl Priestly and although installed in a car park of Federation Square has only operated occasionally since opening in 2002 (Bandt, 2003). A work titled *Birrarung William* was also installed on the façade of ArtPlay, a children's art centre close to Federation Square. Lee Darroch, Treahna Hamm and Vicki Couzens produced this work with sound design by Paul Doornbusch.

Interviews, report and emergent themes

In 2008-09, the Design Research Institute at RMIT University funded a project to conduct case studies of the five soundscape systems. The project commenced by identifying the key players involved in the inception, planning, installation, management, administration, maintenance, funding or production of content for the soundscape systems. The recruitment process for interviews was cumulative, in which scoping discussions with prospective interviewees led to the inclusion of others. Individual and group interviews lasting approximately one hour were conducted with 13 participants, who all agreed to audio recordings being made for the purposes of report writing. The key questions for the participants included the following.

1. What aspirations and purposes underpinned the initial installation of each of the sound systems in question?

2. What issues and challenges have faced artists, planners and asset managers in the delivery of sound works on these systems?
3. What recommendations do these stakeholders suggest towards more effective delivery of urban sound art through these (and other) systems?

The interviews were analysed and key themes identified and used as the basis for the final report titled *Melbourne's Urban Electroacoustic Soundscape Systems: A discussion and strategy paper* written in 2009 and updated in 2011 (Harvey, 2011). In the original report and this paper, generic identifier titles are used, such as sound artist, sound designer, asset manager,[2] arts manager, urban planner and marketing manager. This approach had two motivations: to move the conversation beyond further criticism between parties and to focus on the actual positions and attitudes of the individual players as the subject of the discussion. A literature and project search was undertaken to identify themes and issues in sound-based public art infrastructure in Melbourne and other cities. The themes were also used at the end of the original report to produce six recommendations for further action (see Findings and current work). Due to the complexities surrounding large electroacoustic installations in public space there is some overlap between the themes in the following discussion.

Sound art or sound design

Two interviewees raised the distinction between sound artist and sound designer. Early use of the title 'sound designer' in film has been attributed to Walter Murch to distinguish his work for Francis Ford Coppola's *The Conversation* (1974) from that of sound editing (Licht, 2009, p. 8). One pointed out that working as a designer is to accept limits.

> My license to perform sound in those spaces as a designer is much more restrictive than as an artist. Because to me an artist has no restrictions...but by the same token if you're going to put that piece and stage it in a certain area then you have to tweak and be cognoscente of that space.
> Sound Artist-Designer

Another participant drew parallels between the two terms through the difference between working on a permanently installed speaker system (sound design) and the temporary placement of speakers for gallery-based installations (sound art). The former requires negotiations ranging from a boardroom to the construction site and accepting a high degree of professional liability; while a sound design often has a programme[3] reflected in a functional brief. Art does not have to be functional in the same way that a design might seek to provide affordances for human experience in an urban setting. The artist operates within a less proscriptive contract with the gallery and the audience.

Sound environment and the audience

The auditory experience of a city is a convergence of many sonic sources where only a small number (if any) are designed and hardly ever to an overarching organising principle. This complex wash or background is the quotidian canvass on which a designed component or soundscape is to be overlaid. Unlike the visual, there are few experiential metaphors in common use, which can be shared by a sound designer to explain his or her work, or the experience he or she is attempting to provoke via a soundscape.[4] So in practice it is often the actual installed work that is the first opportunity for an asset manager to grasp the sonic qualities that will be brought to the site by a soundscape system. It is also likely that the fully functioning system will be the first opportunity for any adjacent commercial tenants to experience new sounds brought into their daily working environment.[5]

> [The asset managers] seem to have a real issue with the sound environment – very nervous, superstitious almost.
> Sound Artist-Designer
>
> I hear the word 'soundscape' and – look, to be honest – I can't help cringing.
> Asset Manager

The suspicion of some participants is possibly born out of poor knowledge and unmet expectations in previous installations. However, given the brief time most systems were or have been operational, and the absence of research around their operation, clear assessments of how negative attitudes are formed are still difficult. It is worth noting that most systems were installed in busy cultural precincts where the surrounding sound environment was already densely textured. Soundscape works that do not in some way take existing conditions into consideration potentially compete for listeners' awareness, most likely with negative consequences.

Sound can provoke highly emotive responses: whether sound as music, sound as noise, sound as a mild annoyance, sound as a delightful moment. This is both testimony to the power of sound and the care which one must take when introducing sounds into public space. In a concert hall or gallery there is a type of contract between the creators and audience. The audience has agreed to be there, while the artist is taking a calculated risk in presenting the work, that it may be selectively or unanimously disliked, and the audience will express its approval (or not) once the performance is complete. In an urban soundscape project, the majority of people who come upon the work are not an audience in the sense that they have intentionally sought to experience the soundscape. Their exposure to the work is unintended. For the artist-designer, this is a critical influence on how listeners might receive the work.

Activating space

An aspiration expressed by several participants was for the soundscape systems to activate space. The wish is that by introducing sound into the space a 'bustle' will occur. Perhaps the aspiration is generated from film and games soundtrack effects, where an otherwise static or lifeless image is made dynamic through a sound design.

> It was sweet to hear little birds tweeting, but I don't know that it was so valuable really, I mean, was it critical to have? But now that it's been decommissioned I can't help thinking that the spirit of that place has been lessened, and that [there] will be a greater sense of banality.
> Asset Manager

Without a substantial body of creative and documented work on the systems it is difficult to evaluate whether an introduced soundscape could meet this aspiration. This means discussions often settled on what has not worked in the small number of works brought into the public domain. However, participant comments also implied a confidence in what public art could bring to city experiences. Perhaps they were made in the spirit as to what soundscape design must aspire to if it was to be supported as a high-profile urban practice.

> If public art commissioning is healthy, then it reflects on the competitiveness of the city as well as its quality of life – it contributes to public engagement, vitality, and buzz.
> Urban Planner

If the aim is public engagement, then a vibrant curated programme on a well-maintained multichannel soundscape system would be the setting to explore a broad range of aspirations for sound in public space.

Commissioning

The term commissioning refers to the process of selecting and granting payment for a new work and also bringing it into operation. While both processes can occur simultaneously, they are often separate. Decisions made when commissioning a creative work reverberate through the life of the site or may even signal its early demise. A selected work might raise complex technical issues or require detailed prediction of future issues. This might require key professionals other than the artist.

> Often artists are limited in what they can give to a commission, and often they are asked the wrong questions.
> Arts Manager

Arts Managers also felt constrained by the inherent processes, possibly from visual arts commissioning or urban design.

> Everyone struggles with the basics of the commissioning process, there is no over-arching standard guidelines. Policies are double-edged swords – they can be constructive but also limiting. You would want to confirm principles, articulate vision, and outline basics about a process.
> Arts Manager

Advocacy for a work extends well beyond arguing that its artistic merits warrant funding its creation. Once selected a work may still require professional expertise.

> There needs to be the right people with the right information to be able to respond well to a commissioning project – there is clearly a correlation between effective advocacy and an effective commissioning processes.
> Arts Manager

At present only a small number of companies exist with the expertise to install the integrated reconfigurable technical platforms for large-scale soundscape systems. Budgets for post-installation activities such as balancing loudspeakers, creating new content or integrating system control with other multimedia platforms have been small or non-existent. In the short term, the sonic qualities of the systems are compromised, while the long-term effect is the absence of sound works in public spaces and the publics' awareness. This situation is akin to building an art gallery with no budget for exhibitions, or installing the lighting system so poorly it fails to illuminate the work. If a soundscape system is to establish itself in the aural experience of the community it is essential with a planned process, ideally spanning three years to ensure that continual operation follows the commissioning stage.

Commercial tenants and programme

Each site exhibits very different programme or usage patterns. Even an individual site contains conflicting requirements and user intentions. While Southgate is a busy promenade with cafes and almost constant pedestrian and bicycle traffic, the Northbank system has distinct peak use times by morning and early evening commuters using Flinders Street Station. Southgate and the Atrium at Federation Square have commercial tenants inside the listening fields of their systems, while *Proximities* at Birrarung Marr and Northbank has no commercial or other organisational neighbours who could raise complaints about constant sound emanating from the electroacoustic technologies on site.

An issue in dealing with commercial tenants is their insistence to control the acoustic environment around their premises. Questions arose during the interview

phase as to the demands a commercial tenant can make regarding the soundscape adjacent to, and not just within the boundaries of their premises. For example, is there any contractual basis to these demands, or are such demands agreed to because of real or perceived coercive responses from tenants? Artists discussed the power exerted on a site by commercial tenants. One way of alleviating potential issues is to take a direct communication approach with tenants. Repeated visits and consultations with tenants can be a way to ensure that an event on a soundscape system does not cause issues with that tenant. Prior to a performance, one artist visited businesses adjacent to a soundscape system on three occasions to inform the tenant on all aspects of the event, even though it was happening after usual business hours.

> I went to every tenant in the Atrium three times in the three months lead up saying 'Hello, this is what's going to happen. These are where they're going to go'. It requires that amount of attention.
> Sound Artist-Designer

These issues suggest that clearer methods of consultation and management of soundscape systems are required that go beyond the technical installation and operation. Occupancy issues will occur either when a new soundscape system is developed around existing commercial tenants, or new tenants move close to an existing system. In either scenario an agreed process of consultation is recommended for daily, weekly and special events, programming times, sound levels and dispute resolution. Such agreements would ideally stipulate the degree to which a commercial tenant can exercise passive or even active curatorial control over a site and broadly define processes for dispute resolution. In short, proactive consultation from project leaders could lead to a better relationship between tenants and a soundscape system.

The creative voice and risk

All sound artist-designer participants had worked on several sound projects in the public domain, ranging from small-scale temporary installations to large-scale permanent urban soundscape systems. The artists' perspectives of urban soundscape practice were also formed as experts on government arts selection committees, work as consultants, employment in academic positions and on projects as curators and event producers.

During the build phase for a new system an artist-designer will be in contact with a range of technical, trade, engineering and construction workers, which may be a new experience for all parties. These individual groups require very different types of information as the technical issues of a project are of a different quality to

the conceptual and content issues. Several artists found dealing with the construction and technical groups very straightforward, mainly because these groups have no accountability for complaints about the final work. That responsibility falls on others in the process. Ideally, a proficient project manager would be engaged to field the myriad types of communication in dealing with all construction and commissioning parties, as it is highly likely the final stages of sound production and construction will occur in parallel. The scale of the project determines the number of parties which the artist or his or her representative must negotiate. In one project, this required meetings directly with the state government, a corporate board of directors, arts managers and local government. There is a risk for the artist.

> The worst-case scenario for an artist is to have their work become just an asset and viewed through those goggles.
> Arts Manager

Several participants reported that when the project had a strong advocate on the client side, the process ran very smoothly. However, this situation is unstable, as employment in the arts, design, construction and cultural industries tends to be fluid.

> Whoever commissions you won't be around [throughout the life of the work], so just keep that in mind when they're sitting there saying 'yep, no problem we'll get to that later'.
> Sound Artist-Designer

Artists had experienced situations where agreements made with staff in one meeting or between parties were later held as not binding because the original staff member had left the organisation. Even if documented in hand-over notes or meeting minutes, accuracy still remained an issue.

> I think there is clearly the need to balance vision with planning: if there is 5-7 year planning then this might negate the problem of staff-turnover.
> Urban Planner

Artists spoke about risk in two key ways: the waiving of moral rights and causing public offence. Moral rights were introduced into Australia in December 2000 and protect both the reputation and the integrity of creators under copyright law. The Arts Law website[6] lists the three types of moral rights.

1. Right of attribution: to be attributed as the creator of your work.
2. Right against false attribution: of your work to someone else.
3. Right of integrity: of your work against derogatory treatment.

Artists reported that they had been asked to waive their moral rights in contracts. While the group reported that moral rights had not been tested in Australia, at least two of the artists reported that to the best of their knowledge their works had been permanently turned off. This would appear to contravene the moral right of protecting artistic work against derogatory treatment.

> [...] the moral rights thing was inflammatory to have in the contract, and it's quite interesting because I wrote to the attorney general and he wrote back to me in two hours. I just said is it actually legal in Australia to have contracts with moral rights exemptions. And he said unfortunately yes it is legal because the publishing industry does that.
> Sound Artist-Designer

The second type of risk – causing public offence – revealed a tension between the commissioning organisation wanting innovation or something 'different', while also demanding the project avoid risk taking. Resolving such tensions would require longer and more involved processes than appear to currently exist in the development and installation of soundscape systems.

> I've always argued for a continuum between the dreaming phase of a project, into its development and building stages.
> Sound Artist-Designer

Perhaps different processes of creative development and consultation around indicative sounding materials are required, with extensive testing of materials on site or in simulation (see Site analysis and modelling).

Existing regulatory frameworks for controlling sounds in public space are noise laws. To date in Australia, it appears that a public sound work has never been contested on grounds of being offensive and therefore to be investigated by bodies such as the Australian Classification Board, formerly the Office of Film and Literature Classification (OFLC). Visual images either in artwork or advertising have been contested in Australia.[7] Anecdotal reports were that a tenant or member of the public who did not like a sound work complained directly to the controlling entity of a soundscape system such as a cultural organisation, body corporate, government agency or management company.

A perhaps idealised position is that a soundscape system is viewed by the host organisation as critical to its public relationships. If the project is owned by the organisational entity, then new employees sign on to the project when they join the organisation. This process is not without pitfalls. A new employee with managerial control over a soundscape could still find a way to close it down, even though it may just take longer to have it decommissioned. The silent loudspeakers of a system are unlikely to attract public questions, as might a blank screen in the same space.

However, asset managers of a system do need flexibility to adjust priorities. While a system may become unmanageable or expensive to operate, or fails to meet initial aims, or if organisational agendas shift, then an organisation will need to renegotiate a new vision for a soundscape system. Decommissioning a system should be a last resort.

Site analysis and modelling

In visual public arts practice various forms of representation are used to communicate the artist's intentions and the indicative content of a work. These include physical scale models, analogue or digital images, sketches, plans or photomontage. For a sound work, similar representations might be through acoustic modelling and auralisation techniques, or on-site testing using temporary systems to demonstrate indicative content. Some participants reported that testing on site was not worthwhile because a modelling process has limited relationship to the actual work (which is also the case in visual arts practices), or was too complicated and impractical to be helpful. However, other professions saw a need for some form of predictive exercise.

> Ideally you would have a broad evidence-based assessment, including other citywide developments and changing traffic paths, critical mass, audience engagements, et cetera.
> Urban Planner

While modelling would introduce another stage of development requiring budget for personnel and equipment or studio hire, it could potentially reveal solutions to later on-site issues, thus avoiding poor use of a system,[8] or it being fully switched off. The tension arises as sound art may be in direct conflict to the agendas traditionally employed by muzak and background music to energise workers or lull the public into a comfortable state for consuming. A site that combines commercial activities, retail and a soundscape system requires careful planning to overcome cross-purposes.

It would be an exceptional site that presented the artist-designer with an acoustically blank canvass, similar to the conditions of a concert hall. A walled garden or a courtyard might have an extraordinary quietness; however, most sites will be subject to the hum of the city. The study revealed that sound artists and designers mainly relied on imagination and knowledge developed in prior projects to envision how their work would operate on the site.

> You spend as much time in there as the client will allow you – and also because it's an interaction with the space. It's not about an empty building before it's opened. It's

> about what happens when the people are in there and you predict as much as you can
> but then readjust and reassess it.
> Sound Artist-Designer

On this point there seems to be some agreement, at least in principle, if not in practice, between designers and managers.

> There's a need for expert acoustic assessment to be budgeted for in the initial capital
> line to establish the acoustic qualities of the hard infrastructure.
> Arts Manager

Maintenance

Participants expressed strong views about the maintenance of public art infrastructure. In general sound technology is viewed as problematic compared to traditional forms of public art such as sculpture. Specific problems included longevity of the infrastructure, cost of replacing components, required frequency of maintenance work and access to budgets for that work.

> The artists have to tell us how best to serve their work to keep it fully functioning –
> because it is an offering to the public. If it breaks down all the time then it's not an
> offering, and it gives art a bad name and the artist a bad reputation.
> Arts Manager

In the same way that digital technology pervades almost every aspect of contemporary society, artists and designers will rely more on technological platforms to create and deliver public art. Soundscape systems include computers and critical components such as hard disks, loudspeakers, digital-to-analogue converters, outboard hardware devices, software, cabling, power supplies and possibly microphones for on-site collection of sound. While the components might be state-of-the-art at the time of installation, format obsolescence could mean that replacement parts are difficult to source within three-four years after installation. However, some components, particularly loudspeakers and wiring, are less likely to be obsolete, unless propriety items have been installed.

> It should be standard commissioning process to consult with the collections manager at the beginning to avoid maintenance issues – sound works particularly need expertise early on. This is a bottom line process that often doesn't take place – particularly if the commissioning body is not the maintenance body.
> Arts Manager

Evaluation and reviews

With no formal review process, it is difficult if not impossible for a body of knowledge around soundscape practices to be developed and shared between organisations, companies and individual practitioners. The field is likely to remain in the hands of a small number of players and be characterised by anecdotal information rather than critical reflection.

> If visual arts commissions often have [detailed evaluation reports] and sound arts don't tend to, maybe it's because there isn't the same confidence in the vocabulary to discuss sound works?
> Sound Artist-Designer

By broadening the available catchments of information through regular reviews, new players (including designers, curators and asset managers) entering the field can build on a body of knowledge, limiting the risk of revisiting failed processes. A review process would also embed in the practice a mechanism for ensuring that public sound work remains a dynamic component of a city's auditory cultural and daily experience. Well-documented reviews could also alleviate the negative effects of staff turnover in asset management organisations. By providing a testimony to the resources spent and the cultural contributions of a soundscape system, new staff or management might be deterred from hampering access to or even decommissioning a system. While staff turnover usually means a loss of corporate knowledge, documentation at the time of installation could be the critical link for the future of a work.

> The artists' vision should be clear in the initial manual, including content and content development, life span, and a plan for a review process of the work in its context – and sometimes the context can change, including how a work speaks to its site.
> Arts Manager

Like processes of pre-project modelling, post-project evaluation could enrich the production of future works. For example, this might extend into the temporal and spatial analysis of the site that forms the context for the brief, including how audience types change throughout a discrete day or between seasons. In general, most artists were highly cautious on the topic of evaluation, assuming it was a 'box ticking' exercise or moving towards the outcome-driven responses required from muzak. Given the rise in practice-based academic research in Australia, a process could be developed for evaluating the impact of a soundscape combining quantitative and qualitative measures. This might extend to independent evaluation of works other than acquittal reports and encompass in-depth critical analysis.

Conclusions

The original report contained six key recommendations (Harvey, 2011). These included the establishment of an experimental or research soundscape system, conducting a technical audit and feasibility study on selected systems to determine their capacity to support new work, establishment of a professional advisory group, improving partnerships with artistic communities, supporting the creation of new works and audience research. In general, the systems that fell into abeyance were viewed primarily as technical assets, not cultural settings where the community could experience spatial sound works.

The three primary questions in Interviews, report and emergent themes sought to investigate aspirations, issues and develop recommendations for curatorial soundscape systems. While some of the results are applicable to sites with a single electroacoustic work, we were interested in sites that might function as an urban sound art exhibition site, not a singular work of art. Interactive works were not included in this study as there was none present on the study sites. Although many artists work with interactive sound, this practice is predominately in galleries or other interior spaces and rarely in exterior urban locations.

Key players held similar motivations and aspirations for the systems: to provide new cultural experiences for local audiences in an urban setting. They hoped that the spaces bounded by the soundscape systems would be infused with a bustling, dynamic and lively feeling absent on some of the sites. While there is nothing intrinsically questionable about this motivation, it may lead to unmet expectations and divergent views on intended qualities of the resultant soundscape. The aspirations of all key players need to be clearly articulated. This might be through group workshops or other consultative processes where ideas are declared without limiting thought by practical or technical issues. The project then embraces those aspects achievable within the constraints of budget, timing, physical acoustic conditions, tenants or other environmental and use conditions.

Sound permeates our personal space and can be significantly intrusive on attention, conversation, awareness and contemplation in ways the visual is not. Finding methods to model or represent how the works might be experienced on site is advisable. While composers, sound artists and sound designers can imagine a work before it is created, other project team members, cultural managers or tenants are unlikely to have the same ability. Experiencing versions of the intended works might also alleviate the tendency to focus on infrastructure and foster curatorial discussion.

The installation of five systems in the city centre over a 15-year period by five different cultural organisations proves that significant technical and infrastructure issues to this practice can be resolved. The critical issues arise in post-instal-

lation creative management. This term encompasses curating, commissioning or acquiring new works, access to the system creative development and experimentation, dispute resolution and critical evaluation. The type of site, whether transitional or a place where listeners remain for a period of time, demands different curatorial approaches. Although sound is ephemeral, changing, fluctuating, it can quickly become boring or redundant to listeners. Further curatorial research could focus on programme design investigating the limits of novelty and redundancy. For a brief time in the late 1990s the Southgate system was programmed in part by a public art advisory group; however, it was not specific to the system but the whole precinct. A better solution would see a sound-based curatorial group, partnership or individual position appointed to a system. An identifiable and empowered group curating a site can alleviate the issues around staff turnover in the host organisation or defend attempts to close a system. Over time a curatorial group or position can build valuable knowledge useful to other local and international sites.

Current work

Since mid-2013 three projects at RMIT have addressed issues and recommendations drawn from and extending those in the report. The University's Campus Art Committee agreed to establish and fund the *RMIT Sound Art Collection*. 19 works were acquired or commissioned in the first round with further acquisitions planned for 2014. The second component was *Sound Bites City* (3 September-19 October 2013),[9] the inaugural exhibition of works from the collection. The third project, now in final stages of preparation, is a new soundscape system on the university's Bundoora campus. This outer suburban site is built around reclaimed wetlands and will have a 16-channel system installed on a pedestrian bridge.

The *Sound Bites City* exhibition used a design proposition for how listening conditions could be curated for an audience in an urban location. The author provided a brief to Architect Nicholas Williams for a space affording listeners both promenade and resting spaces that could support speakers above, around and below listening positions. Williams' response was *The Torus*, a structure then built by students of the university's School of Architecture and Design supervised by John Cherry and Nicholas Williams.

Although this first exhibition took place in a gallery, we used the opportunity to investigate how an exterior site on campus might be used for a future system. Although the campus is not a public space like Federation Square, Southgate, William Barak Bridge or Northgate, it is located in the heart of Melbourne and with pedestrian access between major city precincts. With spaces open to the public, museums, lawns and cafes the campus contains enough urban conditions for an experimental site where future versions of *The Torus* could be installed. A single

Figure 7: The Torus. For this version speakers were placed on stands around the outside, but could be fixed to vertical slates of the structure.

Figure 8: View from inside The Torus promenade towards projection with currently playing work information.

Figure 9: Central area for sitting or lying down. Speakers are housed underneath the boxes.

exhibition cannot address all issues or experiment with every available proposition, so we focussed on establishing a collection initially with multichannel, precomposed as opposed to interactive works. In thinking about the physical relationship listeners could have to the multichannel system we sought to subtly shift people's expectations by providing places to walk, sit and even lie down. There were four different programmes curated from the collection, which played on different days and did not repeat on the same day of the week. Although the programmes were not available to the public (a decision that caused some frustration to gallery visitors) the title, duration and composer name of the currently playing work were projected onto a wall.

The public systems in the study are in high traffic, high-profile sites managed by organisations hesitant to take risks. However, universities are uniquely enabled for such projects, housing sound studios and equipment for the production of new works; employing academic experts in curating sound projects, creating new works and managing large-scale speaker installations; or providing critical reflection from within sound disciplines or via colleagues from disciplines related to public art and urban design. Sound equipment can be argued for on the principle of equity.

Most universities have well-resourced exhibition spaces for visual arts that provide vibrant links between the university community of students and academic practitioners and the general public. By combing a creative vision, quality equipment and supportive management model new relationships could emerge between university sound art and design practitioners and the urban auditory experience of the wider community.

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Notes

1　See http://www.melbourne.vic.gov.au/Signal/Pages/Signalspaces.aspx. Accessed 11 June 2013.

2　The term asset manager was encountered during early interviews with government cultural managers. It refers to the individuals or organisations that are responsible for management of the physical systems. Management of the physical asset and curatorial responsibility were not seen as the same. That is, people viewed the sounding component as an afterthought to their responsibility to the hardware.

3　The term programme is used here in its architectural meaning to define human activities intended or actually taking place in the built environment.

4　Although CRESSON and the World Soundscape Project have developed extensive and detailed sonic lexicons, their use within and across sound-related disciplines is still growing.

5　For a project report on in situ testing, see Hellström, 2009.

6　From the Arts Law Centre of Australia website accessed 11 June 2013 on: http://www.artslaw.com.au/info-sheets/info-sheet/moral-rights/

7　For a controversial issue, see the investigation of images by Photographer Bill Henson at http://news.smh.com.au/world/police-clear-australian-artist-of-pornography-20080606-2muj.html. Accessed 24 May 2011. Billboard advertising in Australia is industry regulated via the Australian Association of National Advertisers AANA Code of Ethics.

8　For example on one site a 16-channel soundscape system is now used to play commercial CDs at a barely audible level.

9　The exhibition website can be viewed at http://www.rmit.edu.au/rmitgallery/soundbitescity. Accessed 14 March 2014.