DESCRIBING THE CONTEMPORARY SOUND ENVIRONMENT: AN ANALYSIS OF THREE APPROACHES, THEIR SYNTHESIS, AND A CASE STUDY OF COMMERCIAL DRIVE, VANCOUVER, BC.

by

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ABSTRACT

The thesis presents and analyses three approaches to the subjective approach of the everyday sound environment: The World Soundscape Project descriptive model, Barry Truax's information based Acoustic Communication model, and the perceptual and phenomenological work of French researchers Jean-François Augoyard and Pascal Amphoux. These models are then combined in a methodological and analytical framework to study listeners' relationships to contemporary urban environments.

The methodology is applied to a case study—the soundscape of Commercial Drive in Vancouver BC, Canada—in order to explore the various models and provide a practical analysis of the soundscape of Commercial Drive. The methodology used consists of a series of interviews that proceed from the general to the specific, and finally move back to a macro analysis of the soundscape. First, short surveys and "sonic mind maps" were conducted with people chosen randomly on the street. Then, recorded interviews with long-term inhabitants provided more specific information about potential locations to study and various themes of inquiry. Three contrasting locations were selected and recorded, and these recording were used in "reactivated listening sessions" with participants who possess a particular aural knowledge. These subjective accounts and other quantitative information gathered throughout the are analysed based on a communicational approach to the soundscape and with the help of Amphoux's qualitative criteria.

The results of the case study suggest the presence of a strong acoustic community maintained through active outdoor soundmaking practices, the omnipresence of non-mediated, vocal interactions and a blurring of traditional indoor/private and outdoor/public boundaries. The study has also helped in demonstrating how Amphoux's qualitative criteria can be used in the context of an acoustic communicational inquiry of the sound environment.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1 INTRODUCTION

The scene takes places in front of Santa Barbara Market, in Vancouver BC. I am recording the sounds of the market: people passing by, cashiers' beeping noises, traffic rumble in the back, fleeting discussions. Somebody approaches me:

"Is that a microphone?"

"Yes, it is."

"What are you recording? Traffic? Are you doing a movie or something?"

"No, I'm just recording the market. People talking, doing their grocery shopping."

"Hmmm... (Short pause) Why would you do that?"

The interrogation triggered a short discussion about my project, my interest in sound environments, and the reason why I record these sound events that usually remain unnoticed. If I had used a video camera instead of a microphone, it would probably have been easier to explain. I finally managed to convince him of the usefulness of my action. He left with his grocery bags, and I wished I had left the recorder on. This was one among many discussions I had during the three months of my field research, and well before that too. It is always amazing to witness the sudden acoustic awareness of people when they are told to listen, not just hear. To pay attention, for a moment, in an environment where their visual perception usually takes over their consciousness.

The history of soundscape studies is fairly brief. As an emerging multidisciplinary research domain, it resembles in many ways this moment of sudden aural awareness: It

starts with a feeling of surprise and excitement, and then triggers a re-consideration of our perception and the role of sounds in our daily life. Since R. Murray Schafer started the World Soundscape Project in the early 70s, that excitement has been felt by researchers and scholars in many disciplines who since then developed other approaches to the soundscape. Schafer proposed for the sound environment what Jacques Attali (1985) did with music: an appreciation and understanding of its symbolic role and its interactive relationship with the society that creates it. Previous traditional approaches to sound were either devoted exclusively to musical or linguistic structures, or they objectified sound through a series of measurements and qualitative descriptions. With soundscape studies, the sound environment is now being considered from the perspective of the listener, and it is analysed in its entire complexity.

The study of such a broad topic however poses epistemological and methodological problems. The way we define the "ideal" soundscape, for instance, shapes our understanding of its functioning, and may result in a biased, or distorted reading of the sounds around us and their signification. Various disciplines have been used as grounding frameworks to elaborate a model of the sound environment. Schafer, for instance, proposed the use of an ecological model to deal with growing problems of noise and the way we should design our environment. When the soundscape is studied under the realm of architecture and urban design, the emphasis shifts to the social expressions of the environment, the way it is fabricated and then experienced by inhabitants.

Soundscape studies is definitely a practical research domain; one cannot learn about a sound environment just by thinking or reading about it. It has to be heard, listened

to, and experienced over a long period of time. Furthermore, when dealing with urban environments, a researcher is faced with a single soundscape, but a large variety of perceptions. These issues must all be dealt with through the development of an extensive methodological framework. The way we *access* or *frame* the soundscape is as important as the way we *define* it.

It is with this argumentation in mind that I decided to analyse the methodological and analytical components of three major approaches, in a way to combine them into a single multidisciplinary study of the sound environment. The common element remains a subjective analysis of an urban space through an ethnographic exploration of its soundscape. Each model proposes a set of tools and concepts to describe the soundscape and assess its functioning. I therefore tried to combine them in a complementary way, rather than simply looking for their respective weaknesses.

The first model that I use is the one produced by the team of the World Soundscape Project (WSP). Their innovative work, notably with the *Vancouver Soundscape* (Schafer, 1978) and the *Five Village Soundscapes* (Schafer, 1977b), has led researchers to produce their own methodology, as they learned about the various aspects of the soundscape. Also, Schafer's concept of the *soundscape* as an interactive composition in which listeners can also be soundmakers remains essential in understanding any sonic situation. The WSP's interest in the dynamic relationship between a community and its soundscape in an increasingly urbanised and mediated society can also be considered as the underlining perspective of the whole project.

Barry Truax, an electroacoustic composer and member of the WSP team in the 1970s, further developed this model and established its basis in communication studies.

With *Acoustic Communication* (2001), Truax proposes a contextual approach in which sound becomes a mediating link between a listener and his or her environment. The soundscape therefore constitutes a complex system of sounds and signals that are actively interpreted, *informed* by active listeners. The consequences of electroacoustic technologies on society and on what Truax calls *acoustic communities* are examined, and the author proposes guiding principles of acoustic and electroacoustic design.

Finally, the third approach used consists in the works of Jean-François Augoyard and Pascal Amphoux, respectively French and Swiss researchers working at the CRESSON (Research Centre on Sonic Space and the Urban Environment) in France. The centre, associated with the School of Architecture in Grenoble, has been conducting research projects of various kinds since 1979; however, language barriers (no major English translations of their work have been produced yet) have seemed to prevent the spread of their knowledge to other schools and research centres until recently. The present work therefore provides a basic translation and discussion of the various aspects of the models developed by Augoyard and Amphoux.

To explore the ways in which each of these models interact practically, a case study has been prepared and conducted in an urban community, the Commercial Drive neighbourhood in Vancouver, BC. Methodological and analytical components selected in each approach have been used to study this specific soundscape, and the results of the case study provide in-depth information about both the environment itself and the ways in which the three models interact. This work therefore inscribes itself in the development of multidisciplinary models to describe the sound environment.

CHAPTER 2 ANALYSIS OF THE MODELS

2.1 Aims and Fields of Application

From the outset, the World Soundscape Project (WSP) proposed a 'global' approach to the problem of noise pollution, in contrast to the growing specialisation of traditional disciplines dealing for instance with acoustics and acoustical engineering. The WSP inscribed itself in the wave of ecological movements that grew through the 1960s and 70s, in response to contemporary environmental problems related to important technological innovations. For Schafer, "it is a fact that the human organism is becoming more and more separated from its natural environment as each new convenience, tool, and technological system enters the human community" (1977b, p. 82). The flow of new devices and tools introduced through the Industrial and Electric Revolutions created an "overpopulation of sounds" (1977c, p. 71), which not only contribute to noise pollution but also encourage a behaviour of avoidance and habituation; citizens do not know how to listen to their environment. The WSP therefore proposed a new discipline, *acoustic ecology*, which would deal with these particular environmental issues and provide a common ground to unite all disciplines dealing with sound and the sound environment.

For the WSP, the growing problem of noise pollution can only be solved by taking a 'positive' approach, opposed to the *negative* process used in noise abatement: "Only a total appreciation of the acoustic environment can give us the resources for improving the orchestration of the world soundscape" (Schafer, 1977c, p. 4). By defining the soundscape as a "great macro-cultural composition, of which man and nature are the

composer/performers" (1977b, p. 82), the WSP establishes its second main conceptual reference: the musicality of the soundscape, and the consequent compositional and listening role (as well as responsibility) of humans. These two paradigms, ecology and musicality, will be reflected in the main epistemological approach of the WSP, as well as the concepts and definitions proposed through their work.

The specific aims of the WSP were defined as early as 1970, when Schafer completes a grant proposal submitted to the UNESCO (Torigoe, 1982). In this document, five objectives are clearly established:

(1) To undertake an intensive *interdisciplinary* study of contrasting acoustic environments and their effects on man.
(2) To suggest ways of changing and *improving* acoustic environments.
(3) To *educate* students and field workers in acoustic ecology.
(4) To *educate* the general public in acoustic ecology.
(5) To prepare reports as guides to future studies. [emphasis mine] (quoted in Torigoe, 1982, p. 15)

The interdisciplinary nature of the proposed model constitutes not only an answer to the traditional isolation of academic and professional disciplines, but also a step towards the integration of science and arts in the everyday environment; for Schafer, the "revolution will consist of a unification of those disciplines concerned with the science of sound and those concerned with the art of sound" (1977c, p. 205). Together, these will create what the WSP coined *acoustic ecology* and *acoustic design*.

The role of education in the re-establishment of a positive soundscape is also brought forward in the proposal to UNESCO. Schafer's strong interest in music education will resonate in the general orientation of the WSP activities and the nature of their publications. Ear cleaning exercises and soundwalks (Schafer, 1977b, 1977c)

become ways to re-connect with the soundscape and initiate acoustic design. For Schafer, "if such an aural culture could be achieved, the problem of noise pollution would disappear" (1977c, p. 181). For the WSP, the issue of soundscape design and assessment must not simply be left to specialised professionals; it must be integrated into everyday practices and knowledge.

With *Acoustic Communication* (2001), Truax wants to establish a general model to discuss sound from an interdisciplinary and communicational perspective. In 1984 (the publication year of the first edition of his book), Truax had been supervising the acoustic research profile at the School of Communication of Simon Fraser University since 1975, when Schafer left the direction of the WSP (Torigoe, 1982). While a lot of the material used in *Acoustic Communication* comes from the work of the WSP, the new approach taken by Truax and the central discussion of electroacoustic sounds and processes (especially in the second edition) provides a new theoretical ground, an established communicational approach to sound and acoustic as well as electroacoustic systems.

The model aims not at understanding acoustic phenomena in particular situations or through specifically defined paradigms (as with acoustical engineering, musicology, noise studies...), but rather "attempts to understand the interlocking behavior of sound, the listener, and the environment as a *system* of relationships, not as isolated entities" [emphasis his] (Truax, 2001, p. xviii). The three main components defined by the model (listener, sound and environment) reflect the communicational framework in which the analysis is set up. Such an approach is required, according to Truax, since previous models cannot be merged due to their objective-subjective dichotomy (1998).

Before outlining the different concepts developed through the model of acoustic communication, Truax highlights some of the problems or limitations of traditional approaches to sound. Similarly to the WSP, he does not condemn objective models; nor does he reject the contrasting subjective account offered by the WSP itself. In fact, to expose the limitations of various models serves as a point of departure in the quest for an interdisciplinary and systemic approach to the sound environment—a communicational model that links these various paradigms together.

Two objective models are first described and discussed in relation with contemporary issues. The energy transfer model, which describes "acoustic behaviour as a series of energy transfers from source to receiver" (Truax, 2001, p. 5), has been widely used not only in acoustics and noise studies, but also in psychoacoustics and even in certain social and cultural models such as the transmission view of communication (Carey, 1998) and the message transmission theory (Leiss, 1991), in which energy is replaced by a message. Such disciplines deal with sound issues by describing the linear process of transfer, and the way in which the signal/sound can be altered:

> The linear model from source to receiver translates into a prioritised list of traditional strategies, starting with reduction at the source, proceeding to attenuation via the transmission path, and ending with isolation of the receiver. In other words, the imperative is to change the sound and its environment, not the listener (Truax, 1998, The Acoustic Environment Model section, ¶6)

With the advent of electronic means of audio transmission, processing and storage, came a second paradigm—signal processing. The "black box" (Truax, 2001, p. 9) model represents electroacoustic systems in terms of " 'fidelity' between the input and output signals" (ibid.), thereby focusing on technological components of a particular

system and their influence on the transmission of an audio signal. These two models not only restrict the analysis of the sound environment to particular processes and behaviours, but also make such an analysis a very specialised practice.

For Truax, the approach of the WSP clearly stands in opposition with the objective models just described: "the soundscape model deliberately places the listener at its centre and hence it may be termed a subjective model" (1998, The Soundscape Model section, ¶1). As we have seen, the WSP advocated a return to a perceptual appreciation of the sound environment, one in which the notion of context and the capacity to act on one's environment become central issues. However, the drastic shift taken by the WSP and its difficulty to cope with the growing presence of technological systems (see section 2.3 below) raises questions concerning its capacity to deal with complex, urban situations in which for instance too much subjectivity may present tremendous methodological, or even legislative problems. This is why, Truax argues, it is necessary "to move beyond [these] polarised approaches" (1998, The Acoustic Community Model section, ¶1), through the use of a communicational model "which understands acoustic communication as a system within which information is *created* and *exchanged*" [emphasis mine] (ibid.).

The approach broadly defined here as originating from CRESSON in France can be divided into two main components, for the sake of our research interests. On the one hand, there is the description and applications of the concept of *sound effect* (*l'effet sonore*), an interdisciplinary tool at the core of CRESSON's work. The second component is represented by the methodological work of Pascal Amphoux, who in 1991 studied the *sonic identity* of three Swiss cities.

Jean-François Augoyard proposed the concept of sound effect to fulfil the need for an intermediary tool for sound analysis (Augoyard & Torgue, 1995). According to Augoyard, the two predominant concepts to deal with the sound environment, the *sound object* of Pierre Schaeffer and the *soundscape* of R. Murray Schafer, are either too specific or too general, and therefore fail to account for the complex mechanisms involved in an analysis of the perceived environment. The sound effect describes a particular sound perception as a result of specific physical conditions (nature of the sound source, acoustics, morphology of the environment, etc.), social and cultural contexts and a subjective perceptive mechanism. Instead of defining specific objects of analysis, it provides an understanding of a group of phenomena, their nature and status (Augoyard & Torgue, 1995, p. 10; my translation).

Sound effects fulfil five main functions, through which they connect various disciplines and fields of research. Firstly, they complement objective acoustic measurement, working "as detailed descriptive tools for forecasting and assessing specific sonic values" (Hellström, 2003, p. 104). Secondly, they offer interdisciplinary tools to deal with complex sound situations. Thirdly, they provide additional supports to representative tools, such as maps and graphs (Augoyard & Torgue, 1995). Fourthly, sound effects are designed as tools of urban and architectural intervention and conception. Finally, they are considered by French researchers as pedagogical supports serving general, non-expert listening situations, by providing terms which describe complex mechanisms embedded in our daily lives (ibid.).

Pascal Amphoux, a researcher associated both with CRESSON and IREC (Research Institute on the Built Environment, Lausanne, Switzerland), has developed an

extensive methodology aimed at describing and analysing the *sonic quality* and *sonic identity* of urban spaces. This approach was designed and tested through a comparative study of three European cities, and which led to the publication of *À l'Écoute de la Ville* (1991) (Listening to the City) and *L'Identité Sonore des Villes Européennes* (1993a, 1993b) (The Sonic Identity of European Cities), a set of methodological guidelines from which specific tools will be extracted to be used in our present synthesis.

This particular methodology emphasises positive aspects of the sound environment and tries to describe general criteria that can be used to qualify its features. It does so in a way to fulfil three specific objectives. First, it tries to "understand and break ideological blocks of urban authorities" (Amphoux, 1991, p. 9; my translation), through the integration of notions of acoustic comfort in urban planning practices. Secondly, Amphoux wants to design simple but efficient tools to describe the sound environment (ibid.), in a way to make possible a shift in the traditional visual conception of architecture and urban planning. Finally, the methodology is proposed as an analytical approach that accounts for local cultural features, which often are ignored by legislation but yet remain central to one's perception and interaction with the sound environment. These three objectives correspond to the three dimensions of the approach: acoustic, topological, and socio-cultural (ibid.).

2.2 Epistemological Approach of the Three Models

As we have seen, the World Soundscape Project deals with the sound environment in terms of its ecological value, and offers a framework that is interdisciplinary, subjective, and education-based. For Schafer (1977c), the new discipline of soundscape studies

should be understood as the sonic equivalent of the Bauhaus revolution: it combines arts and design, music and sound design, composition and engineering.

The guiding principle of the Bauhaus, according to its founder Walter Gropius, was "the idea of creating a new unity through the welding together of many 'arts' and movements: a unity having its basis in Man himself" (quoted in Forgács, 1995, p. 115). For Schafer, the same unity must be achieved between all disciplines related to sound. And again, the human component is at the centre of the model; the basic "modules" that must be used in acoustic design are, according to Schafer, "the human ear and the human voice" (1977c, p. 206-7). In this way, the advent of the Industrial and Electric Revolution, with their 'larger-than-life' noises, drones and the introduction of electroacoustic technologies, can be understood as major causes of imbalance in the contemporary soundscape, notably through their de-stabilisation of the fragile relation between listening and soundmaking (Westerkamp, 1988).

By defining the soundscape as a composition, the WSP also emphasises the key role of musicians and composers in the assessment and the proper design of the acoustic environment (Zapf, 1981 and Westerkamp, 1991). Westerkamp, discussing her experience as a researcher for the WSP, adds: "The composer was perceived not only as the acoustic designer of musical sound in a composition, but also and most importantly as an acoustic designer of daily life" (2002, ¶3). Furthermore, when Schafer looks for causes of contemporary noise problems, one of the facts he points out is the failure of music educators "to give the public a total schooling in soundscape awareness" (1977c, p. 111). Hence the need advocated by the WSP to educate the population, in a way to re-connect with the music of the soundscape.

The acoustic communication model, according to Truax, can be understood "as a twofold critique, firstly, of traditional disciplines that study some aspect of sound, and secondly, of the social science inter-discipline of communication studies itself" (1993, p. 4). In other words, while the interdisciplinary approach of communication studies allows the integration of various specialised acoustic disciplines, it is itself reinforced in its analysis of perceptual phenomena, which, according to Truax, remains a "blind spot" (ibid.) in the social sciences.

First of all, a communicational approach deals with information exchange, rather than with energy transfer (Truax, 1998; 2001). No process can be studied in isolation, since its particular meaning arises from the context in which it takes place and the way it is being understood by listeners. Instead of being placed across a linear process, as a 'carrier' or a 'signal' in Shannon's original model, sound is described as "mediating or creating relationships between listener and environment" (Truax, 2001, p. 12). It becomes an identifiable component of the soundscape, which in turn is analysed in terms of multiple feedback relationships between its three main elements. Also, while the WSP had already emphasised the central role of listening, Truax refines the approach by introducing different 'levels' of listening attention (2001), which will then be linked to particular contexts and sounds.

One particular advantage of this framework is that it allows one to trace back effects or consequences of any change over the whole system (Truax, 1998), a process that would require, with a traditional specialised approach, a continual crossing of disciplinary boundaries. Acoustic communication may be understood in this way as a provider of "boundary-concepts" (Klein, 1996) necessary to deal with these various

disciplines. Since the model emphasises feedback relations and the necessity to study sounds contextually, rather than as a set of separate, linear phenomena or events, it allows researchers to handle issues in their inherent complexity, and to connect components as diverse as psychoacoustics, social theories, practical fieldwork and even the arts.

Truax's model also allows a more elaborate analysis of the impact of technology and its potential in acoustic design. For the WSP, technology is one of the main causes of noise pollution and the disconnection of inhabitants from their soundscape. For Truax, on the other hand, the discussion of technological changes can be reduced neither to a simple condemnation, nor to a blind acceptance; in fact, his goal is to "understand the changes that technology brings about from the perspective [of] traditional acoustic patterns of communication" (2001, p. 122-3). Therefore, the Industrial and Electric Revolutions do not simply result in a noisier world, but one which offers new mediating devices, be they "extensions" or "transformations" (p. 123) of previous acoustic systems. These technologies can be used for political or economic purposes, but also as alternative tools for the re-appropriation of one's sound environment.

The sound effect came out of research by CRESSON at the end of the 1970s, in the field of human science. Research on daily practices showed "the existence of four important psycho-sociological procedures" (Augoyard, 1999, p. 121), which oriented the attention of researchers towards general descriptors that could connect similar structures found in contextual phenomena. The first effects observed slowly found their equivalencies in other perceptual domains, and therefore became used as paradigms to link these various fields.

The sound effect is not exclusively objective, nor can it be reduced to subjective impressions (Augoyard & Torgue, 1995). It rather provides clues about the organisation and perception of an event, based on general consistencies that can be observed across domains, disciplines, or actual events. The sound effect is inscribed in a "logic of the sense" (p. 10; my translation), an in-between which connects and combines sound emission, a space and a listener. Rather than analysing the multi-directional impacts of the change of any element in a system (as with acoustic communication), it groups together particular combinations as being observable effects. The city thus becomes an "instrumentarium" (p. 9) of effects, all contextual but also partly quantifiable. Consequently, the concept of sound effect is not only "*descriptive* in that it aims at describing the acoustic space, but it is also *operative* since it supports the intervention of the effect directly in situ" [emphasis his] (Hellström, 2003, p. 99-100).

The analytical process sustained by the notion of sound effect is therefore based on two assumptions, clearly identified by Augoyard (Augoyard & Torgue, 1995). First, it implies that "the perceptive organisation is essentially the same in an everyday listening situation and in a more specialised one" (p. 13; my translation). The use of general, multidisciplinary concepts therefore allows a free analytical progression from a daily experience, subjective and contextual, to a more in-depth description, analysis or comparison of the perceptual experience. The second assumption is a claim for the necessity to re-discover the "pre-categorical use of listening" (ibid.), that is, its basic functioning principles. The sound effect is in this sense a phenomenological tool of analysis, one which allows the establishment of basic paradigms to deal with complex perceptual situations.

Pascal Amphoux's proposed methodology may be described as an attempt to objectify the subjective through recurrence and the application of observable social and perceptual criteria of analysis and comparison. The notion of sonic identity is used to emphasise the ongoing process of assessment and identification of various sound environments by their inhabitants and users. Sonic identity can be defined as "the ensemble of sonic characteristics common to a location, a district or a city" (Amphoux, 1993a, p. 7; my translation). These sounds confer to an environment a specific identity that is consistent and is recognised (consciously or not) by a community. This approach positions itself as a "third voice" (p. 6) that complements the traditional noise-study as well as musicological and ethnomusicological approaches (ibid.). This third model, a "sound anthropology" (ibid.), focuses on the identification and analysis of particular, representative locations that give a city its sonic identity. While the WSP had already introduced the notion of acoustic community and the basic parameters that can be identified as creating "acoustic definition" (Schafer, 1977b), Amphoux aims at describing specifically how this relation is established and experienced by inhabitants in their daily lives (for a more extensive discussion of Amphoux's model, see Hellström, 2003).

The methodology is divided into three main steps, which provide three fundamental aspects of the sonic environment of a city (Amphoux, 1991, 1993a, 1993b). First, memory is used to select representative locations. Then, perception is addressed, through the realisation of recordings and the *reactivated listening* technique, a practice in which the listener is presented with audio sequences that may trigger various reactions and comments. Finally, an interpretation of the data gathered (based primarily on

recurrence of opinions or perceptions) is conducted, supported by the use of sound effects and an extensive set of *qualitative criteria* (see section 3.1).

The use of a tripartite methodology can be understood as a "reflective conversation with the situation" (Schön, 1983, p.103), in the sense that it constantly evolves and reinforces itself through the incorporation of a variety of data and their evolving interactive analysis. There is an extensive use of interviewee's information, which orients the whole process and provides the core of the analytical framework, from the first to the last step. This however requires researchers to be constantly alert, in search for links between various listeners' comments. They must also know and understand an extensive list of qualitative criteria, as well as the repertoire of sound effects used in Amphoux's approach. The more ethnographic perspective proposed by the WSP (in which a large part of the analysis is actually conducted by expert listeners) appears as a strong complement to this socially and culturally oriented methodology.

2.2.1 Acoustic Ecology and Acoustic Design

The WSP has described its particular, interdisciplinary approach as *acoustic ecology*, "the study of sounds in relationship to life and society" (Schafer, 1977c, p. 205). More specifically, the group seeks at first to establish clear connections between a particular sonic environment and the behaviour of its community (1977b). Then, changes in the soundscape and their implications are discussed, in relation to the role of humans on one hand and the symbolic and regulating role of the soundscape on the other.

The ecological implications of this particular model and its relation to other ecological approaches are nevertheless unclear, and too briefly stated by the WSP. Its

interdisciplinary character and its emphasis on the role of new technologies in the unbalancing of 'natural' systems can indeed be considered as ecological values. However, the lack of a clear theoretical framework defining acoustic ecology, and the quasi-aesthetic judgments made possible by a *musical* appreciation of the environment (as proposed by Schafer and the WSP) result in a rather vague correspondence with actual ecological theories and concepts. The same ambiguous relation can be found in Truax's approach to the acoustic community, in which he briefly refers to acoustic ecology without providing a satisfying description of the implications of such a model (McCartney, 2001). Johan Redström notes that the necessity for ecology to consider all species in its epistemological process "makes it impossible for ecology to be based on a first-person perspective" (¶ 4). Therefore, a human-centered approach (or listener-centered in the case of the WSP), according to Redström, needs to be at least complemented by "something that acknowledges the many different forms of interaction between agents and their environment" (ibid.).

Acoustic design, on the other hand, is described by the WSP as the practical, applied component of soundscape studies. It is considered as necessary in order to deal with the growing complexity and the unbalancing of the modern soundscape, which cannot be solved 'naturally'. In the conclusion of the *Five Village Soundscapes* (1977b), Schafer presents acoustic design as a discipline "which will concern itself with techniques for the analysis and improvement of existing soundscapes and the creation of new ones" (p. 80).

From the theoretical understanding of the relation between the soundscape and its inhabitants, a set of principles are elaborated to guide the acoustic designer in the

modification, enhancement or creation of particular soundscapes (1977c). This approach is indeed summarised in the *hi-fi* vs. *lo-fi* principle, the former referring to an environment in which sounds, both close and farther away, can be clearly heard and distinguished, and the latter, to a 'polluted' soundscape in which "acoustic signals are obscured in an overdense population of sounds" (p. 43). In this context, subjective listeners who become aware of such overpopulation can act by removing unwanted sounds. However, from *The Vancouver Soundscape* to the *Five Village Soundscapes*, there is little said about practical design issues and possible changes to be brought to the studied environments; Torigoe, in her study of the WSP stated that "the Project's effort in the practice of acoustic design remain at the theoretical level" (1982, p. 216). Therefore the whole concept of acoustic design as described by the WSP has yet to be experienced, except for isolated cases of collaboration and interdisciplinary works (Westerkamp, 2002).

In *Acoustic Communication* (2001), Truax carries on the discussion of design by providing more specific guiding principles based on listening patterns and information theory rather than aesthetics. In an attempt to establish a more formal structure of dealing with acoustic *and* electroacoustic design, Truax redefines "functionalism as the behavior of a system that is adapted to its environment, and understands beauty as a value expressed through people's attitude" (2001, p. 110). The Bauhaus-type of functionalism found in the WSP is therefore complemented with a process-oriented approach, which establishes clear links between the environment and its listeners based on information exchange (in this case, through sound). The fundamental changes brought by electroacoustic technologies also necessitate a re-thinking of the nature of acoustic

communication and its design, resulting in the need for two distinct design structures. Truax offers principles that deal separately with these two environments (acoustic and electroacoustic), in a way to acknowledge the profound impacts of electronic technologies on communication patterns, communities and new design possibilities (see section 2.3.7).

2.3 Main Concepts, Models, Terms

The historical and social contexts in which each approach developed and the epistemological process they followed have a direct impact on their definition and conceptualisation of the sound environment. Each particular perspective produces a set of concepts and ideas through which sonic reality is framed. A closer look at these concepts and terms is necessary before moving them 'out-of-context' and into an even broader interdisciplinary framework. "When concepts circulate within a cultural field they stimulate cross-fertilization, but they also bear the traces of local disciplinary economies" (Klein, 1996, p. 50). These concepts must therefore be compared *contextually*, always keeping in mind the perspective under which they appear, and then analysed in term of their respective potential for the construction of a merged model[1].

2.3.1 The Soundscape

The concept at the core of the WSP model is the *soundscape*, a term originally coined by R. Murray Schafer. While it has been used extensively, in its more general meaning, to refer to "any portion of the sonic environment regarded as a field of study"

[1] A glossary of translated terms and their French equivalent has been included in Appendix B. It includes the main concepts introduced by Augoyard (Augoyard & Torgue, 1995) and Amphoux (1991, 1993a, 1993b), and for which no official translation have been found.

(Schafer, 1977c, p. 274), the most significant features of the notion of soundscape are its centering of the listener and the musicality which it confers to the environment. Together, these two components will reflect on almost every concept offered by the WSP to define, assess and design particular 'sound landscapes'.

By describing the soundscape as being a subjective experience, the WSP positions itself in opposition to traditional scientific approaches based on a positivist claim to objective knowledge. It also makes the issue of the quality of the environment a more 'grass-root' one, which concerns and must be addressed by everyone. According to the WSP, "a soundscape cannot be divorced from those responsible for it, since it is not merely a physical reality but a mental one as well" (Truax, 1974, p. 37). For Schafer, acoustic design is not about "control from above", but "rather a matter of the retrieval of a *significant aural culture*, and that is a task of everyone" [emphasis his] (1977c, p. 206). The soundscape must be experienced, must be listened to, and this is why sound education appears as an essential component, not simply a complement, to soundscape studies. This is also why most of the concepts introduced and used by the WSP deal principally with the subjective, perceptual analysis of the sound environment (Truax, 1974), in a way to complement traditional objective and positivist approaches.

The musicality conferred by Schafer and the WSP to the soundscape is not a revolutionary concept in itself. The musical developments of the 20th century have largely extended the idea of 'music' to integrate sounds from the environment, and new technological noises. As early as 1913, Russolo claimed that composers "must break out of [the] limited circle of sounds and conquer the infinite variety of noise-sounds" (Russolo, 1986, p. 25). What makes the approach of the WSP particular is the fact that

the concept of "Music of the Environment" (the name of the book series produced by the WSP and edited by Schafer) has a very strong impact on the analysis, treatment and assessment of the soundscape. Not only is the environment defined in musical terms, but the role of acoustic designers is also explicitly described as a compositional one. Schafer also explored the relation between changing soundscapes and the history of music (1977c), although this path does not appear to have been extended in the WSP's research.

The role of technological progress in the burdening of the soundscape constitutes one of the main aspects described by the WSP. In fact, the descriptive framework of two of the main projects realised by the WSP, *The Vancouver Soundscape* (1978) and the *Five Village Soundscapes* (1977b), seems to literally suggest a return to a pre-Industrial soundscape. And for Schafer (1977c), this is one of two solutions to the growing noise pollution: a global aural awareness through education, or a major energy crisis: "The largest noises in the world today are technological; thus the crack-up of technology would eliminate them" (p. 181). This utopian soundscape is also expressed in a different way in the conclusion of the *Five Village Soundscapes* (1977b), in which the traditional village soundscape is described as a model of a balanced and acoustically rich environment threatened by technological invasion. To discuss contemporary urban environments in terms of their *soundscape* therefore implies a particular aesthetic and utopian positioning of the analysis, which may be problematic when dealing with noise issues and cultural implications of acoustic design. The musicality of the soundscape and the way it is described by the WSP could perhaps be read as a Westernised acoustic composition that often fails to account for the intimate relationships built between urban inhabitants and their sound environment. However, the concept of soundscape as a

subjectively experienced acoustic environment remains crucial in the context of our present case study.

2.3.2 Features of the Sound Environment

To describe the quality of an environment, the WSP uses two terms borrowed from the field of sound recording and playback: *hi-fi* and *lo-fi* (for high and low fidelity).

> The hi-fi soundscape is one in which discrete sounds can be heard clearly because of the low ambient level [...] In the ultimate lo-fi soundscape, the signal to noise ratio is 1 to 1 and it is no longer possible to know what, if anything, is to be listened to. (Schafer, 1978, p. 49)

The 'level' of fidelity is therefore rarely absolute; it is a relative measure that helps in comparing environments and assessing their quality. Rural towns, Schafer writes, are more hi-fi than cities, and night more than day (1977b). This primary criterion (the capacity to distinguish specific sounds in a sound environment) implies a communicational aspect of the soundscape: foreground sounds, the WSP argues, convey information to the inhabitants of a particular environment (1977b). A gradual masking of these sounds therefore implies a loss of connection with the environment, and necessitates a slow raising of the level of sound signals, so that they remain audible.

The *sound signals* of a soundscape are these specific sounds which are foregrounded, and which actively require our attention. In contrast, *keynote* sounds "do not have to be listened to consciously; they are overheard but cannot be overlooked, for keynote sounds become listening habits in spite of themselves" (Schafer, 1978, p. 29). The term keynote comes from music theory; a keynote is not necessarily heard explicitly, but rather is a central point around which a sound structure evolves. The importance of keynote sounds and their possible "deep and pervasive influence on our behaviour and

moods" (p. 29) remain vaguely described by the WSP. A historical look at changes in keynote sounds indeed reveals a move from natural and human-made keynotes to technological keynotes, but the consequences of this change remain to be discussed. The opposition signal-keynote is analogous to the notion of figure-ground found in visual perception; together, these two elements form a basic percept, and they therefore need to be studied together. It is argued, for instance, that the rising level of emergency sound signals must be understood as a consequence of increasing ambient levels (Schafer, 1978).

Amphoux (1991, 1993a, 1993b) uses, in his tripartite model of the sound environment, a slightly more detailed description involving three main features. What the WSP has defined as a keynote finds its equivalent in the notion of *sonic background* (Hellström, 2003, p. 155), the elements of an environment that usually go unnoticed. Then, Amphoux describes the *sonic ambience* (ibid.), an intermediary component "situated between the 'heard' and the 'listened to'" (Amphoux, 1991, p. 61; my translation). The ambience is generally perceived as an overall dynamic, the sonic signature of a location. Finally, *sonic signals* refer, in the same way as the WSP's sound signals, to emerging sound events, consciously heard and identified; these are the foreground sounds.

This tripartite model will be preferred in our synthesis, because not only does it use the two concepts proposed by the WSP (signal and background), but it adds a third, intermediary feature that prevents the model from producing dichotomies. The notion of ambience is central to the sonic identity of a location, and therefore plays a perceptual role that would be ignored by a traditional figure/ground model such as the one proposed

by the WSP. By providing a more detailed description of the sound environment, it also facilitates the classification and use of the listeners' comments and observations, which often fall into intermediary impressions and imprecise descriptions. Finally, the use of a tripartite model makes the production of "representative" recordings easier, as we will see in the Methodology section (see also Amphoux, 1991, p. 64).

2.3.3 The Acoustic and Electroacoustic Community

The particular relation that takes place between a soundscape and its inhabitants may also be understood in terms of *acoustic community*. At the core of the acoustic community is the *acoustic space*, as opposed to the traditional and biased 'visual space'. "What is needed is a reassertion of the importance, both socially and ultimately legally, of acoustic space as a different but equally important means of measurement" (Schafer, 1977c, p. 215). This leads to an understanding of community as a set of sound signals, *soundmarks* and other aural clues that are recognised and used by a group of people. A soundmark, the sonic equivalent of landmark, is a "prominent feature of a soundscape, possessing properties of uniqueness, symbolic power or other qualities which make it especially conspicuous or affectionately regarded" (1978, p. 37). Traditional communities may be defined by the range of the human voice, or be centered around a church bell (1977c). The introduction of electroacoustic means of communication is understood by the WSP as a way to extend communities, while affecting their fundamental rhythms and patterns (1978).

The introduction of louder technologies also affects the definition and clarity of acoustic communities, internally as well as externally (e.g. noise coming from neighbouring communities). *Sonic intrusions*, the appearance of 'foreign' signals in a

community, may create masking and a reduction of the acoustic space of inhabitants (1977b). The signals do not necessarily come from 'outside' the community; in fact, the introduction of major technological changes (air and motor traffic for instance) is understood by the WSP as a principal cause of intrusion, which severely imbalances the acoustic system.

A well-designed acoustic community, according to Truax (2001), must integrate (a) a variety of sounds, (b) a complexity in terms of communicational processes and (c) must be balanced, "as a result of spatial, temporal, social, and cultural constraints on the system" (p. 78). These three features, which are based on the definition of acoustic communities and their functioning as defined by the WSP, are to be reflected in any attempt at acoustic design; they also indicate three criteria that can be used to assess a particular community or soundscape. It should be noticed that these features are inter-dependent: an external perturbation (the introduction of electroacoustic technologies for instance) may imbalance an acoustic system by creating an overload of information (with media technologies) or the opposite, a loss of structural or informational complexity and a flattening of one's acoustic horizon.

The use of general criteria allows researchers to deal with an extensive number of parameters and factors (be they acoustic, physical, symbolic or informational) by grouping them according to their perceptual impact and their particular influence on the system. The notion of complexity, for instance, refers "both to the quality of the sounds [an acoustic community] includes and to the level of information processing performed by the inhabitants in recognising and using such sounds" (Truax, 2001, p. 80). Again, the

central role of the listener is emphasised through a subjective—although measurable—understanding of the communicational processes of a particular community.

It is clear for the WSP that the introduction of electroacoustic technologies has a fundamental impact on the soundscape and the balance of acoustic communities. The 'nervous' tone conferred to the notion of schizophonia expresses a discomfort with the progressive appearance of a soundscape in which "machine-made substitutes are providing the operative signals directing modern life" (Schafer, 1977c, p. 91). In his analysis of electroacoustic communication, Truax does not simply confirm or deny such changes, but provides specific processes and guidelines to understand how exactly new communicational means may extend or transform acoustic communities.

Because electroacoustic technologies completely transform the behaviour of sound, their impact may not be simply adapted to the traditional model of acoustic communities. What Truax provides is a model of electroacoustic communities based on the new properties of audio communication, whose effect "may range from a simple extension through to complete transformation in definition and behavior" (2001, p. 205). Truax emphasises the use of electroacoustic sounds for marketing purposes, and therefore re-positions the acoustic community as a market, whose amplified signals and keynotes (e.g. repetitive jingles, ads, etc.) provide the central link between corporations and listener-consumers.

For Truax, "the impact of electroacoustic technology is a 'zero sum' operation" (2001, p. 212); the resulting modifications in terms of variety and complexity, if we refer to features of traditional acoustic communities, are not necessarily positive *or* negative, unless they affect the overall balance of the system—which in fact they often do. This of

course does not mean that technologies affecting the soundscape are neutral. Truax's model makes use of the same technological elements and properties to produce an alternative design. It is clear, however, that since "technology does not originate from *within* the environment, but rather is imposed on it from without" [emphasis his] (p. 212), it produces an impact that is very different from previous (purely) acoustic transformations as described by the WSP.

The approach taken at CRESSON concerning the individual and social relations to the sound environment differs radically—but in a rather complementary way. The listener-environment interaction is understood in term of three dimensions of sonic identity, three types of relationships possible: The *connu* (C) [known], the *vécu* (V) [lived] and the *sensible* (S) [sensed] (Amphoux, 1993a, 1993b; Hellström, 2003 for the translation). These three dimensions (referred to as C-V-S) can be found at various levels in any sonic "experience" of the urban environment, and may be used as guidelines in describing or assessing the complex modern soundscape. They do not specifically identify types of sounds, or types of listeners, but rather the relation that is established between sounds and interpretation, between reality and representation.

The known dimension (C) refers to a symbolic representation of the city (Amphoux, 1991, 1993a, 1993b), one that is known and understood both by inhabitants and foreign listeners. The soundmarks of the WSP would be included in this first dimension, since they "conventionally represent a city" (Amphoux, 1993a, p. 16; my translation). They can be recognised and understood even by listener who never visited the city or heard the actual sound in a "live" situation. Vancouver's known soundscape, for instance, would be constituted of foghorns, train whistles, and perhaps the nine

o'clock gun in Stanley Park. More generally, the type of reverberation typical of the location of Vancouver (being surrounded on one side by water and on the other side by mountains) could be said to belong to the known character of the city soundscape.

The lived dimension (V) is situated "within the experience that develops through relatedness and by people's practice" (Hellström, 2003, p. 152). It is the semiotic index, it remains partly arbitrary but subjected to one's experience and individual perception. It is located more at the level of the neighbourhood, as it points to particular, regionally known and experienced sonic features, such as a square, a park or an alley. Here, knowledge of the location is essential to the identification and understanding of sound signals; they are not simply representative but become *expressions* of a location.

Finally, the sensed dimension (S) refers to sonic icons, signs of an "urbanity" that become spaceless, in the sense that they express a *type* of place or a type of experience rather than an actual location. The café, the market or the parade are all examples of "sensed places" that "give rise to a specific 'sensation of the city'" (Hellström, 2003, p. 153). They are universal and tautological, in the sense that they do not need to be assigned to specific, concrete locations or experiences. They do not represent a city, nor do they express a sense of experienced soundscape; they are the sonic icons of the urban space.

These three dimensions are used in Amphoux's methodology to help in selecting various locations to reflect the sonic identity of a city. They can also be used to express particular relationships to the city, connections that sometimes contradict more conventional notions of design. The noise of the city, for instance is not simply a "disturbance", but also a part of one's experience of that city, a feature that may even

stimulate sociability—notably through the creation of a sonic anonymity (the background noise being then being used as a mask that provides a feeling of isolation or even intimacy; see for instance Chelkoff, 1988).

2.3.4 The Sound Effect

The notion of sound effect is a valuable tool when dealing with complex urban environments, since it refers to an ensemble of features—be they subjective or objective—that can be quickly identified and linked to each other. It is not a "closed" concept, in the sense that it only provides a framework of relationships, a basis for further analysis and comparison. The combination of sound effects (which are fundamentally contextual but encourage overall comparisons) with theories of acoustic communication (which aim at understanding the interactive relationships between listeners, sounds and the soundscape) can therefore allow an in-depth analysis of the sound environment that will go beyond traditional noise studies, aesthetic approaches or ecological models (which often remain trapped in a "good or bad" dichotomy).

The large number of sound effects described and studied at CRESSON (sixteen major and over sixty minor effects) makes impossible a thorough coverage of all effects in the context of this thesis. The reader may refer, for a complete overview and description of the effects, to the original *Répertoire des Effets Sonores [A Repertoire of Sound Effects]* (Augoyard & Torgue, 1995) or to Björn Hellström's translation of the effects' basic definitions (2003).

The sound effects can however be grouped under three types of classifications, which again indicate their interdisciplinary and multi-leveled nature. First, major effects

are described extensively and through various disciplines in the *Répertoire* (Augoyard & Torgue, 1995), while minor ones are simply introduced with a brief description. This first classification allows both the presentation of a large variety of effects and a thorough description and analysis of the most important—or rather most developed—ones.

Major effects are discussed based on their "disciplinary context" (Hellström, 2003, p. 105), that is, the particular signification or value they present in each of five main disciplines:

- Physical and applied acoustics;
- Architecture and urbanism;
- Sociology and everyday culture;
- Musical and electroacoustic aesthetics;
- Literary and media expressions. (Augoyard & Torgue, 1995, p. 15; my translation)

Finally, a third classification, implemented as an alternative table of contents, divides all effects into five main categories describing the various relationships taking place between the sound environment and humans experiencing it (p. 15). These categories are:

(1) Elementary effects, linked to the sound itself or its particular space of diffusion (filtering, distortion, reverberation...).
(2) Compositional effects, in which the spatial and temporal unfolding of the sound triggers a specific effect (masking, drone, telephone effect...)
(3) Effects linked to perceptual organisation. These are due to a perceptual mechanism that is dependent on the listener's culture, associations, subjective reactions, etc. (remanence, anticipation, metamorphosis...)
(4) Psychomotor effects, in which a form of interaction (be it soundmaking, movement or other) is present (niche, attraction...).
(5) Semantic effects, based on a de-contextualisation or a shift in meaning (imitation). (Augoyard & Torgue, 1995, p. 15-16; my translation)

2.3.5 Schizophonia and Electroacoustic Communication

The appearance of electronic means of sound transmission and storage has had a profound impact on the modern soundscape and the behaviour of citizens. To discuss this particular form of sound diffusion, Schafer coined in *The New Soundscape* (1969/1988) the term schizophonia, which means 'split sound' (a sound that is separated from its original source). The fact that the word schizophonia sounds like schizophrenia is not coincidental; in fact, from the outset, Schafer gives to the expression a very strong connotative meaning. "I want very much to suggest to you the same sense of aberration and drama that this word [schizophonia] evokes, for the developments of which we are speaking have had profound effects on our lives" (1988, p. 139-40).

This connotation will remain with the use of the word by the WSP; when discussing the introduction of schizophonic sounds in *The Vancouver Soundscape* (1978), for instance, the author emphasises the dual nature of such a technology, being both a source of large benefits but also a contribution to the "overpopulation of the soundscape" (Schafer, 1978, p. 41). The impacts of schizophonic technologies on acoustic communities are also discussed in terms of the extension and the modification of rhythms through radio broadcasting, and the use of *Moozak* as an artificial keynote (1977c). Truax (2001) reiterates the implications of the schizophonic experience and the way in which "electroacoustic sound *imposes* its character on an environment because of its ability to dominate, both acoustically and psychologically" [emphasis his] (p. 134-5). Furthermore, Truax notices how this phenomenon quickly became accepted as "normal", except for some particular situations that remain awkward to listeners. He discusses the implications of this adaptation not only as a reaction to the growing noise pollution (which encourages

the use of embedded, schizophonic soundscapes—notably the personal stereo player), but also in terms of the transformation of the acoustic community into a market dominated by corporate-controlled means of communication.

2.3.6 Types of Listening

In the second chapter of *Acoustic Communication* (2001), Truax presents an extensive description of listening patterns and the way in which listening must be examined as a fundamental component of any soundscape (since, in the end, the sound environment is being experienced through human hearing). While the WSP had already introduced the important role and 'aural responsibility' of the listener (and the consequent need for *ear cleaning*), a communicational framework was necessary to underline the intimate relation between a particular type of listening and the context in which it takes place.

Truax presents three basic types of listening, three levels of attention which acknowledge the subtle listening processes "most often ignored by researchers, given the traditional assumption that listening involves full attention" (2001, p. 22). The first level is called *listening-in-search*, and refers to a very focused listening in which one actively searches for particular sounds, patterns, voices etc. The ability of the brain to select particular sound signals while ignoring others is fully demonstrated in the classical example of the 'cocktail-party effect', described as early as 1953 by the American researcher E. C. Cherry and considered by Augoyard as a sound effect.

The second kind of listening, that of *listening-in-readiness*, involves a more subtle relationship which "depends on associations being built up over time" (Truax, 2001, p. 22.). In this case, the attention is focused elsewhere (on visual percepts for instance), but

the ear can still react to particular sound signals that carry a specific information, or correspond to memorised patterns or timbres (e.g. a baby crying at night, the voice of a friend...). The context becomes essential in the communicational process, since the 'recognition' or selection of a sound does not happen consciously. This type of listening depends for instance on the quality of the particular sound environment in which it takes place (Truax, 2001); hi-fi environments provide clearer signals and a more balanced design in which specific sonic clues can be more easily recognised and interpreted. In a lo-fi situation, on the other hand, the low signal-to-noise ratio "destroys the fundamental basis that permits effective acoustic communication" (p. 24).

Finally, *background listening* refers to a situation in which "we are not listening for a particular sound, and when its occurrence has no special or immediate significance to us" (ibid.). Truax links this type of listening with the notion of keynote sound, the *ground* element over which signals are heard. Keynote sounds, according to Truax, are a fundamental aspect of acoustic communication precisely because they are constantly present but perceptually ignored. Modern keynotes, for instance, are generally "flat-line or steady sounds" (p. 25) as well as repetitive broadband noises that are quickly 'backgrounded' because of their acoustic properties. They therefore become more easily accepted, but remain nonetheless a source of "extra stress on the body and a greater information load on the brain" (p. 27). This is a clear example of the interaction between environment and listening patterns: constant, low-information sounds (e.g. traffic, electrical hums, air-conditioning...) are easily pushed into the background, but in the meantime they increase the ambient level and create habituation, which in turn necessitates a progressive increase of the intensity of sound signals.

These three levels of attention have adapted, according to Truax, to new electroacoustic technologies and a transformed environment. The new tools and communication systems have extended the continuum of attention and created two additional types of listening. On the one hand, the use of sound recording and editing tools create an *analytical listening*, in which sound is analysed not only at a semantic level (as a signifier, or the result of an action), but also as a 'sound object' (as Pierre Schaffer would call it), a definable sonic construction that can be isolated, repeated, looped, edited... (Truax, 2001). This type of listening creates new degrees of proficiency, in terms of an evaluation of both the quality of reproduced sounds, and the internal details of electronically processed sounds.

On the other end of the continuum, background listening merges into *distracted listening* as sound becomes less and less informational, filling our environment as a 'soundtrack' of our lives and a surrogate, virtual soundscape (Gitlin, 2001). What is particular with distracted listening (in comparison with background listening) is that the "sound itself is often one that would normally have been considered a foreground sound, such as voice and music" (Truax, 2001, p. 169). This is due in part to the electroacoustic possibility of producing the exact repetition of a sound, without the contextual variants found in purely acoustic repetitions. Distracted listening situations may include for instance turning on music, the television set or radio to be accompanied in our daily routine. A second characteristic of distracted listening is that the sound may be consciously chosen by the listener, not simply imposed. Background sounds are chosen to "fill a gap of a deficiency in the environment" (ibid.), or to provide a personalised soundtrack to mask or replace the surrounding, acoustic soundscape. Media have quickly

become the main providers of surrogate relationships with others and the real world. Westerkamp (1988) has discussed the effects of *Music-as-Environment* on the communicational habits of distracted listeners and its influence on soundmaking. Truax's analysis, on the other hand, focuses on the use of distracted listening techniques for the creation of a listener-consumer (2001). The effectiveness of advertising relies in this case on an understanding of background listening processes to make sure that the message will be heard, consciously or not.

One of the most developed theoretical components of Amphoux's methodology remains the repertoire of qualitative criteria, classified as three types of listening to the world (Amphoux, 1991, 1993a, 1993b). These criteria "are all trans-cultural, in the sense that they can appear in various cities or locations" (Amphoux, 1991, p. 185; my translation). They express three main types of listening (identified as (E-M-P), and are three ways to relate to one's sonic experience of the city. Rather than addressing the role of attention and perceptual modes (as does Truax's classification), they express the various possible ways one relate to or interpret a surrounding soundscape; they are more attitudes than listening modes.

The first type of listening is referred to as *l'écoute environnementale* (E) [environmental listening], and is "described as the *criteria of quality* i.e. a sonic order that is objective, assessable and controllable" [emphasis his] (Hellström, 2003, p. 161). The *sonic environment* therefore points to an analytical, or descriptive approach to the world, in which one uses objective observations to "represent" the sound environment. The space, sounds and meanings are described as external, belonging to the world, and

the approach is clearly analytical. In this first approach, the listener is removed from the experienced soundscape.

The second type of listening, *l'écoute médiale* (M) [milieu listening], concerns the expressed sonic comfort of a space, a percept that is not described objectively but experienced contextually (Hellström, 2003). This approach produces *criteria of qualification* which "do not account for the environmental morphology, but rather present a prescriptive discourse on what should be or what should not be a sonic milieu" (Amphoux, 1993a, p. 37; my translation). In this case, the criteria used will be related to value judgments, ideals, and the role of imagination. The listener becomes directly involved in the description and interpretation of the soundscape.

Finally, the last type of listening is the *écoute paysagère* (P) [landscape listening], which describes the "perception of the sonic landscape" (Hellström, 2003, p. 158). The appreciation of the sound environment is now on a *sentient*, aesthetic level, a state of contemplation of the world that *talks* to us (Amphoux, 1993a, 1993b). Here, *criteria of qualitativeness* will express what the environment symbolises for the listener, its perceived "soul". The listener does not objectify or express the soundscape, but rather contemplates it; it almost seems as if "the sound ambience expresses its own quality and induce the listener into an attitude corresponding to this quality" (Amphoux, 1993a, p. 38; my translation).

These three approaches to the sonic world are intimately connected with other tripartite processes described by Amphoux (the background-ambience-signal model, and the C-V-S). The particular connection, for instance, taking place between a "lived" experience (V) of a specific ambience, may find an appropriate criterion of evaluation in

terms of a milieu listening, one that is experienced and subjective. The sonic environment, on the other hand, would be described in terms of its known character (C), features that are "externally" identified and objectified. These various correspondences allow a movement between the various possible experiences of the sound environment; as such, they also complement Truax's proposed types of listening (2001). Truax's approach emphasises the role of attention and the selective capability of the hearing system, criteria which he then uses to draft design theories. In the case of Amphoux's types of listening, it is the degree of interaction and the variable progression from a representation (the environment), to an expression (the milieu) and a perception (the landscape) which define one's relationship to the surrounding sound environment. While this model provides extremely pertinent tools to gather, classify and relate various approaches and descriptions of the sound environment, they still require a communicational framework which may explain particular relationships or provide design guidelines to interpret them.

2.3.7 Acoustic and Electroacoustic Design

The WSP has introduced the idea of acoustic design as a complement of acoustic ecology, a discipline that would deal with the particular acoustic prerequisites involved in assessing or designing a sound environment. However, as we have seen, the references to a design theory of the soundscape remain generally vague, centred on the creation of a hi-fi soundscape and the elimination of unwanted sounds. Truax provides a more detailed guideline by framing his approach around a communicational understanding of acoustic processes as information exchange, which he then complements with notions of electroacoustic design (2001). He emphasises the functional aspect of soundscapes as a system and the central role of human listening and participation in these systems.

The two fundamental criteria proposed by Truax, variety and coherence, not only reflect listening processes as previously described (see 2.3.6 Types of Listening), but they also inscribe themselves directly in an information-based framework. They are two necessary components of any well-functioning system of communication; they provide both a meaning (through coherence) and the possibility for the reception of that information, the "perception of a 'difference'" (Truax, 2001, p. 110) through variety. These two criteria remain fundamental in dealing with any acoustic environment, not only as tools to assess a communicational process (Can you hear this sound? Does it make sense to you?), but also because they allow researchers to handle complex situations and diversified information through the use of general concepts (the sounds are assessed based primarily on their communicational value).

With electroacoustic technologies, however, systems of communication have been not only enhanced but also transformed; the ways in which sound behaves have been modified, and therefore require new criteria (Truax 2001). With electroacoustic design, for instance, "there are no natural well-designed models as there are in all acoustic systems" (p. 244). Also, according to Truax, the schizophonic properties of electroacoustic communication make it impossible to predict or control the space in which an electroacoustic sound is being heard. Schizophonic situations imply an inherent possibility of contradiction, therefore making a communicational system more "complicated" rather than more "complex".

Most of Truax's description and analysis of electroacoustic design focuses on the use of electronic tools and their influence on the process of composition, distribution and reception of information. The discussion is centered around "audio composition", be it

text-sound, electroacoustic music, soundscape composition or radio formats. This shifts the analysis from actual acoustic spaces to electronic ones, in which "one is designing both the sound and the sound structure" (2001, p. 247). Since our interest is in the description and analysis of actual acoustic locations or events, it seems necessary to complement this approach with an analysis of how electroacoustic tools may be used or integrated in the study and design of actual communities and spaces. In other words, the principles of electroacoustic design must eventually be combined with a broader social understanding of acoustic communication, since in the end, the process of listening cannot be isolated from a specific acoustic, social space. Instead of linking electroacoustic design to new possibilities offered by electroacoustic technologies, it needs to be related to the actual implications of these technologies in a community. Electroacoustic alternatives, for instance, have been described by Truax mostly in terms of the alternative uses of audio media and recording tools by composers; this could be extended to include the use of such technologies to assess the environment (the use of electronic mediation in the 'qualified listening in motion method', for instance [Tixier, 2002]), or even the various social uses of electroacoustic technology to modify one's environment.

The tripartite model suggested by Amphoux (1991, 1993a) to describe the types of listening to the world has corresponding implications in terms of design and intervention. Each of the processes described in the E-M-P approach results in a specific type of management of the soundscape based on the perspective employed and the type of "noise" handled. All of these perspectives deal with specific dimensions of the acoustic experience, and must therefore be seen as complementary, parallel design

approaches. The first type of intervention consists in a "diagnosis of the environment" (Hellström, 2003, p. 168) in which one wants to protect the sonic environment from noise as a *measurable*, objective phenomenon. While traditional noise studies approaches follow this first path in their legislative handling of noise, they often fail to also protect the acoustic *quality* of the environment, e.g. the preservation of soundmarks and of a human acoustic scale in public spaces (Amphoux, 1993a)—something that Schafer already brought forward in *The Tuning of the World* (1977c).

The second type of management involves a consolidation of the sonic milieu (Amphoux, 1993a), through the "regulation of social interactions" (p. 42; my translation) and the spreading of a sonic awareness that will provide listeners with the tools to manage their own soundscape—again, one of Schafer's first claims, which he developed through music and sound education (1977c; 1988). The research led by CRESSON concerning neighbourhood noise complaints is a very rich example of this type of social approach to a lived, subjective experience (Amphoux & Leroux, 1989).

Finally, the third approach deals with the "creation of the landscape" (Hellström, 2003, p. 169), a creative intervention involving either *in situ* actions through the integration of acoustic design in urban disciplines, or an "*in auditu*" action (Amphoux, 1991, p. 246) whose objective is to "stimulate *consciousness of the acoustic space*, i.e. to develop a greater public awareness of urban sound recordings and of the richness of sound qualities" [emphasis his] (Hellström, 2003, p. 169).

Each of the above terms and concepts was designed to describe and analyse a particular aspect of the sound environment; together, they form a complex set of descriptors that can therefore interact even though their initial framework of application

is different. The types of listening described by Truax (2001), for instance, analyse the actions of listening as an individual level of perception and *intention*; Amphoux (1991), on the other hand, provides a contrasting classification in which each type of listening expresses a different relationship to the sonic world, shaped not only by the individual level of attention but also by broader cultural, emotional or symbolic factors. In the same way, the notion of sound effect is based on the same triangular model as Truax's acoustic communication model (*sound* as a mediator between a *listener* and an *environment*), but rather than emphasizing the contextual nature of acoustic exchanges, it tries to emphasize various patterns which correspond to observable *effects*.

These concepts are intimately linked to a particular methodological process based on their framing and representation of the sound environment. We must therefore present and discuss these methodologies, while always keeping in mind the contexts and aims of their creation and application. Since Truax's communicational model does not prescribe a particular sets of tools and methods, the next section will focus on the methodologies used by the WSP in its various case studies and by Pascal Amphoux in his comparative study of three Swiss cities (1991, 1993a, 1993b).

CHAPTER 3 METHODOLOGIES

3.1 Methodologies Associated with Each Model

3.1.1 Methodological Framework Development

3.1.1.1 Main Methodological Components

When the WSP started to document the soundscape of Vancouver, no similar study had been accomplished – there were no methodologies available to guide the researchers and frame their process. The subjective and interdisciplinary components of the research project necessitated the design of a different methodology, which would combine objective measurements, ethnographic observations and the integration of social/cultural issues in the analysis of the soundscape. While the actual methodology used by the WSP was at no point described explicitly, a survey of the three main projects realised – the Vancouver soundscape, the cross-Canada tour and the five European villages – reveals five main methodological components: (a) spatial distribution, (b) time distribution (be it over a day or a decade), (c) legislation, (d) subjective reactions and (e) recordings. To obtain data in each of these areas, a series of observational techniques were designed. These various methods aimed at covering the soundscape through all its 'perspectives' – be it historical, cultural, economic, legal, geographic, etc.

The translation of sound into graphic representations is one of the many challenges faced by soundscape studies in its attempt to analyse and describe the sound environment. Traditional objective systems such as music notation and frequency spectrum graphics quickly appeared as inadequate when dealing with complex

soundscapes and their perception. The WSP began to use alternative types of graphic representations to deal with issues of space, diffusion and to integrate several types of data (level, location, sound sources, profile...) into a single graphic form. *Isobel maps* such as the one of the Stanley Park presented in *The Vancouver Soundscape* (1978) were used to show decibel levels over a specific area, and to emphasise the main sound sources and their location. The comparison of isobel maps representing different times can also be used to examine the variations in levels corresponding to economic and social activities, or even natural causes (see the isobel maps illustrating the variations due to wind and the sound of waves at Lesconil; Schafer, 1977b, p. 41)

Acoustic profiles, the area across which a specific sound can be heard, were also mapped to explore dominant sounds and their relation to the acoustic community. In the *Five Village Soundscapes* (1977b), for instance, the acoustic profile of the church bell at Bissingen was used to emphasise the progressive rise of ambient level, and the "parallel between the shrinking acoustic space of the Cathedral bells and its dwindling congregation" (p. 15). The profiles also indicate if specific sound sources (traffic noise, for instance) may cause an environment to become lo-fi.

The distribution of sounds and sound levels over time has been extensively used by the WSP to identify rhythms, patterns, and to show how dominant sounds are often related to the dominant social or economic activities. Graphics based on sound counts and level readings are constructed and compared to identify, for instance, the importance of particular sound signals, the changes in ambient level a period of time, or the natural rhythms of the environment. These graphics have been used in the *Five Village*

Soundscapes (1977b) to compare the sound environment of different towns based on objective data.

One of the first documents produced by the WSP was *A Survey of Community Noise By-Laws in Canada* (1972). This document, as its title indicates, presents the noise bylaws (or the absence thereof) of most of the Canadians cities whose population was over 25,000 in 1972. The goal of such a survey was, according to the group, "to enable legislators to compare notes" (World Soundscape Project, 1972, p. 1). However, when this survey of noise bylaws was extended to other continents (though unpublished), the WSP began to read cultural differences through legislation. Noise bylaws, Schafer argues, "can be read to reveal different cultural attitudes towards sound phobias" (1977c, p. 197). The silencing of specific sounds over others may also reveal changes in social structures. The notion of Sacred Noise, a sound which is not subjugated to bylaws, points on the other hand to sound source expressing a particular power, be it the "divine" sounds of the church bell or the modern sound of the plane taking off (Schafer, 1977c).

As a fourth approach to the study of the sound environment, the WSP has inquired into attitudes and subjective reactions to the soundscape or to particular sound sources, notably through interviews and surveys. As early as 1969, Schafer conducted (with the help of his students) a social survey on noise, in a way to "acquire statistical information about the public's interest in, and opinion of, the problem of pollution" (Torigoe, 1982, p. 91). Later, during the 1975 tour leading to the publication of the *Five Village Soundscapes* (1977b), the team used Sound Preference Tests to survey the most liked and disliked sounds of children in every village. Interviews with "citizens with a special interest to their acoustic environment" (Schafer, 1977b, p. 67) were also

conducted to gather additional information about the everyday relation of people to their environment, and in a way to complement their 'outsider' position as researchers and observers.

Finally, recordings of soundscapes and sound signals have been made in every environment studied by the World Soundscape Project. While these recordings were primarily considered for their archival and educational value, they also represented a very rich source of information, and their manipulation by the researchers/composers of the WSP initiated what later became known as soundscape composition (Truax, 1995). Montages and compositions based on field recordings were used notably in a radio series produced by the WSP for the CBC in 1974, *Soundscapes of Canada*. Members of the WSP such as Hildegard Westerkamp and Barry Truax continue to explore soundscape composition and its role in the larger context of soundscape studies and acoustic ecology (McCartney, 2000; Truax, 1993, 1995, 2002).

The extensive methodology developed by Pascal Amphoux with the CRESSON group and the IREC has been defined as an "interdisciplinary tool to analyse the sonic quality of urban spaces" (Amphoux, 1991, p. 12; my translation). It provides researchers with a detailed set of guidelines that have been designed and tested through a large comparative study of three Swiss cities (see Amphoux, 1991). While the approach ultimately led to the description of the sonic identity of a city as it is heard and experienced by local and foreign listeners, it also appears extremely valuable to any subjective analysis of a sound environment in which the focus is on inhabitant-listeners' perspective. In this way, it is complementary to the WSP's approach, which although was fundamentally qualitative, tended generally to emphasise the role of the external observer

over the local listeners' perspectives (Uimonen, 2002). The main problem encountered by soundscape researchers is that when they are interviewed, "people find it difficult to talk about issues that concern their everyday, contemporary sonic environment" (p. 171). If one wants to incorporate the sonic knowledge of local inhabitants to complement the researcher's "fresh ear", particular techniques must be deigned to trigger a sonic awareness, and allow non-expert listeners to express their relationships to their environment.

Amphoux's methodology dealing with sonic identity is divided into three main steps, in order to provide researchers with a large amount and variety of information concerning people's knowledge, opinions and perceptions of their sound environment. Recurrence through listener's interviews will therefore guide the attention of researchers towards specific location, feature or design issues. The particular techniques used in each section will be described in more detail in the following section, according to their degree of integration in our proposed synthesis. The overall methodological process consists in the selection of specific locations, based on initial interviews and the use of *sonic mind maps*. Then, researchers produce documented recordings of these spaces, which are then re-presented out of context (on loudspeakers or headphones) to various local and foreign listeners. Finally, the information gathered is interpreted and synthesised, notably with the use of qualitative criteria, in a way to emphasise the overall sonic qualities proper to each location, and which constitute the unique sonic identity of the city.

The first step consists in the use of *sonic memory* to select representative locations to be further studied (Amphoux, 1991, 1993a). The use of *sonic mind maps* and *phono-reputational inquiries* will present researchers with a list of potential locations and an

initial number of comments on each space. The final choices will be made based on the use of the C-V-S model; for a city-wide study, it is recommended to choose three to four spaces that express each of the types of relationship to the environment (known, lived, sensed) (Amphoux, 1993a). Data gathered in this section will also be used in the final, interpretative step of this methodology.

Once representative locations have been chosen, the second step, based on *sonic perception*, can be initiated. According to Amphoux (1993a), projects of smaller scale with limited resources or time may proceed directly to the third and final step. The second section constitutes both "a logical continuation on the technical level, in the sense that it focuses on selected locations, and a reprise, on the methodological level, since its objective is to re-use and specify the primary qualitative criteria found in the first phase" (Amphoux, 1991, p. 55; my translation). Amphoux provides very specific directives guiding the recording and subsequent studio-based montage of audio clips to be used in the *reactivated listening* sessions. The selected clips will be presented to a varied group of local (and foreign, if feasible) listeners covering three important dimensions of the city: the sonic (acousticians, visually-impaired people, musicians...), the spatial (architects, town-planners, historians...) and the socio-cultural dimensions (semioticians, psychologists, sociologists...) (Amphoux, 1991, p. 70). Then, the results of these extended interviews will be synthesised using a "chart of sequential analysis" (p. 74; my translation), providing researchers with significant components of the inquiries to be used in the final interpretation.

The third and final step involves the *sonic interpretation* of the city's sonic identity features. This process will result in the production of a "sonic identity chart"

(Hellström, 2003, p. 58; see also Appendix F) for each sequence/location, and which is composed of factual information about the sequence, listener's comments, the application of corresponding qualitative criteria as well as expressions or quotes which are particularly evocative in their description or identification of a location or ambiance (see Amphoux, 1993a, p. 33).

3.1.1.2 Field Methods

The field observation methods developed by the WSP were specifically designed in order to gather a maximum of information about a particular soundscape, and to allow further analysis of these data through maps, graphs, comparisons and statistical measurement. In the case of the *Five Village Soundscapes* (1977b), the need for an efficient and complete method was even more evident, because of the limited time the team spent in each village (from seven to ten days). The practical methodology may be divided into two main parts, corresponding to the two traditional research paradigms: objective and quantifiable data to describe features of the soundscape on the one hand, and subjective, ethnographic information about people's relation to the environment on the other.

To be able to create various maps, graphs and statistical charts, WSP researchers used extensive sound counts and sound level measurements produced over a particular area, or a specific period of time. A sound count consists in the counting of a particular type of sound heard in a specific location, in a way to express "a quantitative impression of the density of certain sounds" (Schafer, 1978, p. 64). When sound counts are compared over time, acoustic patterns may be discovered, and their unfolding can be detailed. Sound level measurements allow researchers to draw a map of the sound intensities of a

location, and to evaluate changes in intensity through time. Measurements found in the WSP publications are either in dBA or dBC. Isobel maps generally use dBA (designed to reflect the human hearing curve), while in certain particular cases in which the low frequency range may play an important role, a comparison between A and C measurements is presented. It is the case for instance in the *Five Village Soundscapes* (1977b), when the impact of a loud car parking in a quiet environment is described using the two scales (Schafer, 1977b, p. 61), and to emphasise the prevalence of aircraft noise in Bissingen (p. 58). The same comparison is also used to reveal 'hidden' low frequencies felt in a quiet reading room (1977a, p. 31-2).

Recordings have been introduced in the field research of the WSP right from the beginning. Torigoe (1982) refers to 1972 as the first year during which team members produced recordings, in preparation for *The Vancouver Soundscape* (1978). In terms of recording techniques or methods, there seems to be no formal process; while particular attention is given to important sound signals and soundmarks, the collection of recordings from the WSP library (carefully preserved at the School of Communication, Simon Fraser University) presents a variety of soundwalks, events, themes, keynotes, signals, ambiences and others. In recordings from the cross-Canada tour, more specifically, certain themes such as train whistles, foghorns, church bells, disappearing sounds and local dialects and the "what's on the AM radio" clips (Davis & Huse, 1974, p. 34) can be followed. However, one common feature of every recording made by the WSP members is that it is accompanied by an information card providing data such as the time and location of the recording, any atmospheric, historical, sociological information, tape speed, distance from the source, intensity level measured and any other pertinent data

(Schafer, 1977b). Also included on this card is a set of visual representations used to describe the behaviour of the sound event over time, with parameters such as duration, dynamics, frequency/mass and fluctuations/grain for each main section of the sound (attack, body, decay).

To describe in more subjective and contextualised form the relations between the soundscape and its inhabitants, WSP researchers also use ethnographic resources, which can then be compared and combined with quantitative data. In the case of *The Vancouver Soundscape* (1978) and the *Five Village Soundscapes* (1977b), this begins with a visit to local archives, in search for bylaws, articles or stories which would provide historical information about the soundscape researched. Literature may also provide vivid descriptions of past soundscapes, as illustrated by Schafer's extensive use of literary depictions from a large number of authors in *The Tuning of the World* (1977c). Historical data may also be found in 'earwitness' accounts from inhabitants. Interviews with elderly members of the Vancouver community, for instance, provided the WSP with descriptions of the city's past soundscape called 'earwitness accounts' that could not be found elsewhere. In the same way, extremely valuable information was collected in Dollar, Scotland, through an *in situ* interview with the former town clerk (Schafer, 1977b).

These interviews are also extended to diverse members of a community, either because of their particular sensitivity to the soundscape or simply because they have something particular to express about it. In *The Vancouver Soundscape* (1978) for instance, inhabitants of two contrasting regions (central Vancouver and Vancouver Island's countryside) were interviewed about their sound preferences and their appreciation of their sound environment (Schafer, 1978, p. 60-1). This provided

researchers with subjective answers that could be compared, in a way to emphasise common themes and preferences. Similar types of information were obtained in the *Five Village Soundscapes* (1977b) by providing children from every town with a Sound Preference test. This test "simply asked for lists of the most liked and disliked sounds in the local environment" (p. 68). Results were then assessed in terms of the social, geographical or architectural features of each town.

At the core of an acoustic design program, according to Schafer, must lie exercises such as *listening walks* and *soundwalks* (1977c). These methods can also be applied to the exploration of a soundscape, as they emphasise sounds over sight. A listening walk is "simply a walk with a concentration on listening" (p. 212); this can be achieved anywhere, and is often essential in finding features such as keynotes, patterns, masking... Soundwalks, on the other hand, are "an exploration of the soundscape of a given area using a score" (p. 213). They are planned tours, designed to raise the awareness of its participants to the sonic components of their environments. While Schafer and the WSP make a clear distinction between these two terms, they are now commonly used interchangeably. Michael Southworth (1969) also used listening walks in his study of the sonic environment of Boston. By comparing the experience of three participants, (the first being blindfolded, the second wearing earplugs while the third one had a "normal", neutral perception), Southworth emphasised the role of auditory components in one's appreciation of an environment and the interaction between visual and auditory stimuli.

A last tool described and used by the WSP is the sound diary, a personal journal kept by each researcher which records their various thoughts on sound experiences,

particular moments, emotions or stories. "The sound diary, and its companion piece, the soundwalk, are easy to compile, and by directing attention to a sense often ignored they can be useful educational experiences for everyone" (Schafer, 1977a, p. 1). Not only does a diary provide an insight in the researcher's personal experience, but it also encourages self-reflection, and gives the researcher a space to connect his or her own experience to broader theoretical concerns. The WSP has published a collection of diary excerpts from the European tour, *European Sound Diary*, which offers the reader varied thoughts from four researchers complemented with various documents from the tour (soundwalks, graphs, maps...) (Schafer, 1977a).

The European methodology presented in Amphoux's *The Sonic Identity of European Cities* (1993a, 1993b) presents several techniques to collect various comments, opinions and perceptions from local and foreign listeners. Many of these are designed to facilitate the expression of an acoustic culture, local significations which are often treated unconsciously by inhabitants and which must therefore be "triggered". Four important components of this methodology will be integrated into our current project, based on their complementarity to the WSP's techniques previously discussed and their applicability to the smaller scale of the present case study (a district, rather than a whole city).

The initial step of the methodology is to quickly gather general information about the city (or the district) that will allow researchers to produce a list of potential locations. What is important here is to reach a variety of inhabitants and appeal to their sonic memory in various ways. *Sonic mind maps* have been proposed as a relatively simple and efficient technique to collect such information (Amphoux, 1991; Hellström, 2003). Mind maps have been previously used in various disciplines such as geography and psychology

to study people's relationship to their environment. A sonic mind map is a map that one draws of his or her city (in our case district); it can include sound sources, particular locations, streets and buildings, urban routes and daily routines, etc. The goal here is to force a "change of logic" (Amphoux, 1993a, p. 11; my translation) and trigger an altered appreciation and description of one's sound environment. Each session can be done on an individual basis, and should not take more than 15 minutes (Amphoux, 1993a).

Once a sufficient number of maps have been gathered, analysed and compared, researchers can start listing potential sites for further analysis and recording, while compiling general information about the city and its daily perception. The second technique involving sonic memory is the *phono-reputational inquiry* (Amphoux, 1991; Hellström, 2003), a series of recorded interviews with people who have a particular relation to their city and/or sound environment (being either a "user" of the city, e.g. street musician, home worker, mailperson, or else being situated on the "representational" level of the city, e.g. journalist, writer, historian, town planner...). These open group interviews should cover three main topics: the enumeration and discussion of various locations that present particular sonic qualities, soundmarks and other sonic signatures of the city, and finally a more elaborate discussion of the various criteria of acoustic quality which appear important to the interviewees. Researchers can make use of appropriate sonic mind maps to feed the discussion and trigger comments (Amphoux, 1991, 1993a).

The second section of the methodology comprises two main components, the recording of chosen locations and the presentation of resulting audio clips in *reactivated listening* sessions. Amphoux (1991, 1993a) provides very specific guidelines in terms of the pre-production work to be accomplished, as well as the modalities of recording and

montage. Synoptic forms (Hellström, 2003) provide, in the same way as the WSP's information cards, contextual details about each location. These cards will however be produced *before* the recording sessions, based on previous interviews, to provide recording technicians with enough information to produce an audio document that represents, or include features that have been indicated by interviewees. The synoptic forms include the location of the recording, an overview of the background, ambience and signals to be heard, an intention, that is, a basic hypothesis of the qualitative criteria of the location to guide the recording, and finally various information concerning the appropriate schedules to record specific sounds or ambiences, or other pertinent details (see Amphoux, 1993a, p. 20; Hellström, 2003, p.154).

Reactivated listening sessions have been initiated at CRESSON by Jean-François Augoyard in 1979, inspired by the observation techniques developed at the Palo Alto School (Amphoux, 1991). This technique consists in the presentation of audio recordings of specific environments to various listeners, in a way to trigger various comments, memories and discussions concerning the recognition (or not) of the location, its assessment, etc. Here, the listener in placed in a schizophonic situation, the technique introducing a distance between one's everyday environment and its reactivated perception through loudspeakers or headphones. This, according to Amphoux, allows the "*reactivation of a listening* in ordinary contexts, as it is experienced in one's everyday" as well as a "*reaction to the listening* linked to the gap between the real and its recorded representation" (1991, p. 58; my translation). Chris J. Smith (1993) has also used a similar technique in his exploration of three residential neighbourhoods of Vancouver.

These sessions should involve either actual inhabitants of the city, who will be able to comment as "local but non-specialised listeners" (1993a, p. 26; my translation), or specialists in various disciplines related to sound who are not necessarily living in the studied environment. The individual interviews should keep an open format, with about ten clips presented per session through loudspeakers (to allow the researcher to hear the particular elements that may trigger reactions (1991, 1993a). Information from each sequence heard is tabulated on a chart of sequential analysis which includes the profile of the interviewee, expectations of the researcher concerning the interpretation of the sequence, a condensed transcription, particular expressions used, a free interpretation of the interview by the researcher and an actualisation of the previous hypothesis (see Amphoux, 1993a, p. 30).

3.1.2 Examples of Application of the Methodology

The WSP's approach to the sound environment emphasised the necessity for researchers to accomplish field observations and analysis. Soundscape studies, according to the WSP, should not be a discipline confined to laboratories, studios or university classes; it must have its basis in the everyday acoustic communities, where the unfolding soundscape remains unnoticed.

The first field of research of the WSP was the region in which it was located: Greater Vancouver. Archival research, recordings, interviews and measurements led to the publication of *The Vancouver Soundscape* (whose first edition was published in 1974), which describes the historical evolution of the soundscape of Vancouver, and its recent transition from hi-fi to lo-fi. This first important project allowed the team to describe and present their developing concepts, and the way in which these can be used

practically to analyse and assess a particular sound environment. The accompanying recordings complemented the texts with audio examples including natural sounds, signals and soundmarks of Vancouver.

The main theme of the *Vancouver Soundscape*, that is, the decreasing quality of urban spaces attributed to the increased presence of industrial and electric technologies, will be returned to in later studies and publications. "We must return to the Vancouver soundscape the flavour of its original elements – cataracts, swift flowing waters and ocean waves, the inimitable sound of wind in evergreen trees, and the natural resonance of wood, shell and stone. That will be our task" (Schafer, 1978, p. 66). But the romanticism of Schafer's view and the numerous technophobic references found in the publication have not gone unnoticed. For Torigoe (1982), the "biased view of modern technology in the aesthetic, and even moral, sense might be the reason that prevents the Project from involving itself actively enough in the actual alteration and creation of soundscape" (p. 164).

In 1973, two members of the WSP, Bruce Davis and Peter Huse, completed a cross-Canada tour in which they gathered an extensive amount of recordings, measurements and notes covering the whole country (Davis & Huse, 1974). The goal of this field recording tour was to extend the study of the sound environment to the national level, while recording disappearing sounds, regional or local keynotes, important signals etc. The study itself has not been published, but it has been incorporated into a 1974 CBC radio series, *Soundscapes of Canada*. While most of the ten programs were independent compositions produced by different members of the team, some of them focused more specifically on features of the Canadian soundscape (notably programs 3, 4 and 6), and in

many cases the sounds recorded by Davis and Huse were used compositionally (see Torigoe, 1982; Truax, 1996b).

The most extensive project accomplished by the WSP remains the five European villages tour. In 1975, five researchers visited five small towns, each in a different country, over a period of five months. They stayed in each location for seven to ten days, gathering as much information as possible concerning the acoustic history and present state of each town (Schafer, 1977b). The villages were chosen to present similar features (self-contained towns, less than 3000 inhabitants, important social life, distinctive sound signals, etc.); they were preferred to larger cities, since, according to Schafer, "the prospect of arriving at intelligent conclusions regarding the complex soundscapes of cities in the brief time at [their] disposal would have been quite impossible" (p. 1). The five villages studied were Skruv in Sweden, Bissingen in Germany, Cembra in Italy, Lesconil in France and Dollar in Scotland.

The results of this extensive field study were published in two different books, *Five Village Soundscapes* (1977b) and *European Sound Diary* (1977a). The first book presents a summary of the study, including maps, graphs, results from the Sound Preference Tests and an extended interview with the former town clerk of Dollar, David Graham. Again, recordings were also included to illustrate results of the tour while presenting audio examples of the sounds and soundscapes heard in each village. The second book, on the other hand, is a compilation of sound journal excerpts written by four of the researchers throughout their trip, and accompanied with various graphs, pictures and a series of soundwalks. This second publication can be seen as an attempt to present a different account of the tour by providing the reader with insights from the

researchers' experiences, while illustrating the usefulness of sound diaries for sound education.

A later attempt to document the sound environment of Chemainus, a small town on Vancouver Island in B.C., was not completed because of a lack of financial support (Truax, 1996a). The *Five Village Soundscapes* (1977b) can therefore be seen as the final methodological development of the WSP. The fact that the group could only spend about a week in each location made it necessary to design a clear and defined working method; if we add to this the previous field experience of members and the growing vocabulary and conceptual tools available, this makes the *Five Village Soundscape* an extremely rich source of information, not only about the changing sound environment of each village but also about the different ways available to obtain information and classify historical, social, economic and sonic data. Furthermore, "the introduction of a comparative perspective using five different types of villages required the research team to develop a more systematic method of collecting data" (Torigoe, 1982, p. 190). This results notably in the extensive use of comparative graphs, and a better understanding of the complex dynamics between the main economic or social institutions of a village and the main sonic attributes of the location.

The sonic identity methodology has been developed and tested through a large comparative study of three Swiss cities in 1991, and whose results were published in *Aux Écoutes de la Ville [Listening to the City]* (Amphoux, 1991). The team, a collaboration between CRESSON and IREC, applied the developed techniques to Lausanne, Locarno and Zürich. This theoretical and methodological challenge was inscribed in the process of the "constitution of a European research network on the sonic quality of inhabited

spaces" (p. 8; my translation) initiated by the CRESSON. The extensive study also led to the publication of a methodological guide aimed at city planners, sound technicians and social science researchers, *L'Identité Sonore des Villes Européennes [The Sonic Identity of European Cities]* (Amphoux, 1993a, 1993b). This 2-volume guideline provides a brief but clear introduction to the methodology designed by the CRESSON and the IREC, and provides research insights to support further comparative studies, in Europe or elsewhere. The first volume consists in the survey of the three-step methodological process, while the second volume is a repertoire of concepts, including the extensive list of qualitative criteria and a brief, summarised listing of the sound effects, also used in Amphoux's approach.

Another team of Spanish researchers has also used this methodology to discuss the issue of noise pollution and subjective reactions to sound in inhabited spaces (Barrio & Carles, 1995). Sonic mind maps and reactivated listening were notably used by the Psychoacoustics Laboratory at the Instituto de Acústica in Madrid to explore the various ways in which environments are subjectively identified and assessed, and to describe the particular sonic identities of the city. While this particular project did not involve an inter-city comparison, it used qualitative techniques as complements to the traditional noise study approach, and initiated an "ever-expanding sound archive which houses varied materials reflecting the traditional activities carried out throughout Spain" (Barrio & Carles, 1995, p. 6) The Laboratory has continued its collaboration with the CRESSON in a joint project on the qualitative analysis of inhabited spaces.

Björn Hellström has also used the concept of sound effect and the methodology designed by Amphoux in a study of the district of Klara, in Stockholm (Hellström, 2003).

The Tourist Information Guide to Environmental Resonance (TIGER) project was presented from 1996 to 1998, as a multimedia exhibition which presents the results of an *in situ* study of the district based on specific sound effects and the use of an environmental listening approach (E) as defined by Amphoux. In the exhibition, nine locations were explored visually and graphically. This project was then incorporated in Hellström's doctoral dissertation, *Noise Design: Architectural Modelling and the Aesthetics of Urban Acoustic Space* (2003).

3.2 The Synthesis

3.2.1 Objectives of the Synthesis

The various approaches and concepts presented in the previous chapter provide us with methodological and analytical tools that cover specific dimensions of the environment. The communicational model, for instance, does not propose any particular methodological framework, but rather provides the researcher with general concepts and processes that can be used to link issues and data coming from different fields. The work of Pascal Amphoux, on the other hand, constitutes a very rich and diversified set of techniques designed to gather information through simple but effective processes. While these methodological tools were at first designed to describe and explore the sonic *identity* of cities, they can also be used to obtain general data on the individual and social perception of a particular sound environment, and to identify both the good and bad features of this soundscape. The World Soundscape Project has designed a series of techniques that cover other important dimensions of the perceived sound environment, such as spatial and time distribution, but its epistemological approach may limit

researchers' analytical process in urban environments because of a general rejection, or at least a bias against technological change and the noisy urban soundscape.

Each approach therefore answers particular needs, and covers certain aspects of soundscape research, in a way that makes them more complementary than contradictory. All these models claim an interdisciplinary basis and a desire for the inclusion of larger and larger social and cultural contexts in the definition and analysis of the sound environment. It is with this sense of complementarity and common goals in mind that these approaches are here combined in a synthesis whose strength is based on each model's particular focus, but also on overlapping features that can now benefit from multidisciplinary analysis. The importance of levels of listening attention, for instance, can now be discussed in terms of the particular sound effects encountered in an environment and their influence on the mode of listening of inhabitants. The keynotes and signals, as defined by the WSP, also find their equivalent in Amphoux's concepts of signal, background and ambience. There seems to be basic conceptual references that are consistent throughout every model, and these may be considered as the core of soundscape studies as it becomes more and more developed, applied and more diversified. The methodology proposed and the subsequent analysis of the case study are therefore designed to simultaneously emphasise the particularities (and strengths) of each approach and the way in which they can interact, theoretically and practically.

The proposed synthesis is also contextual itself, being produced with particular interests and intentions in mind, and being applied to a particular, pre-determined location. In terms of the research components, three elements appeared necessary and were therefore emphasised in the description and choice of concepts gathered from the

various models previously defined. First, there is the need for an approach that will allow interdisciplinary research, not only in terms of the range of objective and subjective methods and the type of data analysed (this is already partly present in each of the approaches used), but also in terms of the capacity to combine various subjective descriptions of the sound environment in a way to better understand listener-soundscape interaction. How does one handle the noisy, urban environment, from the perceptual, communicational and aesthetic 'points-of-view'? Does this modern soundscape offer a new musicality, or is it simply imbalanced? How can one combine an ethnographic approach to the environment with more quantifiable (although still subjective) methods such as sound counts and level measurements?

The second component of the synthesis, which comes out of the interrogations triggered by the first requirement, is the central role of social and cultural features of an environment and their relation to the actual listening habits and perceptual processes of listeners. It was already clear with the World Soundscape Project that noise bylaws, for instance, can be read as cultural indicators of sound phobias and acoustic signs of power relationships. With the Swiss comparative study conducted by Pascal Amphoux comes another type of cultural feature, the qualitative criteria, also described as the "*confort sonore d'un milieu*" (the acoustic comfort of a milieu) (1991, p. 198), referring to the often unnoticed process made up of attitudes and internalised images that shape the way one "hears" and describes the soundscape. With the sound effect, every sound perception is accompanied with an effect, a contextual interpretation or shaping of the sound signal, including cultural phobias or symbolic attributions. The social and cultural components of the sound environment appear even more imperative to understand in urban settings, in

which a strictly ecological approach cannot account for the complex relationships and various reactions to a lo-fi environment, especially when it is dominated by constructed spaces, electroacoustic sounds, mediated communication and consumerism as social and economical forces. Furthermore, Truax (2001) states that, "to study systems [such as natural soundscapes], one must experience them and therefore even the natural soundscape must include a listener" (p. 65); this again emphasises the importance to understand how inhabitants listen to their environment and interact with it on a daily basis.

Finally, the development of simple and effective methodological tools seems necessary to allow soundscape studies to grow and become more integrated to legislative and design processes. Two of the four resolutions taken at the conclusion of the "Stockholm, Hey Listen!" conference in Stockholm (1998) clearly mention the need to "initiate research into all aspects of the sonic environment" (Karlsson, 1998, p. 129) and to "create and enforce legislation to protect the acoustic environment and the public health" (ibid.). The development of methodological models provides researchers, designers and legislators with practical tools to gather data and handle the complex dimensions of a sound environment. The combination of descriptive and analytical methods also allows collaborative work between various organisations, be they governing bodies, academic research groups or community-based organisations.

3.2.2 Objectives of the Case Study

Because of the inherently applied aspect of soundscape studies (after all, what *really* matters is what one can hear and experience, the "lived" soundscape), it seems natural to develop the synthesis into an actual case study. The area surrounding

Commercial Drive, in Vancouver BC (see Chapter 4 for details), provides a very interesting environment in which to study the relations between listeners and their soundscapes, notably because of the commercial/residential combination, the important and continuous flow of pedestrians and a varied urban social life. Furthermore, the research can benefit from previous data gathered by Christopher J. Smith in 1993, as part of a doctoral dissertation work, and which can be used for to compare or contrast the situation, ten years after.

The case study fulfils four objectives, the first one being linked to the synthesis itself, and the three other ones concerning more specifically the Commercial Drive soundscape and its analysis. Firstly, it provides an opportunity to experiment practically with the synthesis, in a way to understand the feasibility, strengths and limitations of the approach. The unfolding of the case study and the resulting information will be assessed in terms of the four initial objectives of the synthesis, and may eventually lead to modifications or enhancement of the model. In the meantime, the various interactions and interconnections between each model will be emphasised and discussed, in a way to make possible a multi-faceted study of the sound environment.

Secondly, the study makes it possible to present a thorough description of the Commercial Drive soundscape, as it is heard and experienced by its inhabitants. A "sonic portrait" of the district, with its particularities and its more conventional sound signals, could be produced through purely statistical analysis of sound counts and measurements; however, such analysis would fail to take into account the everyday social and cultural experience of the sound environment, its enactment and shaping through people's behaviours and perceptions. The emphasis on subjectivity and the combination of

ethnographic and more quantifiable methods will permit such a perceptual and cultural analysis.

The third objective of the case study is to describe the sonic identity of the area, a process in which one does not simply enumerate problems encountered but also attempts to " '[diagnose] the benefits' i.e. to make inquiries about situations of well-being and also to promote favourable conditions of specific sound qualities on urban space" (Hellström, 2003, p. 146). Pascal Amphoux (1991, 1993a, 1993b) has developed an extensive set of methodological and analytical tools to qualify and describe the sonic identity of an urban space, some of which will be integrated to our research project. Our project will emphasise the use of qualitative criteria and their interaction with acoustic communication concepts.

Finally, the applied study enables us to present, as they appear, various problems of design or issues of noise pollution in the area. These will be framed contextually, that is to say, in relation to their perception, signification, of absence thereof. Using principles of acoustic communication and acoustic design, these issues may be discussed from an interdisciplinary and process-oriented perspective, in which a particular problem can be linked to various interconnected "causes" or structures that must be addressed globally.

3.2.3 Presentation of the Methodology and Analytical Framework

A clear methodological and analytical framework has been proposed to fulfill the objectives of the synthesis and the case study. The main structure of the methodology is based on Amphoux's survey techniques (1991, 1993a). Sonic mind maps, phono-reputational inquiries and reactivated listening sessions will be used to explore the way in

which inhabitants of Commercial Drive perceive, understand and learn about their sound environment. Parallel to this first approach, a series of techniques used by the WSP, including sound level measurements, sound counts and soundwalks, is to be produced in order to compile more quantifiable information about the various aspects of the neighbourhood. When merged together, these two approaches (the first one dealing with listeners and the second one with the sounds and the environment) provide an overall "sound portrait" of the soundscape of Commercial Drive, its main features, the spatial distribution of sounds, the various judgments of its inhabitants, etc. Listening walks will also be used, together with a sound diary compiled by the researcher, as an ethnographic means to express the changing perception of the soundscape throughout the case study.

These various ways to treat and explore the soundscape also serve the multidisciplinary aim of the merged model; by comparing the "results" of each approach, one can observe and assess more easily the contextual nature of any acoustic system and the way in which all of these aspects of the environment (be it personal stories, the balance of the soundscape, its cycles or the cultural assumptions of listeners) interact with each other to shape our experience. The mind maps, for instance, can be compared to maps of spatial distribution as produced by the researcher, in a way to draw connections between a quantitative representation of the soundscape and its actual perception. Reactivated listening sessions also appear as extremely valuable techniques to produce a more contextualised, experienced sound portrait, as they offer the researcher a certain control over the construction of the audio sequences while providing interviewees with concrete material to comment and reflect on.

The merging of these two approaches will also serve a further analysis of Commercial Drive as an acoustic community. The Drive has often been valued for the sense of community that exists among its inhabitants and the rich social life that exists in its neighbourhood. Since according to Truax (2001) most "types of communities are supported in their definition by the role that sound plays within them" (p. 66), we can therefore evaluate Commercial Drive based on its various sonic features, such as its important sound signals, the cycles found and expressed by inhabitants and an overall assessment of the balance of its soundscape.

In his methodological guide (1993a), Amphoux also proposes two analytical tools in the form of a *chart of sequential analysis* and a *sonic identity chart* (see Appendices D and E). The first form consists of a summary of the comments gathered and a basic interpretation for each of the sequences presented in the reactivated listening sessions. The sonic identity chart, on the other hand, provides a more in-depth analysis of each location based on all listening sessions and a re-actualisation of the hypothesis and interpretations of the researcher with the help of Amphoux's *qualitative criteria*. These two analytical tools will also be used in our case study, as they provide a good summary of the various perceptions and comments of listeners, and they also produce a series of important criteria used in the assessment of various locations. Qualitative criteria express particular ways to listen to one's environment, based not only on the objective sound environment but also on the perceptual role of an active listener, one who shapes—consciously or not—his or her understanding and assessment of the soundscape. They can therefore be used collaboratively with Truax's communicational model, in which

"acoustic experience creates, influences, and shapes the habitual relationships we have with any environment" (2001, p. 13).

The model proposed by Amphoux has originally been designed to describe the sound environment of a whole city and to make possible a subsequent comparison with other cities. In our case, a single neighbourhood will be analysed, with no comparative intentions other than perhaps a look at a previous study of the same location, conducted about ten years ago (Smith, 1993). The scale of the project is therefore very different, and this will be reflected in the number of interviewees and locations to be studied. In Amphoux's methodological guides (1991, 1993a), for instance, it is suggested to produce (in each city) 20 to 50 sonic mind maps, to interview about 10-15 people in the recorded interviews, to choose 3 or 4 locations for each dimension of the sonic identity (C-V-S) and to conduct 6 to 10 reactivated listening sessions. In our case study, the number of maps could go from 12 to 25, and the number of people interviewed in the phono-reputational inquiries and reactivated listening sessions will be more limited (4-8 for each), due to the smaller scale of the environment to be studied. Finally, one location will be chosen to represent each of the sonic dimensions (known, lived and sensed) defined by Amphoux.

CHAPTER 4 CASE STUDY – COMMERCIAL DRIVE, BC

4.1 Summary of the Research Components

The neighbourhood selected as a case study proved to be a very receptive and fulfilling space of research. Commercial Drive is known for its strong sense of community, the presence of a very culturally diversified population and a certain *hipness* expressed notably through a vivid artistic life and a number of massively frequented cultural events. Located in the Grandview-Woodland district of Vancouver, BC, the Drive was historically known as the Little Italy, as many Italians, along with Chinese and East European immigrants established in the neighbourhood after the First and Second World Wars. In the seventies, Commercial Drive became the home of a growing "counter-culture" composed of "students, feminists, artists, pre-, semi- and full-professional" (Smith, 1993, p. 115). While the influence of these various groups remains clearly visible on the Drive, filled with Italian cafés, ethnic restaurants and various cultural venues and eclectic stores, its neighbourly character seems to have shifted in the last couples of years, as crime and drug dealing and the presence of panhandlers have increased (Smedman, 2003). I chose to focus my research on the most "commercial" portion of the Drive, in the quadrilateral constituted by Venables, Broadway, Woodland and Victoria. However, most participants, even when they themselves lived on avenues, commented almost exclusively about the Commercial Drive street itself, with few exceptions such as Victoria and McSpadden Parks. The fieldwork, including multiple series of interviews, recordings and various measurements, was completed during the

months of January, February and March 2004; 21 persons were involved in the study in either one or many interviews.

Twelve inhabitants and various other 'users' of the Drive filled sonic mind maps and questionnaires during the two first weeks of the study. The range of participants extended from a homeless person frequenting the Drive to a worker at the Commercial Drive Business Society, and included also students, parents, and a storeowner. This first step (which consisted basically in walking down the street, questioning random people on the sidewalk or at cafes and parks) proved to be extremely rich in primary information about the sounds and locations of the Drive which would later prove to be valuable in a general assessment of its acoustic community. Furthermore, the entire days spent on the street also provided the researcher with a better understanding of the daily life and cycles first invisible (or should we say inaudible) to a foreign listener. Along with a short questionnaire presented verbally to participants (see Appendix D), two types of forms were used to draw mind maps. A blank rectangle was first presented as an empty space on which participants could draw or write. Another form, which already included the main streets and park locations, was also available for those who might be unsettled by a blank page or an absence of geographical landmarks (this happened once).

Sonic mind maps were often used as "icebreakers", resulting in interactive discussions about the soundscape of the Drive and the various locations and sound sources identified by participants. The drawings themselves (see samples in Appendix C) were used not only to begin the selection process leading to the choice of three locations to be presented in the reactivated listening session, but were also analysed in terms of the choice of sound sources, their placement and numbers, the mapping of the sound

environment and the various iconic representations found (people, nature sounds, architectural features, importance of the street and sidewalks...) throughout the samples collected.

Sonic mind maps and questionnaires notably revealed the importance of public spaces and social interactions (drawings of people talking, zones of interaction, or even a generic "TALKING" label inscribed throughout the Drive) in inhabitants' perception of "their" sonic Drive. Furthermore, it quickly appeared that this "publicness" of the Drive is experienced primarily through sounds and ambiences, which allow one to move from the "anonymous cafés with their constant hustle-bustle[1]" to other places such as markets and various stores in which they expect to meet people they know on various levels, but also a particular acoustic setting which will shape their way to interact. Cafés, restaurants, markets, Grandview Park and Britannia Centre were all chosen several times as examples of positives soundscapes, while the intersections of First and Commercial as well as Broadway and Commercial were always described negatively. Soundmarks of the Drive such as the constant mix of languages, street musicians and music leaking out of coffee shops and restaurants are easily revealed by long-term inhabitants but do not always appear in accounts of newer inhabitants or foreign "users" of Commercial Drive.

Once this initial step was completed, the first series of interviews (or phono-reputational inquiries, as Amphoux calls them) were organised over the next weeks. Recommendations made by Amphoux in his methodological guide (1993a) concerning the types of participants and their role as either "users of the city" or "representation of the city" were followed as much as possible. However, it appears that the 'unusual'

[1] The following descriptions are quoted mainly from phono-reputational inquiries, and in some cases from the on-street questionnaires used in the first part of the methodology.

subject of the interview and the fact that people often feel they "lack the specialised knowledge to talk about sound" made this first series of interviews more difficult to achieve. In the end, five persons were interviewed, including an active musician playing in many venues of the Drive (Jean), one person involved with the Grandview Woodland Community Policing Centre (Lucie), two university students (Diane and Jane) and a long-term inhabitant of the Drive (Josh). The interview focused mostly on the selection of locations that seem to possess particular sonic features and the description of these spaces by participants. Other topics including sound memories, discussion about sounds that seemed "representative" of the Drive, personal judgements on the overall soundscape and its changes through time were also addressed.

This second step partly confirmed some of our earlier observations, notably in terms of the selection of spaces possessing particular features and the features used to describe and qualify the Drive's soundscape. Various cafés and restaurants on the Drive were described by participants as examples of positive soundscapes. Italian cafés such as Calabria, Abruzzo, Roma and Continental Coffee are particularly appreciated and commented on, partly because of the historical importance they have, the multicultural experience they offer, their strong acoustic identity (reverberant qualities, dense soundscape filled with foreign languages— and particularly Italian male voices, various coffee machines, cups and dishes handling, Mediterranean music, etc.) and the fact that they somewhat "represent" the whole of Commercial Drive.

These locations, like most of the other ones mentioned and described by participants, are perceived as important spaces of socialising that define the "neighbourhood" character of the Drive and its localness. Other cafés and restaurants

including Havana, Waazubee Café and JJBean were also mentioned several times. For long-term inhabitants who frequent these cafés, there exists a sort of habituation, a built-in knowledge of these places, their particular sound signals and the people one can expect to encounter in each location. Diane commented: "Havana, it's mostly just general hustle and bustle of the people, inside of the restaurant. Calabria, I'm thinking more the machines, the coffee machines. Turk's, more mood music..." One thing that is common to all these locations is their extension on the sidewalk through terraces and/or large (opening) windows. Inside and outside spaces are often blurred, and participants interpret this as an extension of these inside social spaces onto the Drive itself. Music, voices and "the sound of people interacting" (as Josh called it) are all spreading out on the sidewalk; for Lucie, the soundscape of these locations is "not even leaking out, it's meant to be out".

Furthermore, for inhabitants the social life taking place on the street itself appears as important as localised (and commercial) spaces of interaction such as coffee shops and restaurants. Street musicians, for instance, are considered by Lucie as "one of the defining features of the soundscape", "[they] civilise the place"; they are soundmarks of the Drive. They can be heard (when the weather permits it) at various locations, including Grandview Park, near the Government Liquor Store, on the Napier greenway facing Britannia Community Centre and into the Commercial Drive SkyTrain station. Some of them are known by participants, who can even sometimes specify where and when each musician plays. Lucie adds, "we use to have one single guy who was always at the Liquor Store playing the guitar, he was good, he's not here anymore but he was here for ten years".

Other exterior places of social interaction include the various fruit and vegetable markets and the few parks located around Commercial Drive (Grandview, Victoria and McSpadden Parks notably). Participants most commonly mention two markets, Santa Barbara and Norman's Fruit & Salad, as possessing distinctive soundscapes. Various languages, loud and lively interactions and discussions about "what's a good deal or not" are intermingled with the sounds of plastic bags, food handling, carts, and the constant background of car traffic. Grandview Park, on the other hand, features according to participants a constant mix of children voices, playing and yelling, their parents, and various buskers including drum players and many guitar players, and at times, according to Jane, "people trying to hawk stuff" along Commercial Drive. While it is not considered as a quiet location, Grandview Park is appreciated because it provides a temporary relief to the loud traffic noise on the Drive, and the presence of joyful interactions and nature sounds (birds, and wind blowing through trees) makes it a somewhat "refreshing" space.

Locations that were depicted negatively by participants tend (but are not limited) to be the noisiest intersections on Commercial Drive, in accordance with our previous findings. However, the recorded interviews allowed a more in-depth understanding of this negative perception, subtler than the simplistic *it's-noisy-therefore-I-don't-like-it* type of assessment. In the case of First Avenue and Commercial Drive, for instance, the intersection is described by Lucie as the place "where we interact with the others [*others* referring to commuters who drive through to reach suburbs] [...] that's the invasion of the other and they're always going through". Furthermore, the fact that First Avenue is one of the only intersections on the pedestrian-oriented Drive where "you are forced to stop and listen to traffic" reinforces a negative assessment by shifting one's attention

from either visual (storefronts, other people walking by) or sonic clues (discussions at cafés or with someone else); "When you're forced to stop, it's unpleasant and it makes you think 'I wish they'd go away', whereas the same guy just turns left and start going [on Commercial Drive], and you're walking alone, it doesn't bother you, it's just a car."

In the case of the Broadway and Commercial Drive intersection, negative assessments of the soundscape are intermingled with resentment about the radical changes (both visual and acoustic) that took place in this section in the last twenty years and the various social problems associated with these transformations. The construction of two SkyTrain stations, in 1986 (Broadway Station on the Expo Line) and 2002 (Commercial Drive Station on the Millennium Line) has brought a much larger flow of commuters, and filled the space with new structures and new sounds. Although the sound of the SkyTrain itself (often described as a futurist and somewhat soft or fleeting sound) can only be heard in the immediate surroundings of the stations, the accompanying changes in the landscape and the soundscape, now filled with transportation noises including cars, buses, heavy trucks, a train and two SkyTrain lines, are for all participants signs of a deterioration of this neighbourhood. The Broadway intersection has also become a more anonymous environment, and has been adopted since then by drug dealers and panhandlers (Smedman, 2003).

The "noisiness" of this intersection has therefore as much to do with the temporal changes experienced by inhabitants than with its actual unbalanced and loud soundscape; Lucie comments:

> I hate the sound of it partially because I hate the look of it [...] It used to be all trees, only cars, then they built the overhead SkyTrain, and that was

> a blight. And then they took out even more trees and put the other SkyTrain, so I hate it so much that the noise of it bothers me a lot!

Diane also comments:

> "I certainly remember when there was no SkyTrain and stuff like that, and a slower pace, things weren't quite so hustle and bustle [...] I used to associate it to the railroad track, but I don't anymore [...] I also think it's no longer the dominant sound, everything else overpowers it, you don't even notice really when a train goes by"

In these two first locations, transportation noise overpowers human sounds and prevents interaction, even though there is a large number of pedestrians in most daytime periods. In the case of the two other locations, negative comments are based, on the other hand, on the actual absence of human interaction, which again makes traffic noise the dominant sound. We can observe in the Commercial Drive sections extending from Venables to William and from 4th to 7th Avenue a sudden drop in the number of pedestrians, while car traffic remains fairly consistent along the Drive. A pedestrian vs. cars count has revealed that while car traffic on the Drive remains at an average of 256 cars per 15 minutes, the number of pedestrians is significantly lower in these two sections (130 and 172 respectively, compared to 258 in front of Grandview Park and 325 between Graveley and First Avenue) (see Table 1). Lucie, talking about the 4th to 7th Avenue section, says: "People are not comfortable there, there's no noise, there's no people coming in and out, it's just dead. And I think that kind of dead air, dead soundscape makes people less comfortable, it's quieter for sure but nobody likes it". Again, there is an expectation of a busy soundscape on the Drive, and traffic constitutes a part of that acoustic image for many inhabitants. Jean says: "The outside I expect it to be noisy, like now, there is always traffic, foot traffic, there's always people shopping, it's always busy.

[...] I think it is the interaction of everything, the traffic and the people, because if you took one away, it wouldn't be quite the same thing."

Table 1 Cars vs. Pedestrians Count (15 minute period)
(Taken on a weekday between 12:00 and 2:30PM)

	Commercial and 7th Ave	Commercial and 4th Ave	Commercial and 1st Ave	Commercial and Charles	Commercial and Parker	Average
Cars	265	255	250	260	251	256
Pedestrians	172	252	325	258	130	227

4.2 The Three Representative Locations and their Analysis

Once these two first sets of interviews were completed, enough information had been gathered to choose a few locations to record and use in the reactivated listening sessions. In accordance with Amphoux's methodological guide (1993a), those spaces were selected based on the C-V-S model describing the various types of relationships one can experience with the surrounding soundscape. Each of these dimensions (known, lived and sensed, or *connu-vécu-sensible*) is represented in this case study by one location that expresses it particularly well.

4.2.1 Selection Process

The first dimension, the *known* soundscape, is provided through the choice of a "representative" location, one that expresses the sharing of a common knowledge—what constitutes for Truax (2001) an acoustic community. Café Calabria was chosen as a sonic symbol of the Drive, since according to participants its soundscape not only can be recognised based on the identification of *known* features (Italian male voices, European music, a particularly reverberant acoustics, etc), but it also seems to "represent" what the

Drive is; it acts as a soundmark of the neighbourhood. While any Italian café may have been chosen, Calabria was specifically selected both because it was the most commonly mentioned, and it possesses strong acoustic features that provide clear clues about the location.

The second type of relation one can express about a sound environment is the lived dimension (*le vécu*). Here, the perception shifts from a symbolic understanding of a soundscape to a more experienced, *lived* one; sounds reveal a daily knowledge inaccessible to foreign listeners or tourists. They become sonic indexes, signs that are more contextualised, they express a more intimate and often more unconscious understanding of the soundscape. Grandview Park was selected as an "expressive location" (Amphoux, 1993a, p. 16; my translation); while it can easily be identified as urban park, a more specific identification necessarily requires a certain experience of the soundscape, one that is not simply symbolic or representative.

Finally, the third dimension, the sensed soundscape, "is defined as the proper quality of sound by which one forgets its reference to factual reality" (Hellström, 2003, p. 152). Sounds become iconic, they move from being signs of something to being a thing in itself, and which does not necessarily belong in our case to a specific street, neighbourhood or city. Fruit and vegetable markets were chosen to fulfil this third type of sonic identity, because of their particularly evocative character as urban icons.

This tripartite selection therefore allows us to explore the various ways in which inhabitants relate to their sound environment, and how they express and enact their knowledge of the Drive, notably through their ability to identify locations, the sonic aspects they decide to emphasise and the way they reformulate their own experience of

the soundscape. The three locations were not simply chosen as representative or necessarily positive soundscapes of the Drive; they each trigger particular modes of perception and awareness, they are respectively representative, experienced and sensed sound environments. It is the listening process rather than a description of the soundscape itself that is explored in this first analytical step. With Truax's model of acoustic community, the listening experience will be more generalised, the analytical process will move to a shared experience of the soundscape of the Drive. This process will eventually help us in understanding the relation between what Truax called a "soundscape competence" (2001, p. 57) and the actual performance of this knowledge (notably in a situation of reactivated listening).

4.2.2 The Recordings

Extensive recordings were done in each location, throughout a one-month period and covering various times of the day and days of the week[1]. Each recording session was accompanied with a short information card indicating the time and day of the recording, the location, weather, sound levels in dB and any other valuable data on the location or the specific sequence. Amphoux (1993a) recommends the use of a descriptive chart summarising comments and observations from participants, to orient the recording sessions in terms of compositional aspects (what is heard and remembered for each location) and the intentionality of the eventual audio sequence (various observations and early hypothesis on the overall perception of the actual soundscape). While this chart was used in our process, recordings were not limited to those elements present on the chart,

[1] Recordings were done using an AT825 stereo microphone, a pair of Seinnheiser binaural microphones and a Digital Audio Tape recorder (Tascam DA-P1).

but also encompassed various sound events or ambiences that were not mentioned by participants. However, Hellström (2003) emphasises that:

> It is important to keep in mind that the three categories of sonic environmental characteristics—sonic signals, sonic background and sonic ambience—function as supportive tools when making recordings i.e. if the prevailing acoustic space at a certain place is characterised in terms of 'sonic signals', it is necessary to make a recording that properly emphasises such sounds (p. 157).

In our three locations, for instance, vocal interactions appeared (based on the interviews) on one hand as belonging to the ambience in Calabria, and on the other hand as signals in markets and Grandview Park. This has been reproduced in the final sequences, not only to provide the listener with a more "recognisable" (as opposed to more realistic) soundscape, but also to emphasise possible divergences between one's *memory* of a soundscape (which somewhat constitutes a broad and unconscious competence) and one's active *perception* of that location in a mediated situation. Recordings were selected to comprise enough sonic elements as mentioned in the questionnaires and interviews. In accordance with Amphoux's (1991, 1993a) recommendations, transparent editing techniques were used to combine various segments together and create three "complete" sequence, each one averaging five minutes in duration.

The first sequence, Café Calabria, is made up of mainly one continuous excerpt which lasts 5 min 44 sec (see Appendix H). Any major editing was made impossible by the presence of a background music playing constantly throughout the day. The only element that was added was a short vocal interaction between an employee and a client. The loud and joyful discussion between the two Italian males was seen as a concrete clue

for identifying the location of the recording. The sequence presents a busy afternoon at Calabria. The listener is positioned in the middle of the main area of the café, facing the cashier (where coffee is also made and served). A dense mix of voices (mainly male voices, speaking both Italian and English with an accent) fills the space and varies continuously in intensity. Other signals include clinking of mugs and plates and utensils, chairs being moved, cashier's sounds, and some thumping and banging from coffee making. Background Mediterranean-style music plays continuously, until it fades out at around 4:35. The humming of large fridges then becomes more audible, and the intensity of discussions lowers. Traffic rumble filtering through windows can be heard at times. Many people enter and leave the café, therefore letting more traffic noise enter for a moment. The reverberant quality of the space (qualified as "cavernous" by one participant) can be heard through the blurring of people's voices into a general brouhaha, the particular filtering of the music and by the subtle reverb quality of the shorter, sharper sounds of cups and plates handling.

The second sequence, Grandview Park, comprises several excerpts that have been mixed together to re-create the largeness of the park and the wide variety of sounds that can be heard. The listener is located in the centre of the park, by the playground, and faces Commercial Drive. Traffic can be heard in the front, clearly positioned in the distance, and well spatialised (one can actually hear cars and buses moving from left to right). While the variations in traffic flow can be heard at times, the continuous rumble seems to surround and in some sense invade the space of the park. In this sense, some elements of traffic (electric glissando of the bus, brakes, louder cars) can be considered as signals, while the lower rumble of the city drone and planes passing overhead belong to

the sonic background of the park. Other signals include the shouts and laughs of children playing in the foreground, some buskers (including an amplified country singer/guitar player, some drums and an acoustic guitar player), male and female adult voices, and some footsteps. Some birds, sounds from the playground and the continuous voices of children playing constitute the sonic ambience. The sequence lasts 5 min 16 sec.

A market sequence was also constructed with segments coming from two different actual locations, Santa Barbara and Norman's Fruit and Salad. Both places are very popular on the Drive, and are filled daily with a varied group of customers. Participants always described markets as being important exterior places of interaction where voices dominate. Recording sessions soon revealed the predominance of traffic (the fruit and vegetable displays being right on the sidewalk by Commercial Drive), against which customers sometimes have to fight to be heard. The listener is positioned in front of the (merged) market, with traffic passing behind in waves regulated by a nearby intersection light. The sonic background is therefore constituted of a heavy traffic rumble, while generic sounds of passers-by (footsteps, crumpling of clothes and bags, etc) and sounds particular to markets (carts, handling of fruit and boxes, plastic bags, cashier beeps) create the ambience. Moving voices of passers-by and customers can be heard in different languages, and are sometimes interrupted by fairly loud waves of traffic noise. For a short moment, at around 2:25, the overall soundscape shifts as we move closer to the displays; traffic becomes slightly muffled and voices are enhanced. This last sequence lasts 4 min 35 sec.

4.2.3 Reactivated listening sessions

The three sequences were presented individually to five different people, including one person, Diane, who previously participated in the recorded interviews. Other participants included a writer/university professor (Thomas), two graduate students (Matthew and Judy), and a professor/sound artist (Lindsay). Apart from Lindsay, all participants had a relatively good knowledge of the Drive. Reactivated listening sessions consisted in the participants listening to each sequence and commenting freely on what they were hearing. Both headphones and loudspeakers were used, and sequences could be played more than once. After each sequence as well as at the end of the listening period, the interviewer would ask a series of questions concerning notably the identification of the sequence by the participant, its description and appreciation, and other associations triggered by the segment (see Appendix D).

For each sequence, a chart of sequential analysis (see Amphoux, 1993a, p. 30 and Appendix E) was created and updated after every listening session. These charts allow a first summarisation of participants' comments and help the researcher in updating his or her interpretation and observations. Each chart (one per sequence per person) includes information about the participant, preliminary observations from the researcher, a condensed transcription, particularly evocative quotes and expressions, a description of the participant's attitude and finally an actualisation of the researcher's analysis. This chart provides two main advantages: it orients the discussion and further theoretical analysis by allowing a continual update and reassessment of the researcher's hypotheses, and it facilitates the comparative analysis of individual reactions to each sequence.

In his study of the soundscape of Commercial Drive, Chris Smith (1993) also used recordings during interviews "to help respondents overcome some of the difficulties faced in verbalising their own acoustic experiences" (p. 101). Sequences from the Commercial Drive neighbourhood as well as from other locations were presented to participants, who were asked to identify them. In our case, identification is only one aspect of the analysis; in fact, in many cases the inability to identify a location enhanced the listeners' perception of the various signals and ambiances. Also, the emphasis of reactivated listening sessions is on the analysis of the dynamic relationships between one's experience of a particular soundscape and one's self-representation of it. Questions accompanying each sequence (see Appendix D) therefore explore the various links between what is heard (description of the sequence), what is remembered (associations and memories), what is liked or disliked (appreciation of the sequence) and how one actively interprets the various sounds in a sequence (interpretation and meta-language).

4.2.4 The Sonic Identity Chart

In the final step of our first analysis, sonic identity charts are filled based on the overall summarising of previous charts of sequential analysis and various research observations. A sonic identity chart provides the core features of a sequence and the way it is perceived, described and actively interpreted by participants in a mediated situation. Again, the emphasis is not so much on the recording or the location itself, but rather on the way listeners relate to this space through listening, and the exploration of the various *tactics* (as Michel de Certeau would call them) they use when trying to make sense of the sequences. These modes of listening correspond to the various qualitative criteria described at length in Amphoux's methodological guide (1993b). The chart provides

researchers with an analytical summary of the reactivated listening sessions, in combination with previous interviews and observations.

A sonic identity chart is divided into four main components (see Amphoux, 1993a; Hellström, 2003; Appendix F). The first section provides general information about the sequence (dB levels at time of recording, description of the audio clip), its reception (identification and overall comments) and the listing of sound effects observed either by the researcher or indirectly by participants (some of which will be discussed further). The second section consists in a synthesis of observations and comments listed under four headings: space, time, semantic/cultural and sonic material dimensions. Then, in the third and main part of the chart (for which we will provide further analysis below for each location) are listed the various qualitative criteria observed by the researcher in the analysis of participants' interviews. The last section presents a number of quotes from the reactivated listening sessions which either possess strong evocative values, or illustrate particularly well a particular aspect of the analysis.

4.2.4.1 Café Calabria

The first location, Café Calabria is characterised by a strong environmental listening (E), that is, a tendency for listeners to describe the sequence analytically, with a certain distance and objectivity. This is also reflected in the large number of criteria of quality noted in participants' descriptions (see the sonic identity chart). Volume and sonic relief of the various layers of voices and noises and juxtaposed over a musical background create a soundscape in which the listener possesses a personal space, while being constantly in connection with the surrounding soundscape. This soundscape is heard as 'public' for two main reasons, both being tied to the primary active role of vocal

interactions in the sequence. Firstly, the dense and dynamically changing flow of voices creates a background mask for more intimate and closer interactions. While one can 'eavesdrop' on discussions at neighbouring tables, voices quickly become unintelligible past a certain distance. Secondly, the changing intonations and rhythms of the various Italian voices seem to express a particular type of social setting. When visiting Cembra, in Italy, the WSP team noticed that "outdoor speech tends to be louder than that indoors. If this is so, the Italians have more opportunity to practice. And having mastered the art they take big voices back indoors with them" (Schafer, 1977b, p. 17). When listening to the Calabria sequence, Thomas commented: "I like the 'publicness' of the language [...] there is an easier transition between inside and outside spaces." Here again, it is the interaction between European accents, the loudness of male voices and a particularly reverberant space which seem to create the "socialness" of the sequence. Another criteria expressed by participants and belonging to an environmental appreciation of the sequence is atemporality, that is, a feeling that the recording seems to escape time and thus triggers memories of such timeless moments. According to Lindsay, "there's nothing indicating you've got to go on a bus, there's no bell ringing or anything, no phones or whatever [...] That's why you go for a meal, it's to be taken out of time for a little while and maybe there's a little part of that [in the sequence]."

Some of the criteria of qualification (expressing a lived, experienced listening, one in which the listener feels involved) found in participants' comments include a standardisation and privatisation of the ambience. Standardisation refers to a "tendency for sounds to be assimilated with standard models" (Amphoux, 1993b, p. 10; my translation), and therefore to be heard as stereotypical. In this case, the simultaneous

presence of specific types of sounds and interactions is quickly (and somewhat vaguely) picked up as a café-restaurant soundscape: Matthew: "I hear sounds of what's probably a café, I hear background music, people talking, registers, a bit of just general commotion and ambiance from people in activity". Privatisation, on the other hand, refers to a "process of idealisation that consists in implicitly or explicitly qualifying a urban soundscape based on characteristics of belonging to the private sphere: appropriation, intimacy, small-scale, enclave, protection" (Amphoux, 1993b, p. 19; my translation). Many participants discussed the role of the café ambience in creating an intimate sphere, what Lucie called "your little island of sound"; in this sense, the café soundscape must allow both a public interaction and a more 'private' one.

Finally, in terms of criteria of qualitativity, the main criterion used by listeners is typicity, an "aesthetic experience in which one finds pleasure in the consciousness of the knowledge of a sonic signature" (p. 23; my translation). According to Amphoux, "appreciating the typicity of a soundscape does not simply mean recognising what is typical, but rather what makes it typical" (ibid.). Participants who identified the café became aware of their unconscious intimate knowledge of the location, and expressed a certain pleasure in being able to apply that knowledge. Diane, for instance actually heard and recognised the voice of one of the owners, but initially hesitated to identify the location based on this crucial clue. A second listening nevertheless confirmed her impression, and she suddenly became aware of her inner knowledge of Calabria.

Sound effects found in this sequence include notably wave, metamorphosis, anamnesis and phonotony. A wave effect, as its name indicates, is perceived as a constant change in intensity which creates cycles that are somewhat similar to those of waves.

("Every now and then you could hear the rises and fall of people's voices" commented Judy). Here, it is the changing of both the sound level of voices and the density of the discussions which create this effect. Augoyard and Torgue (1995) states that "metaphorically, we could say that the wave effect pertains to the collective order of the world, or even more, to the domain of the numbers." (p. 162; my translation) It expresses an image of large-scale socialisation clearly heard and interpreted as such by participants. Another effect heard is that of metamorphosis. Augoyard and Torgue describe the *effet de métabole* as a:

> Perceptive effect describing the unstable and metamorphic relations between elements of a sound ensemble. A classic figure of rhetoric, metamorphosis characterises the instability present in structural relations that link parts of an ensemble and the resulting possibility to swap elementary components of a totality, making it perceived as being in perpetual transition. (p. 86; my translation)

Crowds (and large social spaces of gathering) often create a metamorphosis that may sometime make communication difficult. In our case, the listeners' attention constantly switches from individual voices or noises to the more global soundscape, the ambience created by random discussions and perceived as a background to one's own discussion. The effect is also reinforced by the reverberant qualities of the spaces that blurs the distinctiveness of individual sound productions.

The anamnesis effect is common to most situations of reactivated listening; in fact, it is a desirable effect in this particular experience. It refers to the triggering of a memory by a sound (contrary to a sound memory, which is the remembrance of a sound *in* a memory). In reactivated listening sessions, the sequences heard can be more or less evocative of lived experiences, but in most cases, participants will start describing

memories that are in one way or another triggered by the recording. Diane, for instance, stated that "For some reasons it's [Calabria] the sort of place my father would probably frequent [...] The type of places where it's most like, like I said, older men who gather around to shoot the breeze with their buddies..." Judy also said: "I used to be a waitress for twelve years so it brings up that, and I love it, it was my favourite job, I loved the atmosphere, I liked the vibrancy and the excitement, so it brings that for me, definitely, that feeling of running around and being on the edge." This quote also illustrates a feeling of phonotony, that is, the feeling of euphoria provoked by a sonic perception. While this effect is commonly associated to musical listening, it can also be brought up in a more concrete situation, and associated with criteria that we previously mentioned. What creates the euphoria can vary extensively; while it is commonly the triggering of memories (anamnesis), it can also be the perceived "socialness" of the situation or, again, its typicity.

4.2.4.2 Grandview Park

Reactions to the second sequence were more varied than with Café Calabria; people who frequent Grandview Park and recognised it as such were more inclined to give details and comment positively on the recording. Attitudes of participants were reflected by the various choices they made in emphasising or ignoring certain aspects of the recording. Natural sounds for instance, were either unnoticed or strongly emphasised; the city rumble, on the other hand, was always noticed but appeared at times as intrusive or comforting. Judy said:

> I like lively spaces, and I like living in the city, so I like those kinds of sounds [talking about the surrounding traffic noise]. I also like silent spaces, I like meditative quietness, but when I go outside, this is one thing

> that appeals to me in living in the city and walking around, that kind of energy, and I felt a lot of energy in that [recording].

The park is often heard as being bigger than it actually is. This auditory illusion seems to be provoked by the strong contrast between the foreground and the background or, to use Amphoux's terms, an absence of ambience. Matthew commented:

> It's hard to tell because the foreground and the background are very separated, or contrasted, and the middle ground is sort of this ambiguous zone, made of mostly filtering out the background, low-tone level of the traffic, and the louder sounds of children playing.

Sounds from inside the park are relatively of short duration and high pitch (voices, kids yelling, some drumming and guitar playing), while the surrounding low-frequency noise remains constant throughout the sequence. This reinforces the sense of emptiness and largeness of the park, and can even be interpreted creatively as an evocation of a surrounding danger, as Thomas comments:

> "There's that huge sense of contrast which symbolically, if you think of it as soundmarks, then you get total innocence menaced by completely overwhelming experience."

The disconnection between the foreground and the background is therefore always referred to as introducing a distortion, or a blurring of the soundscape. On the other hand, the presence of buskers quickly reveals the location to those who can recognise these soundmarks.

The recording presents seven important sound effects, including drone, masking and niche. The drone effect created by the city rumble remains an important and omnipresent keynote of the contemporary urban environment; it is what connects the park

to the surrounding neighbourhood, and what connects this neighbourhood to the city itself. As Augoyard and Torgue (1995) state,

> In many sound cultures, there is a connection between the low frequencies and danger, sadness or melancholy. This is well-illustrated by the Western European knell, but also by all warning signals such as bells and foghorns, which necessitate large propagation and therefore must use low frequencies, thus inducing a feeling of fatality. (p. 30; my translation)

The "innocent" voices of children combined with natural sounds and quiet interactions seem to emphasise this feeling of danger when contrasted to the city drone, distant but always present. The traffic noise also acts as a mask reducing the quality of the soundscape of Grandview Park. It fills the space and blocks quieter nature sounds and perhaps even shapes the way people interact. This may explain, for instance, the behaviour of children who use what Augoyard and Torgue call *pitch* and *rhythm niches*, shouting in high-frequencies to be heard over the traffic rumble. One of the street musicians located near the Drive adopts on the other hand an *intensity niche*, through the use of an amplifier that increases by the same way the range of his 'performance'.

In terms of criteria of quality, the first one to appear, as we already discussed, is the sense of openness heard by all participants. Right from the beginning, listeners can perceive spatiality and even overestimate it at times. Lindsay said: "Very spacious, it's my first impression, there's lot of space, with a lot of different perspectives, aurally speaking an openness about it, no sense of being enclosed by big buildings or anything." In the meantime, that sense of openness clashes with the perception of a sonic insularity caused by the surrounding drone of the city, extending even to the sky with planes passing overhead throughout the sequence. When buskers are heard and identified, they become sonic anchoring elements (soundmarks), thereby possessing an important

perceptual value. Two participants, Diane and Thomas, also mentioned the tautological play of voices accomplished by children: "And then there's kids interacting with each other but at the same time, kids don't really wait for feedback, they just talk to hear themselves talk..." A short reverberation caused by an adjacent wall (on the north side of the park) indeed reinforces children's shouts, while leaving normal-level voices unaffected.

The criteria of qualification (those which relate to one's *experienced* relationship to a sound environment, one in which the listener does not express objective features but rather personal values and ideals) found in this sequence are abundant. The first criterion used, derealisation, consists in a perceptive process in which the listener "artificialise" the sequence because it seems to be faked, surreal or plastic. Again, the strong contrast between the human foreground and the mechanical background is said (by Thomas) to be "like in the movies when everything is cool, you have the sunshine and everything but there's this sound in the background that tells you..." Here, not only does the soundscape appears as somewhat fabricated (what we call derealisation), but it seems to possess a certain narrative unfolding, it enters the realm of aesthetisation—thus the parallel with a movie scene. Another strong criterion used by participants is a metropolisation of the location and its various features. This is a common practice for urban inhabitants: it consists in a "tendency, often largely fantasised and idealised, to valorise sounds that evoke the city" (Amphoux, 1993b, p. 16; my translation). In this case, it may result in a mondanisation (a valorisation of sounds that reveal the 'urbanity' and the busyness of the city—fleeting discussions, traffic in the background...) or a humanisation (a focus on the omnipresence and importance of human communication—the park therefore becomes a

place of socialisation). On the other hand, bird sounds, when they are heard, are often strongly emphasised and partake in an idealisation of the natural components of the park and their role in the shaping of the soundscape, which Amphoux calls naturalisation.

4.2.4.3 The Market

The last sequence was recorded exclusively with binaural microphones, and therefore every participant heard it at least once through headphones. This decision was made after the first few attempts at recording the specific soundscape of markets with a standard stereo microphone: this technique created a strong disorientation and a blurring of the soundscape. Traffic noise became ubiquitous, and localisation became impossible. Localisation appears as particularly important in this sequence, since markets are situated right on the sidewalk (and thus are directly exposed to traffic noise), and one's experience of these location is strongly affected by visual clues and orientation (or, as Diane said, "you go up and down that street, *looking* for the best bargains..."). This is also reflected in the sharp contrast between participant's negative evaluation of the sequence when heard through loudspeakers, and a somewhat more interesting, or more complex experience when using headphones.

As with the Grandview Park sequence, the presence of loud traffic noise creates drone and masking effects. These are however more pronounced in the market sequence; the drone becomes so important that it creates a presence effect. Presence (or ubiquity) is an:

> effect linked to spatio-temporal conditions which expresses the difficulty or impossibility of locating a sound source. In the major variant of this effect, the sound seems to come from everywhere and from nowhere at the same time. In its minor variant, it seems to come from both a singular

> source and many sources simultaneously. (Augoyard & Torgue, 1995, p. 141; my translation)

The ubiquity of traffic noise in this sequence has a strong impact on listeners' identification and assessment of the soundscape. Not only does it prevent any possible orientation, but it also masks the important soundmarks of the location and "tricks" listeners as to where the recording took place. Four out of the five participants, including Judy, were surprised to realise the loudness of the traffic rumble when comparing with their memories of the actual location: "I'm shocked actually that there is that much traffic in that area [...] the traffic is the thing that, when I'm shopping, I've never noticed". Matthew said: "I didn't realise that the traffic was, would drown out as much as it does [...] I guess I don't notice it because I'm so busy looking and doing other things." According to Augoyard and Torgue (1995), this corresponds to an asyndeton effect, the suppression of a sound or a group of sounds in a perception or memory, a process often complemented by a focus on another specific sound or group of sounds, or an emphasis on visual clues.

The changing flow of traffic noise is often picked up as a sign of a nearby intersection; this creates a wave effect, and provides listeners with a temporal indication, along with the fleeting discussions of passers-by. Finally, a short digression in the sequence is heard when the reverberation shifts as the listener/microphone approaches the fruit and vegetable displays. This sudden change in the soundscape creates doubts concerning the location (inside or outside) of the recording, which forces the listener to re-consider the whole sequence, as Thomas told us:

> That [the inside/outside confusion] disoriented me, and I was put into a position in which I was guessing a lot of times 'where am I?' so I listened

> in a different way, trying to situate where I was rather than 'now I know, I'm going to listen to...' So I'd have actually less memory of the detail sounds, because I was trying to locate myself.

Matthew also commented: "I was going to say probably on the sidewalk, but it seemed to shift for a minute to be more inside the actual space, but then it shifted fairly quickly, sounding like it was still outside on that edge." However, once the location was identified by participants or revealed to them, this uncertainty was expressed as a soundmark of the Drive's markets, with their covered displays, pockets of dialogues inserted in the continuous rumble of car traffic. The noisiness of the sequence was also at times contrasted (and somewhat de-emphasised) with memories of the markets and the important social aspect they play on the Drive. Diane said: "I always feel like I'm getting something accomplished when I go to these stores, I don't know what [...] It's sort of like—even if it sounds stupid—it's sort of like an outing." This disorienting contrast between one's (partly idealised) representation of a meaningful location and the objective soundscape found in the recording is also expressed by Judy through a comparison with other types of shopping venues:

> I do like Santa Barbara as a shopping place, compared to Safeway for instance, which I find really awful. There's more sonic definition in Santa Barbara, inside. There's more variation. Even with what seems to me heavy traffic, though I can't picture Commercial Drive with that kind of noise, I'm shocked that it's on the recording, but it still seems like my memory of the place seems different than both recordings, because it seems more intimate, not as noisy, but still rushed, kind of packed.

The lack of clear soundmarks and a lo-fi soundscape forced listeners into a more analytical listening, which resulted in the expression of a large number of criteria of quality. One of the important criteria used is the degree of publicity, or 'publicness' of the location, expressed both through a discussion of the anonymity created by constant

traffic (which tends to isolate people and prevent communication) and—once the location is identified—the role of markets as creators of a particular type of interaction, based on the shared knowledge and the possibility of encounters they provide. Lindsay commented:

> If you bump into someone on the street like that, it is a place where you can have a short conversation and not feel obliged to stay, and also you're in the process of dong something, so that gives you an activity, a common goal, you don't have to just stand there.

Participants also express a very strong intentionality, that is, they tend to reject or depreciate a sonic situation partly because they ignore the actual source or location of these sounds. Once they know that they are listening to markets (and if they frequent these places themselves), their overall judgment shifts, sometimes drastically. Finally, the lo-fi soundscape provides an unstable compositional structure which results in the perception of a cacophonous environment; this is however at times resolved with the use of headphones; sound sources are localised and the attention shifts towards details and movements.

The sonic comfort of the sequence (i.e. its criteria of qualification) was expressed through three main aspects. A sense of indifferentiation could be found in the description offered by Lindsay, the participant the most foreign to the Drive—there seemed to be no connection established between the soundscape heard and any memory of a similar sonic experience; this led her to generalise about the sequence without feeling involved with it at any moment: "I could tell there were human beings doing something, couple of children voices and obviously on the street, but I couldn't tell what..." As long as the original location had not been found, participants also commonly expressed two forms of

stigmatisation, a de-humanisation and a form of abjection. De-humanisation refers to a "value judgment based on an *opposition between human and non-human.* The absence of human sounds in a sound sequence often becomes a reason to reject it." [emphasis his] (Amphoux, 1993b, p. 22; my translation). The role of the ubiquitous traffic in masking voices, combined with the disorientation first experienced by listeners, can provoke such a feeling, which in return shapes negatively their perception of the sequence. Abjection is a stronger although more vague feeling in which the listener expresses a strong displeasure or even a deception facing the noisiness or what Amphoux calls the *ignoble* or wretched character of the city.

Three criteria of qualitativeness can be objectified. First, two participants, Diane and Thomas, expressed some typicity concerning their ability to identify the markets: "the bags rustling sort of give it away [...] It's kind of odd, that I could recognise almost exactly where it's coming from!" "I noticed the traffic more here than in the other recordings, there were cars wheezing by all the time, it had a bit of a 'markety' ambiance to it, I could certainly sense that!" A sense of belonging was also expressed by inhabitants who frequent markets; this often shapes positively their assessment of the sequence, based not only on personal memories but also on the social and representative role that markets play on the Drive, often making them icons of the neighbourhood, or even icons of an urbanity, as told us Matthew: "It is like a postcard because the Drive is an ethnic neighbourhood, an immigrant neighbourhood, and also [I lived] in other countries [and] that's also a place of, the market of the town or the city is always a place that's got the same qualities". This clearly situates the market as a sensed soundscape, a sonic icon, since it becomes self-referential, its signification does not remain attached to a

specific location. Finally, a strong schizophony[1] is experienced by nearly all listeners on two levels: first, there is a confusion about the location of the listener (inside or outside), and also a sharp distinction between sounds coming from the front (vocal interactions, sounds from the market) and from behind (traffic noise) the listener. The second distinction tends to produce a stronger schizophonia in which listeners oppose traffic rumble (the urban, anonymous noise) to vocal sounds (which express a sense of community, a neighbourly activity centered around human interaction).

4.3 The Acoustic Community of Commercial Drive

Commercial Drive is often described as a vivid community, in the sense that its inhabitants feel they belong to their neighbourhood and the population is involved in making the street not just a street, but also a communal, shared space. It therefore seemed natural in this case to extend the notion of community to encompass the sonic aspects of the Drive, in a way to explore how they create (or not) a sense of acoustic community. As Truax states, "the *acoustic community* may be defined as any soundscape in which acoustic information plays a pervasive role in the lives of the inhabitants (no matter how the commonality of such people is understood)" [emphasis his] (2001, p. 66). The extensive interview process realised in the framework of Amphoux's methodological

[1] Amphoux (1993) gives to the word schizophony a different (or perhaps more developed) meaning than did Schafer with schizophonia (1977b). For Amphoux, three types of schizophonic situations can be experienced:

a) The first, and somewhat weaker schizophony is created when the listener, perceptually separates (voluntarily or not) the soundscape into two spaces (being on a shore, or in an entrance);
b) A stronger schizophony is produced when this physical or acoustic separation influences (unconsciously) the listener in opposing these two spaces or groups of sounds, and therefore favoring one over the other;
c) Finally, schizophony refers (more philosophically) to a tendency to separate and oppose two types of listening to the world (noisy vs. quiet soundscape, artificial vs. natural sounds...)—it is in this way a reflection of a larger ideological tendency (for more details on Amphoux's notion of schizophony, see 1993, p. 21).

guide indeed revealed several aspects of the way in which sounds are being communally used and interpreted (consciously or not) on the Drive, therefore proving the existence of an acoustic community.

These in-depth accounts, especially those gathered through the recorded interviews (since they consisted of a general exploration of the Drive's acoustic features based on long-term inhabitants' daily experience), provide information about the community's perception and understanding of the various signals and keynotes that would be hardly accessible to a researcher simply conducting sound counts, soundwalks or sound level measurements. While many of the features proposed by the WSP (Schafer, 1977b, 1977c, 1978) and Truax (2001) could be identified and assessed by an external observer through field observation and measurements (features such as sound signals, keynotes, the establishment of acoustic profiles, rhythm and cycles and the overall "balance" of the soundscape), their role and their reception by the actual community can only be addressed through a direct investigation of the inhabitants' perceptions and interpretations of their sound environment. As we will see in section 4.4, the ethnographic and somewhat phenomenological approach proposed by Amphoux (1991, 1993a, 1993b) provides an analysis of the active interpretation (the listening component) made by participants in the shaping of an acoustic community, while the WSP and Truax's emphasis on the soundscape itself (and the role of sounds and soundmaking practices) tend to produce a mapping, or a more generic description of the sound environment itself. Thus, these approaches are complementary, and may therefore reinforce each other in our quest to describe the "global" soundscape and the communicational processes that support it.

4.3.1 Acoustic Definition and Sound Signals

As Smith (1993) pointed out in his doctoral dissertation, throughout the large variety of sounds audible on the Drive, the one continuous and omnipresent element remains traffic noise. It is the most commonly mentioned sound element one expects to hear, although it does not in every case constitute a source of complaint for longer-term inhabitants. The mapping of the various large streets (including Commercial Drive, Victoria, First Avenue and Broadway) and smaller avenues creates a very strong contrast between the soundscape of the Drive and the one found in the surrounding neighbourhood. Sample weekday daytime level measurements have confirmed that the sound level on avenues remains, in accordance with Smith's findings (1993), on average 10 dBA quieter than on Commercial Drive (see Table 2).

Table 2 Average Weekday Daytime Sound Levels

	Grandview Park		Commercial Dr and 1st Avenue		1600 Block Fourth Avenue		Commercial and 6th Avenue	
	dBA	dBC	dBA	dBC	dBA	dBC	dBA	dBC
7:00-9:30	64	77	77	83	50	63	65	78
12:00-2:30	58	71	77	81	48	57	64	75
5:00-7:30	67	75	80	86	55	67	66	78
Average	63	74.3	78	83.3	51	62.3	65	77

The presence of broadband, heavy traffic noise reduces the acoustic definition of the soundscape by masking quieter sounds and making vocal interactions more difficult. A storeowner who established on the Drive in the early 80s witnessed the progressive masking of sounds coming from the harbour (located at the northern end of Commercial Drive are several factories and a railway track) and the increased dominance of car noise. While in quieter periods train whistles and even the O Canada! horn from Canada Place

can be heard, notably in the northern portion of the Drive and in adjacent avenues, as soon as one approaches noisy intersections, any non-local sounds are quickly suppressed by the white noise of heavy traffic.

The acoustic dominance of traffic is counterbalanced by a heavy pedestrian flow and a very lively street life extending throughout the days and evenings. A walk up or down the Drive quickly reveals the continuous presence of human vocal interactions and an abundance and variety of acoustic and electroacoustic signals. As mentioned earlier (see Table 1), a car vs. pedestrian count has revealed that while traffic dominates acoustically, at times there are more pedestrians than cars in certain sections of the Drive. Interviews showed an active "backgrounding" of traffic by inhabitants who focus on particular visual and acoustic signals and express a mapping of the Drive in which traffic, in some cases, is almost non-existent. Josh, for instance, commented:

> I probably block them out and just listen to everything else. But they can be very annoying if they beep. It sorts of upsets the whole mood of Commercial Drive, you know how the pedestrians kind of rule this place, and then a car gets in and beeps, and everybody's like "chill out!"

This tendency to emphasise the pedestrian character of the Drive and deny the obvious presence of traffic can be read as an adaptation to rising levels of noise caused by traffic, which would therefore constitute a negative habituation. As a matter of fact, traffic is more commonly denounced by foreign listeners, and is more largely "accepted" by longer-term inhabitants. As Truax says, "at first, [people] notice an intruding sound, probably find it annoying but too much trouble to do anything about, and before long they grow accustomed to it and accept its presence" (2001, p. 99). In some cases, this noise even becomes valued, as it comes to represents the busyness of the city (what

Amphoux calls metropolisation). When asked about the best sonic quality of the Drive, Jean replied:

> I think it is the interaction of everything, the traffic and the people, because if you took one away, it wouldn't be quite the same thing [...] I like the hustle-bustle myself, I like the feeling of a big city. I like the interaction, the fullness, whether it is the traffic, street sounds or all the talking and yelling that goes on, it's like a miniature version of New York.

The large variety of acoustic and electroacoustic sounds found on Commercial Drive must also be acknowledged, as it offers pedestrians a dynamic soundscape centered on social (vocal) interactions. In fact, the presence of voices in many different languages is often qualified as a soundmark of the Drive, in the sense that it is "a prominent feature of the soundscape, possessing properties of uniqueness, symbolic power or other qualities which make it conspicuous or affectionately regarded" (Schafer, 1978, p. 37). The multicultural nature of the neighbourhood (a consequence of historical movements of various populations inside Vancouver as well as from other countries) is expressed sonically through a continuous mix of languages and intonations described by Jean as the "musical language of the Drive". Diane also expresses well this historical attachment to the musicality of intonations when commenting:

> I think you would have heard, if you stepped back in time a little bit, less traffic and more, I don't know how you call it, [...] even though people would still speak English, a little bit more different accents. It's just a bit odd because it's now a diverse community, but I guess most people have been raised here now, so they don't have an accent...

Another soundmark of the Drive is the presence of street musicians in various locations such as Grandview Park, facing the Liquor Store, in the Napier greenway facing Britannia Centre and at the Broadway intersection. Smith (1993) already pointed out their common perception by inhabitants and the way they tend to be linked to specific areas. In

our study, they are mentioned and appreciated by most long-term inhabitants. Lucie said about their presence that it brings "colours, sounds, ambience, it civilises the place." Jean also commented that

> Even [when] you see those musicians playing, even though they're not good, the fact that they're just out there doing it creates a different feeling again in the street. You don't really see that in the West End. I think it all adds up and adds its own prestige.

Other "representative" vocal interactions heard on the Drive include according to personal observations and participants' comments, panhandlers, people selling a wide variety of items along the sidewalk on sunny days, and the "odd crazy person" as Lucie said, "ranting on, and talking to themselves..."

Along with the somewhat typical loud discussions across the street between two Italian males, these sound signals contribute in making the soundscape of the Drive an acoustic community, one which belongs, is used by and recognised by its inhabitants.

In terms of electroacoustic signals, the only significant sounds heard are music leaking out of stores and restaurants along the Drive, the electronic chirping of intersection lights and the occasional car horn. The #20 trolley bus, with its electrical sweeping sound, also appears in the account of numerous participants. Other than its commercial purpose, the music blasting outside of various stores and leaking out of cafés and restaurants give to the Drive, as Jean described it, "a holiday atmosphere".

> At night, all the restaurants have music, live music, so if I'm walking in the evening at night, especially in the summer, every restaurant has all their own little 'hoops' playing. It feels like I'm on holiday, in the summer anyway.

4.3.2 Rhythms and Cycles

The changing flow of music, as Jean describes it, introduces along with other signals various daily and seasonal cycles: "One thing you notice more in the summer is all the restaurants play music a lot louder than in the winter time". The first bus that comes daily at 5:30AM and then regularly throughout the day and evening, the weekly garbage truck and the rain brought by the winter season all contribute to the polyrhythmic play of the soundscape. Daily variations of sound intensity are linked to the level of activity on the Drive, with peaks during rush hours and an overall variation due to weather conditions. Sample sound level measurements taken during the month of March 2004 indicate that level averages remained somewhat similar to those taken ten years ago by Chris Smith (1993), with the exception of a slight increase in level at major intersections such as First/Commercial Dr. and Broadway/Commercial Dr (see Table 2). While the most dominant cycles are produced by transportation sounds (Car traffic, #20 bus, SkyTrain...), there also exists a general knowledge of other various cycles connected to institutional schedules (kids coming out of school after 3:00PM, grocery shopping rush on Sundays afternoon...) and seasonal changes affecting the flow of pedestrians and the vocal interactions on the Drive.

Particular moments of the year are also marked by important sonic manifestations. A significant number of participants in each step of the survey mentioned, for instance, the Parade of the Lost Souls (a large-scale costumed parade held around Halloween Day) as their favourite memory, and an event that they frequent every year. Sounds heard in this event (people chanting, drumming music, loud voices of the crowd) are also

somewhat representative of the counterculture spirit and *hipness* of the Drive. Long-term inhabitants also remembered the Italian Days; Lucie described them:

> It was sort of like a parade, a car parade, and so when they [Brazil] win the World Cup and do stuff like that there's all car honking, people waving flags and yelling, Brazilian people. Those would be my favourite sound, gigantic sound explosion on the Drive. And so all traffic stops, First Avenue was closed, so that was great. Those kinds of events, all of those would be very memorable.

Again, the event expresses for the community more than a momentary festive reunion; it is, as Lucie said, "what makes the Drive, the Drive", and in this sense, those cyclical events constitute temporal framework to the acoustic community. They are collectively lived, remembered and provide historical points of reference that become symbolic. A worker at the Commercial Drive Business Society, for instance, expressed a strong nostalgia about the Italian Days, "much bigger than the Parade of the Lost Souls", and established a certain connection between the social changes that took place in the last few years and the disappearance of these large-scale cultural events on the Drive.

4.3.3 Indoor and Outdoor Communities

The selection of the three locations to be used in reactivated listening sessions was not only done in accordance to Amphoux's C-V-S model, but also to illustrate the interesting mix of indoor and outdoor communities on Commercial Drive. Of particular interest is the actual relationship between these two types of spaces, the way they interact, communicate and together create an overall acoustic community in which the inside and the outside are often blurred.

Café Calabria, for instance, is definitely an indoor acoustic community characterised by unique acoustics and a set of signals and soundmarks aimed at a

particular group of people who share similar experiences of the space. As Thomas told us when listening to the Calabria sequence,

> There's some kind of way in which conviviality, community created by vocalisation and recorded music and the way those work together, there's a certain ambience that's created that's quite different than that created by other types of commercial establishment where the intent is more commercial. There's a tendency here, to my ears, to a kind of community sensibility as opposed to a commercial sensibility.

The reverberant space, European music and male Italian voices all combine and contribute in the making of a shared space of interaction that addresses both Italians (who find in this space a representation of their Italian roots) and other inhabitants of the Drive (who experience the space as "tourist listeners" and for whom Calabria becomes another expression of the multiculturalism of the neighbourhood).

In the same way, most cafés and restaurants provide their own acoustic community, some being more commercially-oriented (generally those that provide almost no particular acoustic space or simply fill it with generic background music), and others like Italian cafés or exotic restaurants, providing a more unique, or perhaps more interactive soundscape. What seems unique to the Drive, however, is the way in which many of these spaces extend onto the sidewalk, both physically and acoustically, while being also invaded with external sounds through open doors, windows and terraces. When walking on the Drive, for instance, one can experience at the same time music coming out of restaurants and street musicians right on the sidewalk, conversations of people walking, sitting at a terrace or standing outside of a café to smoke, and even voices from the inside filtering out to the street. In the same way, cafés are never totally isolated from the outdoors; the low rumble of traffic is always getting through, and again,

voices and footsteps of pedestrians become audible as soon as doors or windows are open (basically from April to September). For Josh, the soundscape of cafés even becomes indistinguishable from the one of the street itself: "I rarely ever go inside the cafés, only to buy… so it is probably pretty loud in there, but I prefer to just sit outside. And there's probably less reverb outside."

While the indoor spaces remain private and commercial ones, the acoustic blurring of the various spaces contribute in making the Drive a space much more communally experienced as a whole, rather than a set of separated, closed soundscapes. Thomas commented:

> That's where this sense of community first came from, for me, because I knew it to some extent from having lived in Europe, where people are more prone to establish a more village kind of feel then here, and there's not this stark separation between what is public and what is private, that commercial culture tends to impose [...] This is one of the reasons why I wanted to live here, the multiethnic part and the neighbour part.

For some inhabitants, this blurring is expressed differently, and implies the establishment of an intimate relationship between the private space and the public space, a cyclical intrusion that re-confirms the existence and position of each (indoor and outdoor) soundscape, as Jean told us:

> At night when I'm in bed, every morning at 1:30AM precisely the street cleaner comes by, with that truck [...] I like it because it's a form of sign, [...] there's still life going on, so you feel like comfort because you're not in a strange place, you're in your comfort zone and you hear external sounds.

Markets also represent a form of boundary-community, with its indoor component and its outdoor displays that becomes not simply a commercial space of shopping, but a

social space that partly belongs to a public sphere and that is experienced by anyone who walks down the Drive, as Matthew commented:

> Even if you're not shopping, [because of] the way the Drive is set-up and the size of the sidewalks, you usually are involved in someone's process or you're trying to go around people that are shopping so you are in the sonic environment of the shopping district for at least a few seconds or a minute while you're moving past, so it's something you experience on a daily basis, unless you chose to go on a side street.

As we have seen, the important role of vocal interaction in markets is therefore on one hand a consequence of their outdoor setting, making them public and accessible, and on the other hand a cause of their role as symbolic icons of an urbanity where face-to-face interaction has not disappeared. Outdoor markets become sound environments in which many different cultures and social classes interact as part of their daily route or activities, something that would not be possible in an indoor, or more private space.

4.3.4 The Sonic Balance of Commercial Drive

In *Acoustic Communication* (2001), Truax states that three characteristics can be found in acoustic systems that are "functioning successfully" (p. 76): (a) A variety of sounds and types of sounds, (b) a complexity that provides both foreign listeners and inhabitants with various levels of signification and (c) balance, that is, "variety and complexity are constrained by balancing forces that keep the system in a functional equilibrium" (p. 78). These features, which are found for instance in natural environments and pre-industrial towns, are challenged by a burdening of the urban soundscape (notably with car and airplane traffic) and the introduction of redundancy and uniformity (both in the morphology and content of sounds) since the Industrial and Electric Revolutions. The impact of these major transformations of the soundscape can

only be assessed in conjunction with an analysis of the changing role and perception of listeners. Acoustic communities therefore provide a basic structure of analysis, in which we can assess the impact of these changes on the deterioration, maintaining, or amelioration of a "well-functioning" acoustic system of communication.

Commercial Drive constitutes a definite urban acoustic community, since it presents a complex set of sound signals that are audible and meaningful for its inhabitants; in fact, the community orientation of the neighbourhood relies heavily, as we have seen, on the predominance of vocal interactions and the establishment of what we may call a public soundscape, one that is constructed and interpreted communally. We can therefore assess, based on Truax's features of balanced systems of communication, the "quality" of this acoustic community and the role of various acoustic factors in the maintaining of this system. Of special interest to our case study is the level of complexity of the system, as it appears to be the connecting element between the various approaches we analysed and used in the current work. Truax uses the notion of complexity "to refer simultaneously to aspects of the sounds of an environment and to the information processing they undergo in the mind" (2001, p. 79). A complex system therefore implies not only the presence of a somewhat structured and rich soundscape, but also an active interpretation by listeners who can decode and interpret the various signals of the environment. Again, the emphasis of the WSP and Truax's models on features of the soundscape itself can only gain from Amphoux's perceptual approach, which deals mainly with listeners' interpretations of the soundscape.

What we observed to be the most important signals, for inhabitants, of the acoustic community of Commercial Drive, those that express its 'socialness' and

multiculturalism, are indeed omnipresent in the soundscape under various forms. In indoor spaces, they translate into particular acoustic features (the lively reverberation of Italian cafés or the warm ambience of places such as Turk's café) and typical signals and background (ethnic music, voices in different languages always dominating—at least in the places described positively by participants). In outdoor spaces, soundmaking is also predominant, again with various layers of vocal interactions at markets, terraces or simply on street corners, the presence of street musicians, and the importance of large-scale social events in the historical definition of the soundscape of the Drive. These features are essential in the establishment of a sonic identity proper to the neighbourhood that can be understood by its inhabitants. Reactivated listening sessions have proved that such a complex sonic knowledge does exist, and can be expressed under many different types of relations to the soundscape (what Amphoux calls the qualitative criteria). The variety of criteria used by participants and their redundancy among participants have provided signs of the main processes at work, as described in the sonic identity charts. When considered globally, the neighbourhood provides a fair diversity of sounds, from the urban and human din of the Drive to quieter avenues and parks where various acoustic sounds, natural sounds (the usual birds, wind and rain), and external sounds (urban drones from other neighbourhoods, sound signals such as train whistles and boat horns) can be heard throughout the day.

On the other hand, the presence of heavy traffic in what is considered by many as a pedestrian street raises issues of sonic awareness about the potential consequences of a masking and a flattening of the soundscape. The general perceptual emphasis of listeners on visual clues (what is often described as the colourful character of the Drive) and

spaces of human interaction can be interpreted as a reaction—somewhat paradoxical—to the omnipresence of traffic which quickly becomes backgrounded and perceived as a basic, inescapable component of the soundtrack of the Drive. Furthermore, when participants raised the issue of traffic noise, it would mainly concern major intersections in which a good portion of the noise is said to be created by commuters, what Lucie called "the invasion of the others". There is a selection at play about *what is noise*, one that classifies internal noises as normal given the urban setting of Commercial Drive, and external noises as superficial, or avoidable.

In typical urban settings, the increase in traffic noise often results in the establishment of small, isolated indoor acoustic communities: shopping malls, cafés, indoor recreation centers, etc. The public space becomes a commercial space, fragmented and privately owned. As Truax (2001) explains, this may shift traditional acoustic communities into market communities, in which not only the space itself but also all significant sound signals become controlled by corporations, and therefore transform listeners into consumers. Outside, the same listeners may isolate themselves from the cacophonous soundscape through the use of personal stereos, preferring to be exposed to a chosen, surrogate environment that is also a commercial product[1]. Historically, noise legislation has also, at early stages of development of the contemporary city, banished street criers and street musicians (Schafer, 1977c), leaving public spaces filled only with the technological noises of *inescapable* progress.

[1] The interest raised by the fast-growing popularity of personal stereos since the introduction of Sony's *Walkman*, and more recently Apple's *iPod*, resulted in numerous studies of urban practices, many of which ignore or lack a developed understanding of the relationship between noise pollution and the isolation of listeners from their environment. See for instance (Bull, 2001).

On Commercial Drive, however, the human soundmaking practices and the presence of a somewhat fused indoor-outdoor soundscape seems to maintain the existence of a larger acoustic community. While indoor spaces remain evidently private and commercially owned spaces, they tend to be perceived as belonging to a larger acoustic community; they are also smoothly linked to the outside soundscape, in which they tend to extend. Although street criers have definitely disappeared from Vancouver, the many street musicians and the omnipresence of loud vocal interactions throughout the Drive have helped in maintaining a sense of sonic involvement and interaction. Instead of turning their back from the urban noise introduced by traffic, inhabitants seem to have learned to deal with it while maintaining a certain degree of outdoor publicness (or *publicity*), notably at markets, parks and terraces.

The soundscape of Commercial Drive therefore retains a high level of complexity (both in terms of sound production and sound perception) and variety, in spite of the structural threat produced by traffic noise. However, one should not simply conclude that this acoustic community functions perfectly; the longer term consequences of a burdening of the soundscape on the various listening and soundmaking practices of inhabitants, for instance, has yet to be analysed. Furthermore, as Truax (2001) notes, "the soundscape by its very definition depends on people and their listening habits" (p. 83); a balanced soundscape therefore implies the active participation of inhabitants through a sonic awareness of the changes in their environment.

CHAPTER 5 CONCLUSION

5.1 From Knowledge to Practice, and Vice Versa

The completion of a case study involving methodologies and analytical concepts coming from various approaches to the sound environment provides us not only with a *sonic portrait* of Commercial Drive and the way it is heard and understood by inhabitants, but it also brings up the interactions between the three models used and synthesised. More specifically, the acoustic communication model, which lacks a formal methodology but proposes a basic analytical framework, can only benefit from the practical, listener-centred methodology designed by Amphoux. In return, a communicational approach to sound as proposed by Truax (1998, 2001) remains necessary to make possible a transition between acoustic analysis (what this case study presents) and acoustic design, and to re-integrate soundscape issues into broader social, political or economic aspects of the environment. After all, "the home territory of soundscape studies will be [or perhaps is] the middle ground between science, society and the arts" (Schafer, 1977c, p. 4)—right where communication studies stand. We will therefore examine in this conclusion some theoretical and methodological connections revealed through the case study, and which emphasise the usefulness of a multidisciplinary approach to the soundscape, before summarising the main components and results of the research.

5.1.1 The Interplay of Sound, Listeners and the Environment

As we have seen, Truax's model (2001) deals with the soundscape by describing it as a relationship between a *listener* and an *environment*, mediated through *sound*. This creates an analytical framework where what matters is the process in which this triangular relationship is formed and maintained. As Truax indicates, a change in any of the three components—for instance because of habituation, the disappearance of meaningful sound signals or a densification of the population—has repercussions in all aspects of the soundscape. An analysis of a particular acoustic environment therefore requires the study of the three core features (listener, sound and environment), to understand their relationships and the possible points of action. As we have observed in the case study, Amphoux's tripartite methodological guide (1991, 1993a, 1993b) also provides information concerning the three aspects of the soundscape, as understood from the "point-of-view" of the listener (and therefore in accordance with the initial orientation of the WSP and Truax's approaches). First, with sonic mind maps and recorded interviews, we were able to re-present the main subjective features of the *environment* itself (based on the description of specific locations) and the *sounds* heard (through questions about sound memories and significant or representative sound signals). A general portrait of the soundscape can be established, before moving to a more specific analysis of chosen locations.

Then, with reactivated listening sessions, it is the practices of the *listener*-in-action that are emphasised; through an analysis and comparison of participants' comments on the three sequences, we could understand the particular significations attached to various signals and ambiences. In the meantime, the relationships between the

listener and the sounds (i.e. the recording) and between the listener and the environment (through personal experiences triggered by the sequence and the interaction between what one hears and what one remembers) are addressed in terms of the qualitative criteria proposed by Amphoux. Actually, these criteria, as various as they are, are concerned directly with the interaction between a sound perception (or the listener-sound relation) and what constitutes a more general knowledge of the soundscape (the listener-environment relation). One obvious illustration of this connection is the observed change in participants' attitude and evaluation once the sequence has been identified and located. In the same way, the notion of sound effect is used to express particular sets of (*listener-sound-environment*) relationships that can be identified and, to some extent, abstracted and measured.

The use of a tripartite methodology and the assessment of qualitative criteria can therefore be achieved within a communicational framework, making this merged model coherent and complementary. In fact, a study of the various environmental, milieu and sensed criteria described by Amphoux could be done in parallel with Truax's types of listening to observe the various relationships between these two types of classification; this may reveal in more detail, for instance, the social or perceptual factors that encourage a listening-in-search (criteria such as compositional clarity, aesthetisation, immersion, etc.) versus those that encourage a background listening (indifferentiation, standardisation).

This subjective process (i.e. listener-centred) must nevertheless be completed with a more objective observation of the environment and its various sounds; this remains necessary for a thorough analysis of the relation between a "reality" and a subjective

representation. In the case of Commercial Drive, for instance, comments about the presence of "dead" zones on the Drive could be correlated with a car vs. pedestrian count to assess (at least partially) the cause of this perception—an absence of human soundmaking against a maintaining of car traffic level. The "fresh ear" of the observer can also provide a listening skill quite different from a long-term inhabitant who became habituated to a large number of sounds, which can be unconsciously backgrounded, even during the reactivated listening session.

Finally, this methodological and analytical process provides an interactive overview of the soundscape that goes from the general (the two first sets of interviews) to the specific (the three selected locations), and eventually comes back to a macro analysis with Truax's notion of acoustic community. The sonic mind maps first provide, as we have seen, a general understanding of the sound environment, the location of potential sites of interest and inhabitants' appreciation of the various sonic features of their neighbourhood. With recorded interviews (or phono-reputational inquiries), the study becomes more focused on specific locations and their acoustic features, while encouraging a general discussion about perceptual differences among listeners. Then, the reactivated listening provides a deep understanding of both the acoustic features of three representative locations and the criteria shaping listeners' perception in each case. From this micro-analysis of specific scenes, we finally move back to the community level, to assess the presence of an acoustic community and the way it is maintained based on the three preceding steps and the gathering of objective information on the soundscape itself.

Amphoux's methodology can therefore provide significant information to be analysed within a communicational framework. The three aspects of the subjective

soundscape (as described by the WSP and Truax) are addressed through the various steps of the study, while quantitative tools proposed by the WSP simultaneously provide a more objective representation of the soundscape.

5.1.2 From Soundscape Performance to Soundscape Competence

Central to an analysis of the soundscape from a subjective perspective is the interpretative process of the listener; contrary to a quantitative model, an acoustic communication approach to sound must take into consideration a large amount of information concerning the contextual nature of a perception and the active role of the listener. Truax (2001) proposed, in accordance with previous linguistic and musical models, the notions of soundscape competence and performance. Soundscape competence refers to "tacit knowledge that people have about the structure of environmental sound, knowledge that manifests itself in behavior that interprets such sounds and act upon it" (p. 57). Their listening skills and behaviour is a performance, an expression or actualisation of their competence, notably through the selection of sounds to emphasise, the values or memories attributed to these sounds, and the resulting comments, actions or emotions.

If an acoustic community is said to exist, then there should be a particular type of competence found in the listeners belonging to that community, making them able to recognise particular sounds or groups of sounds and interpret them in a somewhat similar way. While that competence could potentially be described by an external observer based on the similarities found in their daily experience (the common sounds and environments they perceive), these observations would remain quite general, and could not account for the way in which that knowledge is expressed. Amphoux's types of listening to the sonic

world (the E-M-P model) consist of possible ways one can express a tacit knowledge in a given situation. Consequently, it is possible, as we have done through this research, to access the soundscape competence of a group of listeners based on the observation of their performance and an empirical analysis of their various comments. Reactivated listening sessions provide a controlled environment (in the sense that the sequence is known and somewhat 'controlled' by the researcher) in which to examine performances of inhabitants faced with an anonymous recording. While this method was central to our current research work, other techniques could be used to access listeners' competence through their performance.

Nicolas Tixier (2002), with his *qualified listening in motion* method, proposes such a performative tool. His technique involves walking in a given space with a participant who uses a microphone and headphones to amplify his or her perception of the soundscape, as well as a second recording device aimed at recording the comments of the "amplified listener". This method, which can be thought of as a 'live' reactivated listening, provides a certain mediation without placing the listener in a blind listening position. Andra McCartney (1999) expresses well how this mediation positively distorts one's perception:

> I have an amplified perspective on my surroundings—I am at once closer to the environment as everything is amplified, but also separated from it as my experience is mediated by the microphone's perspective.

Sound diaries, which were used by the WSP during their European tour (Schafer, 1977a), also appear as a potential technique to access listeners' competence through their performance (expressed in this case in written format). However, this method does not provide the researcher with as much information about the given context of the

perception and performance as does the reactivated and qualified listening techniques. On the other hand, diaries provide an access to individual daily practices on a longer term, while encouraging the participant to engage in a self reflection concerning his or her listening practices. These techniques and the way they help in "representing" one's competence through a set of actions and observations should therefore be integrated to any thorough analysis of the relationship between a listener and a sound environment, as they provide researchers with valuable information concerning the mutual interaction of knowledge and perception.

5.2 Towards a Global Appreciation of the Soundscape

The initial motivation of this research was to combine three approaches to the sound environment to examine the way they interact and complement each other. As the case study progressed, our emphasis shifted from one model to the other, to eventually express a more "global" understanding of the way a soundscape is heard and experienced by its listeners. The need for such collaborative or comparative work is necessary not only to build from existing research, but also to facilitate the establishment of a general vocabulary and research framework.

The components retained from each approach contributed to an analysis of the soundscape focused on the subjectivity and complexity of listeners' perceptual experience and the eventual existence of a shared knowledge of the sound environment (what Schafer first called an acoustic community). Furthermore, the ways in which Amphoux's methodological framework can be used in conjunction with Truax's communicational approach have been discussed in terms of their handling of the listener-

sound-environment structure and the relation between soundscape competence and performance.

The WSP provides us with an underlying philosophy that places the listening experience in the centre of any study of a sound environment. Schafer's *soundscape* is not 'out there', separated from us; it is rather the result of soundmaking *and* listening practices that both need to be addressed when investigating any acoustic space. The various terms and descriptors employed by the WSP however tend to emphasise the actual features of a soundscape, while lacking a further exploration of listening behaviour and attitudes. This results in a methodology aimed principally at the sound environment itself (with sound counts, measurements, visual and acoustic descriptions through soundwalks and drawings).

With his communicational approach to the soundscape, Barry Truax has emphasised the contextual nature of acoustic and electroacoustic exchanges and the active role of the listener (notably with his levels of listening attention). He also provides an exploration of the features of good acoustic communities and the way electroacoustic communication can radically transform these structures. While Truax has also elaborated a deep analysis of both the role of electroacoustic technologies in the marketing of communities and the design imperatives of electroacoustic communication, our focus on the everyday acoustic soundscape in an urban setting does not require such analytical tools. Truax's model also necessitates a supporting methodology, an aspect of soundscape research that is not directly covered in *Acoustic Communication* (2001). It is therefore provided in our case by the methodological tools of the WSP and those developed by Augoyard and Amphoux.

Amphoux's methodology was primarily designed to achieve a comparative study of three European cities. It tries to establish the sonic identity of these cities based on the descriptions and comments of various types of inhabitants/listeners, and their empirical analysis leading to the establishment of qualitative criteria. The process has therefore been slightly adapted to the smaller scale of our current work, while keeping every component as it appears in Amphoux's guide (1993a). In conjunction with Jean-François Augoyard's sound effects (Augoyard & Torgue, 1995), the use of qualitative criteria has helped in understanding how inhabitants perceive their environment and *perform* subjective descriptions of their own experience based on various criteria linked to their type of listening, their knowledge of the soundscape and their individual values and judgements. This analysis of perceptual, listening practices therefore complements Schafer and Truax's analysis of the properties of the physical soundscape.

5.3 The Soundscape of Commercial Drive

The three-month case study conducted in the Grandview-Woodland district of Vancouver allowed us to describe the various acoustic features of Commercial Drive and the way it constitutes an acoustic community. By combining Amphoux's methodological process with other tools supplied by the WSP and the acoustic communication framework proposed by Truax, we have produced a critical description of the sonic environment itself, the inhabitants' perceptions and the various sound signals that link them.

The sonic identity charts, which describe three specific locations chosen after a process including the analysis of sonic mind maps and recorded interviews, provide us with a synthesis of the various comments and descriptions and a list of qualitative criteria used by listeners in their interpretation of the sequences. The reactivated listening

sessions emphasised the role of memory in the selective perception of sounds (notably through the criteria of intentionality and indifferentiation), and the influence of values and judgements (with metropolisation and naturalisation) in the identification and evaluation of the sequences. Another important issue revealed by the charts is the role of acoustic features in the establishment of public or social spaces. For each sequence, the level of "publicness" of the space was determined on the type of exchange encouraged by the space and the degree to which all types of soundmaking (for instance traffic noise vs. vocal exchanges, nature sounds, music making...) coexisted.

Social spaces and events appeared as fundamental in the collective representation of Commercial Drive. This is further expressed in the qualification of human-made sounds (be they vocal exchanges or street music-making) and vocal signs of multiculturalism as soundmarks of the Drive. The particular acoustics offered by the various indoor spaces and their openness onto the street itself also encourage a blurring of traditional private/public boundaries that is considered as another important feature of Commercial Drive. All these signals are interpreted similarly by inhabitants who therefore establish, through their common knowledge and relationship to their sound environment, an acoustic community.

As with most urban communities, Commercial Drive is exposed to traffic noise that diminishes the acoustic profiles of important signals while creating a phenomenon of habituation—a practice revealed by the current work. The continuous presence of a large number of human-made sounds on the street itself is however preferable to a fragmentation of the soundscape into separate indoor communities (a common trend in noisy urban settings). Also, quieter avenues surrounding Commercial Drive provide a

more balanced soundscape and a diversity of sounds that may somewhat counterbalance the noisiness of the main street.

5.4 Further Paths of Research

The current research inscribes itself in a study of methodological inquiries in soundscape studies and the multidisciplinary integration of various approaches to the sound environment. Because of the extent of this work, a single location was investigated, and over a relatively short period of time. A historical study of the sonic changes and their relation to social, cultural or environmental transformations could possibly extend the possible work to include an understanding of temporal modifications of the soundscape and the simultaneous adaptation/reactions of inhabitants. Also, the use of Amphoux's methodological guide could possibly extend the present work, perhaps between various neighbourhoods of Vancouver—as Smith (1993) did, or between Vancouver and another Canadian city.

This methodological inquiry could also benefit from various other techniques that have not been used in the current research; the integration notably of soundwalks, diaries and the "qualified listening in motion" technique could help in further analysing the way listeners *inform* their surrounding soundscape. Schafer's educational aim could in the meantime be integrated into such a case study simply by facilitating the involvement of inhabitants in the research process. In each of the steps of our methodology, participants expressed a deep interest in the issues raised by the questions and sequences; this encouraged them to develop their sonic awareness, and some even continued to share their thoughts and observations with the researcher once the study was finished. This

shows how soundscape research can integrate into its investigative process an educational component—therefore acting not only on the soundscape but also on its listeners.

On a more theoretical level, an exploration of the value of Amphoux's qualitative criteria and Augoyard's sound effects in a communicational context has yet to be fully achieved. There is a need for such perceptual denominators in communication studies, in a way that allows the convergence of knowledge and a common understanding of complex phenomena among various fields of research. Auditory perception, because of its integration with various dimensions of the everyday, requires a generalist approach and a generalist vocabulary but must not fall into generalisations. Qualitative boundary-concepts such as those used in this work fulfil this requirement by emphasising the systematic relations between the numerous components of a sonic perception.

5.5 Hearing is not Listening

The fast-growing amount of research work conducted in the area of soundscape studies and acoustic ecology shows the importance of an understanding of the way humans affect and are affected by their acoustic and electroacoustic environment. It is as if our awareness is developing at a simultaneous pace with the burdening of the urban soundscape and the dramatic changes brought by industrial rhythms and the more recent electronic mediation.

While various research disciplines provide their own specific "framing" of the soundscape (from an architectural engineering study to an ecological critique of noise pollution), they all necessitate an understanding of the way listeners perceive their environment and act upon it. We are back to Schafer's global composition, in which we

are simultaneously audience and composers—especially when considering the dominance of human-caused noise in the contemporary city. And like musical tastes, our soundscape compositional knowledge must be practised for us to develop critical listening skills. It often takes simple actions to trigger the process—in the case of the gentleman who hesitantly approached me at the market, it only required a single word: Listen!

APPENDIX A
RESEARCH ETHICS APPROVAL

SIMON FRASER UNIVERSITY

OFFICE OF RESEARCH ETHICS

BURNABY, BRITISH COLUMBIA
CANADA V5A 1S6
Telephone: 604-291-3447
FAX: 604-268-6785

March 3, 2004

Mr. David Paquette
Graduate Student
Department of Communication
Simon Fraser University

Dear Mr. Paquette:

Re: Describing the contemporary sound environment: an analysis of three approaches, their synthesis, and a case study of Commercial Drive, Vancouver, B.C.

The above-titled ethics application has been granted approval by the Simon Fraser Research Ethics Board, at its meeting on February 23, 2004 in accordance with Policy R 20.01, "Ethics Review of Research Involving Human Subjects".

Sincerely,

Dr. Hal Weinberg, Director
Office of Research Ethics

APPENDIX B
GLOSSARY OF TRANSLATED TERMS

This glossary provides a basic description and explanation of some of the concepts introduced in France and used in the current work. A thematic classification has been adopted to facilitate the understanding of the relation between each term[1].

The three dimensions of the sonic identity (C-V-S)

The relationship between a listener and a particular sound environment can be understood, according to Amphoux (1991, 1993a, 1993b) in terms in three types of representation and experience corresponding to Peirce's three types of symbols:

- The **known dimension** (*le connu*, or C) describes a symbolic representation in which particular environments are known by both inhabitants and foreign listeners, based on the fact that they "conventionally represent a city" (Amphoux, 1993a, p. 16; my translation). Here, a sound or an ambience comes to represent the whole city, and is understood as such.
- The **lived dimension** (*le vécu*, or V) expresses a more intimate relation that is situated at the level of the district, the neighbourhood. Its semiotic equivalent is the index, partly arbitrary but shaped and reinforced by one's individual experience.
- The **sense dimension** (*le sensible*, or S) corresponds to a universal and tautological relationship in which the sound becomes the icon of the location from which it originates. The soundscapes of markets, malls or cafés, for instance, do not necessarily represent specific locations or situations but rather become icons of urbanity.

The three types of listening to the world (E-M-P)

Amphoux (1991, 1993a) has established a tripartite model to describe the possible ways one can listen to the sound environment. His model is concerned with the simultaneous role of memory, perception and interpretation in one's understanding of the soundscape. The three main types of listening can then be subdivided to produce a series of **qualitative criteria** to express "certain qualities concerning the context of sounds" (Hellström, 2003, p. 158).

- The **environmental listening** (*l'écoute environnementale*, or E) refers to an attitude in which the listener listens objectively, a certain distance from the sounds heard. The sounds are described and *represented* as external objects, and the attitude leads to the establishment of **criteria of quality.**
- The **milieu listening** (*l'écoute médiale*, or M) concerns the sonic comfort of an environment, and therefore implies a contextual experience of the soundscape rather than a distant evaluation. The listener becomes involved in his or her own *expression* of the soundscape, and this produces **criteria of qualification** which "do not account for the environmental morphology, but rather present a prescriptive discourse on what should be or what should not be a sonic milieu" (Amphoux, 1993a, p. 37; my translation).
- The **landscape listening** (*l'écoute paysagère*, or P) corresponds the contemplative *perception* of a sound environment. Here, what matters is the "relation between the form and the content of a discourse, *when what is*

[1] For a more elaborate study of the fractal relationship between each of Amphoux's tripartite models, see Amphoux, 1991, 1993a, 1993b; Hellström, 2003)

described is reflected in the actual modalities of description" [emphasis his] (Amphoux, 1993a, p. 35; my translation). This type of listening results in **criteria of qualitativeness**.

Qualitative criteria

Amphoux's numerous qualitative criteria (*critères qualitatifs*) result from his initial classification of the type of listening to the world. It provides a new type of soundscape vocabulary, introduced to describe the various criteria that can be used when analysing a particular environment and the way it is heard and understood by inhabitants. Three main types of criteria can be used, each of which is subdivided in more specific categories:

- **Criteria of quality** (*critères de qualité*) correspond to an **environmental listening** and produce objective qualities related to the organisation of the soundscape; the criteria are strictly descriptive, and frame the sound environment as a controllable reality.
- **Criteria of qualification** (*critères de qualification*), on the other hand, are the result of a **milieu listening** and correspond to values and judgements about what a soundscape should or should not be; these criteria refer to the sonic comfort of a situation in which the listener is directly involved, they are intimately linked to one's everyday experience and subjective perception.
- **Criteria of qualitativity** (*critères de qualitativité*) refer to the "ensemble of phenomena which allow a sensitive, aesthetic and 'altered' appreciation of the sonic world" (Amphoux, 1993a, p. 38; my translation). Again, these criteria are based on an analysis of the "described and the description" (ibid.) in a way that emphasizes the evocative and aesthetic qualities of an environment.

Sound Effect

The sound effect (*effet sonore*), used at CRESSON since the beginning of the 80s, can be described as "a meeting point, an interaction and a correspondence between the measurable objective environment, the soundscape of a cultural community and the *inner* space of any individual" (Augoyard, 1999, p. 123). By considering a particular sonic situation in its inherent complexity, the sound effect allows one to move from one discipline to another and draw connections between them.

The sound effect describes any aural experience as a result of specific physical conditions (nature of the sound source, acoustics, morphology of the environment, etc.), social and cultural contexts and a subjective perceptive mechanism. Therefore, every major effect can be traced and discussed in various disciplines ranging from psychology to architecture and urbanism. Some of the important sound effects are summarized below, to provide the reader with an overview of the theoretical and practical usefulness of the concept[1].

- **Anamnesis** (*anamnèse)*: Effect characterising the triggering, most often involuntary, of the memory by listening and the evocative power of sounds. Here the effect is located in the listener's interpretation and association of a given context. The everyday is filled with sound signals that trigger particular memories; from the acoustics of a childhood room to the melancholic sound

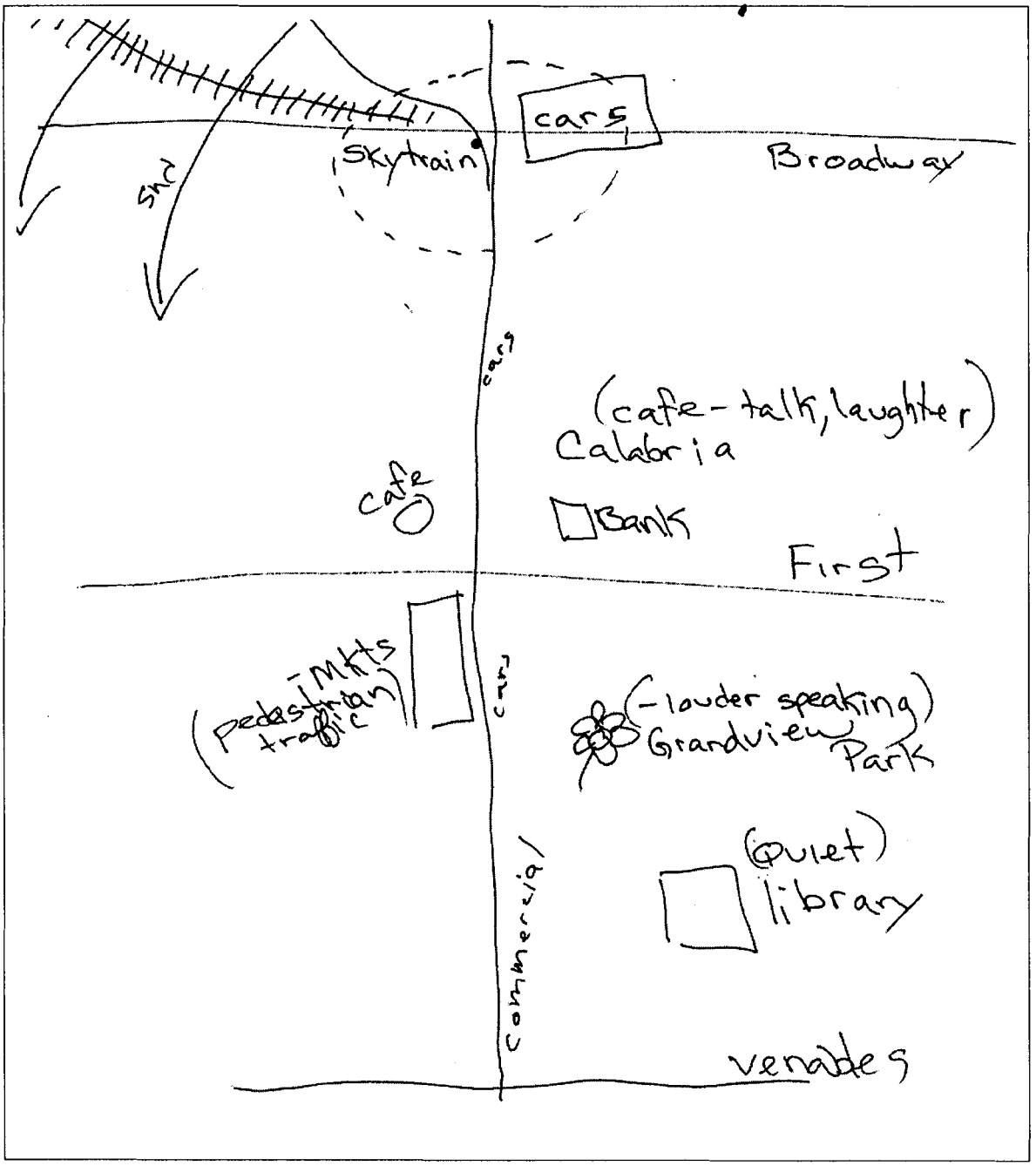
[1] These descriptions come from Augoyard & Torgue, 1995; my translation.

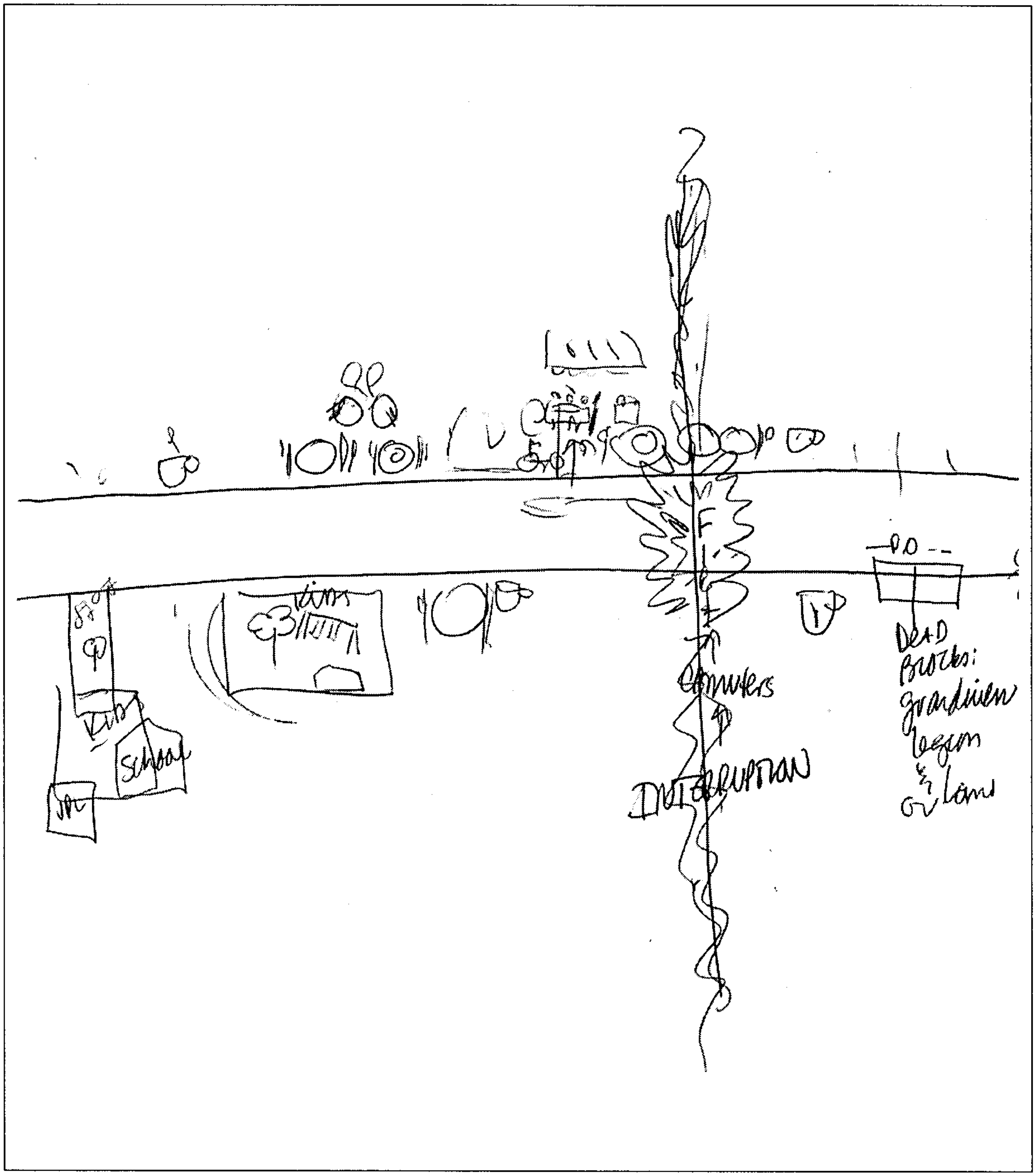
of foghorns, sounds often find their meanings through their evocative power. In music, the *leitmotiv* or the reprise often create such effect.

- **Drone** (*bourdon*): Effect characterizing the presence, in a sound ensemble, of a constant layer of stable pitch, without any noticeable variation in intensity. Linked to music in its designation (the drone is a permanent bass over which certain pieces are laid), the drone effect can also be observed in urban and industrial soundscapes. Many technical systems generate constant sounds that are close to this effect, even if the frequencies in question, are not limited to the bass range that originally characterized it.
- **Masking** (*masque*): Presence of a sound that partially or completely masks another sound, because of its intensity or distribution of frequencies. This effect, easily demonstrated on the acoustic level, also implies a subjective reaction on the psycho-physiological level: the masking sound can be judged as parasitic or, conversely, favourable, depending on the value given to the masked sound.
- **Remanence** (*rémanence*): Continuance of a sound that is no longer heard. After extinction of both the emission and propagation, the sound gives the impression of being still "in the ear". Remanence is neither an anamnesis (sounds that are heard in the present and that evoke the past), nor a phonomnesis (remembered sound, without physical listening). It is simply the trace of sound signals barely subsided. This effect is very often used in music: permanence of the tonal or modal climate of reference, impression of hearing a continuous drone, melismatic movements that make virtually present an absent sound.
- **Reverberation** (*réverbération*): Propagation effect in which a sound continues after the cessation of its emission. Reflections of the sound on surfaces of the surrounding space are added to the direct signal. The longer reflections conserve their energy, the more considerable is the reverberation time. In everyday language, reverberation is often referred to as the "cathedral" effect, or, by extension, as echo. While it is first and foremost an effect linked to the physical properties of the space of diffusion (or the effects applied to an electroacoustic signal), it also refer to the more symbolic significations of reverberation (solemnity and monumentality, for instance).
- **Sharawadji** (*sharawadji*): This aesthetic effect characterizes the feeling of plenitude that is at times created by the contemplation of a sound motif or a complex soundscape whose beauty is inexplicable. This virtual order, imperceptible and present, produces fascination, and is breathtaking. The sharawadji effect is unexpected and transports us elsewhere, beyond the strict representation of things, out of context.
- **Ubiquity** (*ubiquité*): Effect linked to spatio-temporal conditions which expresses the difficulty or impossibility of locating a sound source. In the major variant of this effect, the sound seems to come from everywhere and from nowhere at the same time. In its minor variant, it seems to come from both a singular source and many sources simultaneously, and may create a feeling of disorientation.

- **Wave** (*vague*): Compositional effect describing a sound or a group of sounds that we hear following a curve of intensity whose shape is analogous to that of a wave and its undertow: crescendo, maximal point, fast or progressive rupture of the sound, and decrescendo. These cycles, spaced over relatively long intervals (a few seconds), follow each other according to a variable or regular frequency.

APPENDIX C
SONIC MIND MAPS (SAMPLES)


cars
Broadway
Skytrain
SNC
cars
(cafe - talk, laughter)
Calabria
cafe
Bank
First
(pedestrian traffic)
Mkts
Granville
(- louder speaking)
Grandview Park
(quiet)
library
Commercial
venables


School
Commuters
INTERRUPTION
DEAD
Blocks:

APPENDIX D
QUESTIONNAIRE AND INTERVIEW QUESTIONS

Questionnaire for Sonic Mind Maps

1) How would you describe the "sound" of Commercial Drive?
2) Could you think of specific locations that seem to possess a particular sound or ambience?
3) What do you like about the soundscape of Commercial Drive? What do you dislike? Why's that?
4) Any particular sound memories of the neighbourhood? Any sound or location that may have a particular signification to you?

5) Describe your map. What are the main points of interests? Main sound sources? Sounds that have been unnoticed?
6) For how long have you been living / working on or around Commercial Drive?

Date:
Sex: M F
Age Group: 19-24 25-35 36-45 46-55 56-65 65+
Notes:

Phono-Reputational Inquiries Questions

1) Locations
   a) Can you think of spaces located in the Commercial Drive neighbourhood that possess particular sound qualities (positive or negative)? These can be squares, parks, streets or alleys, cafes... (Use a map to locate the selected sites)
   b) What do you think characterises these spaces? Are there any particular ambiences or sounds? Can you describe the sounds one may encounter in these locations?
2) Discussion of the soundmarks and other representative sound signals
   a) Are there sounds that you think are "representative" of this neighbourhood?
   b) What are the first sounds that come in mind when you think about the Drive? (again, situate them and describe them)
   c) What would be the sonic *signature* of Commercial Drive?
3) Discussion of criteria of sonic comfort and sonic quality
   a) Based on your personal or professional interests, what would be the criteria that would define situations of acoustic well-being?
   b) Are some of these features found on the Drive?
4) Discussion of eventual themes found through the earlier analysis of sonic mind maps. These maps can also be used in the focus group to produce reactions or comments.

Reactivated Listening Questions

1) Questions:
   a) Description of the sequence:
      i) What do you hear?
      ii) Describe the sounds and ambiences heard on the sequence.
      iii) Can you guess where this sequence was recorded? When?

iv) Can you describe what happens in the sequence (activities heard, movements, discussions, etc.)?

b) Associations:
   i) What does this sequence reminds you?
   ii) Any memories triggered by the sequence? Have you ever experienced a similar listening situation (discuss the differences between the recording and the actual experience)?

c) Appreciation:
   i) What do you like or dislike about this sequence? Why's that?

d) Interpretation (meta-language)
   i) Would you qualify this sequence as being representative of a comfortable space (acoustically)?
   ii) Can you think of any criteria that would be necessary for a location to be acoustically pleasing?

2) Once the playback of all sequences is over, a final classification is made by the participant:
   a) Classifying sequences by order of preference;
   b) Choosing the sequences that are the most representative (of Commercial Drive) (one or two sequences);
   c) Selecting the most important criteria of acoustic quality (in relation with the sequences heard and the comments made).

APPENDIX E
CHARTS OF SEQUENTIAL ANALYSIS

Interview # 1 - Sequence # 1

Profile of participant: Matthew

Sex: M Age group: 25-35 Profession: MA Student (Soundscape)

Knowledge of Commercial Drive: Good knowledge. Lived near the Drive for one year.

Preliminary hypothesis

Strong emphasis on interaction (voices, intonations, continuity). Immersion and emergences. Creation of a dynamic background (voices, music, sounds from kitchen).

Condensed transcription

I hear sounds of what's probably a café, I hear background music, people talking, registers, a bit of just general commotion and ambiance from people in activity. It sounds a bit muffled, it gives me an impression of a dark ambiance, it reminds me of Vancouver's weather and how the clouds give this sort of muffled perspective. It actually sounds like it's on the edge, though I don't hear any outside sounds. I'd say it's local café versus a downtown café [...] But just because it actually encapsulates sort of my outer perception of the city, on a macro-level, so it seems in acoustic term to define the Greater Vancouver. It's interesting though that it's not what I would perceive a café to sound like in my memories... Because if I think about it I would foreground the kitchen and the espresso machine and the change of money, while those are more background [...] And also my reference to, a lot of the other cafés throughout the city are commercial, so they're not run by local people, owned by local people, so it just changes the whole character of the people who frequent, the kind of soundmaking that they produce.

"when one doesn't understand the language, you're not drawn to be focused on foregrounding voices"

Unusual expressions and quotes

"it reminds me of Vancouver's weather and how the clouds give this sort of muffled perspective"

"I would have thought there would be even more reverberant because there's so much marble and tiles in that place."

"[the sound environment] may act as a catalyst for being able to go into the mode of distracted listening and be more focused and directed in whatever activity I'm involved in"

Attitude of the participant

Very analytical, involved in a thorough description of the sequence and an active attempt to try to locate the original location of the recording. Made strong connections between the recording and his lifestyle, as a frequent coffee shops visitor.

Interpretation

The sequence is being interpreted as an icon of Vancouver's weather – bringing people inside in enclosed, saturated spaces. Sense of "culturalness" of the sequence (music and voices). Situates himself as an active participant. Describe the environment, and then relate it to his experience (from an objective understanding to a situated reassessment)

Actualisation of hypothesis

Emphasis on the flow of voices and music as a basic sonic material used to infuse a state of distracted listening (in relation to the temporal continuity and the fact that the voices are hardly understandable). The cultural aspect of the sequence is heard through the musical style, and is associated to the multiculturalism of the drive and the presence of various exotic cafés and restaurants

Interview # 2 - Sequence # 1

Profile of participant: Diane

Sex: F Age group: 25-35 Profession: BA Student, Communication

Knowledge of Commercial Drive: Very good. Was raised and still lives near the Drive. Has some basic knowledge of soundscape studies terms and issues.

Preliminary hypothesis

Strong emphasis on interaction (voices, intonations, continuity). Immersion and emergences. Creation of a dynamic background (voices, music, sounds from kitchen), consciously desired.

Condensed transcription

"I'm trying to clue into the music behind because it sounds very, like cultural, almost, and it makes me think of Middle-Eastern... It just reminds me of travelling actually. Listening if I hear anything else in the background, something that would give it away... I don't know, I can't figure it out!... There's lot of activity though! There's voices, talking, clinking of cutlery or glasses, little bit of thumping, thumping around, customers... Maybe that's a coffee bar! I don't know! I don't think it's incredibly large, the space. Small to medium... and... kind of saturated, a little bit. I myself can't make them out but I'm sure for the people there, if you're sitting in a very close table it's okay. I'm more like eavesdropping a table away. I'm just thinking that the voices that I do hear predominantly, that are rising above, are the men's voices. Sometimes when you're out with friends, and the music's there, and it's loud, you tend to talk louder, and when one of those elements drops away you realise "Oh, I've been kind of loud so everybody stops talking or quietens down a little bit, so maybe it's something like that, a reflex action. To me that sort of, one of the, if not the main sounds of Commercial Drive is that, the voices and the sounds of cafés or restaurants merging together, I mean you have the traffic part, but you know, when you eliminate that, the real part is more that neighbourhood sort of sound... It sounded like, there were some interaction with the workers, and I know the guys that sort of manage it or own it—I think it's two sons and the father that own it—so I know, like when I'm there, they're sort of "Heeey!" You know that sort of...

Unusual expressions and quotes

"it feels like I would be walking down Commercial"

"For some reason it's the sort of place my father would probably frequent... the type of places where it's most like, like I said, older men who gather around to shoot the breeze with their buddies"

Attitude of the participant

Very descriptive. Vivid re-actualisation of memories of the Drive. The location is partly identified through voices. Defines the sequence as a representation of the Drive.

Interpretation

Some typicity (male voices, accents, ethnic music). The flow and the content (focusing on trying to understand the language or the actual conversation) seem to be more important than the particular acoustic properties of the location. Strong anamnesis tied to childhood memories.

Actualisation of hypothesis

The voices and music as carriers of an "exoticism", a Mediterranean flavour tied to the Italian presence on The Drive. A public space of social interaction where the other's interactions serve our own anonymity. The music supports those exchanges, and its influence on their dynamic changes is consciously perceived.

Interview # 3 - Sequence # 1

Profile of participant: Lindsay
Sex: F Age group: 36-45 Profession: Sound Artist, lecturer
Knowledge of Commercial Drive: Basic. Has recently moved to Vancouver after living in England.

Preliminary hypothesis
Strong emphasis on interaction (voices, intonations, continuity). Immersion and emergences. Creation of a dynamic background (voices, music, sounds from kitchen).

Condensed transcription
The music was interesting because it was very culturally defined... most of the time, for me, the voices, even which language they were speaking in was confused because of the music and the other activity. in my mind it seems quite a big space... I suspect it may be not that big a space at all. You can pick up a little bit more but the music really masks your ability to pick up the speech I think. It must be masking his ability to hear as well. I hear vocal sounds that come and go quite quickly as if there was maybe over there or something, or corridor, and people are walking by, not staying, didn't notice that before. So maybe there's a counter or something. There's another traffic sound so maybe that's a door... It's interesting when the music stops it seems as if their conversation slows down, and I wonder if it does unconsciously or if it's just me, as if they don't have so much trouble. I think that the fact that it seems kind of leisurely pace to it, there's nothing indicating you've got to go on a bus, there's no bell ringing or anything, no phones or whatever. I'm a great sitter in cafés and watching people, listening to people, eavesdropping. So I really enjoy those sort of situations in which you can really observe all of life and different kind of people that you wouldn't see normally

Unusual expressions and quotes
"It had an interesting kind of very distinctive left-rightness to me"
"It feels informal, friendly, daytime associations, something that you would spend a limited amount of time to relax. I do think of it as daytime for some reason... Maybe it would be a slower pace on the evening."
"...that's why you go for a meal, it's to be taken out of time for a little while and maybe there's a little part of that."

Attitude of the participant
Engaged in the listening. Makes several comparisons and references to her previous experiences in England. Emphasis on voices, accents, intonations.

Interpretation
Importance of musical clues and vocal intonations/rhythm in the establishment of the location. Creation of an "out-of-time" context, with the absence of temporal sonic signs. The experience of eavesdropping as a way to induce distracted listening is also emphasised.

Actualisation of hypothesis
Confirmation of the vocal interactions as the main defining elements of this situation. The context is very "culturally defined", although the actual cultural origin remains fairly vague. The background sound becomes a sonic icon of the "café" ambience.

Interview # 4 - Sequence # 1

Profile of participant: Judy
Sex: F Age group: 25-35 Profession: PhD student, college teacher
Knowledge of Commercial Drive: Fair knowledge of the Drive, lives nearby.

Preliminary hypothesis
Confirmation of the vocal interactions as the main defining elements of this situation. The context is very "culturally defined", although the actual cultural origin remains fairly vague. The background sound becomes a sonic icon of the "café" ambience.

Condensed transcription
That's definitely a restaurant. I'm trying to figure out what the background clanking is, it almost sound like there could be, tiny sounds and deep sounds, it almost sounds like it could be a pool hall... it didn't seem like people were listening, people were chatting, talking, like friends hanging out, that's what it reminds me of.
[with headphones] Wow! It's really different! It sounds almost like a little bit annoying, really cluttered, really full of, almost too many sounds up close... I almost feel like I could be in Italy on some street corner in a café or something... I feel like it would be impossible to eavesdrop on anybody's conversations, I can't hear anything that anybody say clearly at all. It became annoying, through the headphones I found that it was just too close or too, like it was infiltrating my brain too much. if there are really sharp noises that are intruding on my thought space and I feel uncomfortable. I didn't get that much sense of the space, all that I was paying attention to were the sounds. Here [pointing to loudspeakers], I got a real sense of the space itself. It felt full and dynamic, lots of different sound levels and the noises were not really sounding like noises... every now and then you could hear the rises and fall of people's voices, so it wasn't one hum.

Unusual expressions and quotes
"I used to be a waitress for twelve years so it brings up that, and I love it, it was my favourite job, I loved the atmosphere, I liked the vibrancy and the excitement, so it brings that for me, definitely, that feeling of running around and being on the edge..."

Attitude of the participant
Engaged. The listening triggered many memories, as the participants used to be a waitress. Strong reaction to the headphone listening – it then became annoying. Discussed of the psychoacoustic reasons of this change.

Interpretation
It is the overall interaction between voices, music and noises which re-creates the "energy" of a café-restaurant atmosphere. The dynamic qualities of the sound texture and the perspective were judged important. Creation of a "thought space" inside the ambient noise, necessary to be comfortable and appreciate a metamorphosis effect.

Actualisation of hypothesis
The construction of a background requires a balanced mix of voices (which should be understandable), music (establishing the culturalness of the location and creating an initial ground) and establishing noises (dishes clinking, movement). The perspective heard gives clues about the space itself, and is necessary. The overall interpretation of the scene sometimes falls into aestheticism (being in Italy, on a street corner...).

Interview # 5 - Sequence # 1

Profile of participant: Thomas
Sex: M Age group: 46-55 Profession: Writer, Professor
Knowledge of Commercial Drive: Knows the Drive, lives nearby, frequent many establishments

Preliminary hypothesis
The cultural feeling induced by the music and accents, combined with the overall iconicity of the ambience, creates a state in which one can oscillate between analytical and distracted.

Condensed transcription
It's the combination of the music and the rhythm of the voice which makes me hear some Italian in there... I like the "publicness" of the language... there is an easier transition between inside and outside spaces. As soon as you get into cultural situations, the music always has a different function. Maybe it has partly a commercial function but, it has an effect to re-create the whole culture. [Concerning voices:] the overlap is not interruptive. It's more collaborative, musical. there's some kind of way in which conviviality, community created by vocalisation and recorded music and the way those work together, there's a certain ambiance that's created that's quite different than that created by other types of commercial establishments where the intent is more commercial. This ambiance encourages a certain kind of soundmaking, which many establishments don't. It creates a more varied soundscape, and I enjoy that. So I'm willing in those cases to put up with a lot more sounds, ambient sounds, if it has that variety.

Unusual expressions and quotes
"If I were going to do an acoustic study of the Drive, what I would really concentrate on, and what for me is very important living here is that I can go into most establishments and have a fairly personal conversation with people"
"I'm also an immigrant, so it puts me in that kind of framework"

Attitude of the participant
Very descriptive, strong emphasis on the musical and evocative features of voices and their interplay with the music. He also situated himself as an immigrant, therefore relating to the cultural component of the sequence and its "European sound".

Interpretation
The space allows and encourages a particular type of vocal soundmaking that reflect cultural traits. The musicality conferred to this mixture is associated with European soundscapes. In this sense, a small acoustic community is constructed.

Actualisation of hypothesis
The nature and characteristics of vocal interactions are further described in musical and creative terms (flow, overlap and intonation), and with reference to their interplay with the music. The space is therefore defined as providing on one hand a "home" for a particular acoustic community that recognises those acoustic components, and a "touristic" sonic experience embedded in the multiculturalism ("cosmopolitanism") of Commercial Drive.

Interview # 1 - Sequence # 2

Profile of participant: Matthew
Sex: M Age group: 25-35 Profession: MA Student (Soundscape)
Knowledge of Commercial Drive: Good knowledge. Lived near the Drive for one year.

Preliminary hypothesis
Very alive, sense of variety, strong human and natural components, feeling of quietness. Openness (feeling of large space).

Condensed transcription
It's definitely outside, a park area. I hear distant traffic, very muffled, I hear one kid in particular. I also hear some background music that sounds like it's pre-recorded, and then there were some drum playing going on. The foreground and the background are very separated, or contrasted, and the middle ground is sort of this ambiguous zone. So it also was more difficult to get a spatial sense of where I was, how far away things were or how close they were. My first guess is it's the park across from Turk's. It's actually more on the quiet side. [with headphones:] The low rumble isn't as oppressive on the sense of hearing, so a lot of the background sounds are a lot clearer, it sounds more realistic. Strange but there is a level of quality to his [busker] sound that makes it resemble a recording re-played, even though it's live... I felt I was position in between all of these, I could hear what I would say would be three sections. ... Kids and the parents, I can hear everyone communicating but not specifically to each other

Unusual expressions and quotes
"I had the feeling of what it might be like to be blind, or to do a blindfold experience, where you're just dependent on the listening."
"The only that wasn't there that I would identify with that park is people asking is you want to buy pot..."

Attitude of the participant
Very analytical, trying to map the space. Did parallels between the Drive and the West End (where he moved). Although he quickly identifies the location, he does not seem to have a particular relation or interest in the site; descriptions are very environmental (objectives).

Interpretation
The feeling of quietness is indeed expressed through a relatively slow pace. Large variety of sounds makes it interesting and comfortable. There seems to be a stark foreground/background distinction, making the space sounds extremely open, and somewhat empty.

Actualisation of hypothesis
Natural components are not directly addressed; the emphasis is on the spatial distribution of people vs. surrounding drone of the traffic. Buskers are keynotes of the location. Interesting communicational patterns (kids yelling without having to be answered).

Interview # 2 - Sequence # 2

Profile of participant: Diane
Sex: F Age group: 25-35 Profession: BA Student, Communication
Knowledge of Commercial Drive: Very good. Was raised and still lives near the Drive. Has some basic knowledge of soundscape studies terms and issues.

Preliminary hypothesis
Very alive, sense of variety, strong human and natural components, feeling of quietness surrounded by continuous noise. Openness (feeling of large space) created by an ambiguous foreground/background relief.

Condensed transcription
It's outside... Buskers, yeah. I feel it's either at that little park across from Havana's or near Britannia. I hear the muffled traffic or something in the background. Or a plane or something going overhead. It wasn't as loud as I normally think of it. When I think of parks I think more, you know, put your blanket down and relax and everything like that... [with headphones:] Now I actually hear like birds and stuff... And then there's kids interacting with each other but at the same time, kids don't really wait for feedback, they just talk to hear themselves talk... There seems to be either traffic or playing that sort of is the continuous background sound to everything else... And the music too is fairly continuous, the only thing that goes back and forth is people or kids yelling, or some adult voices rising up. [classification:] I could eliminate one, which would be the playground, just because I don't have any real connection to it, it's just somewhere that I "whip" by and have no reason to stop...

Unusual expressions and quotes
"you said it was a busker, then I thought "Oh, that make sense because there's usually, if not somebody having music there, somebody panhandling there, so that make sense to me because that's sort of, you know, there's always somebody selling their little trinkets and stuff there, and, it's just the merging of the kids, people trying to pawn stuff off, a little bit of traffic coming in..."
"When I think of parks I think more, you know, put your blanket down and relax and everything like that... Maybe once upon a time it was like that, but now I think it's slowly shifting to something else..."

Attitude of the participant
Descriptions remained fairly general, and seemed to be based more on actual visual memory than the recording. Also, the comments and judgments were very much based on an *experienced* appreciation of the location – again based on her memory—more than an *evaluative* one.

Interpretation
Buskers are again used as sonic clues to locate the space. The overall soundscape is being described as a static structure composed of a fairly continuous background (traffic and music), with an up close foreground (kids voices, playground sounds). The space is not considered as a park because of the over abundance of urban noises and children voices.

Actualisation of hypothesis
The static foreground/background appears as the dominant aspect of the soundscape. This dichotomy locates the discussion in a very stigmatised context (urban noises vs. natural quietness)—making the appreciation of the park conditional to a good ratio. In this specific case, the urban drone, while not disturbing communicational exchanges, takes away from the idealised image of the quiet park (especially when considering the constant presence of low-frequencies).

Interview # 3 - Sequence # 2

Profile of participant: Lindsay
Sex: F Age group: 36-45 Profession: Sound Artist, part-time professor
Knowledge of Commercial Drive: Basic. Has recently moved to Vancouver after living in England.

Preliminary hypothesis
Very alive, sense of variety, strong human and natural components, feeling of quietness. Openness (feeling of large space).

Condensed transcription
Very spacious, no sense of being enclosed by big buildings or anything. There was a lot of human activity going on, of a relaxed kind, buskers, it can't be that small an area because there was at least two buskers simultaneously at one point. Very *unbritish*, thinking of my own experience of parks. a lot of [kids] seemed to be running around so maybe a playground or at least an area that was unthreatening, where they could be just looked after. It was fairly quiet, overall level, of course that indicates that the sound is dissipating... And people called out a couple of times, people called out to a child for them to come nearer or something like that, so you could tell from what they were saying that there was enough space for someone to be running out of control, and having to call to get them back again. But it seems somehow a little more relax than my experience of city parks... Personally again I'd be annoyed by the buskers. I liked the birds songs, I like that you can still hear bird songs in a urban park or space. You could hear that people were able to communicate, and there were quiet conversations and children were able to play and you can hear birds, I think it was just doing its job well.

Unusual expressions and quotes
"there was a few conversations, the sort you'd have with someone standing in a park or whatever."
"I personally have an aversion to strophic songs with guitar accompaniment, so for me, it's something I wouldn't have stayed with, but for many people probably it would be very enjoyable."

Attitude of the participant
A thorough environmental description with various personal comments on buskers, kids yelling and the difference between this park and British parks.

Interpretation
The largeness of the space is clearly heard through the loudness of the various sounds (indicating their position), the absence of reverberation, the softer rumble of traffic... Soundmaking (both music and kids yelling) provides a local character to the sequence and encourage personal judgments.

Actualisation of hypothesis
The presence of natural sounds, various human soundmaking and the relative overall level are all indicators of the use of the space to relax and encourage conversation. Buskers, in particular provide an important clue of the "publicness" of the space.

Interview # 4 - Sequence # 2

Profile of participant: Judy

Sex: F Age group: 25-35 Profession: PhD student, college teacher

Knowledge of Commercial Drive: Fair knowledge of the Drive, leaves nearby.

Preliminary hypothesis

Very alive, sense of variety, strong human and natural components, feeling of quietness. Openness (feeling of large space). Soundmaking provides clues on the "local" nature of the space

Condensed transcription

That to me sounds like it's outside, definitely. Lots of open space, space for people to run around and kids to play, it sounds like some sort of public square or something. There's cars really close to where people are hanging out or playing. there's some kind of, sounds like a seaplane or something, plane, "Iona" Beach, I don't know... No, because there's no cars down there... First I thought it could have been the beach, because it sounded like there was some kind of humming or some type of constant low-level drone. People-oriented space, even though I heard airplanes, it reminded me of a place I've been to in Boston, Boston Harbour. I like the fact that the major thing that I heard was kids playing, and people chatting and talking and then the music, is what came through for me, and then the other stuff seemed in the background. It sounded bigger [than Grandview Park], and it sounded more open, and it sounded more like it should be on the beach, or something bigger, a bigger space. The space in the recording seems bigger. Which may be a good thing, right, if you have a soundscape that makes the space seem bigger than it actually is...

Unusual expressions and quotes

"Sound like it could have been the traffic, but usually when I think about traffic I think about "this is gonna be bothersome" whereas the ocean is kind of, that kind of "hourrouuuu" which to me is a nice sound."
"When I go outside, this is one thing that appeals to me in living in the city and walking around, is that kind of energy, and I felt a lot of energy in that."

Attitude of the participant

The participants listed many locations which corresponded to particular features of the recording – including the sense of space heard, the continuous drone (heard as waves), the variety of human and non-human sounds. The listening session appeared as very evocative.

Interpretation

There's a definitive sense of largeness, which was somewhat enhanced by the drone (associated with waves sound). The variety of sound makes it appealing, and urban noises do not take over human soundmaking. The scene remains "generic", in the sense that while it produces a specific type of appreciation (as a space of relaxation, discussion, a social space of quality), its actual location (and the various sound sources) cannot be identified precisely.

Actualisation of hypothesis

Sounds are being contextualised not for their content or their individual unfolding, but rather as creating a whole feeling of relaxed, balanced space. While urban noises (non-human, mechanical) sounds are clearly distinguished, they are counterbalanced by a large number of vocal interactions and music making, and the perceived largeness of the space allow for the creation of a comfortable soundscape.

Interview # 5 - Sequence # 2

Profile of participant: Thomas

Sex: M Age group: 46-55 Profession: Writer, Professor

Knowledge of Commercial Drive: Knows the Drive, leaves nearby, frequent many establishments

Preliminary hypothesis

The static foreground/background appears as the dominant aspect of the soundscape. This dichotomy locates the discussion in a very stigmatised context (urban noises vs. natural quietness)—making the appreciation of the park conditional to a good ratio. The combination of the various sounds generally create the sense of a relax space of social encounter.

Condensed transcription

So I know where that one is already... It's the Grand Park there. The keynote there is the drumming. There's a good range, a good depth, we can feel the space. And there's a pretty good variety of sounds. there's still a fairly dominant mechanical transportation presence. There's this low drone still going... when I listen to this kind of thing there's always, you have that can of soundscape there's always this sense of menace on the horizon. It gives you that sense that there is an acoustic bubble. You can hear the contrast between the very low rumble and those very high children voices, in terms of spectrum, and then also the rhythm of it. Symbolically if you think of it as soundmarks, then you get total innocence menaced by completely overwhelming experience... So compositionally, you could exploit that very easily. [with headphones:] For me, having the guitar player far away makes the rumble less foreboding. So if I got my innocent children fantasy going, menaced by these rumbles, then there's one guy standing at the edge! There's something about listening to the details of the airplanes, the buses and the general rumble up close like that made me more interested in their rhythmical qualities, and its flow, its timbre variations... It became more articulated, less monotone.

Unusual expressions and quotes

"the 'buuuuu', it's like in the movies when everything is cool you have the sunlight and everything but there's this sound in the background that tells you... And that's used in the movies quite strongly to create this sense of false security."

"Well I wouldn't call it a refuge, I would call it a... an enclave."

"I heard one voice I thought was my daughter's boyfriend's voice! And I actually thought I heard him calling my grandson's name at one point, but I'm not sure"

Attitude of the participant

By describing the sequence in terms of compositional elements, the participant brings up its qualitative components. The interplay between heard soundscape (the recording) and experienced soundscape (his memories) is analysed consciously.

Interpretation

The foreground/background contrast is described as a "bubble" in which kids interactions are opposed to the continuous urban drone. While the variety of sounds is stated, the assessment of the park as a comfortable space remains subject to the clear presence of the surrounding city.

Actualisation of hypothesis

The park as a urban enclave is being understood based on its actual acoustic features (pitch and rhythm). Variety of sound sources and the predominance of vocal interactions remain very important factors. As such, the park is "integrated" into its surrounding soundscape, and while it favours communication, it does not allow a disconnection from the city; in fact, its more "empty" acoustic space makes it vulnerable to the outside drone.

Interview # 1 - Sequence # 3

Profile of participant: Matthew

Sex: M Age group: 25-35 Profession: MA Student (Soundscape)

Knowledge of Commercial Drive: Good knowledge. Lived near the Drive for one year.

Preliminary hypothesis

Focus on vocal interactions and the busyness of the location. Traffic predominant, but actively backgrounded. De-localisation effect.

Condensed transcription

It would be a communal place, probably based on shopping of some sort. It's probably an open-market. it's probably near a corner because of the way that the traffic sounds, it sounds like there's frequent starting and stopping of cars. I was going to say probably on the sidewalk, but it seemed to shift for a minute to be more inside the actual space. [Reminds me of] the Drive again due to the vocal amplitude and the amount of people speaking to each other, more than an exchange in a customer –relationship. In the memory of it, the level of the sound is actually even more than it was on the recording. It's an immersive recording or environment. The interactive talking is between people who know each other, as they do something, versus only one person outside doing shopping. The market [is representative], because that one isn't dependent on anyone's background, or their choice of route, or if they go to park or if they go to cafés, that one is based on the necessity, everyone has to shop. Even if you're not shopping, the way the Drive is set-up and the size of the sidewalks, you usually are involved in someone's process or you're trying to go around people that are shopping so you are in the sonic environment of the shopping district for at least a few seconds or a minute while you're moving past it, so it's something you experience on a daily basis.

Unusual expressions and quotes

"There were even times, based on my memory, one grocery/market in particular that would at times give me almost a sense of... not paranoia... this phenomena you go through, sort of like hyperventilation when people get really stressed out... Anyway when there's so much commotion and people and activity, basically sound production, and the level of volume, that it's stifling, or if you're open, if your perception or listening is open to it, it can be overwhelming, and there were times where it was actually too much, where I wouldn't continue shopping, I would just go somewhere else because it was so active and there were so many people talking at once and so much commotion..."

"it is like a postcard because the Drive is an ethnic neighbourhood, an immigrant neighbourhood, and also living in other countries that's also a place of, the market of the town or the city is always a place that's got the same qualities."

Attitude of the participant

Was very engaged in the listening, compared and contrasted it to his own experience. Discussed notions of orientation, the communicational situation he heard, and also brought the discussion to a qualitative level by mentioning the "market sound" as an a-contextual postcard.

Interpretation

The voices are heard in their particular context, and they define the sequence (it is not just an outside space, it is a market, people talk to each other). Traffic pattern is heard, but does not seem to bother the listener. Strong feeling of immersion—almost overwhelming (multiplicity of sound sources in movement, strong signals—voices, cars, bus)

Actualisation of hypothesis

Interactions provide, with some key sounds such as bag handlings and carts, a strong indication of the social context (both specific [market] and general [the Drive]). Confusion about inside-outside positioning of the listener, caused by the proximity of voices and the fluctuating level of traffic noise.

Interview # 2 - Sequence # 3

Profile of participant: Matthew Sex: M Age group: 25-35 Profession: MA Student (Soundscape) Knowledge of Commercial Drive: Good knowledge. Lived near the Drive for one year.
Preliminary hypothesis Focus on vocal interactions (personal exchanges, not commercial) and the overall busyness of the location. Traffic predominant, but actively backgrounded. De-localisation, immersion and waves effects.
Condensed transcription It's one of the markets... I go there all the time. We can hear Italian voices. The bags rustling sort of give it away. It seems more sociable, even though people aren't really, you know, talking- talking it still somehow, again seems more neighbourly than doing to like SuperStore or something like that... There's still enough human interaction that it, traffic isn't quite overpowering it as much as I might have thought... I was surprised, I couldn't hear before, like cash registers or anything... But if you're outside I guess you wouldn't... [with headphones:] I didn't realise that the traffic was, would drown out as much as it does. I still hear it [the sense of community], I just didn't realise it, I thought most of it had sort of died away, and I'm sure a lot of it has, because way back then I think it was... The light must have turn green or something like that, and suddenly the noise level increases and dies down a little bit after.
Unusual expressions and quotes "You're more likely to also run into people that you might know for some reason at these places than you would at... Safeway or whatever" "Well, you know, you go up and down that street, looking for the best bargains!" "I always feel like I'm getting something accomplished when I go to these stores, I don't know what... It's sort of like—even if it sounds stupid—it's sort of like an outing,"
Attitude of the participant Quickly identified the location and discussed details of the recording (flow of traffic, various types of discussions, how it changed through time...). The headphones perspective surprises her in terms of the level of traffic noise, but again it is not consider as a problem.
Interpretation Strong stigmatisation (Safeway vs. small markets); the act of grocery shopping is tied to a particular social exchange, audible on the recording. While the overall orientation remains difficult, voices seem to support the scene, while traffic is more ubiquitous.
Actualisation of hypothesis The market soundscape is perceived as a local act, where human communication is predominant even if, in terms of levels, traffic sound tend to make conversations difficult; at certain point, that focus on people seem to almost become an obstinacy. Wave and immersion effects are very present and important in creating the "market" soundscape.

Interview # 3 - Sequence # 3

Profile of participant: Lindsay
Sex: F Age group: 36-45 Profession: Sound Artist, part-time professor
Knowledge of Commercial Drive: Basic. Has recently moved to Vancouver after living in England.

Preliminary hypothesis
Focus on vocal interactions and the busyness of the location. Traffic predominant, but actively backgrounded. De-localisation effect.

Condensed transcription
It's outside on the street somewhere, it's outside of a café or something... I really don't think it's a nice sonic environment, there's a lot of really horrible low-frequency stuff going on. The traffic seems to come in waves, which makes thinks it might be at an intersection. Pretty unpleasant sort of right-on-the-street urban noise, traffic sounds dominating everything really, very low-frequency. There was something going on, and I couldn't tell at all, it stopped for a while which made me wonder if it is something temporary. It seems to me a very un-interactive shopping experience. Ho! that's not what I call a market, that's part of the confusion... because you couldn't hear money, change, that's what I... I still think I wouldn't have got it, because I didn't recognise the sounds.

Unusual expressions and quotes
"If you bump into someone on the street like that, it is a place where you can have a short conversation and not feel obliged to stay, and also you're in the process of doing something, so that gives you an activity, a common goal, you don't have to just stand there."

Attitude of the participant
Found the recording unpleasant, and couldn't relate to it as a market, (some linguistic confusion – comparing British markets and those grocery store). Disoriented by the recording (lack of overall assessment, localisation, feeling of instability in the soundscape). Again, comparisons with Britain were commonly used.

Interpretation
The traffic noise is clearly heard as a masking sound which blocks communication and makes the experience very "un-interactive". While there is a sense that "something is going on", the busyness remain fairly generic.

Actualisation of hypothesis
De-humanisation of the soundscape by motorised vehicles. Without an appropriate understanding of some local clues, the situation is heard as an average street side soundscape in which human interactions are discouraged, subordinated to urban traffic noise.

Interview # 4 - Sequence # 3

Profile of participant: Judy
Sex: F Age group: 25-35 Profession: PhD student, college teacher
Knowledge of Commercial Drive: Fair knowledge of the Drive, leaves nearby.

Preliminary hypothesis
Focus on vocal interactions and the busyness of the location. Traffic predominant, but actively backgrounded (of contextual sonic clues are heard and understood). De-localisation, immersion, niche and wave effects.

Condensed transcription
Outside the SkyTrain? Commercial and Broadway? There's a lot of traffic, noisy—too noisy. There's something going on, regularly, it sounds like as if it were New York, where you're going through the turn stall and you're putting the slot in all the time. It seems like peoples' voices seem amplified, at the point of being unpleasant. It seemed like the conversations were sharp and passer-by kind of conversations. The second one that you played there were planes and cars and those kinds of things, but they weren't intrusive, whereas here the whole space seems dominated by the big heavy sounding trucks, transport trucks. I like the kids, there are sounds of kids, but it sounds like they're not happy, they're kind of crying and whining... I found it more interesting here [headphones], for some reason, because of the movement that was happening. I started to become interested in what people were actually saying and I could hear very clearly what people were saying, even though the traffic was going by... And then hearing the car going from one ear to the other made it interesting, whereas before, it didn't seem...

Unusual expressions and quotes
"I never noticed it, and I'm shocked actually that there is that much traffic in that area. Because Santa Barbara is very close to the park right? And Latin Quarter is across the street, and I've been there so many times and I never noticed that is was so noisy..."

Attitude of the participant
With loudspeaker, the orientation was difficult and the soundscape was described very negatively, with a strong emphasis on traffic noise. With binaurals, the positioning of the listener was much clearer, and this modified her perspective on the quality of the space. Knowing the actual market eventually shaped even more her appreciation of the sequence, although she remained shocked by the level of traffic noise (in comparison with her memories of the location).

Interpretation
Orientation is necessary for an appreciation of the situation and a better understanding of the various discussions and actions. The overall "busyness" is quickly heard. Interactions are categorised as street-types of exchanges; personal but limited (both in terms of their duration, content and in terms of the overall sound level)

Actualisation of hypothesis
The close proximity of voices and motorised vehicles noises requires binaural listening to help orienting the listener; otherwise, a presence effect overrides any existing structures. A sense of the urbanity of the human actions is heard as a result of the general hustle-bustle (movement, passing voices, carts, footsteps...). Here, psychological factors (knowing the actual location) seem very important in the appreciation of the sequence; memories are quickly triggered and contrast with the actual recording.

Interview # 5 - Sequence # 3

Profile of participant: Thomas
Sex: M Age group: 46-55 Profession: Writer, Professor
Knowledge of Commercial Drive: Knows the Drive, leaves nearby, frequent many establishments

Preliminary hypothesis
Focus on vocal interactions and the busyness of the location. Traffic predominant, but actively backgrounded (of contextual sonic clues are heard and understood). De-localisation, immersion, niche and wave effects.

Condensed transcription
Yes, I have a sense, I can quite locate exactly where it is. Because the SkyTrain just came by. I'm not sure if I'm inside or outside, sounds like I'm on of these smoking areas in a restaurant, where you sit outside... I noticed the traffic more here than in the other recordings, there were cars wheezing by all the time... it had a bit of a "markety" ambiance to it, I could certainly sense that. But of the three recordings it was the less recording, comfortable. That could be in a whole number of places, it's not typical of this area. Now there are certain things that are, there's probably more voices there, and there's probably a bit more indoor / outdoor feel here than there is in other shopping situations, because of the street stalls and the market atmosphere. I couldn't really locate it so it doesn't have enough distinctive qualities to enable me to locate myself. And I think that's a pretty important thing if somebody spends a fair enough time of the Drive, and I can't by the recording know where I am, suggests to me that it's not a very distinctive acoustic environment, or otherwise I would recognise it... So it's more generic.

Unusual expressions and quotes
"I was put into a position in which I was guessing a lot of times "where am I?" so I listened in a different way, trying to situate where I was rather than "now I know, I'm going to listen to..." So I'd have actually less memory of the detail sounds, because I was trying to locate myself"

Attitude of the participant
Confused at first, trying to identify the location. Discussed the anonymousness of the recording, the lack of a dominant feature. Only briefly commented the sequence.

Interpretation
The sequence is heard as an average urban environment, with predominant traffic noise and a strong vocal component. Inside and outside are still blurry (because of acoustics and the closeness of voices); that partly helps identifying the location.

Actualisation of hypothesis
Keynotes are too generic to be automatically heard; the market does not become an icon in this case, since it can be easily misinterpreted. Voices remain central in the mapping of the space and the evocation of a local, social space. Strong evocation of opening (confusion between inside/outside).

APPENDIX F
SONIC IDENTITY CHARTS

Café Calabria

Specification of the sequences:

Sound levels: **Avr.** 69 dBA **Max.** 75 dBA **Min.** 62 dBA

Identification of the sequence: The sequence is quickly identified as a "café ambience" by all participants; some identify it as an Italian café. One person precisely identifies the café—she recognised the voice of the owner.

Description of the sequence: A busy afternoon in Calabria café. Sitting in the main area facing the cashier. Ethnic music and voices (both Italian and English with an accent) constitute the main sounds, with noises from the coffee machines and tinkling of cups. Many people enter and leave the café, letting traffic noise enter periodically. In the last section of the sequence the music fades out, which also makes discussions get quieter.

Reception of the sequence: The ethnic voice is quickly picked up as a clue of the particular cultural setting of the location. The overall mix of music, voices and general noises is perceived generally as a typical café or restaurant ambience, although for some the particular rhythm of interactions reveal the "Europeaness"of the location. In most cases, listeners feel very comfortable, and encouraged to switch between analytical listening ("eavesdropping") and distracted listening (in which the whole mix of sounds become a background to one's personal space).

Sound effects: Filtering, reverberation, wave, anamnesis, metamorphosis, cocktail-effect, phonotony, repetition, enveloping.

Synthesis of hypotheses and comments:

Space: The reverberant quality of the space (tiles and marble) is noticed through headphones; however, the creation of a sound wall makes difficult any estimation of the size of the location. The space is literally saturated with a variety of vocal interactions, which are the main elements giving a perspective (depth) to the sequence. The filtered traffic and the reverberation situate the space as interior; vocal interactions on the other hand (Italian intonation) correspond to a more "exterior" type of communication.

Time: Absence of time donors or any other acoustic indications of time. The sequence is heard as a typical café ambience. The continuity of interactions and music, although described initially as a series of dynamic waves (in terms of intensity, level and spatial distribution), is generally perceived as continuous and regular. The only major transformation is the fading of the music, which triggers a consciousness of the previous high sound intensity of voices and discussions.

Semantic and or cultural: The commercial social space (café/restaurant) is always clearly identified (combination of the various sounds with a strong vocal presence); however, it is also heard as a local café aimed at a specific, ethnic acoustic community (music style, accents, intonations of the voices, overlapping exchanges), rather than a more commercial one (Starbucks is often cited as a contrasting location). The appreciation of the sequence is then strongly tied to the lifestyle of the participant (does he/she frequent cafés?)

Sonic material: The music is usually the first element that attracts attention; the musical style is guessed, to draw conclusions about the location. Voices are also discussed at length; their origin (an accent is heard, but not always identified), the few words that are understood here and there, their position in the space... Noises from coffee machines and cups handling are grouped as indicators of the nature of the commercial function of this location (café or restaurant). The overall scene remains very evocative of varied personal experiences and memories. In one case, the voice of the owner was identified by a participant.

Objectification of qualitative criteria:

Criteria of quality (acoustic quality) (E): Volume and sonic relief (through the interaction of voices). Atemporality (off time). Sense of publicity through anonymousness. Megaphone space (voices are always emphasised and valued). Compositional clarity of the sonic metabolism (the mixture of voices music and kitchen sounds is always considered as a 'whole structure' identifying a café ambience).

Criteria of qualification (sonic comfort) (M): Standardisation of the ambience. Privatisation (establishment of a bubble of intimacy).

Criteria of qualitativeness (perceived quality) (P): Typicity of both the type of social space and the cultural acoustic community it is addressed to. Sense of immersion.

Semantic niche and remarkable expressions:

"it reminds me of Vancouver's weather and how the clouds give this sort of muffled perspective"

"For some reason it's the sort of place my father would probably frequent... the type of places where it's most like, like I said, older men who gather around to shoot the breeze with their buddies"

"It feels informal, friendly, daytime associations, something that you would spend a limited amount of time to relax. I do think of it as daytime for some reason... Maybe it would be a slower pace on the evening."

"...that's why you go for a meal, it's to be taken out of time for a little while and maybe there's a little part of that."

"I like the "publicness" of the language... there is an easier transition between inside and outside spaces."

Grandview Park

Specification of the sequences:

Sound levels: **Avr.** 64 dBA **Max.** 74dBA **Min.** 60 dBA

Identification of the sequence: All participants identify the recording easily as an urban park. Three of them specifically identify Grandview Park.

Description of the sequence: Sunny afternoon at the Park. In the foreground we hear many children playing and yelling, sounds from a playground area. Adult voices are also heard (passing conversations, parents calling their kids). Some birds. The low-frequency urban drone is omnipresent (buses, cars and planes). Buskers can be clearly distinguished throughout the sequence (some drums, a guitar player and an amplified country singer)

Reception of the sequence: Most participants positively described the park, mentioning the presence of natural sounds and children voices; however, the presence of urban noises is also always specified. These are seen either as intrusive, or simply surrounding. Buskers are heard as clues of the actual location—the Drive.

Sound effects: Drone, masking, anamnesis, hyperlocalisation, metamorphosis (strong foreground/background contrast), sound wall, niche.

Synthesis of hypotheses and comments:

Space: The park appears as particularly large, and somewhat empty; a strong disconnection between foreground sounds of kids and adults, and the far rumble of traffic implies a large open space, sometimes heard as a beach (no reverberation). A busker located midway in the park is heard as a transitional sound. Contrasting denseness also encourage a stigmatisation of the space (empty quiet park vs. loud saturated traffic).

Time: The sequence is imagined as being a sunny afternoon (no rain, pre-school kids heard). Traffic and buskers constitute a continuous component, while specific conversations and the rhythm of kids yelling provide a dynamic, if not structural unfolding to the sequence. Rhythmical and spectral contrasts of the kids vs. traffic is once interpreted as a symbolic "menace on the horizon", therefore implying some sort of feeling of expectation or wait.

Semantic and or cultural: The presence of buskers provides a particular cultural sign (it is accepted by other users of the park, and even recognised and valued by many inhabitants of the Drive). For some, the space, while being identified as urban park, does not provide a soundscape quiet enough to be relaxing. The presence of low frequency rumble surrounding this "enclave" is also symbolically read as a larger menace, therefore positioning the park as a somewhat fake or fabricated space of leisure and quietness.

Sonic material: Nature sounds are either going unnoticed, or on the opposite are heard and strongly emphasised. The attention seems to constantly shift from kids yelling to music to short discussions. Again, the disconnection between foreground and background often create a feeling of discomfort, almost disorientation.

Objectification of qualitative criteria:

Criteria of quality (acoustic quality) (E): Strong sense of opening, sonic anchoring (buskers as soundmarks), insularity, tautological space (kids yelling), compositional clarity (so much that it becomes surreal).

Criteria of qualification (sonic comfort) (M): De-realisation (kids vs. rumble). Strong metropolisation (two variations, mondanisation and humanisation are present). Naturalisation, aesthetisation (projection).

Criteria of qualitativeness (perceived quality) (P): Typicity, schizophony (the feeling of being in a "bubble" which produce a conscious duality), eidophony (interview 4 – list of potential locations)

Semantic niche and remarkable expressions:

"The only that wasn't there that I would identify with that park is people asking is you want to buy pot..."

"you said it was a busker, then I thought "Oh, that make sense because there's usually, if not somebody having music there, somebody panhandling there, so that make sense to me because that's sort of, you know, there's always somebody selling their little trinkets and stuff there, and, it's just the merging of the kids, people trying to pawn stuff off, a little bit of traffic coming in..."

"When I think of parks I think more, you know, put your blanket down and relax and everything like that... Maybe once upon a time it was like that, but now I think it's slowly shifting to something else..."

"there was a few conversations, the sort you'd have with someone standing in a park or whatever."

"I personally have an aversion to strophic songs with guitar accompaniment, so for me, it's something I wouldn't have stayed with, but for many people probably it would be very enjoyable."

"Sound like it could have been the traffic, but usually when I think about traffic I think about "this is gonna be bothersome" whereas the ocean is kind of, that kind of "hourrouuuu" which to me is a nice sound."

"the 'buuuuu' [urban drone], it's like in the movies when everything is cool you have the sunlight and everything but there's this sound in the background that tells you... And that's used in the movies quite strongly to create this sense of false security."

Markets

Specification of the sequences:

Sound levels: Avr. 65 dBA **Max.** 84 dBA **Min.** 60dBA

Identification of the sequence: More difficult, although two people identified it very quickly. Generally, the space is identified as a public, right-on-the-street location.

Description of the sequence: (binaural recording) The listener is facing a fruit and vegetable market. We hear a dominant traffic noise, many passing voices, plastic bag handling, fruit carts and boxes. Cashier sounds in the background. Traffic noise comes by wave, and is sometimes very loud.

Reception of the sequence: The level of traffic noise surprised many of the participants, especially those who identified the location and therefore compared the recording with their own memories. In every case, it takes a second listening before they start focusing on voices and details other then the general noise. Headphones are preferred, because they allow a better sense of orientation.

Sound effects: Drone, reverberation, masking, wave, asyndeton, presence, immersion, sound wall, niche, digression.

Synthesis of hypotheses and comments:

Space: The dominance of traffic noise makes very difficult the distinction of spatial features of the location. Headphone listening is preferred in all cases; traffic is then distinguished from voices and shopping sounds, the space enlarges, some perspective is created. Although all participants identified the location as being exterior, many felt like being "in-between", oscillating between the inside and the outside.

Time: Constant generic activity and short discussions passing through the recording indicate that "something is going on". Traffic level fluctuations are associated to a nearby circulation light. No other time component was identified or described.

Semantic and or cultural: When the location is not identified, very negative comments are made about the traffic domination, overall loud level and the sense of an impersonal, anonymous space. For those who eventually hear it as a market on the Drive, the emphasis shifts towards the human aspect of the sequence, memories triggered... The sequence is sometimes described as "shocking", because it exposes the noise level of the market (which was unnoticed before) and the audible difficulties encountered in vocal interactions.

Sonic material: The capability to orient oneself and localise sounds is vital in this sequence. What appears at first as a cacophonic mixture of low-frequency traffic noise, faint voices and generic sounds (plastic bags, clothing, footsteps), becomes much more organised with the help of binaural listening. A changing reverberation is heard as a movement between inside and outside spaces. The constant movement of most sound sources creates a sense of disorientation.

Objectification of qualitative criteria:

Criteria of quality (acoustic quality) (E): Opening (confusion inside-outside), disorientation, anonymity and shared knowledge. Strong intentionality. Informal structure of the compositional elements (cacophonic), sometimes resolved with headphones.

Criteria of qualification (sonic comfort) (M): Indifferentiation, de-humanisation and abjection.

Criteria of qualitativeness (perceived quality) (P): Some typicity. Sense of belonging. Strong schizophony.

Semantic niche and remarkable expressions:

"There were even times, based on my memory, one grocery/market in particular that would at times give me almost a sense of... not paranoia... this phenomena you go through, sort of like hyperventilation when people get really stressed out... Anyway when there's so much commotion and people and activity, basically sound production, and the level of volume, that it's stifling, or if you're open, if your perception or listening is open to it, it can be overwhelming, and there were times where it was actually too much, where I wouldn't continue shopping, I would just go somewhere else because it was so active and there were so many people talking at once and so much commotion..."

"it is like a postcard because the Drive is an ethnic neighborhood, an immigrant neighborhood, and also living in other countries that's also a place of, the market of the town or the city is always a place that's got the same qualities."

"I always feel like I'm getting something accomplished when I go to these stores, I don't know what... It's sort of like—even if it sounds stupid—it's sort of like an outing..."

"If you bump into someone on the street like that, it is a place where you can have a short conversation and not feel obliged to stay, and also you're in the process of doing something, so that gives you an activity, a common goal, you don't have to just stand there."

"I was put into a position in which I was guessing a lot of times "where am I?" so I listened in a different way, trying to situate where I was rather than "now I know, I'm going to listen to..." So I'd have actually less memory of the detail sounds, because I was trying to locate myself"

APPENDIX G
NEWSPAPER ARTICLE

Sounds of the Drive catch researcher's ear

Kevin Perley
Contributing writer

The Drive People

YOU DON'T NEED TO spend more than a few minutes talking with David Paquette about his latest project before you start hearing things.

When the *Courier* met with Paquette at a Commercial Drive coffee shop, the 23-year-old masters student was eager to expound on the inimitable relationship he has developed with his "acoustic environment."

As part of his MA thesis on "soundscapes" (the sonic equivalent of landscapes), Paquette spent two months doing sound recordings up and down the Drive, as well as conducting extensive interviews with local residents about their day-to-day impressions of their "acoustic community."

"You look at the overall sound environment of a location—a community or neighbourhood or an indoor space—and you look at how people behave, what they listen to, what sounds they like, what sounds they don't like, and how people use these sounds to create a sonic image of their environment."

And that's when it happened.

The coffee machines grinding beans, a motorcycle growling by, the cuckoo-bird-like sound of the crosswalk signal, the screeching brakes of a bus, a barking dog, a door slamming, glasses clinking and much more. It was the interview soundscape.

"Most sounds are mechanical," says Paquette. "It makes less room for human interaction. For instance, you have to speak louder when there is traffic, so it modifies the way you have a discussion."

Sounds that define a community are called soundmarks (again, think landmarks). Examples of soundmarks include the steamclock in Gastown or the nightly firing of the nine o'clock gun in Stanley Park. Also known as "keynotes," these are sounds so interconnected with your acoustic life that you don't necessarily notice them until they're taken away.

Paquette has been "playing with sounds" ever since he began his undergraduate degree in communications at Concordia University, where his initial instrument of choice was the drums.

SFU student David Paquette records some of the unique sounds to be found along Commercial Drive. *photo* **Dan Toulgoet**

"I got really interested in the whole soundscapes studies domain while living in Montreal and doing musical composition and becoming aware of alternative media formats," says Paquette.

When one of his professors noticed his interest in the subject, she suggested Paquette go to Vancouver and look up researcher and author Barry Truax. Perhaps Paquette could do his masters thesis under Truax, a veteran in the field of soundscape studies.

A professor in both the School of Communication and the School for the Contemporary Arts at Simon Fraser University, Truax offered courses in acoustic communication and electro acoustic music. Moreover, he was a composer who helped spearhead the World Soundscape Project, an educational and research group established by R. Murray Schafer at SFU during the late 1960s and early 1970s. This group, which also included Bruce Davis, Peter Huse and Howard Broomfield, was responsible for making some of the very first soundscape recordings in Canada.

Starting with a detailed study of their immediate surroundings, published as *The Vancouver Soundscape*, the group went on to tour urban centres across Canada and Europe from 1973 to 1975. The result was a sound catalogue of more than 300 tapes and several publications, including Truax's definitive reference work of soundscape terminology, the *Handbook for Acoustic Ecology*.

To Paquette, it seemed like a match made in acoustic heaven and by the fall of 2002 he found himself "up on the mountain," studying at SFU with Truax as his mentor. The following summer, attracted by what he described as its "strong public life," he moved to the Commercial Drive area where the bulk of his thesis work would be based.

"I really love the environment here. I love the community of vibrant people—very friendly and very socially oriented and involved."

And apparently receptive.

The initial phase of Paquette's research involved approaching people on the Drive with a survey about the "sonic quality" of their surroundings. Any preconceptions he may have had about what sounds people thought were "good or bad," were quickly muted. Noise, he says, is a relative term.

"What people think is a comfortable or nice sonic environment is not just a matter of quiet and loudness, says Paquette. "You go to

Continued on page B3

Traffic just a part of 'soundscape of life'

Continued from page B1

a café and it can be damn loud, but you like it because there are certain acoustic features that make it more interesting. I think we can learn from that, especially in certain urban settings where noise is not really an issue, it's just there."

He points to traffic on the Drive as an example. While it does exist, especially at 1st Avenue, it's not the first thing that people tune into. In fact, Paquette found that people were more likely to associate noise positively with experiences of shopping in the markets, going for coffee or walking through parks and other green spaces. Even when Paquette played back an audio recording taken at Grandview Park to some of the Soundscapes focus group, many couldn't identify the traffic in the background. One woman was convinced it was waves at Iona Beach or Granville Island.

"With the Drive, I think it's clear there is a strong sense of social spaces," he says. "It's not all inside, isolated spaces and if you want to have a good time or interact you have to go inside these spaces. If you just walk up and down the street, you are part of that experience already."

Paquette says the traditional way of dealing with noise by silencing it is outdated. "That's not the way to go. The way to go is to look at more cultural definitions of noise. What is noise to one person is not necessarily noise to someone else and how do you deal with that?"

While Paquette makes it clear that promoting acoustic awareness is one of his goals, he stops short of calling himself an activist.

"Personally, I'm more interested in understanding how people listen, the individual or personal experience. Some sounds, even if they are not natural, they become part of your everyday environment and they can create a rhythm to your life. They can become the soundtrack of your life."

APPENDIX H
AUDIO COMPACT DISC TRACK LIST

(See CD inside back cover)

Track #1: Café Calabria (5min 44sec)

This first sequence consists of one continuous excerpt, selected for its wide variety of sound signals and the progressive modification of the sound environment. It represents a typical busy afternoon at Café Calabria. Male voices with European accents, Mediterranean-style music and various noises from cashiers and kitchen can be heard. The only element that was added in postproduction is a short joyful vocal interaction between two Italian males, used to provide an additional hint concerning the location of the recording.

Track #2: Grandview Park (5min 16sec)

This sequence is made up of four different recordings, transparently mixed to provide an overview of the main sound signals that can be heard in Grandview Park during a sunny afternoon. While traffic can be heard in the front, other quieter sounds from inside the park (notably kids playing, musicians, voices and birds) remain audible and provide a somewhat *hi-fi* environment.

Track #3: The Markets (4min 35sec)

Sounds from two different markets (Santa Barbara and Norman's Fruit and Salad) were combined to create this third sequence. Binaural microphones were used to facilitate listeners' orientation. The sequence presents a spatially contrasting sound environment, with loud traffic noise coming from the back and a large variety of quieter sound signals moving in the front. Fleeting discussions, cashiers' noises and handling of fruit and boxes can be distinguished behind the loud and cyclical noise of traffic.

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