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The Role of Urban Design in Preserving Nations' Identities. Vesterbro Street, Aalborg, Denmark as a case

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ABSTRACT

Urban design plays a central role in shaping how people relate to their surroundings and, by extension, how they connect to their cultural and national identity. This paper examines the case of Vesterbro Street in Aalborg, Denmark, as a way to explore how thoughtful urban transformation can preserve identity while addressing contemporary urban challenges.

Through a deductive diagnostic case study, the research traces the evolution of Vesterbro from a car-oriented corridor to a more balanced and inclusive urban space. Using historical records, urban planning documents, visual analysis, and relevant theoretical frameworks, the study identifies how the design of streets—through elements like walkability, spatial flexibility, and visual character—can either reinforce or weaken a sense of belonging.

The paper argues that identity is not simply inherited; it is designed, shaped, and constantly negotiated through the built environment. Vesterbro's story reveals how cities can embrace change without erasing character, and how flexible, user-centered design interventions—like the proposed adaptive lane system—can support social interaction, accessibility, and cultural continuity.

Ultimately, the study offers insights not only into one Danish street but into a broader question: how can urban design help cities remain rooted while moving forward.

1. INTRODUCTION

Urban design doesn't just shape the spaces we move through—it shapes how we feel about those spaces, how we connect to them, and ultimately, how we understand our place within them. The layout of a street, the materials chosen, the rhythm of buildings and open spaces—all of these choices contribute to the identity of a city and, by extension, to the identity of the people who live there.

This paper looks at Vesterbro Street in Aalborg, Denmark, as more than just a roadway. It tells the story of how a central street evolved across time, adapting to changing social needs, economic conditions, and cultural values. Vesterbro is used here as a lens to explore how design decisions—both big and small—can help maintain a sense of continuity and belonging, even as cities change.

The assumption guiding this study is simple: when urban design responds to people—their history, their habits, and their hopes—it has the power to preserve identity. And when it doesn't, places can quickly become disconnected, both from their past and from the people who use them.

The main aim of the paper is to explore how urban design can serve as a tool for identity preservation. Through analyzing Vesterbro Street's physical transformation and the values that shaped it, the research highlights how thoughtful, user-centered planning can create environments that feel familiar, functional, and meaningful. This paper argues that even highly trafficked corridors can be redesigned to reflect cultural values while still meeting infrastructure demands—if we are willing to rethink how streets serve people, not just vehicles.

The study builds on concepts like place-making, urban resilience, and design responsiveness to show that identity is not a fixed feature of a city—it is something constantly shaped by how space is used, experienced, and designed.

2. LITERATURE REVIEW

Urban design can be defined as an "arrangement of elements in the urban environment that encourages people to orient themselves, to meet, and to interact in a meaningful and aesthetically pleasing manner" [1]. Urban design is about considering every decision and studying its consequences. In urban design, every decision made in the design can affect different aspects of life. Users interact every day with different elements of urban design, whether they are architectural buildings, public spaces, transportation, or infrastructure. One

of the most important elements of urban design is roads and streets; a well-designed street has high permeability, and high permeability means no time wasted in traffic jams. Accordingly, permeability enhances productivity by saving users time and energy. A poorly designed space leads to pedestrian jams, too.

Urban identity is strongly connected to the concept of 'place,' which reflects the experiences and significance individuals attribute to a specific physical location [2]. When people refer to themselves as 'Berliners,' 'Merseysiders,' 'Milanese,' or 'Porteños' (a label for those from Buenos Aires), they attribute particular significance to their city. These meanings arise from abstract influences such as history, culture, and literature, in addition to concrete aspects like architecture, monuments, and the city's physical attributes [3]. In this process, individuals cultivate a sense of place identity, indicating how people relate to a location and perceive themselves as part of it [4]. This relationship develops as individuals engage with their environment, incorporating the city into their individual and shared identities [5].

Urban areas influence the beliefs and perspectives of their residents in numerous ways. The structure and design of buildings, for instance, can directly affect perceptions and behaviors [6]. Architecture can also influence people indirectly by triggering emotions or changing moods while walking through the city [7], [8]. Public monuments that honor important events, along with city regulations, also enhance the identity of a location. A notable instance is Copenhagen's choice in 2016 to modify its traffic light system to give preference to bicycles instead of cars. At that moment, almost 40% of the people were already cycling to commute. This policy enhanced the practicality and attractiveness of cycling, motivating additional residents to transition from cars to bicycles and strengthening the city's image as environmentally aware.

Sense of place can be defined as the phenomenon by which people experience a setting and develop an emotional attachment to it [9]. Sense of place is how users interact with spaces. It's where the design controls users' emotions, whether they feel welcomed and embraced or pushed away. Promoting a sense of place through design creates a virtual relationship between users and spaces where the user experiences various emotions while interacting with the space.

Urban resilience can be defined as the capacity of cities to adapt to change and thrive in the face of shocks, stresses, and short and long-term environmental transformations [10]. The term resilience is the core of urban design; a well-designed space is never a well-designed space if it is not resilient. To achieve a successful design, resilience should be the main goal as it guarantees that the design not only goes with today's circumstances. Recently, due to social media and technology, the surroundings tend to change rapidly and unexpectedly. Some spaces are hugely affected by these changes due to their lack of resilience and future planning. While some other places adapt easily to these changes with minor interference, others need a complete redesign. A resilient urban space should adapt easily to changes, whether they are environmental, economic, societal, or political, and is less likely to need short-term redesign.

Responsiveness is where urban design responds to societal and environmental needs. Urban design should be strategy-based, and this strategy should be built according to users' needs. Urban design strategies differ from one nation to another, but a single nation can never have a single design strategy. Design strategies have to be flexible and adaptive. For these strategies to be successful, they have to develop simultaneously with the development of the surroundings. A space is responsively designed when the design is not limited only to the operation phase; on the contrary, designers have to consider the post-operation phase. The post-operation phase is when the success of the project is measured according to earlier project goals, universal standards and user satisfaction. This phase is when the interaction between the user and space takes place with all external factors and variables.

Within this broader context, many scholars have emphasized how spatial form and design principles contribute to the preservation or erosion of urban identity. Kevin Lynch introduced the concept of legibility as a key factor in how people perceive and emotionally connect to their environments. A legible city is one that users can read, navigate, and remember, which strengthens both functionality and attachment [1] .

Similarly, Edward Relph's theory of place and placelessness highlights the difference between spaces that are rooted in cultural and historical context and those that feel generic or disconnected. He argues that true identity emerges when urban environments reflect the lived experiences of their users. Marc Augé extended this concept by introducing the term "non-places"—spaces, such as highways or shopping malls, that lack personal meaning despite being functional. These theoretical perspectives point to a common truth: that people seek meaning in space, and design plays a central role in either reinforcing or diminishing that meaning [9].

From a design standpoint, Allan Jacobs' insights into what makes a "great street" reinforce the importance of scale, rhythm, materiality, and diversity of use. He suggests that streets that prioritize people—through walkability, visual richness, and social engagement—are more likely to support a strong sense of place and identity. This aligns with the direction of contemporary urban strategies that emphasize adaptability, community input, and inclusive experiences [11].

Moreover, Recent studies have further expanded the understanding of how street design contributes to place identity and adaptability. For instance, pedestrianization initiatives such as the transformation of İstiklal Street in Istanbul have shown clear impacts on land value, spatial use, and the reinforcement of urban character [12]. Sensory mapping approaches have also emerged as powerful tools to understand how people emotionally and physically engage with streetscapes, revealing layers of meaning beyond the visual [13].

On a structural level, recent simulations of urban street networks suggest that design resilience—especially in critical corridors—can significantly influence a city's ability to withstand disruptions while maintaining accessibility and flow [14]. The integration of smart infrastructure, such as adaptive street lighting and mobile citizen interfaces, has further illustrated how urban design can support both communication and spatial resilience in the face of environmental or social change [15].

Comparative analyses across European cities also demonstrate that the geometry and connectivity of street networks are directly correlated with economic activity and social centrality, underscoring the importance of spatial form in shaping urban identity [16]. Together, these insights reinforce the idea that street-level design decisions are deeply embedded in the broader cultural, technological, and structural narratives of the city.

Taken together, these theoretical perspectives underscore a shared understanding: that urban design is not merely about organizing space efficiently, but about shaping experiences, memories, and identities through the built environment. Whether through concepts such as legibility, authenticity, place-making, resilience, or responsiveness, the literature highlights the critical role that streets play as more than movement corridors—they are lived spaces, cultural carriers, and platforms for negotiation between past, present, and future.

These frameworks are particularly relevant to this study's aim of understanding how national identity can be preserved through urban design interventions. Vesterbro Street in Aalborg, with its layered history and evolving form, presents a valuable opportunity to observe how design decisions at the street level reflect—and potentially reinforce—a broader cultural identity. By analyzing its physical transformation, social function, and potential for responsive adaptation, this case study serves as a testing ground for the theories discussed above and a means to evaluate how abstract design principles manifest in a tangible urban context

3. METHODOLOGY:

This study adopts a deductive diagnostic case study approach to understand how urban design can support national identity through spatial and social transformation. The chosen case—Vesterbro Street in Aalborg—offers a compelling example of how cities evolve in response to both functional needs and cultural values.

The research is primarily qualitative, relying on both document analysis and historical review. Primary data was drawn from existing urban studies and planning documents, particularly those published by Aalborg University and the local municipality. These sources provided insight into the street's physical development, its planning intentions, and the societal shifts that have influenced its form and function.

The diagnostic aspect of the research focused on identifying design challenges related to walkability, visual attractiveness, density, and functional diversity—factors that directly influence a user's experience of place. Observations and visual analysis (including photographs, maps, and diagrams) were used to assess how the street currently performs in terms of user-friendliness, accessibility, and identity reinforcement.

The methodology is built around the assumption that urban design is not a neutral process—it reflects priorities, power structures, and values. By studying Vesterbro's evolution, the paper investigates how design choices either preserve or erode the cultural and historical identity of a space.

The goal is not only to tell the story of a single street, but to outline a transferable framework—one that highlights how design interventions, especially those centered on flexibility and inclusivity, can be applied in other urban contexts facing similar pressures.

4. ANALYSIS OF VESTERBRO STREET

Vesterbro serves as Aalborg's primary traffic artery, strategically located along the edge of the medieval city. It forms a vital part of the north-south corridor, acting as a central link between the northern and southern regions of the city.

Stretching over 1,326 meters, Vesterbro extends northward across the Limfjord Bridge, leading into the district of Nørresundby and continuing toward the northernmost areas of Jutland. Heading south, the road connects Aalborg to other major Danish cities and further extends beyond Denmark's borders.

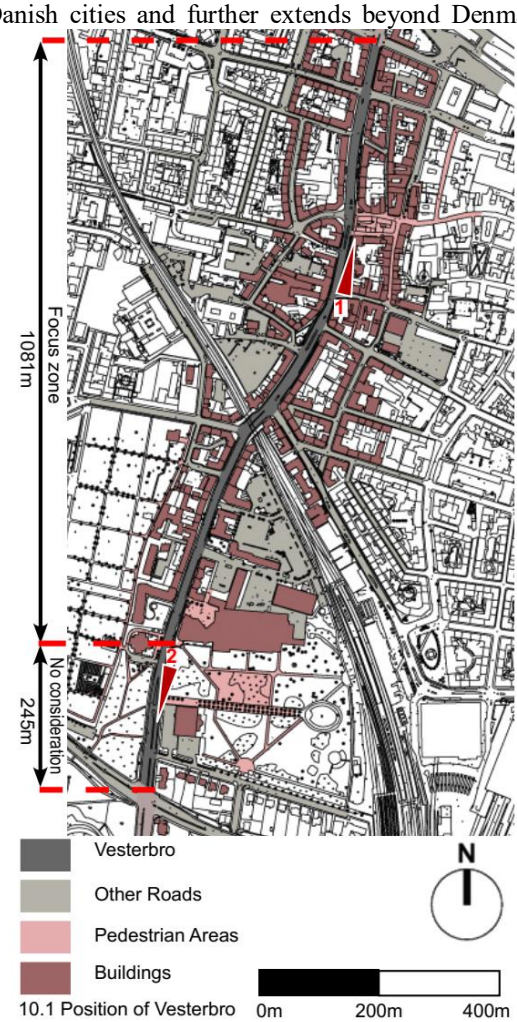

Figure 1:Vesterbro Street Location. [17]

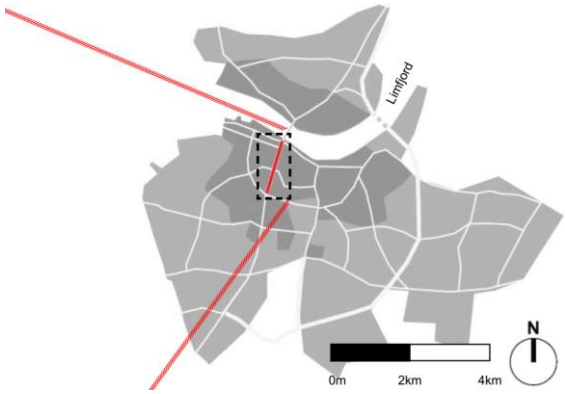

Figure 2: Aalborg Map [17]

The majority of Vesterbro is designed as a four-lane road, while the remaining section features three lanes, with the

center lane designated for turning. The street runs through a densely populated area, with buildings closely lining both sides along most of its length. Interruptions in the building facades occur only at intersections with other roads or rail lines.

As the road extends southward, the urban fabric becomes less compact, and buildings are more spaced out. The structures along Vesterbro are primarily residential, with ground floors occupied by a variety of shops, agencies, and restaurants. Notable landmarks along the street include a church and an exhibition center.

The street provides the main access to four central parking areas for cars. These are vital for the functioning of the city. The southern edge of the street meets the city's ring road. The Vesterbro corridor extends south but goes by a different name now. This highlights Vesterbro's role as a crucial connector between Aalborg's ring road and the city's only multi-purpose bridge. On one end, the bridge leads to Nørresundby, while on the southern side, the road connects to Hobrovej. Over the years, Vesterbro has undergone significant changes, reflecting its evolving role in the city's infrastructure and urban development. [17].

Vesterbro Planning Development History

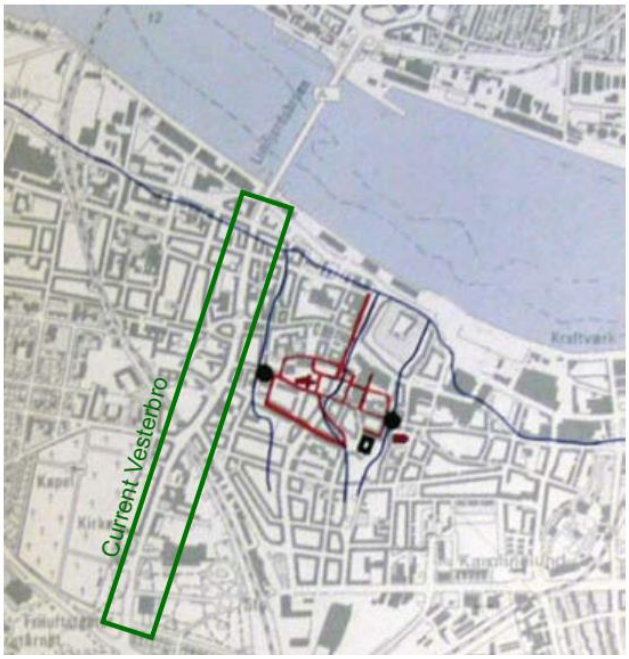

Figure 3 : Vesterbro in 1470s [17]

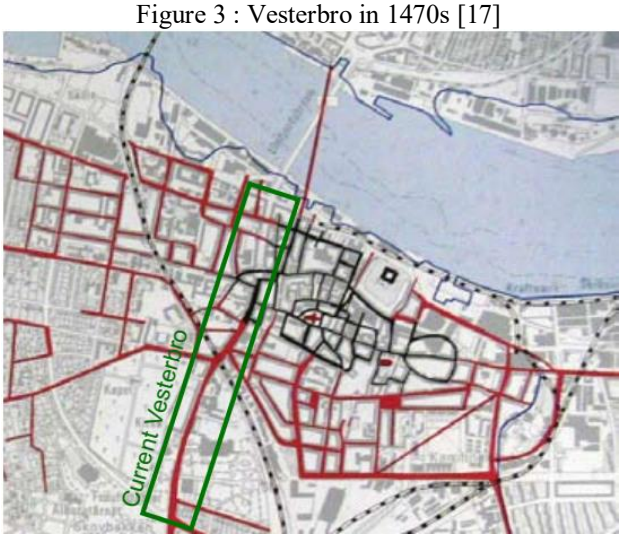

Figure 4: Vesterbro in the 1900s [17]

Vesterbro is predominantly structured as a four-lane road, with a portion transitioning into three lanes, where the central lane serves as a turning lane. It traverses a densely populated urban area, flanked by buildings that closely align the street for most of its length. Openings in the continuous street façades appear primarily at intersections with other roads or railway lines.

Moving southward, the urban density decreases, and buildings become more dispersed. The street is mainly lined with residential buildings, many of which feature shops, agencies, and restaurants at ground level. Key landmarks along Vesterbro include a church and an exhibition center, contributing to the area's cultural and civic significance.

Then, Vesterbro did not extend to the Limfjord but stopped at Vesterå Street, where individuals could either proceed to the city center or cross by ferry to the opposite side of the fjord.

Before the construction of the bridge in 1865, there was limited flow of people and merchandise. Though the bridge improved flow, it was far from ideal, particularly during winter months when drifting ice posed a danger to its stability. In 1913, it was resolved to replace the old bridge with a more stable crossing and thereby incorporate it into the city's road system via a new street. This innovation was not only aimed at improving transport; it was also seen as a forward step toward the development of the city, helping to improve the local economy and aid in alleviating the unemployment issues of the time.

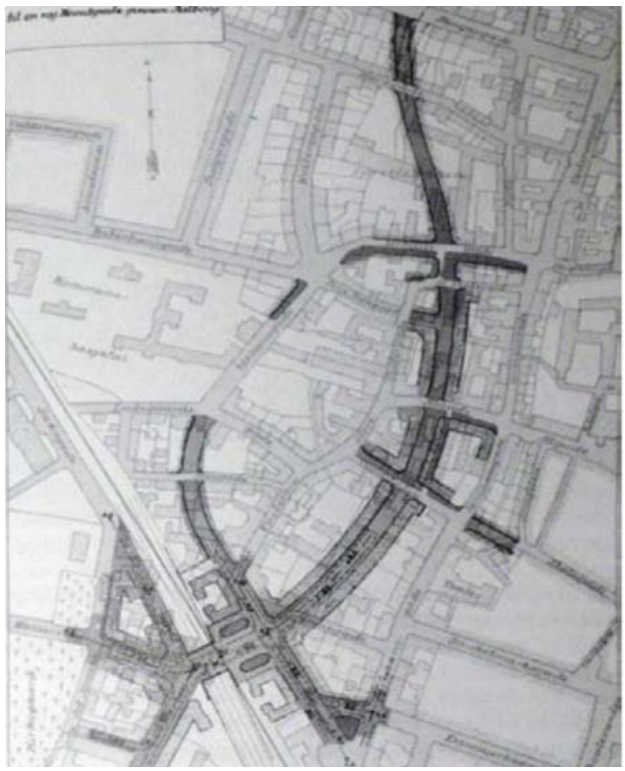

Figure 5: The first plan for the development of Vesterbro [17]

Between 1930 and 1960, major changes were made to Vesterbro. The old buildings along the street were moved back to make room for the new road, and some buildings were torn down to create space for the wider street. As new buildings went up, they followed the architectural style of the time, functionalism. The street became an important route for traffic, lined with shops and gas stations, and it even had an overpass over the railway. [17]

Figure 6: Aalborg 1940 after the expansion of Vesterbro Street [17]

From 1960 to 1980, the street was completed, and a new parking garage was added nearby. Traffic increased, and the street was expanded to four lanes. However, the central part of Vesterbro wasn't wide enough to accommodate four lanes, so it remained with three lanes, with one lane reserved for turning.

Between 1980 and 2000, the changes slowed down. Since 2000, the changes have been more minor. A new parking garage was built near the congress center, and signs were installed to direct drivers to available parking, reducing the amount of traffic caused by people looking for spaces. Looking ahead, future plans include building another parking garage near the bridge and expanding parking near Gåsepigen. Additionally, the city plans to reduce the speed limit on Vesterbro between Prinsensgade and Borgergade to 30 km/h, helping make the street safer and more pedestrian-friendly. [17]

Vesterbro's Development Theoretical Framework

Early-20th Century

The municipality aims to reduce traffic speeds on Vesterbro to alleviate the negative effects of heavy traffic. This could make the street more attractive and diverse, aligning with the city's vision for growth.

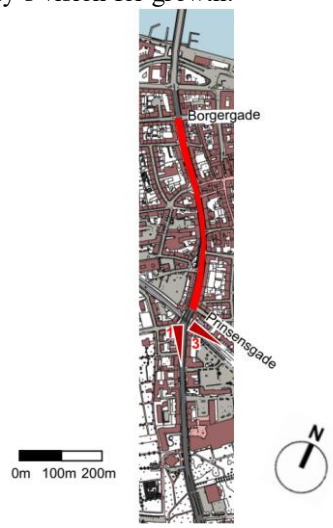

Figure 7: Municipal plan for reducing traffic speed from 50 km/h to 30 km/h [17]

Despite the speed reduction, motor traffic remains a priority on Vesterbro, evident in the increasing number of parking areas in the area.

Vesterbro has been an important street since its early days, starting with its role as a bridge crossing over the Vesterå River and connecting Aalborg to neighboring cities.

The most significant transformation occurred in the 1930s, when the street was expanded and extended to connect with the new Limfjord Bridge. This development established Vesterbro as one of the most important thoroughfares in the city.

Figure 8: Example on Howard's garden city housing [17]

Mid-20th Century

The urban growth of Aalborg was highly influenced by the philosophies of Ebenezer Howard and Le Corbusier, which influenced the city's development and infrastructure. Howard's philosophy led to the creation of satellite developments like the university campus and South City shopping complex, incorporating green spaces and connecting them with infrastructure. Le Corbusier's philosophy was based on affordable housing using standardization and vertical development, which allowed for greater space for parks and greater proximity to nature. His focus on effective city planning witnessed wider, straighter roads for quicker traffic flow, but at the cost of reducing housing variety. The city grew quickly, leading to the expansion of new streets such as Vesterbro into four-lane roads to better handle increased automobile traffic.Zoning ordinances controlled Aalborg's expansion, creating discrete zones for housing, shopping, and industry, which were designed to ease congestion. Yet, the development of the city was largely car-based, with significant developments such as the shopping mall in the southern sector and the university on the outskirts being designed to decrease traffic density in the inner city. Although these developments resulted in more green spaces and more urban efficiency, they simultaneously induced adverse environmental and social impacts, especially with the oil crisis of the 1970s. After World War II, city planning was directed towards giving equitable access to resources, services, and dwellings to every citizen, which resulted in large-scale constructions. During this period, Danish urban development was heavily influenced by two prominent planning models: Le Corbusier's Radiant City and Ebenezer Howard's Garden City. Howard's vision, in particular, emphasized the creation of balanced, community-oriented environments. Although less transformative than earlier changes, the road's expansion into a four-lane highway in the 1960s, followed by the introduction of traffic-calming measures in the 1980s, marked important adjustments that reflected evolving urban priorities.

Early-21st Century

Since 2000, there has been an expansion in parking facilities in Vesterbro, and interventions such as parking signs have been implemented to manage traffic better. Throughout the history of Vesterbro, attempts have been made to cater for increasing motor traffic, although pedestrian measures have been implemented. The postmodern style, as influenced by Allan B. Jacobs, entails the creation of public spaces that are inviting and good for relaxation and walking. It puts much emphasis on spatial definition, material quality, and space that

is well-managed. Buildings on streets need to be complementary, with clear use indicators and consistent height. Secondary elements like trees, varied spaces, and street subdivisions complement these public spaces. The development of the city during the 1980s welcomed these concepts, deterring urban sprawl and enhancing public transportation. Streets friendly to pedestrians, such as Vesterbro, were developed, and an attempt was made to promote community development in peripheral city districts. Following 2000, Aalborg changed tack to appeal to knowledge-based businesses as a reaction to traditional industries moving out, taking advantage of the "creative class" ideas of Richard Florida. His emphasis on technology, talent, and tolerance shaped city planning activities to maintain the city's appeal to skilled workers. Celebrating diversity, developing multifunctional spaces, and redeveloping the waterfront area were the prime objectives of the city. This changed the city center into a living city, which was likened to a theme park with cultural, entertainment, and recreational amenities.

The "knowledge and culture" approach transformed Aalborg into a vibrant, pedestrian city, prioritizing creativity and citizen participation.

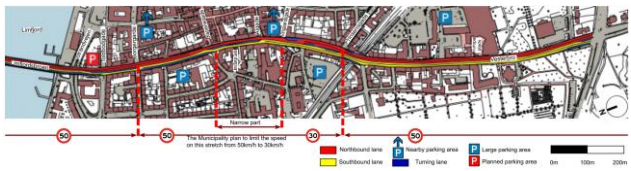

Figure 9: Traffic speed reduction zones [17]

Vesterbro's development can be analyzed through various urban planning strategies. Initially, the street's development followed the pre-modern infrastructure strategy, designed to facilitate movement between the city and neighboring regions. Its wide lanes and connection to key roads reflect this infrastructure-focused approach, linking Vesterbro to a major corridor running the length of Denmark. Moving into the functionalist strategy, Vesterbro's transformation, particularly in the 1930s, shows similarities to Le Corbusier's ideas about expanding or restructuring cities to improve traffic flow and save time. Vesterbro's widening to accommodate more traffic, with its capacity for up to 35,000 cars per day, mirrors Corbusier's vision of reducing traffic congestion to create more leisure time for workers. The street currently sees high daily usage, especially during rush hours, and is equipped with parking-availability displays to mitigate traffic congestion. However, this heavy traffic usage may become problematic as congestion increases, particularly during peak hours. The analysis reveals that while Vesterbro has been successful in handling traffic, its design is heavily influenced by infrastructure needs and functionalist principles, rather than pedestrian-centric urban design. The key goal in the Vesterbro Street development was traffic handling to ease the flow towards the city center. The goal was to make the street less likely to have traffic congestion, but during rush hours, it was found that large queues of vehicles can mildly slow down the traffic flow.

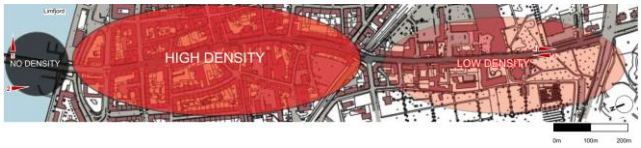

Figure 10: This figure highlights areas with high built-up densities [17]

The postmodern development strategy emphasizes creating spaces that are responsive to promote social engagement and environmentally friendly, rebelling against the perceived shortcomings of modernism. Modernism's focus on efficiency and functionality often ignored the needs of communities, leading to its criticism. In response, postmodern designers, including Jane Jacobs and Allan B. Jacobs, looked to the past for inspiration to create more vibrant, human-centered spaces. Vesterbro, constructed before modernism, aligns with many postmodern ideals. The street's dense central area, with mostly six-story buildings, fits Jacobs' criteria of density and urban complexity. However, when considering the broader area, the street's southern end and the northern edge along the fjord lack density, which undermines functional and social diversity. This low density hampers the street's visual appeal, limits opportunities for leisurely walking, and reduces its ability to foster a dynamic and engaging urban environment. Therefore, while the central part of Vesterbro meets many postmodern design ideals, its overall layout could benefit from increased density to enhance its attractiveness and livability. [17]

Pre-development Case Analysis

Pedestrian Walkways:

Several issues hinder the overall comfort of walking on Vesterbro. Heavy motor traffic creates frequent noise, disrupting the peacefulness of the area. In some parts, the sidewalks are too narrow, forcing pedestrians onto bike lanes, which can be uncomfortable and unsafe. Furthermore, sidewalks are often obstructed by parked bikes and business signposts, making it difficult for pedestrians to navigate freely. The northern and southern ends of Vesterbro also appear dark and dull, primarily due to poor facade maintenance and the low density of buildings, which negatively affects the street's atmosphere. This lack of density also diminishes the street's social and functional diversity, further contributing to its less inviting appearance.

Figure 11: Analysis of pedestrian walkways [17]

Figure 12: Pedestrian flow analysis [17]

Variety and Richness:

Vesterbro exhibits significant physical and social diversity, particularly as one moves closer to the city center. The street features a mix of multifunctional buildings, with ground floors occupied by a wide range of retail and service businesses, such as food, clothing, and furniture stores, along with services like bars, gyms, hotels, and even a church. The closer you get to the heart of the street, the greater the variety of businesses you encounter. This functional diversity fosters social diversity, as it attracts more people to the area. Higher-density areas, especially near the pedestrian street, see a constant flow of people, further enhancing social interaction. Public spaces, like bus stops and multi-purpose halls, encourage people to linger, boosting the street's social vibrancy. Although some venues, like the congress center or cinema, may not receive

constant foot traffic, their use contributes to an increase in activity on the street. The combination of these diverse functions and social interactions significantly enhances the street's visual appeal and attractiveness.

special details such as statues, street furniture, and fountains on Vesterbro enhance both its visual appeal and its functionality. These elements, including benches and trees, invite people to linger, contributing to a more engaging and comfortable street environment. The trees, in particular, serve a dual purpose: they not only beautify the street but also provide a sense of safety by separating pedestrians from motorized traffic. Architectural details, like statues and unique commercial signs on buildings, further enrich the visual complexity of the area. This blend of elements, carefully distributed along Vesterbro, strengthens the street's identity and attracts pedestrians to enjoy their surroundings.

Visual attractiveness on Vesterbro is the result of well-maintained buildings and the diversity of functions and social spaces along the street. The balance of elements, from moving shadows cast by trees to interesting shop fronts, creates a pleasant atmosphere without overwhelming the senses. The heritage-listed buildings along the street add cultural value and aesthetic interest, making the area feel historically rich. The parks in the southern section of Vesterbro contribute to the street's visual appeal by incorporating nature, while the darker and less maintained areas, particularly at the northern and southern extremes, diminish its overall attractiveness. Despite this, the central part of Vesterbro, with its vibrant mix of uses and visual elements, remains a model of urban liveliness and design.

Figure 13: Variety of users and land uses [17]

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Figure 14: Landmarks [17]

As the analysis has shown, Vesterbro has several areas in need of improvement. Many of these issues are interrelated, where solving one problem can potentially address others. For instance, a lack of visual attraction and poor conditions for leisurely walking are both problems that can be addressed by improving the street's visual appeal. When an area is visually unappealing, it not only discourages people from engaging with it but also makes walking feel uncomfortable. Thus, improving the visual aspect of the street could enhance both its attractiveness and its usability for pedestrians.

The primary causes of Vesterbro's challenges appear to be a lack of density, poor maintenance, and narrow sidewalks. These issues are interconnected and contribute to the street's overall environment. Low density results in a lack of functional and social diversity, which in turn negatively impacts both the visual appeal and the pedestrian experience. Furthermore, inadequate maintenance and poorly designed or narrow sidewalks make it difficult for pedestrians to navigate the street comfortably. By addressing these underlying issues, the street could see a significant improvement in both functionality and visual appeal, making it more inviting and accessible for residents and visitors alike. [17]

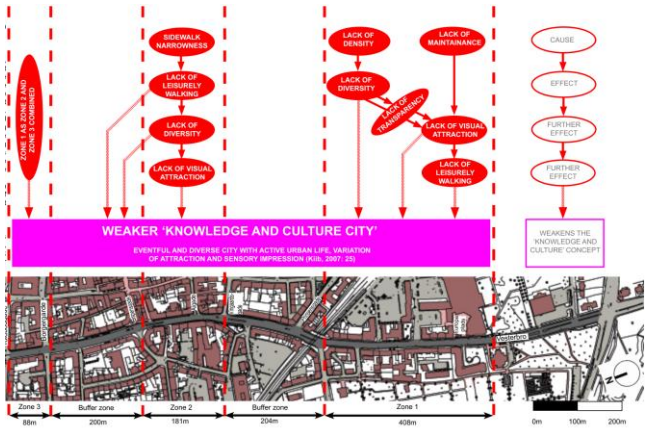

Figure 15: Street problem cause and effect diagram [17]

Case Study Problem Definition

In the case of Vesterbro, the conditions are in place for applying the postmodern or "knowledge-culture" urban development concept—most notably, the high building density that characterizes the area. This approach may coexist with, or potentially challenge, the modernist ideal of enabling fast and seamless traffic flow. These two planning ideologies—postmodernism and modernism—are most visibly in competition along the narrowest stretch of Vesterbro, between Bispensgade and Algade. In the transitional areas between Borgergade and Prinsensgade, they coexist in a form of balance, while in other parts of the street, modernist priorities continue to dominate.Modernist urban planning emphasizes the creation of uninterrupted spaces for movement, while postmodern and "knowledge-culture" strategies aim to create vibrant public spaces that invite interaction and foster diversity—what we might call "spaces of meaningful friction." Strengthening this postmodern approach along Vesterbro could support Aalborg's broader vision of developing a diverse,

lively, and culturally rich urban environment.However, a major barrier to implementing this vision is the physical width of Vesterbro. As one of the city's most critical inner streets—and one of only two that cross the Limfjord—it must accommodate high traffic volumes, leaving limited space for pedestrian zones. Without significant (and costly) infrastructure overhauls to reduce traffic volume, full transformation is unrealistic. Yet, a more flexible street design could allow for a dynamic balance between flow and friction. For example, the street could be adapted to expand pedestrian space during off-peak hours and return to full vehicular capacity during busy periods.This raises an important design question: How can the sidewalks in central Vesterbro be widened to support pedestrian activity without compromising traffic needs? The proposed solution is to introduce a flexible street design inspired by practices in cities like New York, where certain street lanes are temporarily converted into pedestrian areas on weekends. This is achieved using urban furniture and barriers to ensure safety and enhance usability.A similar model could be introduced on Vesterbro. While it plays a vital role in the city's traffic system, traffic is significantly lighter during certain times: from 6:00 PM to 7:00 AM, and between 9:00 AM and 2:00 PM on weekdays. Weekends are generally less congested throughout the day. This opens the door to a system in which the street adapts to its users' needs—providing more traffic lanes during peak hours (2:00 PM to 9:00 AM), and expanding pedestrian zones during off-peak times (9:00 AM to 2:00 PM, and all day on weekends).

This flexibility could be implemented through the use of automatic retractable bollards. During high-traffic periods, the bollards would remain lowered, allowing normal traffic flow. During off-peak hours, they would rise, closing outer lanes to vehicles. Cyclists could then use the bike lanes, and pedestrians would have more space and freedom to enjoy the street, encouraging greater public use and interaction.

However, this proposal is only feasible for a specific section of Vesterbro—between Vingaardsgade and Bispensgade—where pedestrian space is currently lacking and where traffic counts show that lane reductions would not severely impact flow. South and north of this stretch, particularly in the identified "buffer zones," a functional balance between traffic and pedestrian use already exists. In these areas, traffic constraints, including key intersections like Borgergade, make lane reduction impractical. Additional obstacles, such as minor road crossings and bus stops, would disrupt continuity and hinder the concept's effectiveness if extended further.

Therefore, the proposed design focuses exclusively on the segment between Bispensgade and Vingaardsgade. On one side, retractable bollards will enable temporary pedestrian zones, while on the other, the removal of existing parking spaces will allow for a permanent pedestrian expansion. This hybrid approach—partly temporal and partly structural—will reclaim space for social interaction, promote leisurely walking, enhance visual appeal, and foster functional and social diversity. In doing so, it will reinforce Aalborg's "Knowledge and Culture" urban development strategy—delivering the most impact in the one part of Vesterbro where the balance between movement and human-scale engagement is currently lacking. [17]

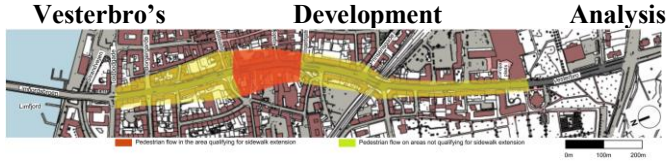

Figure 16: Qualified areas for development [17]

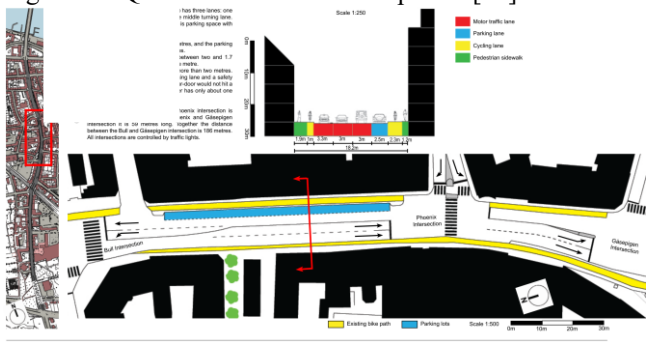

Figure 17: Pre-development case [17]

The proposed design involves removing parking spaces along the eastern side of Vesterbro, resulting in a minimal overall reduction of parking capacity—approximately 2.4%. During off-peak hours, the southbound lane would be closed to motor vehicles, with traffic redirected to the remaining southbound lane. This lane reduction would extend from the Bull intersection to the Gåsepigen intersection, while all intersections along this stretch would continue to be regulated by traffic signals. Rush hours are defined as 9:00 AM to 2:00 PM on weekdays, as well as throughout Saturdays and Sundays. Outside of these peak periods, the southbound lane would be repurposed as a protected bike lane, separated from traffic by bollards.

Figure 18: Proposed temporary bike lane [17]

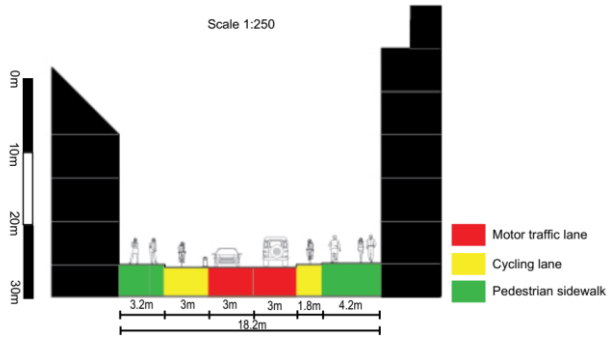

Figure 19: bollards up [17]

It is proposed that during rush hours the street would keep its usual traffic flow plan with full-capacity lanes and bollards down.

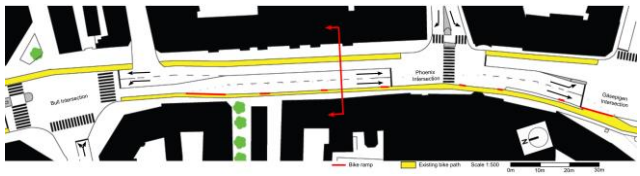

Figure 20: Existing bike lane and vehicle lanes [17]

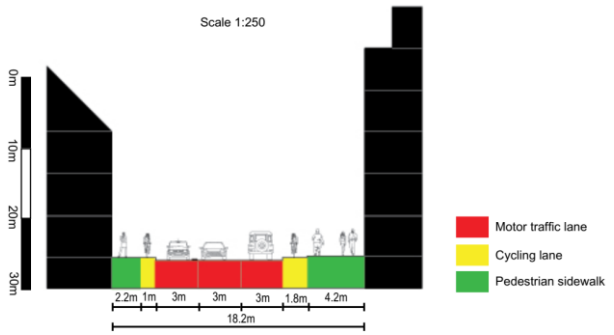

Figure 21: bollards down [17]

The design proposes a system to ensure safe transitions between Vesterbro's "narrow" and "normal" modes. Bollards, which emerge and submerge, could pose a safety risk, but traffic lights will help manage this change by turning red for southbound traffic while bollards rise. Northbound traffic will remain unaffected. Bollards will have sensors to stop if an object is detected, and flexible traffic lights will adapt to lane usage changes. Cyclists will safely move into an empty lane, with pedestrians likely guiding the shift. The bollards will submerge gradually before rush hour to avoid any dangerous situations. The proposed design is willing to keep existing materials where they can possibly be kept. [17]

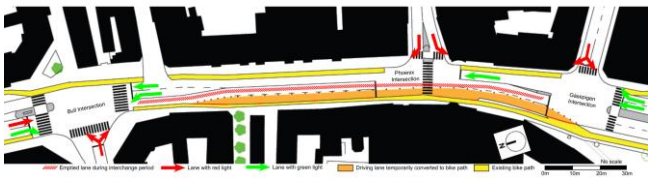
Figure 22: Accessibility analysis

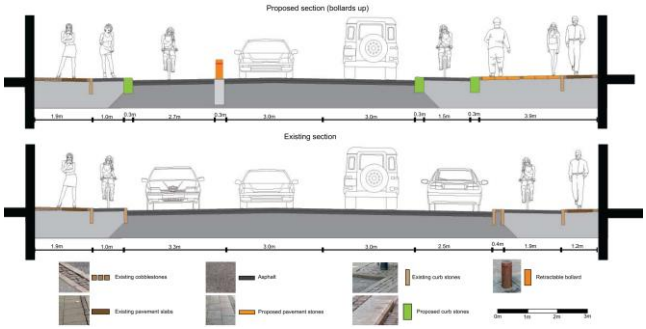

Figure 23: Street Section *[17]*

Materiality

This design concept's use of texture to enhance diversity and richness was highly welcomed. Red asphalt will be used to clearly identify Vesterbro's "flexible" lane, which temporarily switches between car and bicycle use. This strategy aims to reduce accidents by clearly identifying areas where bikes are safe and vehicles are not allowed. The red asphalt blends in well with the red brick facades, reddish paving stones, and Cor-Ten steel bollards that are frequently seen on Vesterbro, resulting in a unified urban design that emphasizes the unique status of these lanes. To provide a safe transition between lane modes, red LED-equipped bollards will blink when rising or sinking. A computer system will be in charge of the bollards, which may sink in an emergency. or occurrences. In order to ensure safety and aesthetic appeal, walkways or bike lanes will be expanded using pavement stones that alternate between light red and blue. Curb stones, which are also red and blue-lit, will serve as bicycle ramps, ensuring smooth transitions between the temporary and permanent bike lanes. These materials are meant to improve the street's beauty and usability while simultaneously increasing everyone's safety.


Figure 24: Proposed Materials [17]

CONCLUSION

Vesterbro Street in Aalborg is more than just an urban corridor—it is a layered reflection of the city's historical priorities, changing values, and growing need for human-centered design. As this study has shown, streets are not neutral infrastructure; they carry meaning, shape behavior, and contribute to how people experience identity in place.

Through its gradual transformation—from a car-dominated thoroughfare to a space beginning to accommodate pedestrians, cyclists, and everyday public life—Vesterbro illustrates how urban design can either preserve or erode the social and cultural fabric of a city. The challenges it faces today, such as traffic congestion, lack of density in key areas, and narrow walkways, reflect the lasting impact of earlier design models rooted in efficiency rather than livability.

Most importantly, the case of Vesterbro helped validate the theoretical premise of this research: that urban design, when grounded in responsiveness, resilience, and user-centered thinking, can actively preserve and shape national identity. The proposed interventions—particularly the flexible lane system and use of localized materials—demonstrate how spatial strategies can reflect cultural memory, support social interaction, and reinforce a shared sense of place. In that way, the street becomes not only a route for movement, but also a platform for cultural continuity.

The proposed design intervention—using flexible lanes and retractable bollards—aims to reclaim parts of the street for public life without dismissing the need for traffic flow. This hybrid approach reflects a broader shift in urban thinking: one that values adaptability, inclusiveness, and the everyday experience of users. In doing so, the design supports Aalborg's vision of a "knowledge and culture" city that prioritizes creativity, interaction, and diversity.

This case reminds us that preserving national or local identity does not mean freezing cities in time. It means designing with intention—honoring the past, engaging the present, and anticipating the future. Urban streets, when thoughtfully planned, can become spaces where identity is not only remembered but actively lived.

Future research could explore how similar adaptive design strategies perform in different urban contexts, particularly in cities facing rapid change or struggling with conflicting infrastructure and cultural needs. Additionally, involving more on-ground user feedback would provide a deeper understanding of how people actually experience space, which

could strengthen the link between design intention and social outcome.

List of References

[1] K. Lynch, The Image of the city, 1960.

[2] T. Creswell, Place: An Introduction, 2014.

[3] B. &. Seamon, The Human Experience of Space and Place, 2015.

[4] M. Löw, The City as Experiential Space: The Production of Shared Meaning, 2013.

[5] R. C. Stedman, Toward a Social Psychology of Place, 2002.

[6] Bo Pu, Yanjun Qiu, "Emerging Trends and New Developments on Urban Resilience: A Bibliometric Perspective," *Current Urban Studies,* vol. 4, no. 1, 2016.

[7] A. d. Botton, The Architecture of Happiness, 2006.

[8] C. Landry, The Creative City: A Toolkit for Urban Innovators, 2008.

[9] E. Relph, Place and Placelessness, 1976.

[10] K. Seto, Resilience of Cities to Climate Change: A Global Perspective, 2014.

[11] A. B. Jacobs, Great Streets, MIT Press, 1995.

[12] V. D. H. K. Kerem Yavuz ARSLANLI, "The effect of the pedestrianization of İstiklal Caddesi on land values and the transformation of urban land use," *Istanbul Technic University,* vol. 14, no. 2, pp. 31-41, 2017.

[13] A. N. Kartal, "Sensory urban mapping: a case study of Istiklal Street, Istanbul with the method of 'sensewalking'," *Nottingham eTheses,* vol. 11, no. 1, 2021.

[14] G. &. J. Ha, "Resilient by Design: Simulating Street Network Disruptions across Every Urban Area in the World," *arXiv,* no. Preprrint edition, 2024.

[15] J. P. R. A. P. M. B. Lars Baumgärtner, "Smart Street Lights and Mobile Citizen Apps for Resilient Communication in a Digital City," in *IEEE Global Humanitarian Technology Conference (GHTC)*, Seattle, WA, 2019.

[16] M. V. A. C. L. S. P. V. L. Emanuele Strano, "Urban street networks: a comparative analysis of ten European cities," *Environment and Planning B: Planning and Design,* vol. 40, no. 6, pp. 1071-1086, 2013.

[17] G. Žemva, "The Vesterbro Project," *Aalborg University,* June 2009.

[18] "Vesterbro Local History Association and Archives," [Online]. [Accessed 27 December 2024].