



World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium 2016,  
WMCAUS 2016

## Perceived Soundscape of Urban Historical Places: A Case Study of Hamamönü, Ankara

Işıl Kaymaz<sup>a\*</sup>, Cennet Tekin Cüre<sup>a</sup>, Ecem Baki<sup>a</sup>

<sup>a</sup>Ankara University, Department of Landscape Architecture, Faculty of Agriculture, Dışkapı, Ankara, 06110, Turkey

---

### Abstract

This study investigates the integrity between the visual landscape and the acoustic landscape characteristics of an urban historic district of Ankara, namely Hamamönü that has recently faced an urban renewal process. Data were collected through questionnaire surveys, field observations and sound level measurements. Findings show that despite the visual character of the buildings has been preserved and restored according to the original, the uses, users, and consequently the character of the area has changed. It is needed to develop a holistic approach where integrity between different landscape elements and functions should be the focus in order to maintain historical values in urban environments.

© 2016 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of WMCAUS 2016

*Keywords:* soundscape perception; urban historical place; urban landscape character; Hamamönü.

---

### 1. Introduction

Recently there have been a growing number of urban renewal and transformation projects aimed to conserve and manage cultural heritage of urban landscapes in Turkish metropolitan areas. The need for renewal of historical urban areas has arisen out of wrong policies on management of urban environment, mainly caused by uncontrolled urban expansion. As middle and upper classes have started to leave city center to reside in urban periphery, the social, cultural and economic activities within the historic neighborhoods have declined. Consequently, the local authorities have activated urban renewal and transformation projects as a potential tool for increasing economic and cultural activities

---

\* Corresponding author. Tel.: +90-312-5961659  
E-mail address: [cakci@agri.ankara.edu.tr](mailto:cakci@agri.ankara.edu.tr)

in old city centers. Most of these projects focus on restoration of the historical visual character and gentrification through function change. However, a landscape is far beyond its visual character; it is “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors” as European Landscape Convention defines [1]. People perceive places through their senses and this process forms the unique image and character of any environment when the sensory information molded with cultural, social and personal factors. In this regard the role of sound, an important and constant element of our environment and our daily life, is often neglected by designers and planners when place making.

Traditional approaches to sound in urban environments are limited to “noise management”. Environmental studies have rarely approached sound as an informative element [2]. On the other hand, the concept of soundscape deals with the relationship between sounds and the man rather than negative effects. While Schafer, stresses out the importance of human experience in soundscape research, he also develops a positive approach towards acoustic environment stating that improving soundscapes requires the distinction between which sounds we want to preserve or encourage, and which sounds we want to eliminate and why [3]. It is also a well-known fact that decreasing sound levels does not always increase the acoustic comfort [4, 5, 6]. Listening is one of the psychological functions in perceiving the environment [7] and assessment of users’ perception of sonic environment is part of the overall assessment in urban public spaces [7, 8]. Aural-visual interactions also play a significant role in landscape perception, and coherence between aural and visual stimuli has positive influence on landscape preference [2, 9].

There is a certain need for the inclusion of soundscape research into urban design and planning since sound contributes to the overall character of a place. This study examines how people perceive and evaluate the overall soundscape of a historical urban area restored recently. The study aims to contribute to this growing area of research by exploring (i) the role of sound in urban historical landscape perception, and (ii) the success of “restoration” process through user perception of aural-visual integrity.

## 2. Methodology

This study uses mainly three tools to assess acoustic environment and its perception by the users; (i) sound level measurements, (ii) field surveys, and (iii) questionnaire surveys. We carried out all procedures in situ in order to obtain reliable results. The study area and research methods are described in detail below.

### 2.1. Study area: Hamamönü, Ankara

The study area is located within the historical urban texture of Ankara which consists of Ankara Citadel and old city centre (during pre- and early republican period), namely Ulus (Fig. 1). The study area is surrounded by hospitals and residential area of lower income group. The historical city centre is also an urban conservation area and is managed by Altındağ Municipality.

The name of Hamamönü (literally “bath front”) comes from the Karacabey Bath, built in 1440 [10]. The fabric in Hamamönü was formed by; mosques, Karacabey bath, a madrasah, a dervish convent, cemetery, mansions and other housing structures [10, 11]. Despite the valuable architectural history, rapid changes in Ankara’s urban form after becoming the capital city had negative impacts on social and economic life in the neighbourhood and Hamamönü became a subsidence area. In 2006, Altındağ Municipality initiated rehabilitation and restoration process in the area. Although façade restorations imitated the original architecture, authentic characteristics have been distorted and a new fabric has been created due to function change in the area [10]. Today, Hamamönü is dominated by leisure and commercial activities and the number of visitors has significantly increased. Equations and formulae should be typed in Mathtype, and numbered consecutively with Arabic numerals in parentheses on the right hand side of the page (if referred to explicitly in the text). They should also be separated from the surrounding text by one space.

### 2.2. Sound level measurements and field survey

We measured sound levels at 4 points (Fig. 2) through the site in both weekdays and weekends to provide a basic data for acoustic environment evaluation. We used a SVAN979 sound level meter for duration of 13 minutes for each measurement. The measurement points were selected in order to represent most used pedestrian and vehicle routes.

A field survey form was filled for each measurement, including main sound sources, perceived intensity, climate conditions and other factors which might affect both the measurements and evaluations.

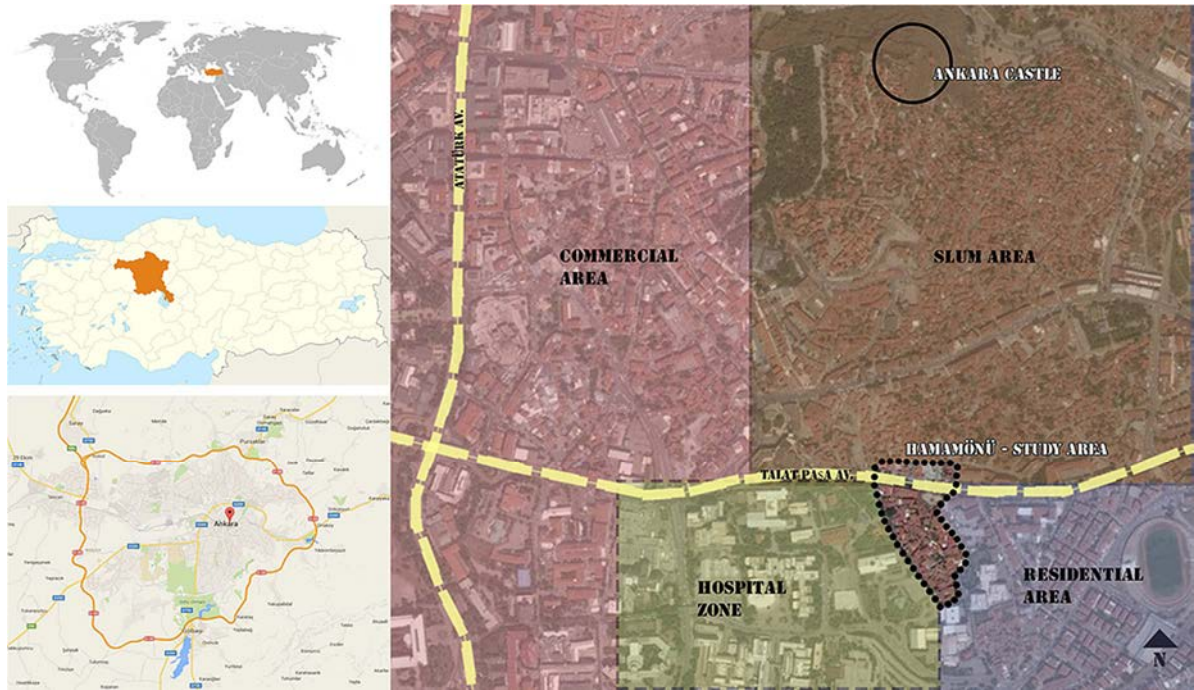


Fig. 1. Study area.

### 2.3. Questionnaire surveys

A questionnaire survey involving both open-ended and closed-ended questions was implemented in order to find out user perception of the acoustic environment of Hamamönü. A total of 97 interviews were made. The questionnaire survey consisted of 3 parts; (i) demographic factors, (ii) use pattern of the study area, and (iii) soundscape evaluation. Finally, all participants were asked to fill a form that includes 13 bipolar adjectives (Table 1) with a 5-point Likert scale to express their “feelings” regarding the acoustic environment. The data were analysed using frequency, ANOVA, Chi-square and factor analyses in SPSS 19.0 software.

## 3. Results and discussions

### 3.1. Acoustic data

According to the measurement data, the least sound pressure level (SPL) was measured next to Karacabey Bath (point 1) where the recreational and leisure activities were limited (weekdays mean  $Leq = 59.8$  dBA; weekends mean  $Leq = 62.9$  dBA). The highest SPL was measured in Sarıkadın Street (point 4) with a mean  $Leq = 67.6$  dBA in weekends. There is a significant increase between SPL in weekdays and SPL in weekends. Furthermore, measurement points next to the Talatpaşa Avenue surprisingly showed lower SPL, compared to pedestrian streets. On the other hand, although measurement points 1 & 2 are located next to the avenue that passes through them, there is a 5dBA difference between their SPL.

This suggests that vehicle traffic has a limited effect on SPL compared to human activity related sounds, particularly during weekends when visitor number dramatically increases. Moreover, SPL in point 2 might be higher than point 1 since there is more open space (a small public square).

<b>Site</b> <i>(survey areas in black)</i>	<b>Measurement points</b>	<b>Main functions</b>	<b>Main sound sources</b>	<b>Site view</b>
	<b>1</b> <b>Karacabey Bath</b>	Cultural (Turkish bath). public transport	Traffic	
	<b>2</b> <b>Clock tower</b>	Tourism, recreation,	Traffic	
	<b>3</b> <b>Dutlu Street</b>	Commercial, recreation	Surrounding speech, music	
	<b>4</b> <b>Sarıkadın Street</b>	Commercial, recreation	Surrounding speech, music	

Fig. 2. Measurement and survey points.

Table 1. An example of a table.

<i>Spatial arrangement</i>	Organised-Disorganised
<i>Strength</i>	Quiet-Loud
<i>Emotional response</i>	Meaningful-Meaningless, Happy-Sad, Calm-exciting, Pleasant-Unpleasant
<i>Clarity and Tone</i>	Clear- Unclear, Natural-Artificial, Soft-Hard
<i>Diversity</i>	Monotonous-Variied
<i>Movement</i>	Balanced-Instable, Slow-Fast
<i>Rhythm</i>	Interesting-Boring

Field survey forms confirm the contribution of human activity to diversity of the acoustic environment. More sound types were recorded in points 4, 3 and 2, respectively. There weren't any traffic sounds at points 3 and 4. On the other hand music and talking sounds were the dominant sound types in these streets. Another significant finding is that no natural sounds (bird, trees etc.) were recorded accept the square surrounding the clock tower (bird sounds). The more restaurants and cafes in a street, the more diversity of sound types, and the higher SPL was measured. It can be concluded that types of activity and user intensity have a direct impact on sound levels in pedestrianized areas.

### 3.2. User surveys

69 female and 28 male visitors were randomly selected and interviewed face to face in situ. The majority of the visitors were aged 21-40 (50%), 23% were aged 15-20, and the rest (23%) were aged 41 and above. Dining (44,3%) was found as the most common cause for visiting the site. Another large group of visitors (37,1%) were people who work around the study area. Only 26,8% stated they visited the site for its historical characteristics. A majority of the participants (78,4%) were found content with the municipality's restoration work and again majority (71,1%) stated that they had never been to the site before the restoration project. Most of the visitors evaluated the perceived sound level of the environment either high or moderate; 43,3% and 40,2% respectively. Similar to observers' results most dominant sound type was defined as human voice (77,3% of total participants). Vehicle traffic (51,5% of total participants) and music (46,4% of total participants) were the other dominant sound types perceived by the participants. Vehicle traffic and human sounds were identified as the most "annoying" sound types. One of the significant findings of the surveys was only a third of the participants found coherence between the acoustic environment and the visual character. Some of the complaints and expressions on these revealed that although cafes and restaurants attract the visitors, they do not feel an integrity between the activities, sounds they generated and the historical landscape character. No significant relationship was found between neither demographic characteristics and acoustic evaluations nor use pattern and acoustic evaluations according to ANOVA and Chi-square tests ( $p > 0.05$ ). Finally, the participants evaluated the overall acoustic character through semantic differential analysis. The data were analyzed using varimax rotated principal component analysis with a criterion factor of eigenvalue  $> 1$ . Three components explained 70% of the total variance. Factor 1 with a variance of 46,9% was generally related to the emotional response to the acoustic environment. Factor 2 (12,3%) was associated with strength and Factor 3 (10,8%) with spatial arrangement.

Findings show that the visitors' first intention for visiting the site is not the architectural history, but rather the dining opportunities in the area. Most of the visitors were not able to perceive any coherence or integrity between the historical character and acoustic character of the environment. Still, they were pleased with Altındağ Municipality's rehabilitation work in terms of opportunity for leisure. Either since they visited the site for leisure or because they work close to the area, the rehabilitation project can be considered successful in creating visually appealing environments. However, when the history of the site is taken into account it is obvious that today's Hamamönü has turned into a leisure and commercial area.

### 4. Conclusions

The gentrification process seems to be successful in terms of livening up the economic and social activities. However, the identity and historical value of the site looks like to be neglected. Although people visit the site, visual appearance and activities does not encourage them to be interested in the historical background of the area. There is clearly no integration between acoustic character and visual character. Although it may seem this is not a considerable problem with either visitors or gentrification process, the local heritage is not preserved in context of place identity. This gentrification and rehabilitation project has created a new Hamamönü with buildings appearing the same but with different functions. Nowadays, social well-being and life quality is a central concern of local authorities [4]. Therefore, rehabilitation and gentrification projects are popular among municipal authorities. On the other hand, place identity issues, especially in urban environments, are also on agenda. Holistic approach to landscape management should be a growing concern for both authorities and professionals in order to preserve the "true" character of historical places. In this regard sound can be a supportive and positive element in both forming and evaluating the character, identity and coherence.

### References

- [1] European Landscape Convention, European Treaty Series (2000), 176, 20.
- [2] Carles, J. L., Barrio, I. L., Lucio, J.V. Sound influence on landscape values, *Landscape and Urban Planning*, 43 (4) (1999) 191-200.
- [3] Schafer, R. M. *The tuning of the world*. Alfred A. Knopf., USA, 1977.
- [4] Raimbault, M., Dubois, D. Urban soundscapes: Experiences and knowledge, *Cities*, 22(5), (2005) 339-350.

- [5] Zhang, M., Kang, J. Towards the evaluation, description, and creation of soundscapes in urban open spaces. *Environment and Planning B: Planning and Design*, 34(1), (2007) 68-86.
- [6] Kaymaz, I., Belkayalı, N., Akpınar, N. A case study on the influence of landscape design on soundscape characteristics of urban parks. in *Proceedings of International conference on Changing Cities II Spatial, Design, Landscape & Socio-economic Dimensions*, Greece, 2015, 942-951.
- [7] Yang, W., Kang, J. Acoustic comfort evaluation in urban open public spaces. *Applied Acoustics*, 66 (2), (2005) 211-229.
- [8] Marry, S. Assessment of Urban Soundscapes. *Organised Sound*, 16 (03), (2011) 245-255.
- [9] Liu, J., Kang, J., Luo, T., Behm, H.. Landscape effects on soundscape experience in city parks. *Science of the Total Environment*, 454-455, (2013) 474-481.
- [10] Gültekin, N. Urban conservation policy- the case of Hamamönü -Ankara- Turkey. 54th Congress of the European Regional Science Association: "Regional development & globalisation: Best practices", 26-29 August 2014, St.Petersburg, Russia .
- [11] Kurtar, C., Somuncu, M., Kentsel kültürel mirasın korunması ve sürdürülebilirliği: Ankara Hamamönü örneği (Conservation and sustainability of urban cultural heritage:Ankara Hamamönü example). *Ankara Araştırmaları Dergisi (Journal of Ankara Studies)*, 1(2), (2013) 35-47.