



Streetscape Arrangement Concept for Coastal Areas

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Keywords	Abstract
arrangement concept; coastal area; streetscape; sustainability.	The existence of streetscapes in coastal areas tends to be neglected in terms of area arrangement. These areas lack a clear identity, even though they represent strategic urban zones. The areas generally appear underdeveloped, with minimal physical quality, despite the fact that they possess natural and architectural advantages as coastal environments. This study aims to identify a streetscape arrangement concept for coastal areas. The strategy used in this research involved dividing the study area into three segments based on physical boundaries, which were then analyzed according to the existing physical conditions and building functions in each segment. The next stage involved analyzing streetscape elements, including pedestrian pathways, vegetation, and activities, in order to determine streetscape arrangement concepts that are appropriate to the characteristics of coastal areas. Based on the results of the analysis and discussion, a spatial arrangement concept was obtained, namely sustainable streetscape, which is transformed into: the concept of coastal area exposure, optimization of economic space, and social street, thereby creating the identity of the area. Open access and open views in coastal areas are maintained as defining characteristics of the area. This approach is maximized to provide space and opportunities for the community to engage in activities and enjoy the beauty of the coastline optimally, while also adapting to the surrounding environment.

INTRODUCTION

The Pierre Tendean Street area in the city of Manado, commonly known as the Boulevard Area, is one of the city's main corridors located within the central business district (Terok, 2024; Wuisang et al., 2023). This area has experienced rapid development in terms of economic growth, urban architecture, and spatial aspects (Jiang et al., 2022; Li et al., 2022; Y. Liu et al., 2024; Ma et al., 2025). One of the natural characteristics considered a major potential of the area is the presence of a coastal space that is directly accessible to the public (Egam et al., 2024) and which functions as a public open space utilized by all users (Ugrasena et al., 2020). Public spaces, including urban corridors, constitute key elements in numerous development strategies aimed at addressing urban vitality issues (Hartati et al., 2019). Public interaction spaces cannot be separated from community activities, including public spaces located along coastal areas (Egam et al., 2023). Road barriers, rocks, and vegetation are categorized as natural elements that form open spaces along the coastline, each with distinct characteristics (Benny et al., 2024; Gkoltsiou, 2025; Jayawardena, 2023).

Various urban community activities can be found along this corridor because it is essentially a strategic area with distinct aesthetic and functional values, thus requiring proper arrangement (Chai, 2025; Kifayatullah et al., 2025; R. Liu et al., 2025; Peruzzo, 2025; Tassadiq et al., 2025). The existing activities further increase the complexity of the area as one of the defining characteristics of the coastal zone, although this identity has not yet been visually perceived, as the area currently appears merely as an urban corridor lined with rows of buildings on both sides of the street, forming linear patterns. Urban corridors require an appropriate design concept in order to achieve both aesthetic quality and functionality while taking into account their physical characteristics. The uniqueness of each corridor can help people orient themselves when they are in a particular area.

Streets are public spaces where people engage in various activities. Streets and visual experiences greatly influence public places where social interactions occur, ultimately contributing to the aesthetic quality of society, economic activity, public health, and sustainability. Streetscapes should therefore be designed by considering not only physical aspects, but also social, economic, and cultural factors. The purpose of this study is to formulate a streetscape arrangement concept that is in accordance with the characteristics of coastal areas within coastal zones. This research addresses a critical gap in understanding how urban coastal corridors can be designed to balance economic development, social interaction, and environmental sustainability.

METHOD

According to The Delaware Complete Communities Toolbox (2015), streetscape is a term used to describe both the natural and built conditions of streets and is defined as the design quality of a street and its visual effects. According to Islington (2005), streetscapes should be designed by considering not only physical aspects, but also social, economic, and cultural factors. Architecturally aesthetic streetscapes, supported by the dynamic activities of urban communities, play an important role in creating areas with distinctive characteristics.

Unlike street furniture, streetscape, according to Rehan (2013), consists of elements such as sidewalks, trees, and landscape edges, whereas street furniture includes benches, lighting, trash bins, signage, intersections, street corners, road medians, bicycle facilities, bus stops, public art, and café or retail spaces that contribute to shaping identity. Streetscape can therefore be understood as a harmonious synthesis of natural values, human activities, and the built environment (Tran and Le, 2018).

The research location is situated at Jalan Piere Tendean 2, Manado City, as shown in Figure 1. To achieve analytical depth, the location is divided into three segments based on building function groups, physical road boundaries, and the bridge

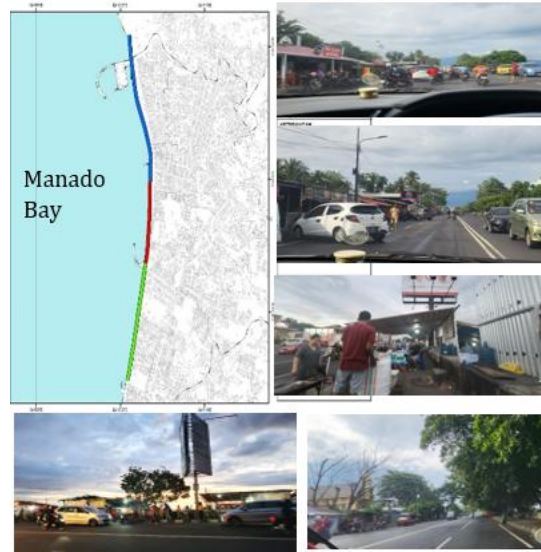


Figure 1. Research Location

To facilitate the analysis, the corridor was divided into three segments. Each segment is defined by physical boundaries, including groups of building functions, connecting roads, and bridges. Data were collected through field surveys and subsequently described. The analytical framework is presented in Figure 2.

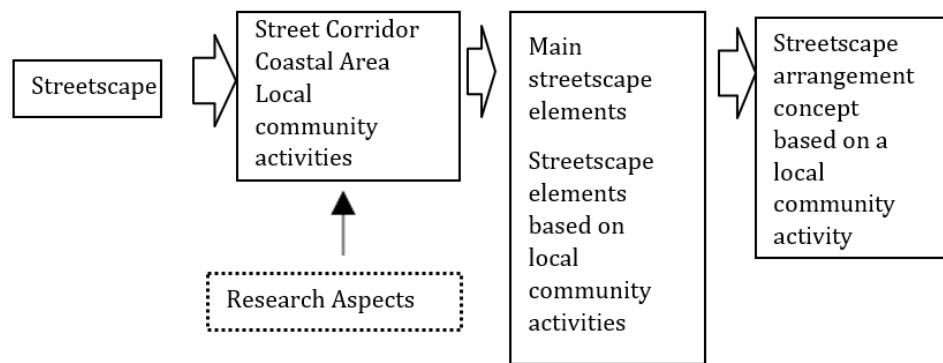


Figure 2. Analytical Framework

RESULTS AND DISCUSSION

The Pierre Tendean Street, commonly referred to as Boulevard Road, follows a linear alignment along the coastline, thereby offering a series of attractive sea-view points. As a commercial and service hub in North Sulawesi, the Pierre Tendean Street corridor comprises a variety of building functions, with commercial use as the dominant function. In addition to commercial activities, other functions include services and socio-religious uses. Non-commercial buildings include God Bless Park and Pasir Putih Park, as well as hotel facilities (Hotel Quality, Ibis, Whitz, and Aryaduta). Religious buildings are also present, including Ruth Church, Christ Church, Firdaus Mosque, and Miftahul Jannah Mosque. Two categories of streetscape elements

are identified, namely fixed elements and non-fixed elements. Fixed elements are understood as permanent components located on sidewalks or within the surrounding environment that do not move or change position. The analysis of fixed elements begins with the existence of the street and sidewalks themselves. On Boulevard Road, two dominant physical configurations are identified: 1) the western side is bounded by a sidewalk and a concrete road barrier, and 2) the eastern side is bounded by a sidewalk and building frontage. This configuration creates a difference in elevation between the two sides. On the western side, direct visual interaction with the sea occurs due to the road barrier height of approximately 50 cm above the sidewalk level

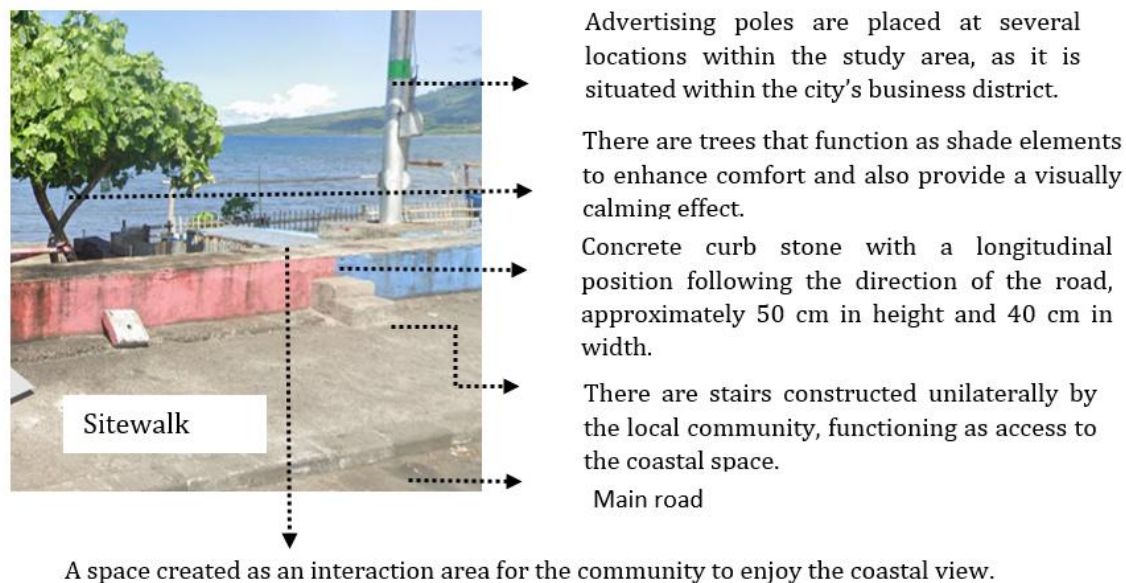


Figure 3. Fix Elements

Within fixed elements, there are soft elements, namely elements that can be changed according to needs and preferences without affecting their primary function. This is generally influenced by the use of materials that can be replaced at any time or according to preference within a relatively short period (a few months) or within a cycle of 3–5 years. In addition to materials, color is also categorized as a soft element, as it can be changed within a relatively short timeframe.

In the streetscape analysis, non-fixed elements refer to elements located on sidewalks, although these are generally classified as street furniture. Specifically, in the context of streetscape, the presence of benches and seating placed on sidewalks is analyzed as being influenced by the area's function, the surrounding community environment, and coastal conditions. The coastal influence is particularly dominant, as it has a strong relationship with the sea view, which can be enjoyed naturally, freely, and at any time. Benches, chairs, tents, the other property and other facilities form a set of amenities used for small-scale food vending activities located on sidewalks in Segments 1 and 2, as shown in Figure 4.



Figure 4. Non Fix Elements

The Boulevard Road corridor is a highly strategic corridor as it functions as a main arterial route and therefore plays a significant role as an economic corridor. In addition to its economic role, the corridor also serves as a social space for the community. This is due to the frequent occurrence of social interactions at various points along the corridor, which is further strengthened by the presence of residential pockets in several locations. Accordingly, the streetscape model concept developed in this study is a sustainable streetscape. This concept represents a collaboration between the needs of economic and social activities, with an orientation toward the area's potential as a coastal zone, and is manifested in the visual character of the corridor. The coastal identity of the area provides a strong design foundation, making this potential a key element in integrating the built environment with the natural environment through a cohesive design approach. The determining aspects in formulating the sustainable streetscape concept are as follows in Figure 5.

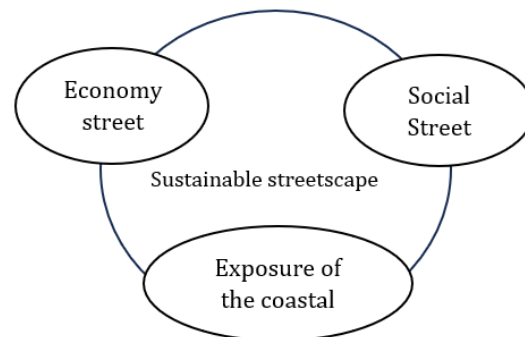


Figure 5. Sustainable streetscape concept

The exposure of the coastal area is an effort to appreciate the environment while also identifying the corridor's main identity as a coastal zone. The coastal area is a high-potential area; therefore, it should be maximally exposed by providing opportunities for the public to freely access

sea views and enjoy the coastal scenery. The dynamic spatial experience is achieved through the presence of open space, which is essentially the coastal space itself. The identity of the coastal area (waterfront city) is maintained and can be visually perceived. The streetscape arrangement model adopting the concept of coastal area exposure, with a primary approach as a waterfront area, results in a corridor characterized by open spaces. These open spaces in Segments 1 and 2 are preserved and function as a catalyst for the corridor as a whole, as shown in Figure 6.

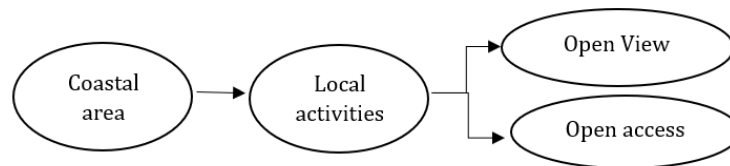


Figure 6. Exposure of the coastal area

In the approach as a coastal area, the economy and social street concept is introduced by providing space and opportunities for the community to interact freely within the coastal environment. The open space in the coastal area functions as a social and interaction space for community gatherings, and its function and role are therefore optimized. This space is developed into an open area that facilitates the community's desire for free interaction, as well as unrestricted access to coastal views. Fishing and swimming activities are commonly observed and carried out by local residents at the site, serving as typical characteristics of coastal areas in general. These activities make the study area more specific, thereby strengthening its identity as a coastal zone. The social street concept is also implemented through the arrangement of open space in the form of an urban park as a community interaction space, developed as a binding space and a cultural space, as shown in Figure 7,8.

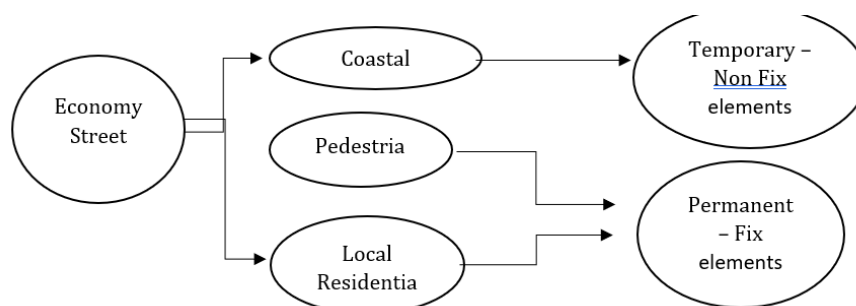


Figure 7. Econny street

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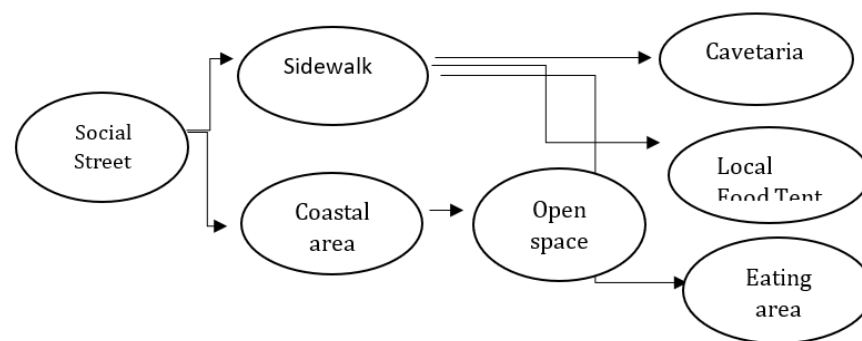


Figure 8. Sosial Street

In the economic street concept approach with a city identity perspective, the pedestrian area is utilized as an economic space with a mobile system operating at certain times. This condition becomes one of the defining characteristics of the area, thereby forming a genuine spatial identity derived from the specific characteristics of the coastal zone. Parks and pedestrian areas function as spatial linking elements. In architectural transformation, the coastal space, pedestrian area, and park serve as binding elements in the flow of activities along the Boulevard Road 2 corridor, as shown in the following figure.

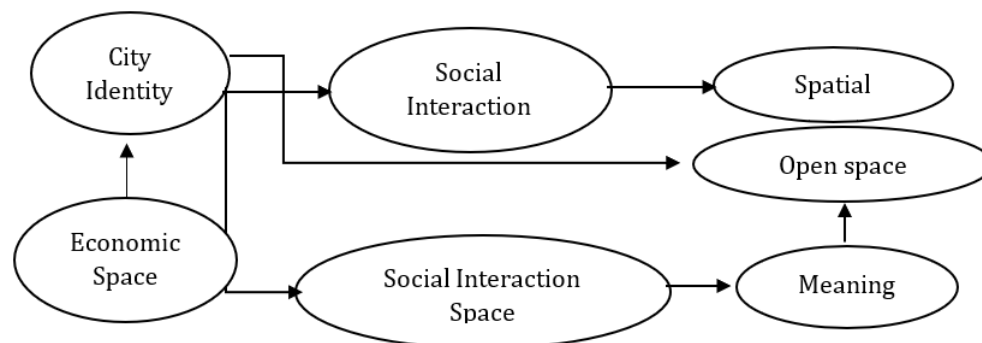


Figure 9. City Identify

CONCLUSION

Based on the results of the analysis and discussion, the following conclusions can be drawn: there are two elements based on the local community activity approach, namely fixed elements and non-fixed elements. The streetscape concept model is a sustainable streetscape. This concept is translated into the presence of economic space, the presence of social street, and area identity.

The area identity approach represents the optimization of the surrounding environment as a coastal zone, serving as a defining characteristic created through the presence of economic space. Meanwhile, the social street emerges as a result of the presence of spaces along sidewalks, coastal areas, and open spaces in the coastal park.

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