The Renewal Model of Medan City Gate Area in Supporting the Mebidangro Metropolitan Concept

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Abstract. Medan as the capital of the province of Sumatera Utara and the third-largest city in Indonesia. The Medan metropolitan, as part of the constellation of the Mebidangro concept (Medan, Binjai, Deli Serdang and Karo), is closely linked to the nearby cities around it. The city gate of Medan has not yet succeeded in becoming a welcoming, attractive and educative city gate. This research is in the form of modeling based on consideration of location around the gate or cognitive mapping in qualitative descriptive with a phenomenology approach. The results show there is a definitive intersection between landmarks, nodes, and paths on edge. Variants of the city gate model do not have to be in the portal base form but can be in the form of symmetrical left and right monuments. This research is useful for study on the typology of city gates as well as elements of the locality that influence their formation. This study results will support and giving input on the review of policy towards the development of the concept Mebidangro Metropolitan spatial structure in 2029.

1. Introduction

Medan as the provincial capital of Sumatera Utara and the third-largest city in Indonesia. The Medan metropolitan, as part of the constellation of the Mebidangro concept (Medan, Binjai, Deli Serdang and Karo), which is a city linkage concept to the nearby cities around it, that integrate ports and airports by train and toll road. With complete infrastructure makes Medan City as a business center, trade, and industrial city. The connection Medan City with other cities/regions becomes very important, which is accommodated by road and railways networks to support the movement of goods and people to and from the city. Medan is also a multiethnic and multiactivity city. It is said to be a multiethnic city because the city of Medan has a long history with ethnic groups. It is said to be a city of multiactivity because it is not only the center of activities for large cities but also holds historical cities (mainly Malay ethnic) and tourism cities.

Medan City is connected by a protocol road with the surrounding area/city. Because the protocol road pass through the regional border, who was passing can feel that he shall and has entered or exited the Medan City, and the depiction for that perception is the city gate. But the gate of Medan City has not yet succeeded in becoming a welcoming, attractive and educative city gate. The existing space, circulation, and signage do not fulfill immigrant needed who pass through the city gate area. The city gate of the Medan which is conceptualized as one of the tourist objects with distinctive architecture and heritage that can show the identity and image of the city of Medan, which according to Lynch [1], consist of five elements, namely path, edge, district, node, and landmark.
The city gate in the review as a city icon is an expression of the city's image. The community interpreted the image through a series of mental maps [2]. A mental map illustrates the identity of the city area, which is influenced by the identity of a person's 'reading', meaning the city area (the identification of objects, the uniqueness of the object), influenced the experience of the city's structure (object-object relations, object-subject relations, the perceived pattern), influenced by the intrinsic meaning (a person's image of the meaning of the object, the meaning of the object, the meaning of the subjects, the sense of being experienced).

Lynch also mentioned that city image is an understanding of meaning by observers of two components (identity and structure of the city) through dimensions: symbolic, function, experience, history, culture, politics. The form of the component can be a unique object, immediately recognizable object, a new object that has a structure and vigorous identity.

2. Literatures Review

2.1. City Gates of Medan

City Gate is a corridor space element whose existence is very significant, acting as a city image builder and aesthetic elements that can produce a sequence, rhythm, and balance [3]. The character of an environment or a corridor can be identified or read through the placement of the gate, corridor, and hall. City Gate is a gate that marks someone entering or leaving an area. City Gate is a marker or perch that indicates that someone entered a different atmosphere [4].

To enter the city of Medan will pass through the main gate, there are, Binjai, Tanjung Morawa, Tembung, and Pancur Batu. As an area to be traversed and giving first impressions to migrants from outside the city who will enter the city of Medan, the gate of Medan City should be a 'marker' that can welcome, provide information about the destination and play an important role in showing the identity of the city of Medan.

Figure 1. Medan City gates location and pictures; 1. Binjai-Medan gate; 2. Medan-Pancur Batu gate; 3. Medan-Tembung gate; 4. Medan-Tanjung Morawa gate.

The locations to be studied are at the Gate points of Medan City bordering Binjai, Tanjung Morawa, Tembung and Pancur Batu. The research location of the adjacent Medan-Binjai City gate is on Banda Aceh Road (Sumatra Cross Road). This road is a link between Medan and Banda Aceh. The location of the next research is in the gate area of Medan-Tanjung Morawa City, which is on Jalan Tanjung Morawa or often referred to as the Sumatra Cross Road. The location of the next research was
the gate of Medan-Tembung City, which was at the Jalan Lt. Sadaono meeting or often referred to as Jalan Besar Tembung and Jalan Benteng Hilir for Jalan Letda Sujono-Jalan Besar Tembung. This road is the main route from Medan to Tembung. The last location is the gate of Medan-Pancur Batu City, which is on Jalan Jamin Ginting, directly adjacent to Pancur Batu. This gate has the same nuance as the Medan City Gate which borders Binjai and Tanjung Morawa.

2.2. Image of City
Zahnd [5], states that urban design concerns the form of a mass of buildings and spatial as well as the relationship between buildings and spaces formed. Place theory is the cornerstone of urban design research that addresses the meaning of an area as a place. A place that is formed later will produce a space that has a characteristic as an identity that describes the place. More specifically, Lynch [6] argues that there are five main elements that are used to build their visual picture of a city area, namely path, edge, district, node, and landmark. These five main elements are enough to make a useful visual survey of the shape of a city.

The path is a track where the observer usually moves and passes it. A path can be in the form of highways, sidewalks, transit lines, canals, railway lines. For many people, those are the dominant elements in their picture. People are observing the city as it moves past it, along the paths, other environmental elements are regulated and related. The path is the most important element in the image of the city. Lynch found in his research that if the identity of this element is not clear, then most people doubt the image of the city as a whole. Paths are circulation routes that are usually used by people to move in general. A path has a better identity if it has a big goal (for example to stations, monuments, squares, etc.), and there are vigorous visions (such as facades, trees, etc.), or there are clear junctions.

Edge is a boundary that has a role as a breaker of continuity. Edge can be in the form of natural boundaries such as beaches, cliffs, artificial rivers, or boundaries such as high walls, channels, and heavy traffic. The district is a two-dimensional city area with a medium to large city scale, where people feel 'entering' and 'going out' from areas with different characteristics in general. This character can be felt from within the region and can also be felt from outside the region when compared to the area where the observer is located.

Nodes are strategic spots in a city where the observer can enter, and which is the focus for and from where he walks. Nodes can be crossroads, places to break (pause) from the lane, crosses or meeting paths, open spaces or points of difference from one building to another. This element is also closely related to the district element because strong city nodes will mark the character of a district. For some cases, nodes can also be characterized by strong physical elements. Nodes become a strategic place because they are a meeting place for some activities/activities that form a space in the city. Each node can have different forms, depending on the pattern of activities that occur in it. Nodes are nodes or circles of strategic areas where directions or activities meet and can be changed in other directions or activities, such as traffic intersections, stations, airports, bridges, cities as a whole on a large macro scale, market, park, square, etc. Not every intersection is a node; what determines is the place image of it. Nodes are a place where people have feelings of 'entering' and 'going out' in the same place. Nodes have a better identity if the place has a clear form (because it is easier to remember), and the appearance is different from the environment (function, form).

Landmark is a physical structure that is emphasized in its function as an orientation point (especially visually) for the surrounding community. In general, landmarks are physical structures that dominate the surrounding environment. Landmarks can also be shaped by their strategic position in the city environment. A good landmark is an element that remains harmonious in its background.

2.3. Cognitive Mapping
Cognitive mapping is used in various fields, not only in the fields of psychology, education, archeology, history, and management but also in planning, architecture, landscape, urban planning [7]. Cognitive Mapping is a representation of a person from several parts in a spatial environment [8] and
as flexible spatial knowledge obtained in unappreciated situations that allows various routes to the goal [9]. Human behavior in the physical environment is spatial behavior, which consists of compiling cognitive mapping, which is part of knowledge about the environment, and they guide actions and provide experience [10]. Cognitive mapping helps a person navigate a complex environment, and that ability is also an important survival skill [11][12].

3. Methodology

This research is modeling based on consideration of location around the gate or cognitive mapping, which is descriptive qualitative with a phenomenological approach [13]. When postpositivism is the basis of research, the city gate model to be modeled must be based on environmental phenomena around city gates or consider the conditions around the city gates to be modeled. Modeling based on consideration of location around the gate or cognitive mapping.

The appeal of the location around the city gate as a starting point for modeling is the initial process of cognitive mapping. Cognitive mapping is used in various fields, not only in the fields of psychology, education, archeology, history, and management but also in planning, architecture, landscape, urban planning [14]. Lynch defined cognitive mapping is also part of genius loci and sense of place, where space, character, orientation, and meaning affect the variables that make up the urban planning model. The research scheme can be seen in figure 02 below.

![Figure 2. Research Scheme.](image)

4. Result and Discussion

Based on the results of the survey and identification of the environment from the city gate research location, the effect of sense of place as an image of the city gate area of Medan was analyzed. Analysis can be seen in table 01.

| Place                | Edge                  | Path                                                                 | Sense of Place                  | District                      | Landmark                                                |
|----------------------|-----------------------|----------------------------------------------------------------------|---------------------------------|-------------------------------|---------------------------------------------------------|
| Medan – Binjai gate  | Border area           | Pedestrian at left-right; street furniture; on city connecting roads | Node of Megawati                | Commercial area, green open space | Monument, not the orientation of the area               |
| Medan – Tanjung Morawa gate | Border area | Pedestrian at left-right, street furniture, parks, vacant land; on city connecting roads | Not a node but there is one entrance to the Rivera housing complex | Commercial area, green open space | Monument at left-right, Malay style, not the orientation of the area |
| Medan – Tembung gate | Border area, there is a river at the boundary | Connecting road of cities, small pedestrian, and no furniture | Not a node but a small road near the gate | Commercial area, green open space | Portal base, not a monument                            |
| Medan – Pancur Batu gate | Border area | Connecting road of cities, small pedestrian, and no furniture | Node, junction to CC Golf, T. Anom, Pancur Batu, Medan | Commercial area, green open space | Monument, Malay style, not the orientation of the area |

Source: analysis, 2019
4.1. Path
The need for lanes, especially the main lane on Jalan Banda Aceh, which includes lots of vehicles both private vehicles such as cars and motorbikes and public transportation and heavy vehicles such as cross-city trucks, is sufficient. Unfortunately, the needs for pedestrian lines as access to pedestrian circulation is inadequate. The pedestrian line will be designed so that it can meet the needs of its users. Additional pedestrian pathways also added additional elements such as chairs and bollards.

![Figure 3. Model design of the path.](image)

4.2. Edge
The edge designed as a green area for hedgerows and trees and bridges that take distinctive Malay shapes and colors to clarify the elements of edges in the city gate area.

![Figure 4. Model design of the edge.](image)

4.3. District
Most of the gate area are a commercial area, open land, both parks, vacant land, and cemeteries. Road markings that have already begun to disappear, street lights that are not sufficiently illuminated throughout the area, and lack of neat and attractive regional arrangement. The design concept is designed to form a neat face area and does not cause the impression of slums or gaps between one place and another. The area is designed without losing their respective functions so that a characteristic that is a marker of the area itself is raised.

![Figure 5. Model design of commercial district.](image)
For the gates that surrounding commercial areas, it is conceptualized as a commercial area that uses principles on the development of commercial districts that are oriented to green open space in the environment.

4.4. Nodes
The elements of Nodes are quite numerous and varied such as road intersections, parks, intersections in commercial areas, which are gathering points, and so on. The rejuvenation carried out to maximize the vitality of the nodes themselves, such as at the bus stops.

![Figure 6. Public transport passenger gathering points model (source: processed output 2019).](image-url)

4.5. Landmark
In the design concept of landmark elements, the landmark is the city gate. The city gate serves as a marker when entering or out of the Medan city gate area. The function of landmarks in this area is also to reinforce the boundaries of the region and act as nodes that attract and describe the identity of this region. The formation of the city gate monument is quite good by taking the regional characteristics of the Malay, but still seems naive so that the formation is transformed into such a way that it is more attractive without forgetting its main characteristics.

![Figure 7. City gate as a landmark in the Malay style (source: processed output 2019).](image-url)

5. Conclusion
A city gate is a form of city description that can inform the existence and image of the city, as a sense of place for the observer so that he feels his presence in a place that is different from other cities. The characteristics of the city, history, and things related to the city gate operation must be considered so that it becomes a consideration for rejuvenation. It is a fact that Malay history and what is seen today, both the social culture and architectural forms in the city of Medan no longer dominate the city gate form. But the impression and experience can be given to observers both when going into and when going out of the city of Medan.
This study shows that there is a definitive intersection between landmarks, nodes, and paths at the edge. At the edge and node are landmark elements that should be considered in relation to city development and area growth, connecting to the nearest nearby city or even as a metropolitan city. This can be compared with the Selamat Datang Monument in Bundaran Hotel Indonesia-East Jakarta, that by considering the district, it is more of a round landscape. The findings obtained include variants of the city gate model does not have to be a portal base form but can be in the form of symmetrical left and right monuments. Because of such facts, this research can be an input for further study to obtain the typology of city gates as well as elements of the locality which influence their formation as defined by Norberg-Schulz[15] with the genius loci associated with a place.

![Figure 08. Symmetrical monument of Medan-Binjai gates, (source: survey 2019).](image)

![Figure 09. Selamat Datang monument of Jakarta](image)

The image of the city should be built so that the city gets a good perception of migrants or visitors and even the residents of the city itself by exploring the city’s potential. Related to this research also shows that the image can also be formed by arranging or rejuvenating on the administrative edge and existing path (road). This study results will support and giving input on the review of policy towards the development of the concept Mebidangro Metropolitan spatial structure in 2029.

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References
[1] Lynch K 1960 The image of the city Vol-11 (MIT Press)
[2] Zahnd M 1999 Perancangan kota secara terpadu: teori perancangan kota dan penerapannya (Yogyakarta: Kanisius)
[3] Pattymahu D R 2016 Gerbang Sebagai Pembentuk Identitas Kota Studi Kasus Koridor Jalan Trans Sulawesi Di Malalayang Manado (Daseng: Jurnal Arsitektur) 5-2 p68-82
[4] Tange K, et al. 1961 A plan for Tokyo, 1960: Toward a structural reorganization (Tokyo: Shikenchikusha)
[5] Zahnd M 1999 Perancangan kota secara terpadu: teori peracangan kota dan penerapannya (Yogyakarta: Kanisius)
[6] Lynch K 1960 The image of the city Vol-11 (MIT press)
[7] Knight P 2002 Conspiracy nation: the politics of paranoia in Postwar America (New York and London: New York University Press) ISBN 0814747353
[8] Downs R M and Stea D 1977 Maps in minds. Reflections on cognitive mapping (New York: Harper and Row Publishers)
[9] O’Keefe J and Nadel L 1978 The hippocampus as a cognitive map (Oxford, England: Oxford University Press)
[10] Allen G L, Kirasic K C, Siegel A W, and Herman J F 1979 Developmental issues in cognitive mapping: the selection and utilization of environmental landmarks (Child development, 50) p1062-1070
[11] Foo P, Warren W H, Duchon A, and Tarr M J 2005 Do humans integrate routes into a cognitive map? Map versus landmark-based navigation of novel shortcuts (Journal of Experimental Psychology: Learning, Memory and Cognition, 31-2) p195-215
[12] Crowe N 1997 Nature and the idea of a man-made world: an investigation into the evolutionary roots of form and order in the built environment (MIT Press)
[13] Bungin B 2007 Penelitian kualitatif: komunikasi, ekonomi, kebijakan publik, dan ilmu sosial lainnya. Kencana.
[14] Knight P 2002 Conspiracy nation: the politics of paranoia in Postwar America (New York and London: New York University Press) ISBN 0814747353
[15] Norberg-Schulz C 1980 Genius Loci: Towards a Phenomenology of Architecture (Rizzoli – University of Michigan) ISBN: 0847802876