NORRA GRUNGE

Soundscape practices in urban design with focous on sofielund district in Malmö

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Norra Grunge:
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Credit to Lotta Malm LM Casting for the cover photo

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0. PREFACE

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ABSTRACT

Soundscape Practices in Norra Grängersburgatan through urban design

This thesis explores the potential of soundscape-based urban design to activate and regenerate Norra Grängesbergsgatan (NGBG), a post-industrial corridor in Malmö, Sweden. Rather than treating sound as a byproduct of urban life, the project positions it as a primary design medium one that can shape spatial experiences, encourage social interaction, and support cultural identity. The design introduces a layered system of auditory interventions to create a vibrant and inclusive urban atmosphere that responds to the rhythms of everyday life.

Three key strategies structure the proposal: a Festival Street that hosts dynamic, large-scale events; a Cultural Corridor that supports creative expression and spontaneous performances; and Ambient Pocket Parks that offer spaces for reflection, play, and acoustic interaction. These spaces are designed to engage a broad spectrum of users—children, workers, creatives, and students—through interactive, multisensory, and participatory programming. Together, these interventions promote spatial diversity, temporal flexibility, and a playful exploration of sound in public space.

Crucially, this thesis aligns with Malmö Stad's strategic framework for the "Kulturljudzonen" (Cultural Sound Zone) in Sofielund and NGBG, which seeks to strengthen cultural infrastructure and activate underutilized urban areas through art and sound-based experimentation.[1] By integrating municipal goals with speculative and place-based design, the project offers a model for how auditory experience can support long-term urban renewal, social cohesion, and creative placemaking in Malmö and beyond. [1]

1. Malmö Stad. (2024). Kulturljudzonen i Sofielund och NGBG. [online] Last updated 28 October 2024. Available at: https://malmo.se/Stadsutveckling/Sa-utvecklar-vi-staden/Stadsmiljo/Kulturl-judzonen-i-Sofielund-och-NGBG.html

Photo 1. Garage Street. Photographed by author.

AIM AND METHODS

The aim of this thesis is to explore the potential of soundscape as a tool for urban activation, using Norra Grängesbergsgatan in Malmö as a test bed. By treating sound not just as an environmental factor, but as a spatial, cultural, and interactive quality, this research investigates how auditory experiences can be intentionally integrated into urban design processes. The project seeks to demonstrate how sound can foster new forms of public life, enhance spatial identity, and contribute to inclusive and creative urban regeneration—particularly in underused or transitional areas like NGBG.

To achieve this, the research is guided by a multi-layered methodology. It begins with a literature and precedent review of relevant theories and projects related to soundscapes, public space activation, and sound-oriented urban design. This theoretical foundation is complemented by field-based sound studies, including on-site soundwalks, sound mapping, and observational research in Norra Grängesbergsgatan. Additionally, acoustic simulations and sound analysis tools are used to understand the existing sonic conditions and evaluate the potential impact of design interventions.

Together, these methods enable a speculative yet grounded approach to testing how soundscape design can be embedded into urban frameworks. The thesis not only aims to generate spatial strategies but also contributes to the growing discourse on how sound can reshape our experience of cities—pushing beyond visual and material dimensions to include the auditory as a fundamental part of urban life.

RESEARCH QUESTION

How can soundscape principles be integrated into urban design to activate and regenerate post-industrial corridors such as Norra Grängesbergsgatan in Malmö?

What types of sound-based spatial interventions (e.g., ambient zones, cultural corridors, interactive elements) can foster inclusive, multisensory public spaces for diverse urban users?

To what extent can sound analysis and field-based sound studies inform design decisions and contribute to the development of culturally responsive and adaptive urban environments?

photographed by author

01 LITERATURE REVIEW

Sound Parameters

Sound parameters are the measurable or perceivable qualities of sound that define its character, intensity, and impact on the human experience in space. These parameters are essential for analyzing and designing soundscapes within urban environments, as they help determine how sound contributes to atmosphere, comfort, and perception.
The key sound parameters include:

Frequency (Pitch):
The rate at which a sound wave vibrates, measured in hertz (Hz). Higher frequencies are perceived as higher-pitched sounds (like birdsong), while lower frequencies produce deeper tones (like traffic or bass music).

Amplitude (Loudness):
The strength or volume of a sound, measured in decibels (dB). Louder sounds can dominate a space, affect comfort levels, and even cause stress if uncontrolled.

Duration:
How long a sound lasts. Short, sharp sounds (like a car horn) differ in impact from continuous ambient sounds (like flowing water or background music).

Timbre (Sound Quality):
The unique color or texture of a sound, which helps differentiate sources even if they share the same pitch or loudness. For example, the timbre distinguishes a flute from a violin.

Rhythm and Repetition:
The temporal pattern of a sound. Regular, rhythmic sounds can be perceived as calming (e.g., footsteps or music), while irregular or chaotic rhythms may feel disruptive.

Spatiality (Sound Direction and Spread):
The way sound moves through space and is perceived directionally—affected by reflections, barriers, and open spaces. Spatial sound design can be used to guide movement or shape atmosphere.

Tonality and Harmony:
In more musical or artistic contexts, the harmonic relationship between sounds can evoke emotional responses and enhance cultural identity within public spaces. [2]

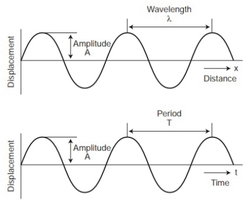

Figure 1. Soundwave parameters. Source: BrainKart. (2018). 9th Science: Sound: Characteristics of a sound wave. [online] Available at: https://www.brainkart.com/article/Characteristics-of-a-sound-wave_39936/

2. BrainKart. (2018). 9th Science: Sound: Characteristics of a sound wave. [online] Available at: https://www.brainkart.com/article/Characteristics-of-a-sound-wave_39936/

SOUNDSCAPE ASPECTS

The term soundscape refers to the acoustic environment as perceived and experienced by people, shaped by natural, social, and built surroundings. First introduced by R. Murray Schafer, soundscape studies emphasize the subjective experience of sound, not just its physical properties. In urban contexts, soundscape includes a mix of natural sounds (like birdsong or water), anthropogenic sounds (such as footsteps, conversations, or traffic), and technological or cultural sounds (like music or public announcements). [3]

Sound types:

Urban soundscapes can be described not only by their source but also by their qualitative character—how they are perceived emotionally and atmospherically by people. These sound types influence mood, behavior, and

These parameters not only define the technical structure of sound but also influence the subjective experience of urban spaces. In urban design, understanding and manipulating these elements allows designers to enhance or mitigate sonic environments from reducing disruptive noise to introducing pleasant or meaningful auditory layers.

spatial identity. Calm sounds are typically soft, continuous, and low in volume—such as rustling leaves, gentle water flow, or distant ambient music—creating a sense of relaxation and comfort. In contrast, chaotic sounds are loud, irregular, and unpredictable, such as honking, construction noise, or overlapping shouting, which can generate stress or a sense of urgency. Rhythmic sounds include repeated patterns like footsteps, train tracks, or musical beats, which can energize or regulate space. Playful sounds are often dynamic and interactive encouraging engagement and spontaneity. [4]

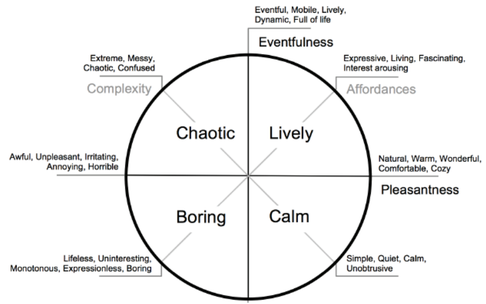

Figure 2. Four types of soundscapes: Chaotic, Lively, Boring, and Calm, and their basic dimensions (Eventfulness vs. Pleasantness and Affordances vs. Complexity). The right side generally indicates safety, while the left side does not. Source: Andringa & Lanser, 2013; Van den Bosch et al., submitted.

3. Schafer, R.M. (1977). The Tuning of the World. New York: Knopf.
4. van den Bosch, K.A. and Andringa, T.C. (2014). The effect of sound sources on soundscape appraisal. Journal of the Acoustical Society of America, [online] Available at: https://doi.org/10.1121/1.4865267

Sound Forms

1. Continuous Sounds: These sounds persist over time and create an ambient background, either natural (wind, water) or man-made (traffic, conversations). They help define a space's atmosphere, offering a calming or invigorating effect depending on volume and context. [5]

2. Intermittent Sounds: Occurring at irregular intervals (e.g., church bells, passing trains), these sounds draw attention and mark significant moments or changes. They can enhance a place's social and cultural identity, adding memorable acoustic punctuation. [6]

3. Rhythmic Sounds: Defined by repetitive patterns (e.g., footsteps, drumbeats), these sounds energize public spaces, encouraging movement and interaction. Rhythmic sounds are often used in events and festivals to create shared experiences and vibrant atmospheres.

4. Event-Based Sounds: Associated with one-time occurrences (e.g., fireworks, street performances), these sounds create dynamic, engaging moments that draw people in, enhancing the social and festive qualities of public spaces.

5. Spatial Sounds: These sounds are influenced by the physical environment (e.g., echoes, reverberations) and help guide movement or enhance wayfinding. Strategic placement of sound installations can help orient people within urban spaces.

6. Interactive Sounds: Active user engagement creates these sounds (e.g., musical swings, sound-responsive pavements). They encourage exploration, play, and participation, making spaces more engaging and playful. [7]

7. Natural Sounds: Sounds from nature (e.g., birdsong, flowing water) are soothing and restorative. These sounds contribute to biophilic design and provide calming, peaceful environments that reduce the stress of urban noise.

8. Mechanical Sounds: Arising from urban infrastructure (e.g., traffic, air conditioning), mechanical sounds can contribute to noise pollution but can be mitigated through design strategies like noise barriers. When managed properly, they can integrate seamlessly into the urban fabric.

SOUNDSCAPE ELEMENT	PURPOSE/DESCRIPTION
CONTINUOUS SOUNDS	Establish ambient background
INTERMITTENT SOUNDS	Mark significant moments
RHYTHMIC SOUNDS	Energize public spaces
SPATIAL SOUNDS	Assist with wayfinding
INTERACTIVE SOUNDS	Encourage exploration and play
NATURAL SOUNDS	Provide calming environments
NOISE MITIGATION	Integrate urban infrastructure

Figure 3. Types of sound table (summarized by author using ChatGPT).

5. Truax, B. (2001). Acoustic Communication. 2nd ed. Westport: Ablex Publishing.
6. Kang, J. and Schulte-Fortkamp, B. (2016). Soundscape and the Built Environment. Boca Raton: CRC Press.
7. Cerwén, G. (2016). Urban soundscapes: A quasi-experiment in landscape architecture. Landscape Research, 41(5), pp.481–494.

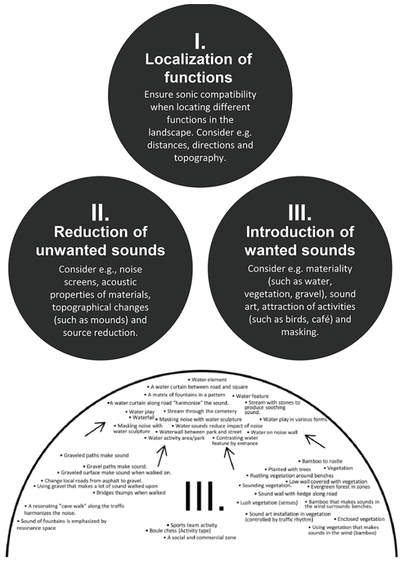

Figure 4. A model for comprehensive action: Localisation, reduction and introduction.
Figure 5: Illustration of how clusters were formed to become 'soundscape actions'
Source: Cerwén, G. (2017). Sound in Landscape Architecture: A Soundscape Approach to Noise. PhD Thesis. Swedish University of Agricultural Sciences. [Advisors: Carola Wingren, Mattias Qvistrom, Jacob Kreutzfeldt].

8. Cerwén, G. (2017). Sound in Landscape Architecture: A Soundscape Approach to Noise. PhD Thesis. [Advisors: Carola Wingren, Mattias Qvistrom, Jacob Kreutzfeldt]. Swedish University of Agricultural Sciences.

Three Steps for Soundscape Design

1. Sound Analysis and Mapping
The first step involves assessing and analyzing the current sound environment of the site. This includes a combination of fieldwork (e.g., soundwalks, measurements) and sound mapping to identify sources of noise, desirable sounds, and acoustic patterns. The objective is to understand the existing soundscape, including:
. Sources of noise pollution (e.g., traffic, construction)
. Natural and social sounds (e.g., wind, human activity)
. Potential acoustic problems (e.g., sound overload, sonic fragmentation)
. Desirable sonic qualities (e.g., quiet zones, rhythmic patterns)

2. Design Interventions and Sonic Spatialization
Once the soundscape is understood, the second step is to design interventions that manipulate the sound environment to enhance user experience. This can involve:
. Sound zoning
. Material and spatial design
. Interactive sound installations:

3. Implementation and Adaptive Feedback
The third step focuses on implementing the soundscape design and monitoring its effects on the environment. This involves both:
. Physical implementation
. Post-implementation monitoring [8]
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Soundscape Potentials for Urban Design

Soundscape offers urban designers a transformative framework to reimagine public spaces through the lens of acoustic perception, positioning sound not as a disturbance to eliminate but as a spatial and cultural asset to harness. Moving beyond traditional noise mitigation, the soundscape approach encourages designers to treat sound as a design material—one that can shape emotion, identity, and social behavior within the urban environment. Instead of focusing solely on decibel levels, this method values how people perceive, interact with, and attach meaning to different types of sounds in specific contexts. Recognizing that soundscapes vary across time, place, and social group, urban designers are equipped with tools that allow for dynamic, inclusive, and responsive spatial strategies.

Key tools include soundwalks, interviews, and participatory sound mapping—methods that invite community members to share how they experience sound in everyday life. These processes not only deepen public engagement but also provide designers with valuable qualitative insights that can inform more user-centered outcomes. Urban spaces can be further refined through auralization and multisensory simulations, which enable designers to test and visualize the interplay between sound, light, texture, and thermal conditions before physical implementation—ensuring cohesive and human-centric environments.

The use of contextual soundscape modeling, as proposed by frameworks like ISO 12913 and Kang's urban sound typologies, allows planners to assess and curate acoustic environments based on location, typology, and usage—distinguishing between residential quiet zones, festive urban corridors, or natural restorative areas. This enables a layered and adaptable design approach that acknowledges the temporal nature of sound. For instance, temporal zoning or flexible installations can accommodate seasonal activities, cultural events, and day-night cycles—helping avoid conflicts between different users, such as residents and night-time performers.

By integrating natural sounds (e.g., water, birdsong) and cultural or interactive sounds (e.g., public performances, musical installations), designers can enhance biophilic and cultural values of a place. Such elements contribute to acoustic identity—a sense of place that is remembered and felt through sound. At the same time, urban soundscape indicators and metrics (like SSID or N5 indices) can be used as health and well-being benchmarks, reinforcing the role of sound in promoting mental and physical comfort.

Ultimately, bridging soundscape and urban design means designing spaces that are not only seen but heard, felt, and remembered. It encourages cities to become more inclusive, culturally expressive, and socially attuned—where sound contributes to belonging, public life, and environmental justice. In this expanded practice, urban designers evolve from noise controllers to curators of sonic experience, crafting vibrant cities where people are not only accommodated but acoustically embraced.[9]

Tool/Approach	Urban Design Application
Participatory Soundwalks & Mapping	Engages community to inform design through lived experiences
Sound as Design Material	Shifts sound from being seen as pollution to a spatial asset
Multisensory Simulation (Auralization)	Tests interaction of sound with light, texture, and thermal comfort
Contextual Soundscape Modeling (ISO 12913)	Maps and categorizes urban sound types and their context
Temporal Zoning & Flexibility	Allows spaces to change by time of day, season, or function
Natural & Cultural Sound Integration	Uses nature, performance, and ambient elements as features
Soundscape Identity & Memory	Creates places remembered for their unique acoustic character
Health & Well-being Indicators	Measures acoustic comfort and stress factors for better livability

Figure 6. Soundscape design principle table (summarized by author using ChatGPT).

9. Brambilla, G. and Maffei, L. (2010). Perspective of the soundscape approach as a tool for urban space design. Noise Control Engineering Journal, 58(5), pp.532–539.

Soundscape Urban Design

In this thesis, the strategies for activating the urban area through soundscape principles will focus on creating an immersive and dynamic auditory environment that enhances the physical and social aspects of the space. One key strategy is integrating various sound types, such as continuous, rhythmic, and interactive sounds, to create a layered acoustic experience that responds to the environment and the people who engage with it. These sound types will be used to define different zones within the area, from calming pocket parks to vibrant festival streets. Another strategy will be the incorporation of sound-responsive technologies, such as interactive sound installations, that encourage user participation and foster a sense of agency and playfulness in public spaces. Additionally, sound studies and simulations will be conducted to ensure that the sound environment is optimized, considering factors like sound diffusion, reflection, and absorption within the built environment. This approach aligns with Malmö's principles for activating cultural zones and is intended to explore the potential of sound to shape the urban experience, promote cultural engagement, and contribute to the overall sense of place.

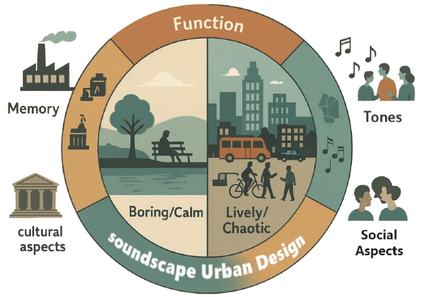


Figure 7. Soundscape Urban Design (Created by author using ChatGPT).

Sustainable Development Goals related to Soundscape Urban Design

By designing inclusive and calming public space design reduce stress, improve acoustic comfort, and support mental health consider auditory well-being. Also, creating inclusive, safe, resilient, and sustainable urban spaces by supporting public life, diverse cultural expression, and participatory design.

On the other hand, empowering marginalized and migrant communities by amplifying their voices (literally and socially) through sound represent Cultural inclusion as well. At last, By rethinking industrial areas as hubs for creative sound economies and adaptive reuse, supports innovative and sustainable redevelopment. [10]

Figure 8. Sustainable Development Goal (2024) [online] Available at: https://sdgs.un.org

10. United Nations. (2024). Sustainable Development Goals. [online] Available at: https://sdgs.un.org/goals

CASE STUDY

Analysing Superkilen - Nørrebro, Copenhagen, Street Music, City Rhythms - Brussels & Stockholm & Miami Beach Soundscape Park - Miami, USA

Through my case studies I decided to depict projects that related more into activating a street though music and sound element. The Street Music, City Rhythms initiative—developed through Tuned City and Sound Urbanism projects in Brussels and Stockholm—investigates how urban rhythms and everyday acoustic events contribute to the identity of neighborhoods. Through temporary interventions, listening workshops, and sonic walks, it highlights how sounds like footsteps, conversations, and traffic weave into the lived fabric of public space. Similarly, Copenhagen's Superkilen—though not a sound-specific project—serves as a powerful example of cultural and sonic layering through design. The park incorporates global artifacts, like a Jamaican sound system and Moroccan fountain, which invite spontaneous music, gatherings, and performances. These elements foster a constantly evolving soundscape rooted in multicultural expression and public interaction. Together, both projects emphasize the importance of listening and cultural responsiveness in urban design—key strategies in my thesis work on Norra Grängesbergsgatan, where I aim to create spaces that embrace informal sonic activity, support community expression, and reflect the diverse rhythms of everyday life. [11,12]

Photo 4. Sweden's Street Moves project by 2030. Photo courtesy ArkDes

Photo 5. Street Moves project alternatives.Utopia Arkitekter

Photo 6. Photo series from Superkilen Project ArchDaily. (2013). Superkilen / Topotek 1 + BIG Architects + Superflex. [online] Available at: https://www.archdaily.com/286223/superkilen-topotek-1-big-architects-superflex

11. Bloomberg. (2021). A Tiny Twist on Street Design: The One-Minute City. [online] Available at: https://www.bloomberg.com/news/features/2021-01-05/a-tiny-twist-on-street-design-the-one-minute-city
12. ArchDaily. (2013). Superkilen / Topotek 1 + BIG Architects + Superflex. [online] Available at: https://www.archdaily.com/286223/superkilen-topotek-1-big-architects-superflex

Miami Beach Soundscape Park is a unique fusion of landscape architecture and sonic experience. The park integrates a sophisticated audio system that transforms the public space into an immersive cultural venue, broadcasting live classical music and ambient soundscapes from the adjacent New World Symphony Hall. Through sound, the park becomes an extension of the performance space—reaching beyond walls to engage passersby. This aligns directly with my thesis, which explores the role of ambient and cultural soundscapes in shaping inclusive and dynamic public spaces. The idea of designing ambient pocket parks as cultural microzones in NGBG is echoed in how Soundscape Park uses subtle sound integration to create atmosphere and identity. It also shows how passive listening can enrich the public realm without overwhelming it—something that's crucial in mixed-use, multicultural areas like Norra Grängesbergsgatan. [13]

Photo 7. Photo series from Soundscape Park Guppy, B. (2011.). [online] Available at: https://www.blairguppy.com/soundscape-park

13. Guppy, B. (2011.). Soundscape Park. [online] Available at: https://www.blairguppy.com/soundscape-park

02 PROJECT LOCATION

photographed by author

Sweden, Malmö

Sweden, located in Northern Europe on the eastern side of the Scandinavian Peninsula, is a country defined by its diverse natural landscapes—stretching from Arctic tundras in the north to gentle archipelagos and fertile plains in the south. Known for its strong commitment to sustainability, social equity, and cultural openness, Sweden has become a leading voice in rethinking how cities can grow responsibly while maintaining a deep connection to both people and place. Within this Nordic framework, Swedish cities often function as living laboratories for progressive ideas in architecture, urban design, and ecological innovation.

Among these urban landscapes, Malmö stands out as a city in constant transition. Situated at Sweden's southern tip, directly across the Öresund Bridge from Copenhagen, Malmö has long served as a gateway between Scandinavia and mainland Europe. Its geographic location, industrial past, and multicultural present make it an ideal case study for understanding urban transformation. But instead of only tracing Malmö's history through conventional timelines or architectural styles, we can gain a fresh perspective by tuning into its soundscape—the sonic character that surrounds and defines the city over time.

Approaching Malmö through a soundscape lens opens up new ways to explore the city's layers: the clang of shipyards in the industrial era, the melodies of street performers from different cultures, the quiet hum of cycling lanes, the rhythmic beats of protest marches and parades, and more recently, the curated zones of cultural sound like those emerging in Sofielund and Norra Grängesbergsgatan. These auditory traces form an acoustic identity that reflects social shifts, historical echoes, and cultural resilience. By listening to Malmö—its voices, rhythms, silences, and celebrations—we uncover not just the physical but the emotional and sensory geography of a city still evolving.[14]

In this way, Malmö becomes more than a place to observe. It becomes a place to hear. And by doing so, we open up the possibility of designing urban spaces that don't just look better, but sound better—places that are activated and defined through the richness of their everyday sonic life.

14. ***Malmö Stad. (n.d.). Malmös historia: Stadens historia. [online] Available at: https://malmo.se/Upplev-och-gora/Arkitektur-och-kulturarv/Malmos-historia/Stadens-historia.html***

Figure 9. OpenStreetMap contributors (2025) Map of Scandinavian Countries. Available at: https://www.openstreetmap.org

As Malmö continues to evolve into a sustainable, smart city, soundscape design will remain an integral part of its development, emphasizing the importance of sonic experiences in shaping the identity of public spaces, promoting cultural engagement, and enhancing the quality of urban life.

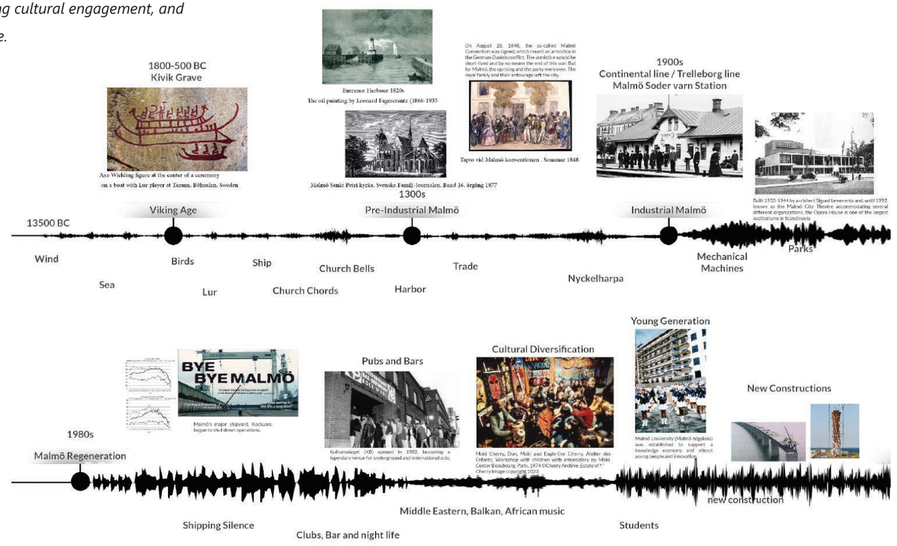
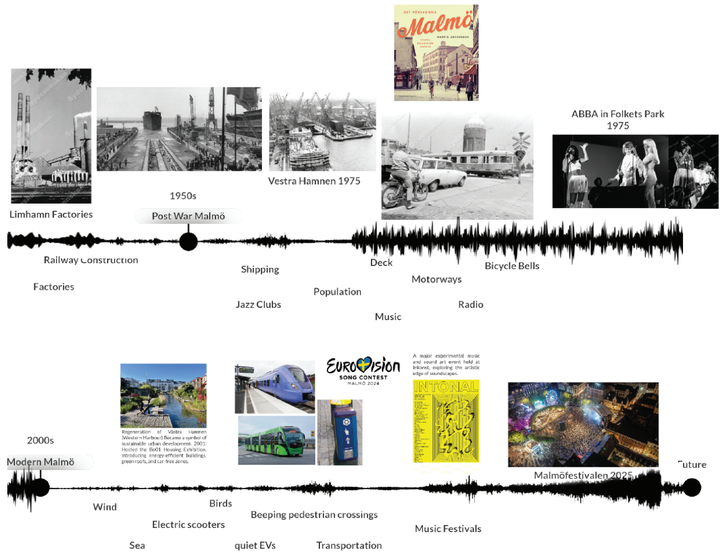


Diagram 1. Malmo Soundscape History timeline. Created by author



15. Persson, L. (2021). The Urban Soundscape of Western Harbour: Soundwalks and Psychoacoustics in the Western Harbour Area in Malmö. Master Thesis. Malmö University.

Malmö Soundscape History

Malmö's history, seen through the lens of soundscape, reflects its transformation from a medieval town to a modern, sustainable city. In its early days, the soundscape was shaped by natural sounds and the hum of daily life, such as fishing boats and market activity. During the industrial revolution, the sound of machinery, trains, and ships dominated the city, signaling a shift to a more chaotic urban environment. In the 20th century, as urban planning introduced residential areas and green spaces, the soundscape became quieter, with parks and pedestrian zones offering a balance between urban noise and nature's calming elements.

In recent decades, Malmö has focused on integrating sound into public spaces to enhance social interaction and cultural experiences. Projects like the Sofielund Cultural Sound Zone highlight how sound can be strategically used in urban design to foster community engagement. Today, as Malmö continues to develop as a smart, sustainable city, sound remains an important tool in shaping the urban experience, promoting cultural exchange, and creating vibrant public spaces.[15]

Sofielund Location

Sofielund is a neighborhood just south of Malmö's center, shaped by a long industrial history and a strong multicultural identity. What started as a working-class area with factories and railway infrastructure in the 19th century has slowly transformed into one of Malmö's most diverse and creatively active districts. Over the years, waves of migration and changing social dynamics have brought together a vibrant mix of cultures, voices, and local initiatives, creating a unique atmosphere that feels both raw and full of potential. Today, the area is known for its informal character, strong community networks, and a growing scene of cultural expression—from street art to music and festivals.

But at the same time, Sofielund faces real urban challenges. Its spatial structure is still shaped by its industrial past, with leftover spaces, poor-quality public realms, and uneven access to green areas. These gaps, however, have also allowed for new types of uses and grassroots activities to grow. Projects like the "Kulturljudzon" (Cultural Sound Zone), supported by Malmö Stad, offer a fresh approach—one that sees sound not just as noise, but as a design tool and cultural language. In this zone, especially along Norra Grängesbergsgatan, sound is used to activate space, support cultural diversity, and make people feel safer and more welcome. It's a shift from traditional top-down planning toward a more inclusive and creative process that starts from what already exists—people, stories, rhythms.

In many ways, Sofielund becomes a test ground for how we can use sound in urban design. The area invites us to rethink how everyday spaces—alleys, parking lots, quiet corners—can be transformed into active, expressive places through cultural programming and sound-based strategies. It's a living example of how spatial, social, and sensory layers come together in a complex but exciting urban narrative. As Malmö continues to develop, Sofielund reminds us that listening—literally and figuratively—can lead to more inclusive and sustainable futures.[16]

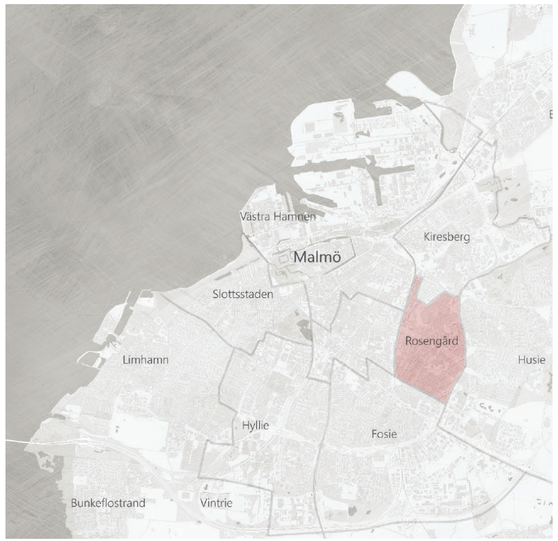


Diagram 2. Rosengård in Malmö map . Created by author

Sofielund Background

The history of Sofielund, reveals a layered urban narrative shaped by transformation and diversity. Starting from the early maps of the Skåne region and Malmö's early urban formation, the area emerged as part of the expanding city structure. In its earliest phase, Sofielund was marked by rural estates and early settlement patterns, visible in the preserved image of the Sofiehill estate—once a manor house in the outskirts of Malmö. As Malmö industrialized during the 19th and early 20th centuries, Sofielund evolved into a hub for industrial activity and working-class housing, reflected in the rise of factories, social housing units, and the iconic buildings like the Studio and AB Svenska Tobaksmonopolet, which later served cultural or commercial purposes.

By the mid-20th century, industrial infrastructure dominated the landscape, with factories and warehouses defining both the physical form and the sonic identity of the district. In the later decades, however, the decline of industry opened up opportunities for informal economies, immigrant-run businesses, and grassroots cultural initiatives. The timeline captures this shift with vibrant images of street-level commerce, multicultural events, and everyday life on Norra Grängesbergsgatan. Today, Sofielund reflects a socially rich and acoustically diverse urban environment—where echoes of industrial labor now coexist with community markets, music, and multicultural voices, forming the basis for a new kind of public soundscape rooted in inclusion and regeneration.[16]

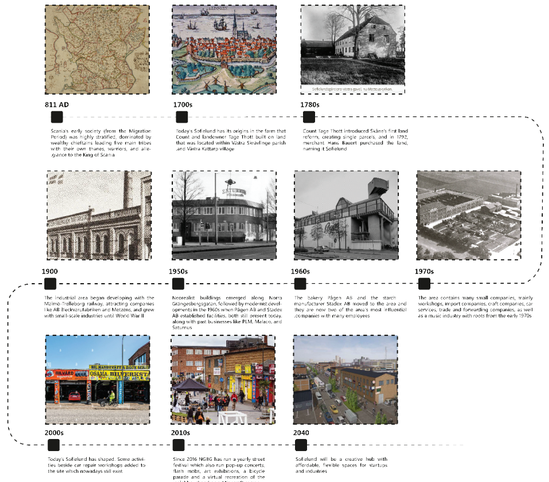


Diagram 3. Sofielund history timeline . Created by author

16. Malmö Stad. (n.d.). Sofielund. [online] Available at: https://malmo.se/Stadsutveckling/Stadsutvecklingsomraden/Sofielund.html

Malmö Municipality's Program for Sofielund

The municipality of Malmö has developed a long-term vision for Sofielund's operating area, aiming to transform it into a vibrant center for culture, business, and leisure by 2040. At the heart of this vision is the preservation and adaptive reuse of the area's rich industrial heritage. Large industrial buildings are to be maintained and reprogrammed for flexible uses, enabling low-cost spaces that support small businesses, creative industries, and cultural initiatives. A key element in this plan is the establishment of a "Cultural Noise Zone" (Kulturljudzon), where loud and dynamic activities such as music, performance, and festivals are not only tolerated but encouraged. This zoning move prioritizes culture over residential expansion, ensuring that cultural and business life can flourish without the constraints typically imposed by housing. The municipality also emphasizes the importance of collaboration, encouraging property owners, civil society, and local organizations to take active roles in shaping the future of Sofielund. The plan focuses on creating a space that is inclusive, safe, and diverse, with a mix of services such as restaurants, education facilities, and entertainment venues—all contributing to a more dynamic urban environment.[17]

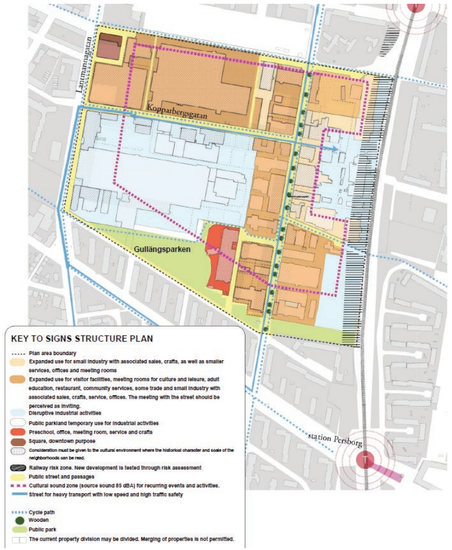


Figure 10. Structure Plan and Visualization, Planprogram SOFIELUNDS VERKSAMHETSOMRÅDE ÅR 2040 (2021) stadsbyggnadsnämnden, Malmö stad

Malmö Stad's planning program for Sofielund envisions the area as a vibrant, dynamic center for culture, business, and leisure by 2040. The strategic objectives include:

1. Preservation and Adaptation of Industrial Heritage

2. Establishment of a Cultural Noise Zone (Kulturljudzon)

3. Support for Small Businesses and Creative Industries:

4. Public-Private Participation

5. Multifunctional Urban Environment

17. Planprogram SOFIELUNDS VERKSAMHETSOMRÅDE ÅR 2040 (2021) stadsbyggnadsnämnden, Malmö stad

Connection to the Amiralsgatan 2040 Development Plan

Sofielund's development strategy is closely aligned with Malmö's broader Amiralsgatan 2040 vision, which seeks to integrate the Rosengård district with central Malmö through socially sustainable urban regeneration. The Amiralsgatan plan promotes connectivity, equity, and inclusiveness by enhancing public transportation, creating attractive public spaces, and reducing socio-spatial segregation. Sofielund, positioned between Rosengård and Persborg stations, plays a critical role in this corridor. It acts as a cultural and entrepreneurial hub that not only strengthens the character of the area but also complements the infrastructural ambitions of Amiralsgatan 2040. In particular, the transformation of Norra Grängesbergsgatan into a safer, more vibrant street that hosts creative and leisure activities fits perfectly within the vision of creating a more unified and activated urban stretch. Together, these strategies support a future Malmö that is not just more connected physically, but also more integrated socially and culturally, using sound, art, and enterprise as key drivers of cohesion.[18]

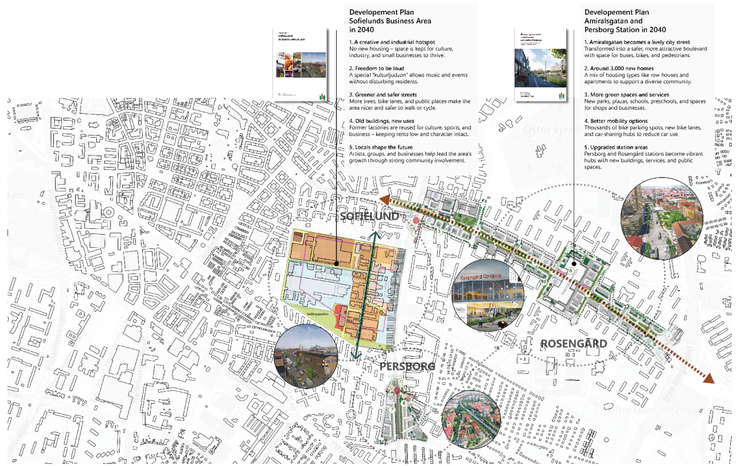


Diagram 4. Municipalities program for Rosengard area . Created by author

The Sofielund strategy complements the Amiralsgatan 2040 vision, which focuses on integrating Rosengård and central Malmö through inclusive urban redevelopment. Amiralsgatan 2040 promotes:

1. Transit-Oriented Development: Enhancing access between Persborg, Rosengård, and central Malmö.

2. Public Realm Activation: Creating safe, inclusive streets with community-oriented uses.

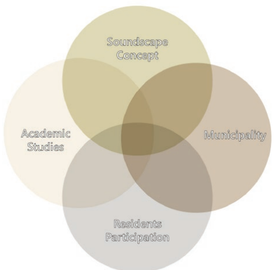
3. Social Sustainability: Prioritizing community needs and reducing urban segregation.

Sofielund acts as a node within this corridor by enabling vibrant local economies and cultural hubs near key stations (Rosengård and Persborg). The Norra Grängesbergsgatan corridor particularly bridges the cultural zone of Sofielund with Amiralsgatan's broader goals of equitable regeneration.

18. Planprogram 6051 Amiralsgatan och station Persborg Från nu till år 2040, (2021) stadsbyggnadsnämnden, Malmö stad

My Position: Agreement, Critique, and Proposal

My decision to focus on the Sofielund area in my thesis is deeply rooted in its designation as a "Cultural Zone" by the municipality and its rich blend of industrial character, local businesses, and grassroots initiatives. I share the municipality's vision of preserving this zone for creative expression and cultural production, and my project strongly supports the idea of maintaining affordable spaces for artists, entrepreneurs, and associations. I also align with their approach of rejecting traditional residential development in favor of creating a lively, inclusive environment that supports both spontaneous and organized cultural activity. However, while I appreciate the municipality's framework, I also believe it can be expanded upon. My proposal introduces the concept of soundscape-based design—not just zoning for noise tolerance, but designing with sound as a spatial and experiential medium. Through strategies like a Festival Street, Cultural Corridor, and Ambient Pocket Parks, my design encourages users to interact with space through sound, creating layered experiences that are responsive, inclusive, and dynamic. I also advocate for a stronger bottom-up design process that includes participatory sound mapping and community engagement to shape spaces that genuinely reflect the needs and identities of the people who use them. In doing so, my thesis builds upon the municipality's foundation but proposes a more multisensory, community-driven vision for Sofielund's future. My thesis, "Soundscape Practices in Urban Design with a Focus on Sofielund District in Malmö," both supports and expands upon the municipality's vision:



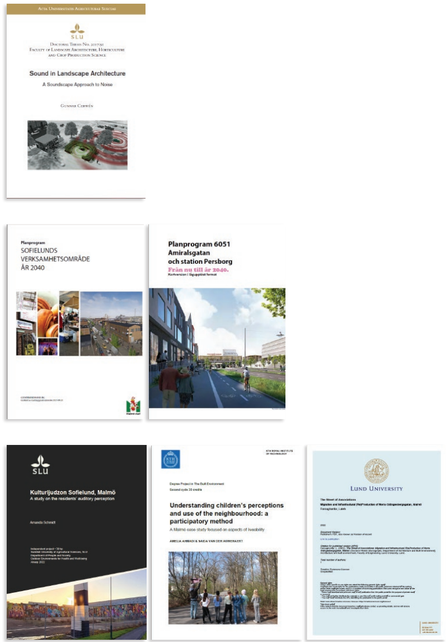


Diagram 5. Project data resources map . Created by author

What I Accepted:

1. Cultural Noise Zone Concept: I support Malmö's strategic use of soundscapes in the Sofielund area, using it not just as a zoning policy but a creative tool for placemaking.

2. Support for Local Businesses and Associations: My proposal aligns with the goal of preserving affordable and adaptable spaces for creatives, small enterprises, and spontaneous cultural expression.

3. Bottom-up Inclusion: I emphasize participatory design through soundwalks, fieldwork, and responsive spatial planning—mirroring Malmö's commitment to grassroots involvement.

What I Question or Expand On:

1. Over-Reliance on Static Zoning: While I agree with the establishment of cultural noise zones, my thesis introduces the idea of dynamic sound zones that change temporally—day vs night, weekday vs festival, etc.

2. Lack of Multisensory Integration: The municipal plan focuses heavily on land-use and sound regulation. My thesis introduces soundscape as a spatial language, pushing the plan toward more interactive, ambient, and sensorially rich environments.

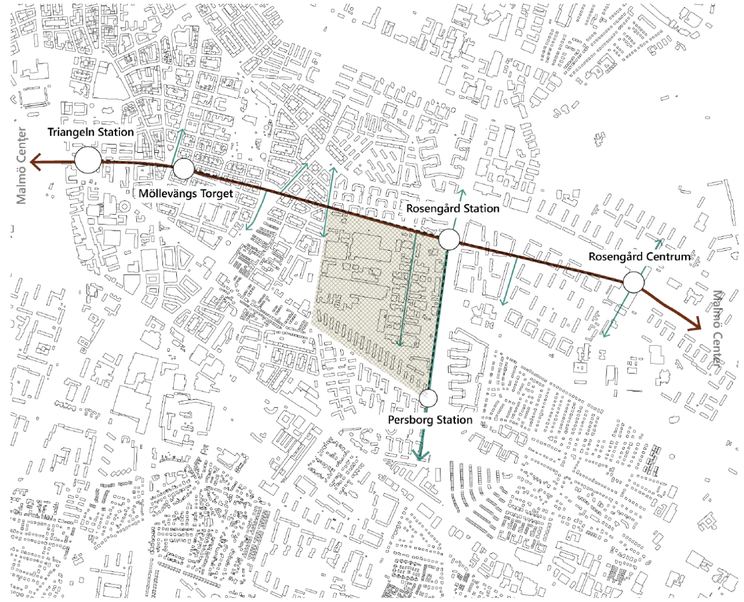


Diagram 6. Sofielund spatial connections and its potentials . Created by author

Site Visit

Sofielund in Malmö presents a gritty yet dynamic urban landscape shaped by its industrial past and layered cultural presence. The area is characterized by large brick and metal warehouses, some still in use, others partially abandoned or repurposed by small businesses and creative industries. Graffiti and murals pop up throughout the district, hinting at a strong street culture and informal creativity. Narrow streets and wide, open lots create a patchwork of space that feels both raw and transitional. There's a mix of old utility buildings and red-brick institutional structures, like the one seen in the courtyard image, which soften the area's industrial edge. In between, low-rise housing, parking lots, and a few green pockets line the street edges, offering a quiet contrast to the heavier built forms. The water tower near the heart of the area stands out as a key landmark, anchoring the neighborhood visually. Overall, Sofielund feels like a place in flux defined by contrasts between stillness and movement, use and reuse, silence and underground activity.


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Figure 11: Sofielund Industrial area. Google Maps


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Photo 8. Photo series from Sofielund. Photographed by author

Social Aspects

Sofielund's social landscape is defined by a predominantly young and active population, with over 75% of respondents falling between the ages of 25 and 44. The majority of responses came from residents in Annelund and Norra Sofielund, indicating that these sub-areas are key zones of engagement and everyday life. Positive perceptions of the neighborhood's soundscape centered around culturally rich and human-centered sounds such as live music, birdsong, water features, and the everyday noise of social life like laughter and children playing. However, concerns were raised over nighttime traffic, sirens, and seagulls, which many found disturbing—especially when such sounds entered the home. Bass-heavy music and skateboarding were also seen as intrusive in some cases. Notably, a large portion of participants (around 80%) expressed that they had not been informed or involved in the planning process for the kulturljudzon, suggesting a gap in community outreach and inclusion. Despite this, the area is characterized by strong cultural diversity, informal creative practices, and an underlying sense of community. These social dynamics highlight the need for participatory planning and sound-sensitive urban strategies that reflect the everyday lives and values of residents.

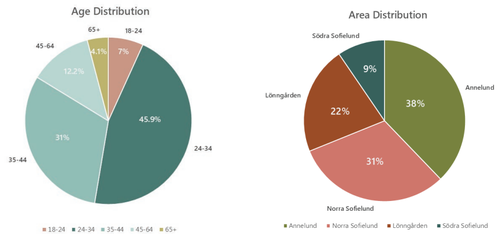


Diagram 9. Age and Area Distribution from Planning program Sofielund (2021) by Malmo Municipality. Created by author

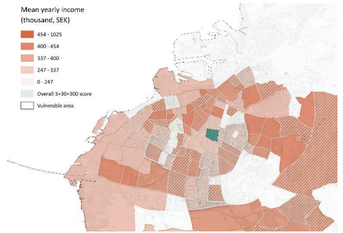


Diagram 7. Income distribution in Sofielund. Adapted from "Planprogram Sofielund" (2021), Malmö Municipality. plan created by author.

Diagram 8. Landuse neighbouring from Planning program Sofielund (2021), Malmo Municipality. Created by author

Activities

Tucked between industrial sheds and residential blocks, Sofielund hums with a rhythm that shifts by the hour. Early in the day, garage doors roll open to reveal car repair shops, metal workshops, and corner groceries—many of them run by migrant entrepreneurs who've transformed these spaces into vital parts of the local economy. As the sun moves, the atmosphere changes: musicians rehearse in tucked-away studios, artists gather in temporary spaces, and street-level cafés start filling with passersby. Places like Plan B blur the line between venue and community hub, hosting everything from punk shows to film nights. Children navigate the quieter backstreets to reach local schools and playgrounds, while older residents settle into familiar benches or garden plots. Events like the NGBG street festival bring all of this together—activating the street as a cultural corridor and giving shape to Sofielund's layered identity. It's not a district defined by one use or one group, but by a constant overlap of the formal and informal, the quiet and the loud, the everyday and the extraordinary.

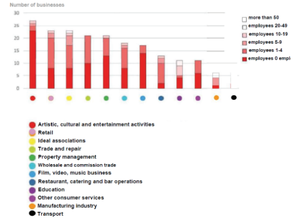


Figure 12. Map showing Occupation distribution in Sofielund. From "Planprogram Sofielund" (2021), Malmö Municipality.

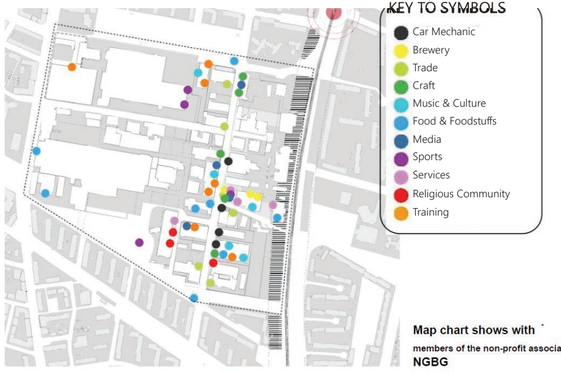


Figure 13. Map showing leisure activities in Sofielund. From "Planprogram Sofielund" (2021), Malmö Municipality.

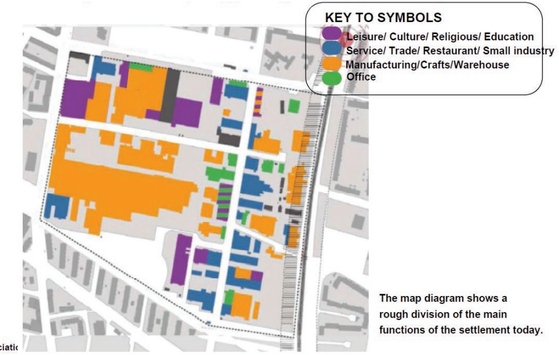


Figure 14. Map showing Function distribution in Sofielund. From "Planprogram Sofielund" (2021), Malmö Municipality.

Infrastructure and noise map

The infrastructure in Sofielund reflects its industrial heritage and piecemeal evolution. Wide roads originally built for freight and factory access now carry a mix of car traffic, delivery vans, and occasional cyclists, creating an environment dominated by hard surfaces and minimal buffering. Along Norra Grängesbergsgatan, the absence of green medians, acoustic barriers, or soft materials amplifies everyday noise—truck engines, mechanical repairs, and low-frequency rumble from rehearsal spaces echo between façades. Much of the street is lined with corrugated metal, brick, and concrete structures that reflect rather than absorb sound. Despite these harsh acoustic conditions, the area lacks coordinated noise management, relying instead on informal adaptation: closed doors, improvised insulation, or simply tolerance. Infrastructure for pedestrians is inconsistent—narrow sidewalks abruptly widen or disappear, and there is little lighting or signage to guide movement or reduce sound-related stress, especially at night. While the introduction of the Kulturljudzon is a step toward rethinking sound as part of the urban fabric, the current physical setup reveals a gap between policy and the lived, sonic reality of the street.

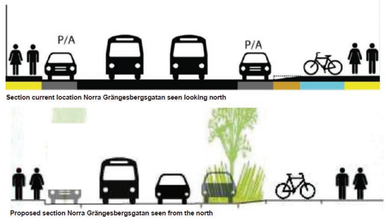


Figure 17. Current and proposed section from NGBG street. From "Planprogram Sofielund" (2021), Malmö Municipality.

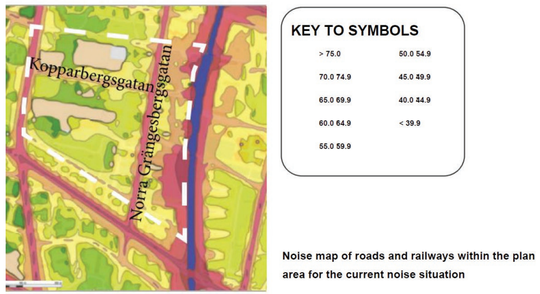


Figure 15. Map showing noise map in Sofielund. From "Planprogram Sofielund" (2021), Malmö Municipality.

Figure 16. Infrastructure OpenStreetMap contributors.. OpenStreetMap. Retrieved 2025, from https://www.openstreetmap.org

Participatory Analysis

The study of Norra Grängesbergsgatan's soundscape in the Sofielund district reveals a diverse and nuanced profile of residents and their perceptions. The majority of participants were between the ages of 25–34 (45.9%) and 35–44 (31.1%), with smaller representation from younger and older age groups. Geographically, most respondents came from Annelund (35%) and Norra Sofielund (28.7%), followed by Löngården and Södra Sofielund. Among the interviewees were Boel, a retired resident involved in local tenant activities; Robin, an illustrator living with a partner who is sensitive to sound; and Sara, a music enthusiast who values cultural vibrancy in the city.[19] Positive perceptions centered on sounds that contributed to a sense of life and place—such as live music, acoustic performances, birdsong, water features, and social sounds like laughter and children playing. Many respondents viewed the kulturljudzon initiative favorably, seeing it as a way to support public life and cultural identity. However, negative comments also emerged, particularly around disruptive elements like nighttime traffic, loud sirens, seagulls, bass-heavy music, and skateboarding noise. A major concern was the lack of community involvement in the planning process—many residents were unaware of the sound zone's development before it was announced. [20]

From an urban design perspective, the study highlighted that tolerance for sound is context-dependent: people were more accepting of noise that matched the environment or added to its identity. Parks and green buffers helped reduce perceived disturbance, and indoor disruptions were less tolerated than those in public settings. Importantly, the findings emphasize the role of participation and communication—residents who felt informed or involved expressed more appreciation for the project. These insights reinforce the idea that designing with sound requires sensitivity not just to acoustics, but to cultural, social, and emotional layers embedded in the urban fabric.

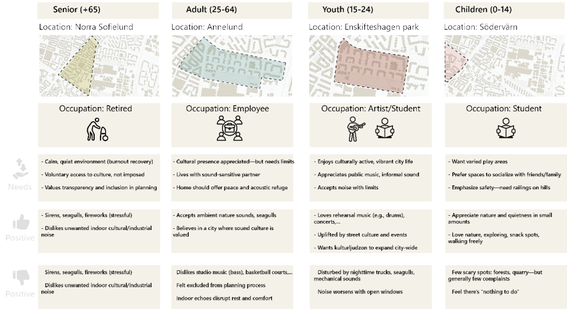


Diagram 9. Participatory distributions and their needs according to age and occupation. from participation references. Diagram created by author

19. Schmidt, A. (2022). Kulturljudzon Sofielund, Malmö: A study on the residents auditory perception. Bachelor Thesis. Malmö University.
20. Ahmadi, A. and Van Der Auweraert, S. (2022). Understanding children's perceptions and use of the neighbourhood: A participatory method. A Malmö case study focused on aspects of liveability. Master Thesis. Malmö University.

Strength & Opportunities

Child Friendly

Nature Sound

Temporal and Spatial Events

Cultural Diversity

Weakness & Threats

Traffic and factory noises

Safety issues

Planning inequites

Age-gaps activities

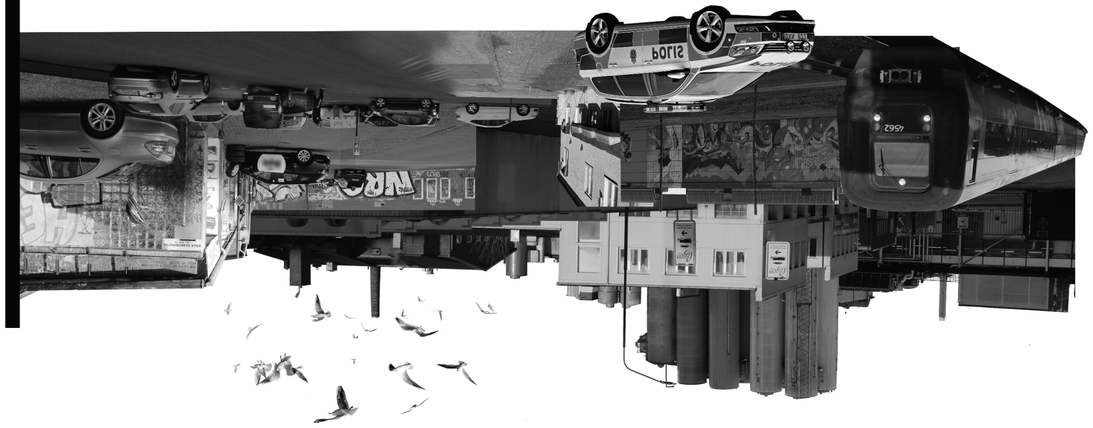


Diagram 10. SWOT Analysis Collage. Created by author

SWOT Analysis:

The soundscape-driven urban design proposal for Sofielund offers both promise and complexity. On the positive side, it aligns with Malmö Municipality's Cultural Sound Zone strategy, giving the project a strong policy backbone. Using sound as a design tool brings a fresh and inclusive approach—one that embraces the area's industrial character while inviting participation across generations and cultures. The proposal also builds on existing spaces and social networks, making it grounded and practical. But working with sound in public space isn't simple. Balancing artistic expression with noise regulations, while still respecting residents' comfort, presents a real challenge. There's also the question of funding and coordination—without clear roles and shared vision, implementation could stall. Still, the project holds great potential. It can serve as a model for rethinking post-industrial streets, create new cultural energy, and give visibility to underrepresented communities. At the same time, there's a risk that success could bring gentrification, pushing out the very people and businesses that give the place its character. For the project to work long-term, it needs to stay open, adaptable, and rooted in ongoing conversation with the community.

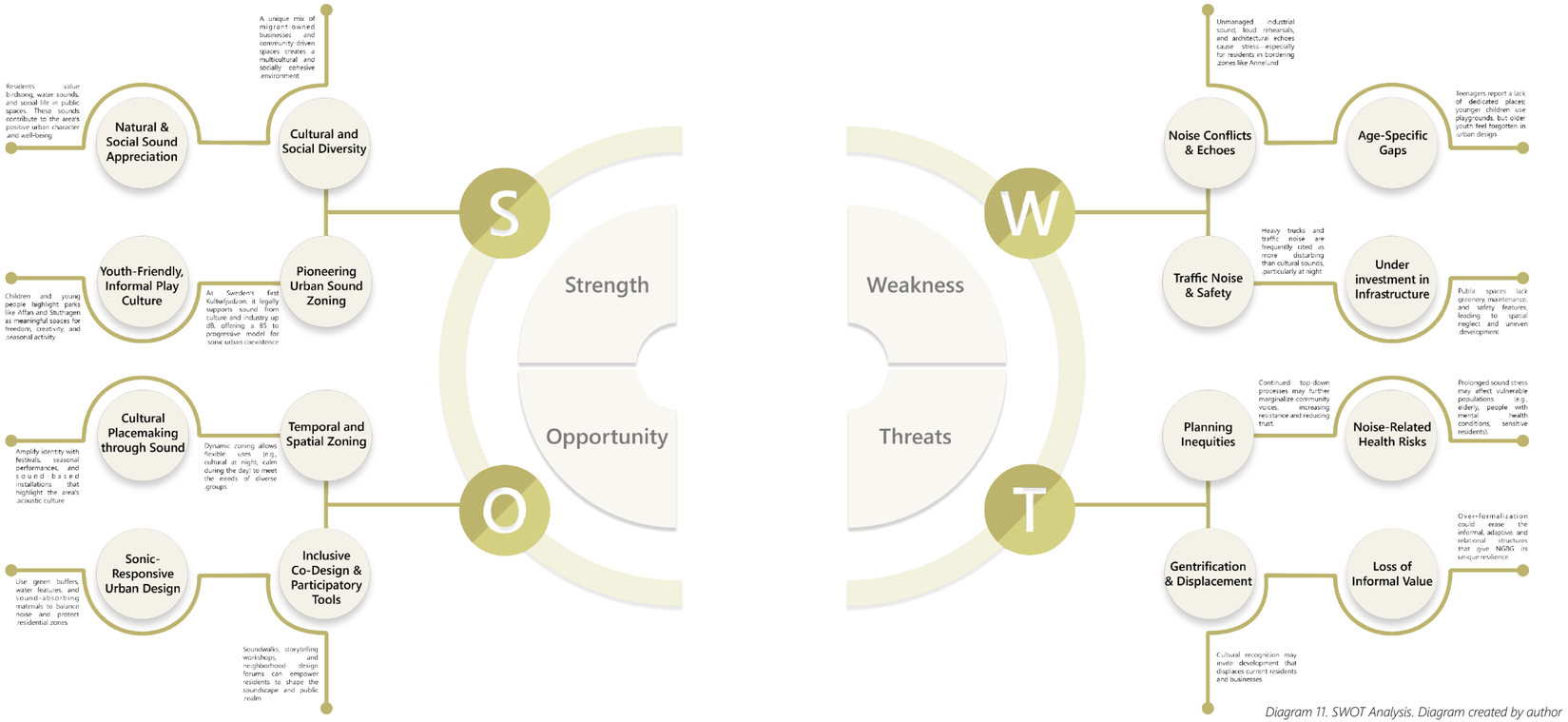


Diagram 11. SWOT Analysis. Diagram created by author

Diagram 12. Norra Grunge Collage. created by author

03 DESIGN PROCESS

This thesis explores the potential of soundscape-based urban design to activate and regenerate Norra Grängesbergsgatan, a post-industrial corridor in Malmö, Sweden. By integrating sound as a central element in the design process, the project introduces a layered approach to urban activation through ambient, interactive, and cultural sonic experiences. Three primary interventions—a Festival Street, a Cultural Corridor, and Ambient Pocket Parks—are strategically distributed along the street to foster community engagement, multisensory exploration, and spatial diversity. These spaces serve not only as sites of gathering and performance but also as adaptive public platforms that respond to the rhythms of daily life. The design emphasizes inclusivity, temporality, and adaptability, encouraging participation from diverse user groups such as children, workers, creatives, and students. The project positions sound not merely as a byproduct of urban life, but as an intentional medium for placemaking, identity building, and urban renewal.

Linking Triangeln to Rosengård via NGBG

One of the project's key opportunities lies in the natural urban flow between Triangeln Station, Folkets Park, and Rosengård Station. This movement corridor presents a rich potential for integration with Norra Grängesbergsgatan (NGBG), positioning it as a dynamic cultural hinge within the city. The proposal envisions NGBG as a festival street that engages this flow—transforming passersby into participants. People moving from the vibrant center of Malmö toward Rosengård are invited to pause, listen, interact, and participate in sound-based installations and public events along NGBG. Whether commuting, cycling, or walking, this path becomes a sequence of invitations to cultural experience. The spatial interventions—like open-air stages, ambient music parks, and rhythm-responsive pavements—offer spontaneous moments of encounter, ensuring that the NGBG corridor becomes a connective and active artery that bridges city life with local identity.

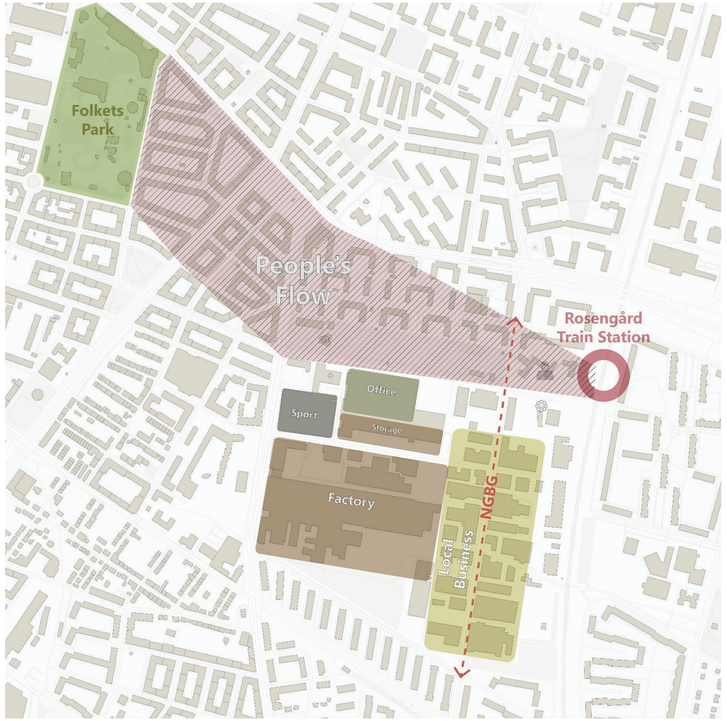


Diagram 13. People's flow and functional zoning Sofielund. created by author

Participatory's consideration for soundscape mapping

The residents of Sofielund experience a wide range of acoustic conditions that directly affect their quality of life and use of public space. Elderly residents, many of whom live near industrial zones, are particularly disturbed by the constant hum and sharp sounds from nearby warehouses and factories, which can cause stress and limit their ability to enjoy outdoor spaces. Families with young children, especially those living closer to the motorway, face similar challenges—the relentless traffic noise creates a background of disruption that affects sleep, concentration, and the comfort of daily life. Interestingly, children, who naturally contribute to the area's liveliness through play and spontaneous noise-making, are themselves sensitive to the loud, sudden sounds of passing trains, which often interrupt play and generate fear or discomfort. Meanwhile, local businesses such as car washes, repair shops, and bakeries form part of the neighborhood's identity and economy, but they also add to the area's overall soundscape with mechanical sounds and early morning activity. Balancing these varied sound conditions is crucial—not by eliminating noise altogether, but by designing sound zones that accommodate both the need for expression and the right to peace.

Diagram 14. Participatory's results and noise map diagram in extereme condition. created by author

VISION

Timeframe activities

The long-term vision of the project is a multifunctional Sofielund that is alive throughout the entire day, responsive to different groups, rhythms, and moods. In the morning, the area opens with coffee carts, street performers warming up, and local schools using public spaces for learning and play. By midday, small workshops and art studios invite visitors in, while urban lunch spots become hubs for office workers and creatives alike. As afternoon transitions into evening, the Cultural Corridor lights up with rehearsals, open mics, and sound experiments. In the nighttime, Ambient Pocket Parks come alive with subtle lighting and calming soundscapes—creating a safe and welcoming environment for evening strolls or late-night socializing. This constant, yet varied, activation transforms Sofielund into a resilient, inclusive, and culturally rich district that offers something for everyone, at every hour. It's a vision rooted in everyday life but amplified by the rhythms of sound and the energy of community.

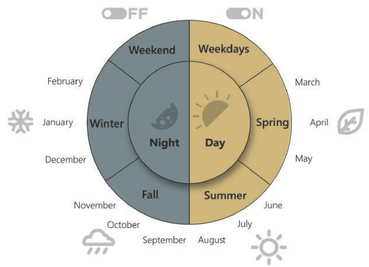


Diagram 15. Time frame activities. created by author

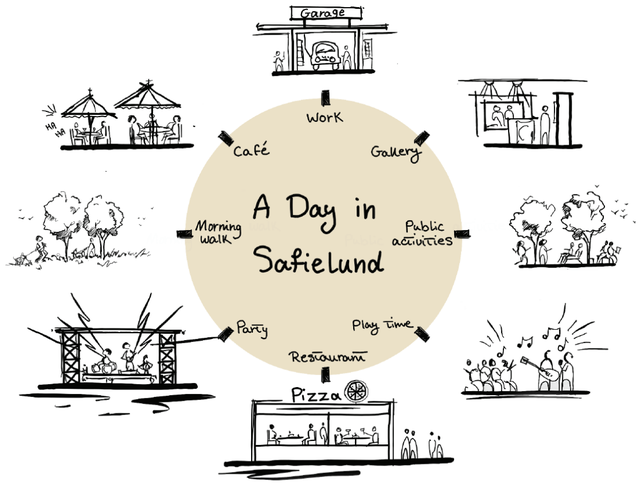


Diagram 16. A Day in Sofielund activation vision. created by author

Play, Pause, and Repeat!

In this project, I introduce the Pause, Play, and Repeat framework as a soundscape-based strategy to shape the acoustic and social rhythm of public life in Norra Grängesbergsgatan. Play refers to the intentional introduction of new sonic activities that animate the street—ranging from music performances and cultural events to informal sound-making installations and youth-led workshops. These interventions invite participation, amplify local identities, and embrace the cultural diversity already present in the area. In contrast, Pause focuses on creating calm, reflective, or acoustically buffered environments, where noise is softened through vegetation, water features, or material selection. These quiet zones offer relief from the urban intensity, supporting both mental well-being and inclusive design for noise-sensitive users. Finally, Repeat is a temporal strategy: it ensures that sonic vibrancy is not a one-time activation but part of everyday life and seasonal routines. This includes recurring street festivals, spontaneous music gatherings, and programmed soundscapes that change with time of day or season—turning the street into a place that lives through rhythm, memory, and continuous interaction.

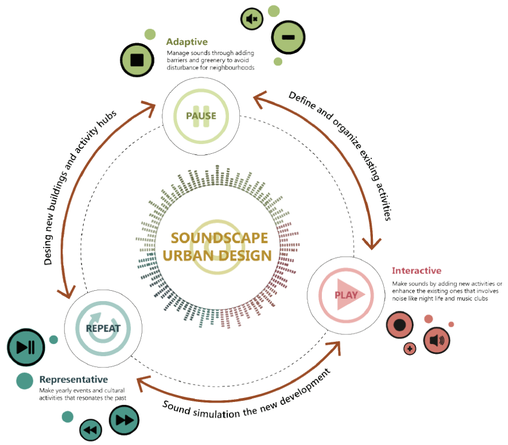
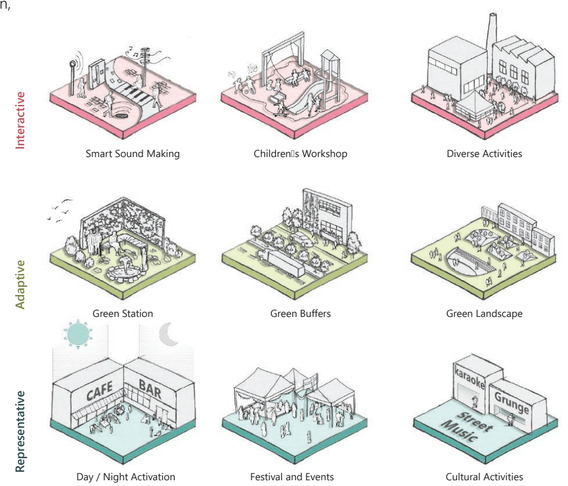
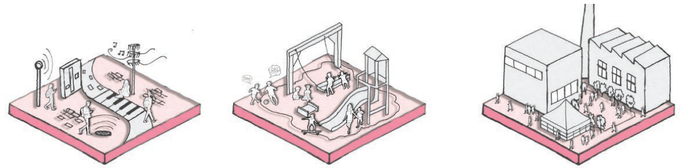


Diagram 17. Play, Pause, and Repeat strategies and its toolboxes to activate Sofielund throug soundscape practices. Created by author



Toolboxes activation through design process

three primary toolboxes—Play, Pause, and Repeat—structure the spatial and sonic strategies. Each represents a different set of interventions aimed at activating the site based on users' needs, temporal dynamics, and contextual conditions.:



The Play toolbox focuses on residents' needs and community interaction. It includes spaces such as open performance areas, sound-responsive playgrounds, and flexible social hubs where cultural expression is encouraged. These interventions prioritize inclusiveness and engagement, inviting people of all ages and backgrounds to participate in creative activities.

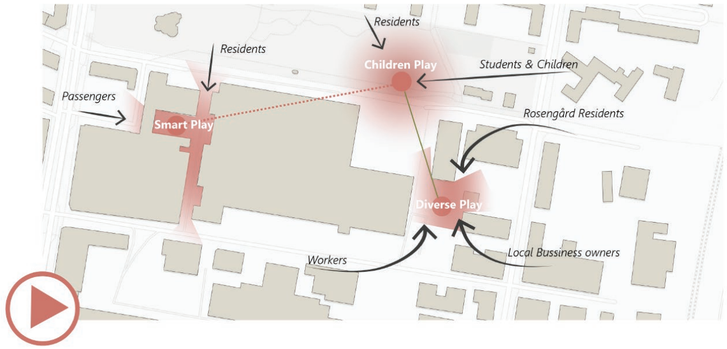
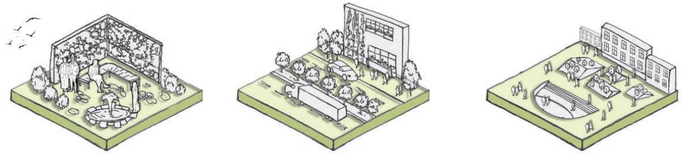


Diagram 18. Interactive strategies "Play" Diagram. Created by author



The Repeat toolbox emphasizes continuity and rhythm in urban life. It proposes a series of linked activities and spatial sequences that operate across different times of day, ensuring the area remains active from morning to night. These interventions support the long-term use of space, enabling cyclical routines and encouraging return visits through daily and seasonal programming.

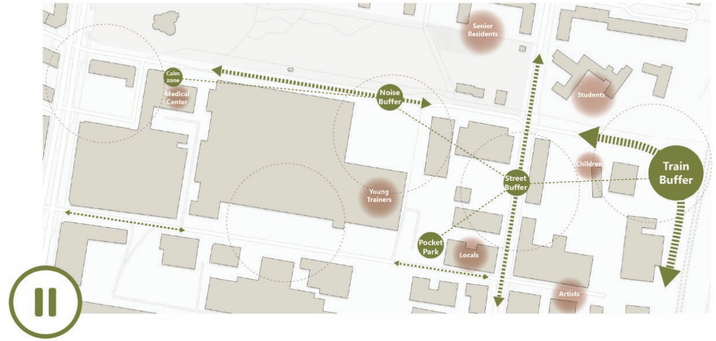


Diagram 19. Adaptive strategies "Pause" Diagram. Created by author

The Pause toolbox addresses the challenges of environmental noise by introducing buffers—both physical and acoustic—between disruptive sources like train lines and industrial operations. This includes green sound walls, vegetation layers, and structural barriers that double as quiet zones for reflection or low-intensity activities.

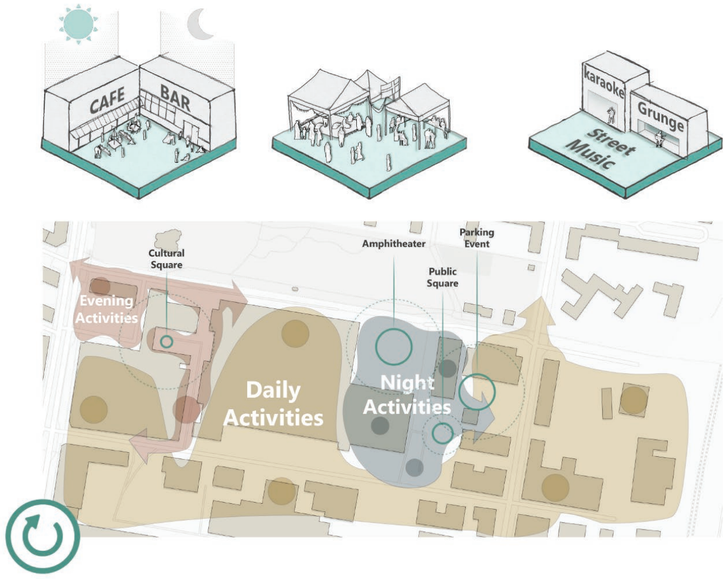
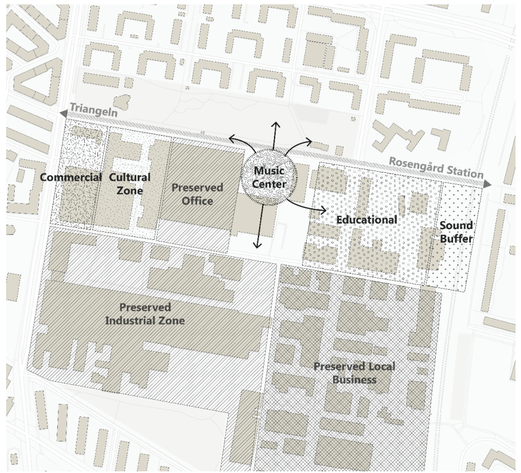


Diagram 20. Representative strategies "Repeat" Diagram. Created by author

Preservation and Respect for Local Business Identity

Preserving the identity of Sofielund is a core value of the proposal. The area's industrial soul—its workshops, auto garages, small factories, and warehouses—is not seen as something to erase, but rather to celebrate and evolve. Many of these businesses are deeply rooted in the community and contribute to both the economic and cultural life of the district. Therefore, the project avoids replacing them; instead, it supports their continuity by offering architectural renovation, facade activation, and spatial upgrades. For example, older industrial buildings are adapted into shared cultural spaces—such as a music center that doubles as a rehearsal studio, event venue, and educational hub. By embedding new activities into existing structures, the design keeps rents affordable and avoids displacement, while still offering new opportunities for collaboration and creativity. This approach ensures that transformation happens with the community, not over it, balancing innovation with a deep respect for history and local character.



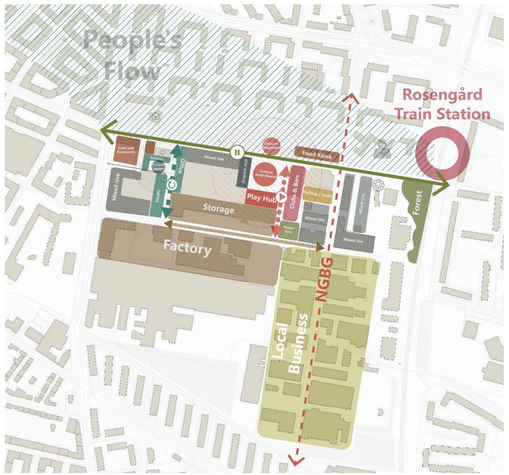
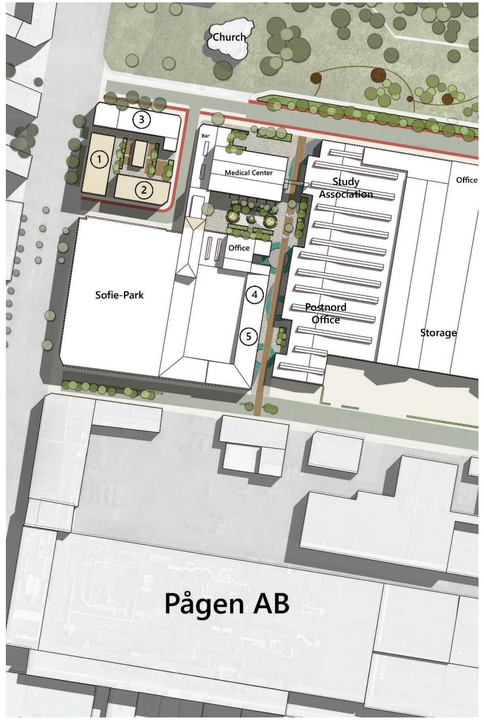


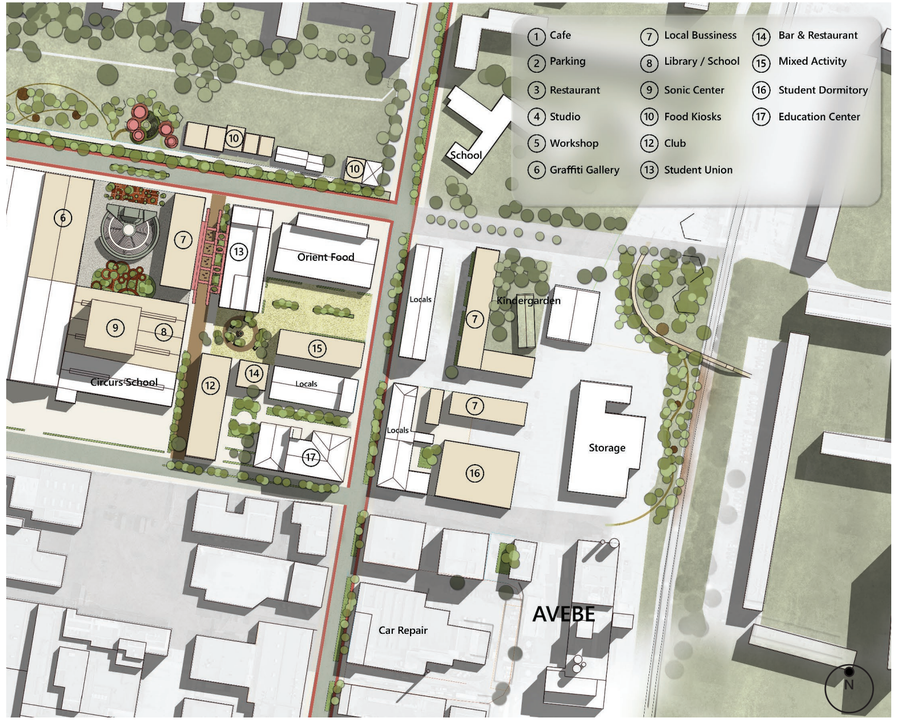
Diagram 21. Preservation strategies Diagram Plan. Created by author

MASTERPLAN

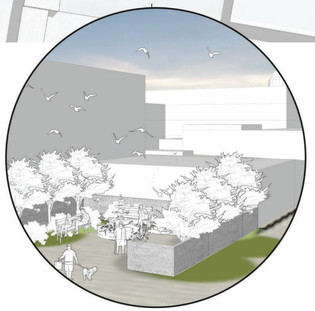
In the general plan, I kept many of the existing industrial buildings, especially those along Norra Grängesbergsgatan that still house local businesses like car repair shops, bakeries, and small warehouses. Instead of removing them, I worked around them—highlighting their role in the everyday life of the area. One of the larger factory buildings is reused as a music center, where people can gather for rehearsals, small performances, or workshops. I added new public spaces in between the buildings—small plazas, informal seating areas, and spots for street markets—to bring more life to the street during the day. Some leftover spaces are turned into gardens or places where children can play. I also redesigned parts of the street to be more pedestrian-friendly, with wider sidewalks, bike lanes, and trees to create a better environment without erasing what's already there. The goal was to make the area more open and active while still keeping the character that makes it feel real and lived-in.

Existing Plan Before Soundscape Urban Design strategies

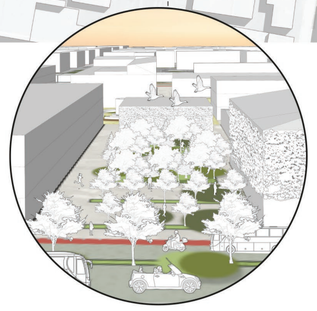




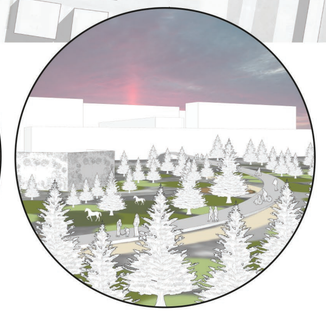
Proposed General Plan considering Soundscape Urban Design strategies



Ambient Station



Pockect Parks



Evergreen Forest

Noise Map Diagram and proposed calm spaces with standard sound preservation

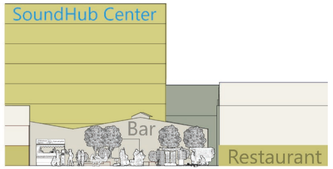
Functional Diagram by considering time aspects

Detail Plan Proposed Soundscape Urban Design strategies for Sofielund

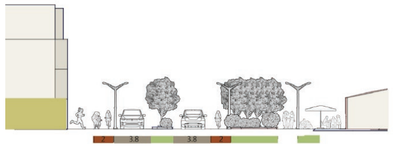
DETAIL PLAN

SECTION A-A

SECTION B-B

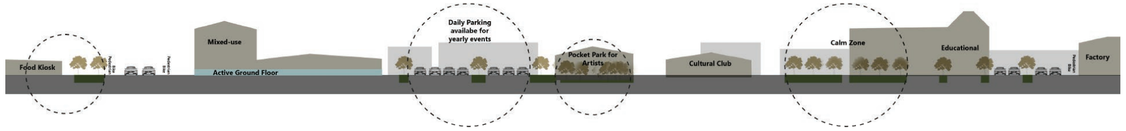


SECTION C-C



Section Guide Plan

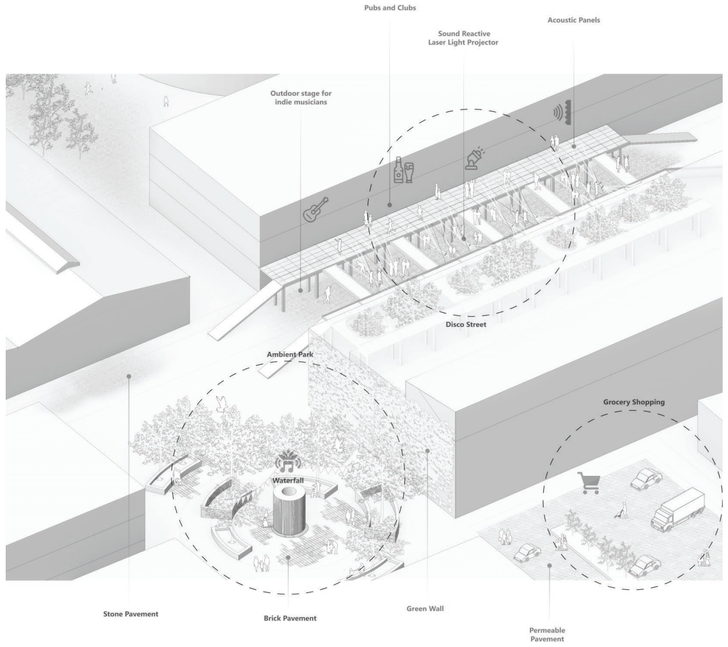
SECTION D-D



The Festival Square

The Festival Square diagram presents a carefully orchestrated urban space where diverse activities are brought together and harmonized through thoughtful sound design. Starting from the parking area, the use of stone pavement helps minimize vehicle noise, setting a quieter tone for the transition into the square. Moving inward, a calm ambient park features water elements that not only provide visual relief but also create soothing background noise, complemented by the sound of birds and wind rustling through the leaves. This area acts as a refreshing pause point for residents, offering a gentle acoustic contrast to the rest of the site.

In contrast, the disco street introduces a high-energy atmosphere through a fun corridor lined with pubs, clubs, and sound-reactive laser light projectors that respond to music and movement. This transforms the space into a dynamic party street, especially during festivals or weekend events. Supporting live performance and local culture, the design includes dedicated rooms for indie artists under a canopied stage, where music can be played throughout the day and night. The addition of acoustic panels ensures that the sound is directed and enhanced without overwhelming the rest of the square. Together, these elements create a balanced space where people can gather, perform, relax, and celebrate—each activity carefully tuned to its surrounding soundscape.



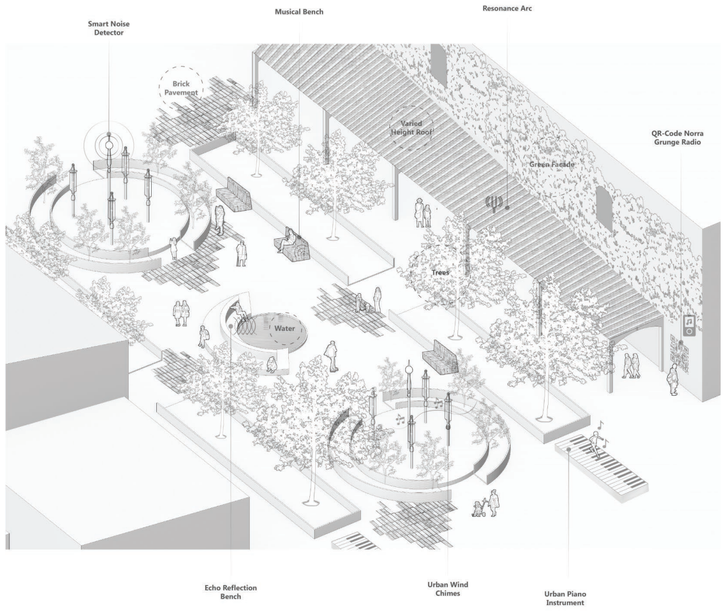
Detail Design Diagram from Festival Square

The Cultural Square

the Cultural Square as an interactive public space where residents can engage with sound in multiple layered and meaningful ways. The square is equipped with a variety of smart sound-making elements, including a musical bench, urban wind chimes, and an urban piano instrument embedded into the pavement. These objects invite playful interaction and spontaneous music-making for people of all ages. A key feature is the smart noise detector, which helps monitor and respond to the sound environment, allowing for adaptive soundscapes depending on activity levels.

The space also integrates acoustic reflection through surfaces and materials: water features create soft ambient echoes, while brick pavements and a resonant brick arc corridor reflect and shape sound differently depending on position and movement. These create a rich sound experience as people walk through the square. Residents can also access local radio content via QR codes—like the Norra Grunge Radio—fostering a sense of cultural continuity and community storytelling.

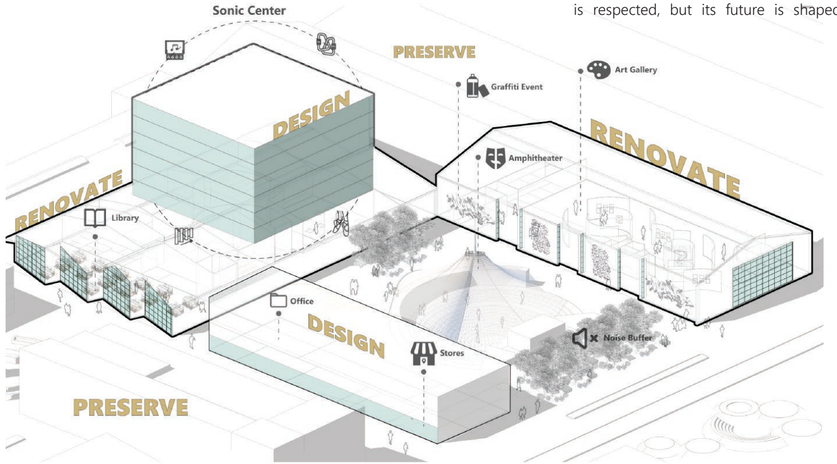
Altogether, this square offers not just a place to pass through, but a destination where sound becomes an active and participatory layer of public life—supporting both social interaction and moments of quiet listening.



Detail Design Diagram from Cultural Square

The Amphitheater and its surroundings reflects a design approach rooted in preservation and adaptive reuse, with the aim of maintaining the industrial identity of Sofielund while opening it up for inclusive, public use. Preserving the original buildings was a central intention—honoring the area's past as a working industrial zone—while carefully introducing new features to give them renewed purpose. The most prominent new addition is the outdoor amphitheater, designed as an open, accessible space for performance, gathering, and community events, offering a cultural venue for all residents regardless of age or background.

Surrounding the amphitheater, the existing buildings have been adapted to host a wide variety of sound- and music-related activities. At the heart of this cluster is the Sonic Center, a hub that includes recording studios, music classrooms, rehearsal spaces, small shops, and even sports facilities, all under one roof. These programs are designed to activate the space throughout the day and across different user groups, from youth to professionals. The building also includes a library on the first floor, complementing the creative functions with a quieter, reflective atmosphere and creating a balance between active and calm uses. Altogether, this area becomes a vibrant zone where the history of the site is respected, but its future is shaped by participation, creativity, and sound.



Amphitheater and its surroundings by emphasizing preserved and new designed buildings

CONCLUSION

Sound is one of the most powerful yet underestimated dimensions of urban life. We design for what we see, often forgetting how much we live through what we hear. But sound shapes our comfort, our memory, and how we relate to space and each other. It can calm us or stress us, invite us in or push us away. In that sense, sound is deeply connected to sustainability—especially when we talk about creating inclusive cities, spaces for well-being, or environments that support culture and diversity. Goals like SDG 3 (health), SDG 11 (sustainable cities), and SDG 10 (reduced inequalities) are not just about buildings or numbers—they're about how people feel, belong, and express themselves. And sound plays a quiet but essential role in all of that.

The Norra Grunge project is my response to that. In a place like Norra Grängesbergsgatan, where industrial noise, creative energy, and migrant business life collide, I saw potential—not just to reduce noise, but to reshape how sound is experienced. This wasn't about silencing the city. It was about tuning it. The project explores how a forgotten industrial street can become a shared and expressive sound corridor for all generations. Children playing, musicians rehearsing, older residents resting under trees, and everyone in between finding their own rhythm in the public realm.

To structure that, I proposed a simple but powerful framework: Pause, Play, and Repeat. Pause is about making room for quiet, comfort, and reflection—for designing peaceful moments in the middle of urban life. Play is about inviting people to actively shape the soundscape—through music, movement, interaction, and culture. And Repeat is about continuity, creating sound events and practices that become part of daily life and collective memory—not just one-time installations, but ongoing rituals that keep the street alive.

What I learned in this process is that soundscape thinking is not just for Malmö. It can travel. It can be adapted to other cities, climates, and cultures. Any project that deals with public space and social diversity can benefit from listening more carefully—literally and metaphorically. Because when we design with our ears as much as our eyes, we open new ways to connect people, to support inclusion, and to shape spaces that aren't just used—but lived, remembered, and heard.

REFLECTION

This project was a valuable learning experience for me, as it allowed me to explore how soundscape can be integrated with urban design in a more meaningful way. Usually, sound in cities is seen as a problem that needs to be reduced or blocked out. But through this work, I realized that sound can also be something positive—it can activate spaces and bring life to them.

Working with the area of Sofielund in Malmö gave me the chance to apply these ideas in a real setting. It helped me see how different types of sounds affect how people use public spaces, and how design can shape these experiences. Some sounds might be annoying, but others can actually create a sense of community or attract people to certain places.

Even though this project focused on Malmö, I believe the approach can be used in many other parts of the world. Every city has its own soundscape, and by paying more attention to it, we can create better, more engaging urban environments.

Overall, this thesis was not only about designing spaces, but also about listening more carefully to the city and understanding how sound plays a role in our everyday lives.

FINAL REFERENCES

1. Malmö Stad. (n.d.). Kulturljudzonen i Sofielund och NGBG. Retrieved from https://malmo.se/Stadsutveckling/Sa-utvecklar-vi-staden/Stadsmiljo/Kulturljudzonen-i-Sofielund-och-NGBG.html

2. Schafer, R. M. (1977). The Tuning of the World. New York: Knopf.

3. van den Bosch, K. A., & Andringa, T. C. (2014). The effect of sound sources on soundscape appraisal. The Journal of the Acoustical Society of America, 136(6), 3496–3506.

4. BrainKart. (n.d.). Characteristics of a sound wave. Retrieved from https://www.brainkart.com/article/Characteristics-of-a-sound-wave_39936/

5. Truax, B. (2001). Acoustic Communication (2nd ed.). Westport, CT: Ablex Publishing.

6. Kang, J., & Schulte-Fortkamp, B. (2016). Soundscape and the Built Environment. Boca Raton, FL: CRC Press.

7. Cerwén, G. (2016). Urban soundscapes: A quasi-experiment in landscape architecture. Landscape Research, 41(5), 481–494. https://doi.org/10.1080/01426397.2015.1135312

8. Cerwén, G. (2017). Sound in Landscape Architecture: A Soundscape Approach to Noise [Doctoral thesis, Swedish University of Agricultural Sciences].

9. Brambilla, G., & Maffei, L. (2010). Perspective of the soundscape approach as a tool for urban space design. Noise Control Engineering Journal, 58(5), 532–539.

10. United Nations. (n.d.). Sustainable Development Goals. Retrieved from https://sdgs.un.org/goals

11. Bloomberg CityLab. (2021, January 5). A Tiny Twist on Street Design: The One-Minute City. Retrieved from https://www.bloomberg.com/news/features/2021-01-05/a-tiny-twist-on-street-design-the-one-minute-city

12. ArchDaily. (2013, January 6). Superkilen / Topotek 1 + BIG Architects + Superflex. Retrieved from https://www.archdaily.com/286223/superkilen-topotek-1-big-architects-superflex

13. Guppy, B. (n.d.). Soundscape Park. Retrieved from https://www.blairguppy.com/soundscape-park

14. Malmö Stad. (n.d.). Malmös historia – Stadens historia. Retrieved from https://malmo.se/Uppleva-och-gora/Arkitektur-och-kulturarv/Malmos-historia/Stadens-historia.html

15. Persson, L. (2021). The Urban Soundscape of Western Harbour: Soundwalks and Psychoacoustics in the Western Harbour Area in Malmö. Master Thesis. Malmö University.

16. Malmö Stad. (n.d.). Sofielund. [online] Available at: https://malmo.se/Stadsutveckling/Stadsutvecklingsomraden/Sofielund.html

17. Planprogram SOFIELUNDS VERKSAMHETSOMRÅDE ÅR 2040 (2021) stadsbyggnadsnämnden, Malmö stad

18. Planprogram 6051 Amiralsgatan och station Persborg Från nu till år 2040, (2021) stadsbyggnadsnämnden, Malmö stad

19. Schmidt, A. (2022). Kulturljudzon Sofielund, Malmö: A study on the residents auditory perception. Bachelor Thesis. Malmö University.

20. Ahmadi, A. and Van Der Auweraert, S. (2022). Understanding children's perceptions and use of the neighbourhood: A participatory method. A Malmö case study focused on aspects of liveability. Master Thesis. Malmö University.

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Figure 1: Soundwave parameters. Source: BrainKart (2018).

Figure 2: Four types of soundscapes. Source: Andringa & Lanser (2013), van den Bosch et al.

Figure 3: Sound types table. Summarized by author using ChatGPT.

Figure 4–6: Sound design action diagrams. Source: Cerwén (2017).

Figure 7–8: Soundscape strategy and SDG diagram. Created by author.

Figures 9–14: Malmö region, Sofielund timeline, sound zoning, participation data. Sources: Malmö Stad, OpenStreetMap contributors.

Figures 15–17: Noise and transport infrastructure. Sources: Malmö Stad, OpenStreetMap.

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