



## A Study on Kevin Lynch's Urban Design Elements: Precinct 9 East Putrajaya

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### ABSTRACT

Urban design elements are very important in defining a place, intended for people to easily understand what opportunities it offers. This paper presents a case study of the urban design elements in Precinct 9, Putrajaya which refers to physical form by defining and examining five urban design elements i.e. paths, edges, districts, nodes and landmarks. This paper discusses the relationship and the quality of these variables to evaluate response towards urban context in connects between people and the places. This research is used qualitative analyses method by studying the urban elements through the inventory of the layout plan, observations and interview the residents to determine its characteristics and to evaluate on the response of the community. The main findings of this research showed that Precinct 9, Putrajaya has successfully applied these urban design elements in its planning and play a specific role in turning urban areas functional, vibrant and attractive. This study showed that urban development with quality urban design elements in Precinct 9, Putrajaya managed to connects between people and the places.

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## 1. Introduction

The built environment includes buildings, streets and elements is functions to shape to integrate the urban form. Urban design core objective is based from structural, functional and aesthetical form of planned and designed city (Moughtin, 1999). The relationship between people and the place could be established through visual perception and the senses with the urban design elements. It also became an important part to build the environment of a neighbourhood, town or city. At various parts in Malaysia, urban design directions are low compared to the modern designed city. The authority already takes some initiatives to improve the social and economic but the urban design direction still poor in the physical quality aspects. Based on the research by Hall (2014), the planning of a city must be based and focused on the making of spatial order. It is believed to be a

unique form of planning as it focuses on the spatial plans and their application.

Putrajaya, known as the federal administrative center of Malaysia, are located about 30 km south of Kuala Lumpur and it is named after the first Prime Minister, Tunku Abdul Rahman Putra. Putrajaya is designed as a smart city and a town in modern garden city, has started its project in 1990s and began operating when the federal administrative center was shifted from Kuala Lumpur in 1999 because of overcrowding and congestion. Putrajaya is the focus of strategic planning by the surroundings with landscaped streets, beautiful gardens and a monument in the middle of greenery in urban areas.

Precinct 9 is a residential area where there are many public amenities located near one another. All the amenities are within a short walking and driving distance. Public transport is also readily available and a monorail project has been planned to be made here. The design of housing here is very modern with western-style features with no fence or gates around the house. Although there is doubt in terms of the supervision and safety, residential areas here are regularly patrolled by local police forces. Most of the population is made up of civil servants from various government agencies. The residential areas are surrounding the government building which is the workplace for most residents, it provides easy access for the residents commuting from home to work. Furthermore, recreational facilities and social and community complex nearby residents here make life more comfortable, well-planned and organized.

Lynch, K. (1960) analyzed on the way a citizen can successfully function in his own environment as well as interacting with the other citizens. By defining a legible city as a characterized visual quality of clear space, he believed in the importance of a city's public image. He concluded that the way finding for the individual inside the city must be an easy and quick movement as the city creates a mental image.

This paper presents a case study of the urban design elements in Precinct 9, Putrajaya which refers to physical form by defining and examining five urban design elements i.e paths, edges, districts, nodes and landmarks. Researcher make judgements on the quality and how the elements can produce connections between people and the places, movement and urban physical form into the formation of places with the goal of making urban areas functional, vibrant and attractive. From the study, it is expected to find out whether the site successfully adapt the urban design elements not only on its usage, but the also the urbanity of the space. it could be used as a standard to measures the quality of the urban design fabrics in relation to their space characteristics.

The following objectives are incorporated in the study:

- i. To determine on how the urban design elements are being implemented in Precinct 9, Putrajaya.
- ii. To measure the effectiveness of the urban design elements used in urban planning.

The reasons of choosing the site are: (1) it is a relatively new development and symbolizes Malaysia's ideology and aspirations for new urbanism and (2) it can be easily accessed for the purpose of conducting this study. Furthermore, this would help to obtain specified results in the

study of the application of urban design elements in Precinct 9, Putrajaya.

## 2. Literature Review

Mental image or mental mapping has an important influence on our experience about the city. According to (Sulsters (2005), Brettel, (2006) and McAndrew (1993)), the formation of mental image comes from the field of science cognitive psychology. It can bring strong response and perception in attracting people to pleasant places. Image is the set of beliefs, ideas, and impressions that a person holds regarding a city (Kotler, 1993). Therefore, image is the mental picture that people hold about that city. Understanding these mental pictures is important because “*people’s attitudes and actions toward a city are highly conditioned by that city’s image* (Kotler, 1997; Jaffe & Nebenzahl, 2006).

Kevin Lynch (1960) has introduced the urban design elements from his research over a five-year study of Jersey City, Los Angeles and Boston on his observation towards information of a city and use it to create a mental map. Lynch's conclusion was that people formed mental maps of their surroundings consisting of five basic elements. The five kinds of basic urban design elements which people create their mental images of a city are paths, edges, districts, nodes and landmarks.

Based on Lynch (1960), path is considered as the most important elements in urban design and it is the first element designed in planning. Path is defined as the passages that experiences from the people moves: walkways, streets, transit line, railroads and canals. This is the most important element in people's mental image toward the city. While, edges are defined as the boundaries that separate the continuity which is not use as paths: shores, railroad cuts, edges of development, walls. Districts are the medium-to-large sections of the city which the observer mentally enters “*inside of,*” and which are recognizable as having some common, identifying character (Lynch, 1960).

Node is a point, the strategic and important spot which are the intensive foci in a city. They may be primarily concentrations or junctions. In another word, nodes can be defined as the gathering point in the city. In addition, the location of nodes determines their utilization as placing nodes on the main routes can make the movement more efficient than those located far away from the main routes. Landmarks also can be defined as another type of point-reference, but it’s only can be seen from the external. It is usually defined as a physical object: sign, mountain, store or building. The legibility of a city usually depends on landmarks as they act as very important cues in way finding process for every individual in the city (Lynch, 1960).

## 3. Research Methodology

This study adopts case study approach in which fieldwork in undertaken. Observation technique are used to ensure that maximum capacity of information can be collected and to be free to observe the urban elements more detail based on the five urban design elements that identified by Kevin Lynch theories. The visual quality that forms the urban physical character were observed in

detailed on the selected location of this study. There is only one site selected that are used as a pilot study. The most rational single case in the research need confirmation, challenge or extend theory (Yin, 1994). A single case study approach had been used to examine the applicability of the use of mental image technique by observation.

A qualitative research is chosen for the reasons: (1) to explore the urban design elements in Precinct 9, Putrajaya to understand the site fully, (2) to understand the context of the site by observing and collecting data in person and (3) to give a clear explanation on the five elemental components of urban design by using residential survey to help form the hypothesis. This observation was conducted within a period of one week starting from the 1st to 7th April 2017 and from 8.00 am to 5.00 pm. The information obtained from this observation technique will be described through several diagrams accurately by category of the urban design elements which has been listed on this study.

A literature review of secondary printed sources such as books, journals, and articles was conducted to gain a background understanding of urban design elements. Others than that, the analysis of quantitative and qualitative data collected via non-structure interview will be analyzed and documented. Random face-to-face non-structure interviews were conducted on-site. The interviews provided a more in-depth understanding of the residents towards the perception of their neighbourhood unit. They were conducted informally with the residents at random while doing site inventory. Such materials as photographs, clinical record case, video, movies, memos, letters, diaries were use as the supportive documents for interviews and observations (Bogdan, R.C., & Biklen, S.K, 1998).

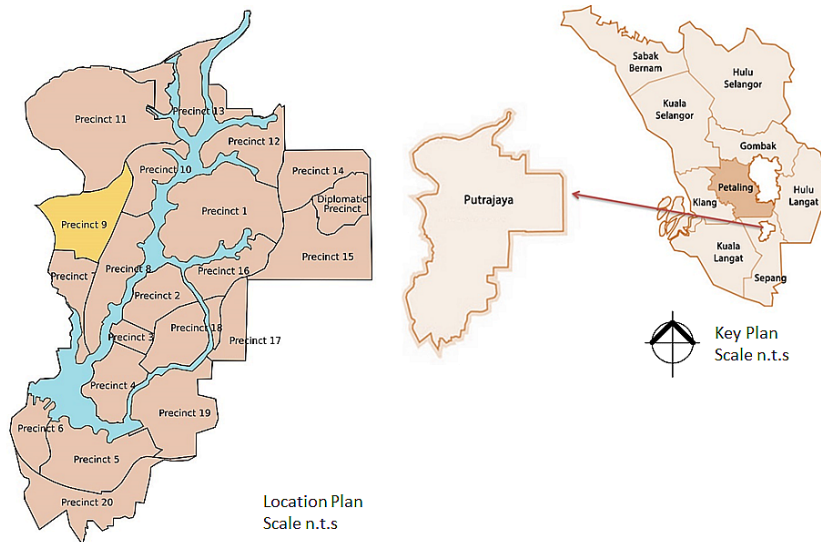
## **4. Study Results**

### **4.1 Description of the Site Area**

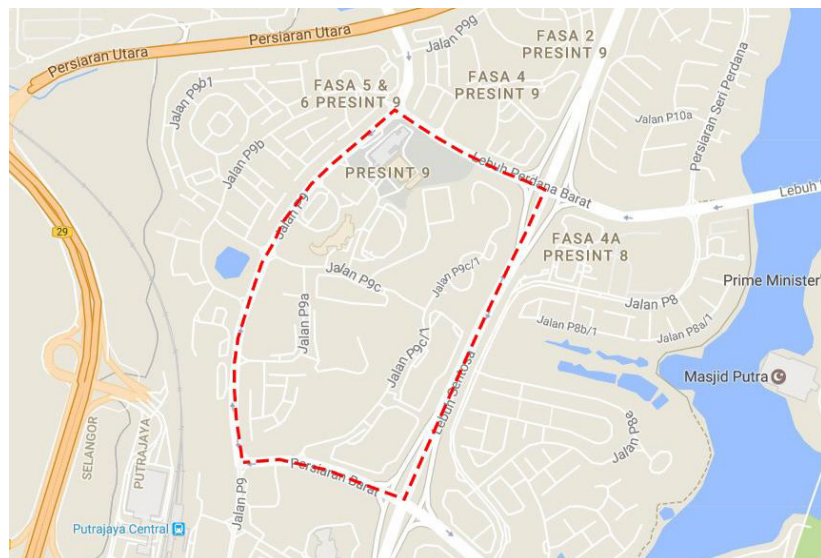
Based on stern et al. (2013) the movement of a garden city has been among the main factors in the urban planning of a city. The city is separated by 20 precincts with the goals of garden city as its direction, already well-planned with five areas in the core area which comprise of government, commercial, civic, mixed development as well as sports and recreational. The remaining fifth teen precinct is designed as functional support of core area known as peripheral area and others twelve of the precinct is dedicated for residential neighbourhood. Malaysia has experienced spectacular urban spatial transformation from traditional water village, British colonialism to pre- & post-independent and now the fast growing modern urban design (Hassan, 2005). Putrajaya is known as the major intelligent garden city in Malaysia, 30% from the 14,780 hectares if the area is specifically build for administrative center with the remaining the build for the urban garden city.

In the early 1990s the Malaysian government had decided to build Putrajaya to be the administrative capital for the federal government of Malaysia (Moser, 2009). The city located about 25km south of Kuala Lumpur on the highway between Kuala Lumpur and the International Airport and this location gave her extra importance and viability as a new city (Ariffini, 2003). The selected area of Precinct 9 which was chosen as a case study in this research is the east of Putrajaya city

(Figure 1). The Precinct 9 is located in the east of Wilayah Persekutuan Putrajaya, in a modern urban design concept and residential neighbourhood. Precinct 9 offers a proper mix of open space and land uses combined with a range of public realm initiatives that creates a vibrant urban neighbourhood. The selected location of this study area can be seen in Figure 2.



**Figure 1:** The selected area of Precinct 9, East Putrajaya (The case study).



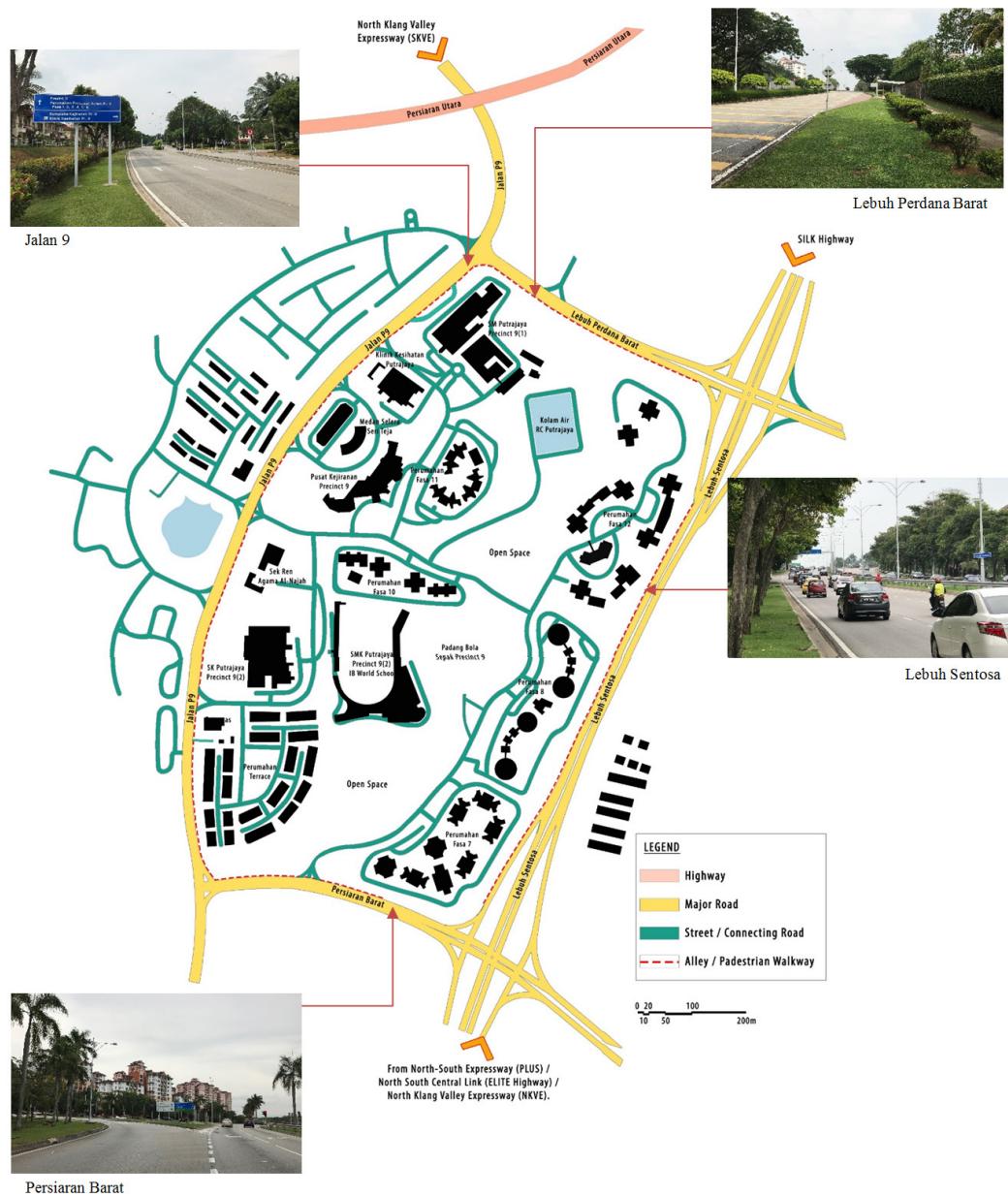
**Figure 2:** The selected location of this study area in the city (Precinct 9)

## 4.2 Urban Design Elements

### 4.2.1 Path

Paths can be defined as the channel of movement within the city such as alleys, streets, railroads, motorways and canals. The importance of paths can be identified through their identity. This could be achieved by the strength in building facade along the paths as well as specifies features such as pavement textures and plantings. Accessibility to precinct 9, Putrajaya are visible due to main intersections towards the precinct have clear signage and it is easier to people around the precinct to find the way. Furthermore, the colorful and decoration landscape gives the users a

sense of welcoming when they enter to the area. Based on the site survey, people can easily find the ways around the precinct without getting lost due to the reason of legibility in designing the paths. Moreover, the paths in the precinct are clearly defined as one enters the site.



**Figure 3:** Paths configurations that showing different type of roads.

The selected study site was in the middle of a modern city. Therefore, there is only land route can be accessed through the site (Figure 3). This area can be accessed through the highway of Persiaran Utara. Persiaran Utara is a major highway in Putrajaya. It connects Putrajaya-Cyberjaya Expressway interchange in the west to Putrajaya and interchange of the South Klang Valley Expressway in the north. The major routes that were passable and nearby to the site is from Lebuh Perdana Barat which connects to the Putrajaya roundabout and also Lebuh Sentosa which connects Precinct 11 in the north and to the Core Island of Putrajaya in the south. These three main routes have 3 lanes with minimum road width of 3.5 meter including the shoulder of the road to allowing traffic conditions are always good and safely.

Furthermore, Persiaran Barat and Jalan P9 become the secondary entrance routes to the site. These roads will be highly or partially congested during 8-9am and 5-6pm. This is because the study area is a residential zone there have the movement of the residents before and after office hours. Each of the main road act as divider to each precinct. The importance of paths is to divide the territory and functions of area. In fact, it generates the different way of architectural values, and density between these two cities.

There are varieties of experience feelings by researcher in understanding certain conditions on the route: the narrowness of laneways, high bridges over water, or surfaces which are smooth or rough or sloped or stepped (Lynch, 1960). The strength of the site study is a planned city that is already designed pedestrian pathways at every road which has been separated. The separation of pedestrian pathways from vehicular traffic encourages playful use of public space, and does not merely optimize efficient flows. It allows users to forget the practicalities of watching out for traffic and to focus on the various other sensations available as they move along a path.



**Figure 4:** The edges line within the site study as a separation between two sections that breaks its areas and functions.

#### 4.2.2 Edges

Edge is a separation between two sections that breaks its continuity such as sewers, or by a sharp contrast in density or the built environment (Figure 4). Edges is the boundary of an area which is topological, something which an observer can position themselves, rather than the district (Dalton and Bafna, 2003). The planning authority's attempt to create a green city in Putrajaya seems to reflect onto the precinct edges as it encourages people to explore the precinct.

In this study, edges can be categorized as the contour of the land and the retaining wall in the area itself. The terrain of hills along the research site separates the functions of each area and districts. Contour and retaining wall is used as a divider between the road and residential areas, other than providing a functional support for keeping soil in place, this element also providing safety for the resident. Concrete retaining walls can serve aesthetic and landscape design functions as well. As mentioned previously, Putrajaya is recent developments are more to modern urban in nature concept. Planting trees closely and in linear serves as a shading to the space. These trees also act as dividers for areas and the functions.



**Figure 5:** Division of district within the site study in accordance to function of the space

#### 4.2.3 District

District can be defined as a few sections that connecting to each other to become a city. These sections share the same characteristics or attributes common to each other to determine the identity of the city itself. Usually, some unique arrangements of the paths or districts become the common practice. The division of the district at Precinct 9, Putrajaya is generally based on the function of the land use. The classification some parts of the areas have different functions of land use such as residential (yellow), educational (pink), public amenities (blue) and green spaces (green) as shown in Figure 5.

Most of the areas are used as residential, commercial and hospitality industry and institutional area. The urban concept of Putrajaya itself is clustered which is all the amenities are centralized for the residents. This separation between the functions of land uses creates some visual readable



districts which increase the precinct's intelligibility in term of urban spaces. Hence, the intelligibility of the precinct serves as a core element of the district in creating its visual identity. The classification of district in this research is based on the distribution of population density.

The most important zoning area that can be seen in the site is the residential area. Furthermore, Precinct 9 in Putrajaya is a mixed development township situated on freehold land is the main residential area in Putrajaya. The houses feature a variation in term of design, cost and location to suit the affordability level of the residents which consists of low-cost flat, terrace houses and high-rise apartments. Furthermore, the residential district equipped with the facilities such as bus stops, car parks, pedestrian, cycling path & decorative landscape. Master plan of Precinct 9, Putrajaya also features green districts. There are many parks and gardens spread within the precinct and truly accessible by the residents of the precinct.

Another important district in this research is the hospitality industry area. Hospitality industry is categorized as a vast field in the service industry which includes lodging, event planning, theme parks, transportation, and other related fields within the tourism industry. According to Basri (2013), the results of visits to destination affected by three major elements in the destination areas, the place or object of tourist attractions (points of interest), physical facilities and hospitality (service and hospitality). Besides that, institutional zone also plays an important role in defining the district in the Precinct 9. There are two schools were built here in the Precinct 9, SMK Putrajaya Precinct 9 (1) and SMK Putrajaya Precinct 9(2) IB World School.

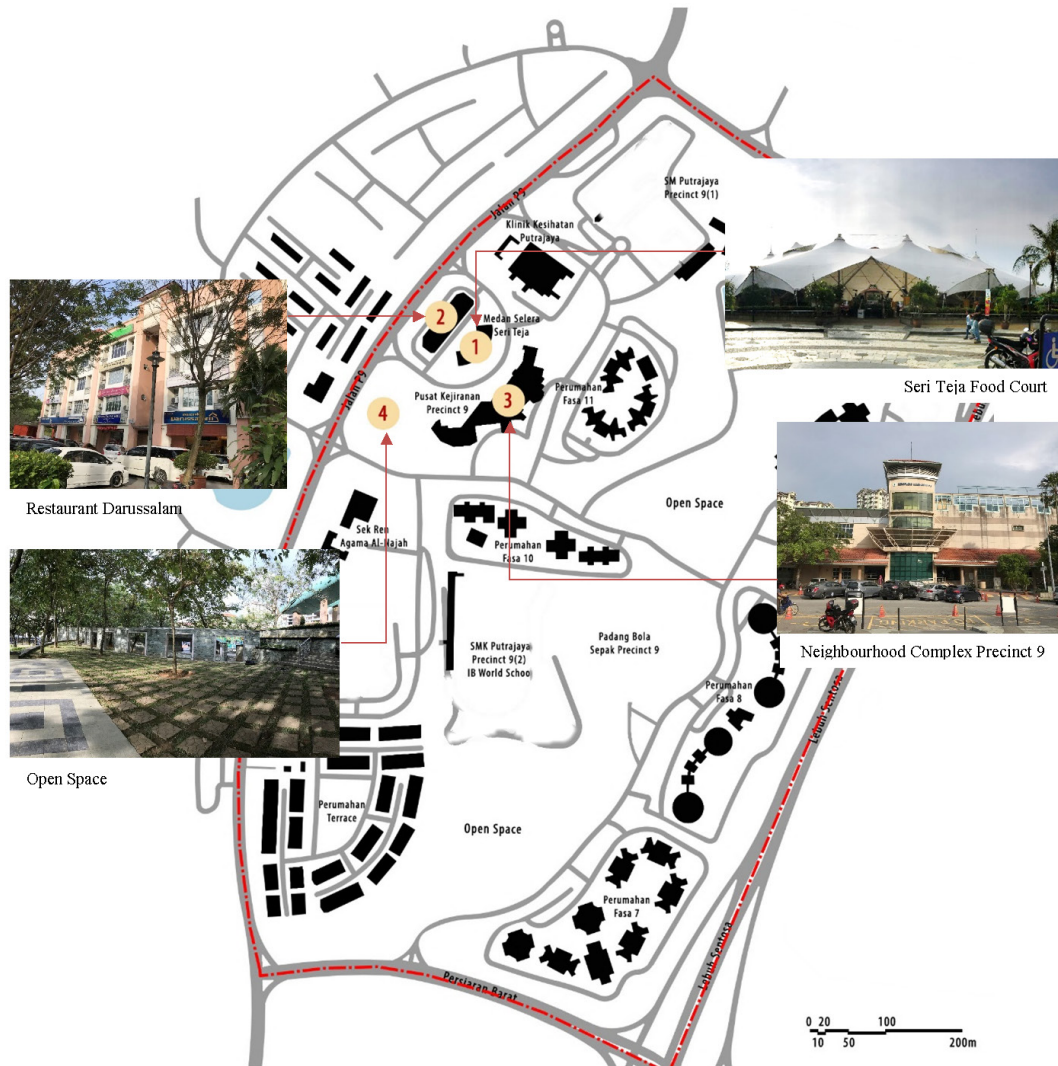
#### 4.2.4 Nodes

Nodes can be defined as the strategic spots in a city into which an observer can enter, and which are the intensive foci to that site. Clearly can be viewed the nodes for this area is more focused on the public amenities zone area (Figure 6). The nodes which is the main focus to the public in this research area is Seri Teja Food Court. This food court is selling a variety of foods and beverages and operates from the morning till the night. The design of this building that covered with roof tensile with the comfortable open space layout is a major factor which encourage people to visit. They often visit it area to buy food regardless of whether at morning or night. This node is very important not only as a food court but as a gathering space for family and friends.

In addition, in front of the Seri Teja Food Court also become nodes of this area. A row Darussalam's shops building became the focus point to the public because it provides a wide range of sale product and services from a different store. The third nodes in this area is Neighbourhood Complex Precinct 9 which has been in operation since 2008. It provides facilities such as a multi-purpose room, multi-purpose hall, badminton, tennis and squash courts, a gym, a swimming pool, an amphitheater and a playground. The multi-purpose hall in the complex are often reserved for the public to hold any occasion.

Another important node for this area is an open space near the Neighbourhood Complex Precinct 9. Research done by Lydon et al. (2015), they concluded that by re-imagining parks to

create a vibrant plaza as neighbourhood gathering place could be a way to shape urban spaces in a new development to inspire the residents. The open space and recreation areas in this research site are aimed to encouraging residents to venture into recreational activities, and generate social interaction among residents to gather and interact between each other. This area provides a free aerobics exercise classes for all the residents of Putrajaya in fostering a healthy lifestyle. This area can only be accessed by foot and bicycle, serve the purpose of creating a node.

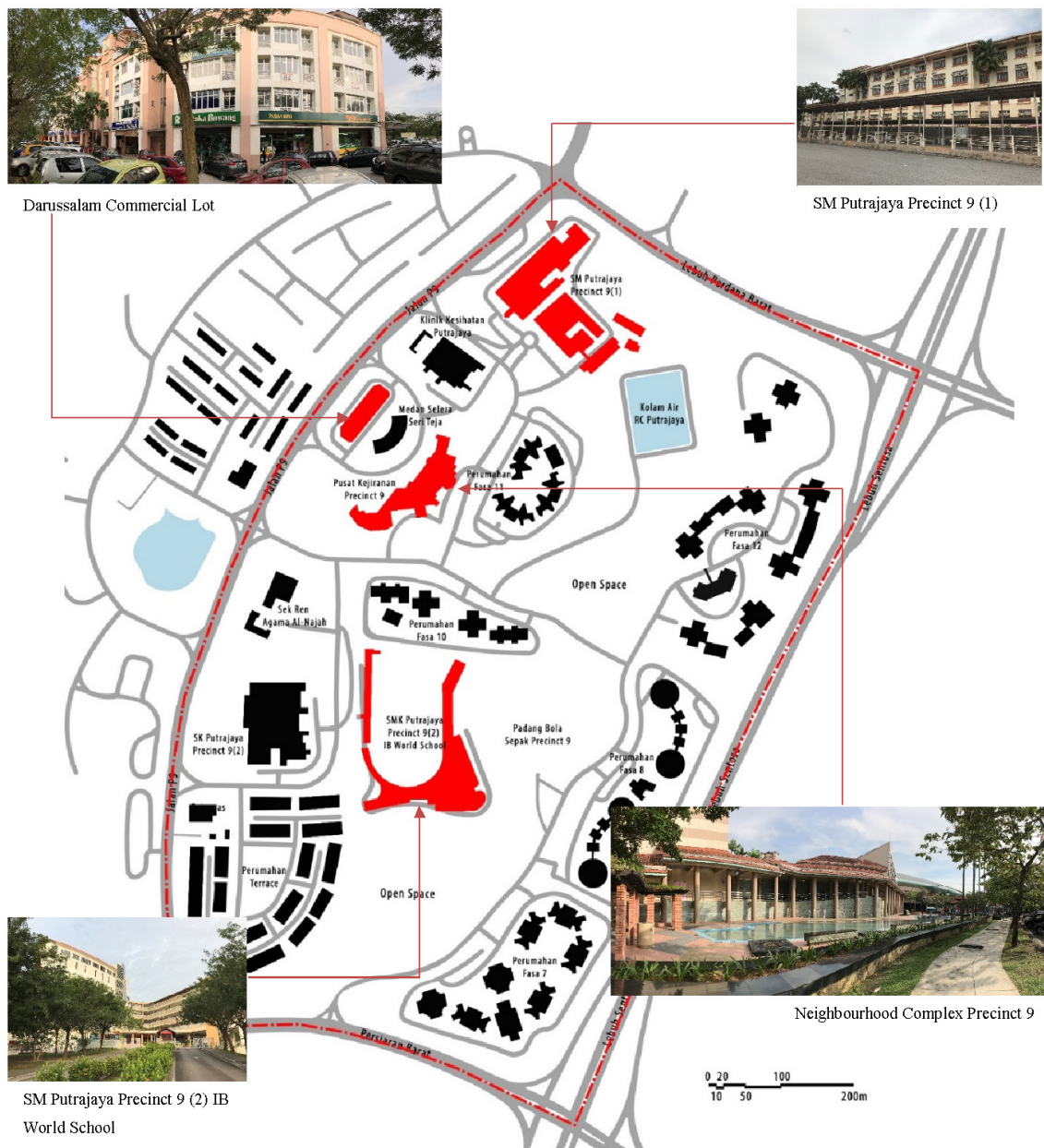


**Figure 6:** Labelling of the nodes within the site study accordance to the hierarchical order

#### 4.2.5 Landmarks

Landmark is a location or building or object which is an important sign for an area (Figure 7). The main landmark in this area is a Neighbourhood Complex Precinct 9. This building was constructed for the purpose of encouraging interaction between the residents. This is because this building is one of the main focus (node) that offers a variety of leisure activities and ceremonies to the residents in Putrajaya. In addition, Neighbourhood Complex Precinct 9 is known through social media nowadays as a community amenities that service with variety of facilities. In addition, another landmark in this research area is Restaurant Darussalam (Mamak Double). This restaurant is specializing in serving food of Nasi Kandar for 20 years. They serve Breakfast, Lunch, Goreng Mamak, Thai Foods, Traditional Dinners and also appetizers. Thus, this restaurant is highly

recognized and become the focus point to the public from various places. As Neighbourhood Complex Precinct 9 is easily identifiable, it helps to signal the precinct as well as conforming of the route followed.



**Figure 7:** Labelling the landmarks that are dominant within the site accordance to the hierarchical order

Other landmarks that can be an important sign for this research area in Precinct 9 is SMK precinct 9 (2) IB World School. This school is known in the world and it is among the top 10 schools in Malaysia involved in the International Baccalaureate Middle Years Programmed (IBMYP) under the Malaysian Innovation Agency (AIM) and the Ministry of Education since 2013 with the design concept of 'school in the park ". Furthermore, SM Precinct 9(1) is also as a landmark in this research area due to its location at the crossroads which it is ease to be seen by the public from the main road. Its position is also higher than street level come with modern design

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concept of the building where it is being one of the public attraction. Both school create physical characteristic of landmarks based on singularity, uniqueness and memorable in the context.



**Figure 8:** Combination of all urban design elements that founded at the study area.

## 5. Discussion

According to Lynch’s theories of urban design elements, in this case study at the selected area in Precinct 9, Putrajaya, researcher have identified five of urban design elements act as public attraction that create mental image and unique visual reference points in urban space i.e. paths, edges, districts, nodes and landmarks (Figure 8). The visual reference points of all five urban design elements highlight that each provides various opportunities for community. The overall plan showing that the precinct has been designed properly to informed that Putrajaya as the new city by the use of the whole urban design elements witnessed through their layout. The integration of the city in the garden has been demonstrated successfully and regularly in this plan. This will lead to a comfort and ideal placement for the whole neighbourhood to live and work.

The path of the precinct 9, Putrajaya shows a formed curvy linear and regularity pattern with all the types of roads carefully laid out to avoid confusion. The intersections of each residential zones are located strategically to avoid the issue of traffic congestion. In this study, the landmarks and nodes are usually defined as physical objects which easily can be seen which is signage, building or open space. Both of these elements have an important function and affects daily activities for the communities. In this study, Neighbourhood Complex Precinct 9 and Seri Teja Food Court is the main focus for the public in the Precinct 9, Putrajaya. Both these buildings have been selected as a landmark and nodes of urban design elements because it offering services and public facilities for the community at that areas. Most of the elements that selected by the communities as an important urban design elements in this area is a convenient place that they are easy to gather to dine, entertain and chat with family and friends.

By providing an easy and comfort route in addition that the area has been zoned as centralized, makes it easier for communities to go to that area. Lebuhraya Perdana Barat and Lebuhraya Sentosa have been chosen as important paths elements to accessed to this area is because these main routes have 3 lanes with minimum road width is 3.5 meters including the shoulder of the road to allowing traffic conditions are always good and safely. Along the Lebuhraya Perdana Barat and Lebuhraya Sentosa, there are also obtained edges elements that serves as a divider became important roles marking boundaries of each zone which was held to protect the communities in this area. The separation from the function and neighbouring precincts on the landscape and retaining wall itself is done by the location of the highway which can be seen as a crucial element in dividing the precinct. Precinct 9, Putrajaya can be said to have clear and distinct edges. The planning of precinct 9, Putrajaya was based on the group of zones.

Therefore, the public amenities play an important part in the planning and designing the precinct. The location of public amenities is at the centered location based on the legibility level of the areas. Determining the location for each type of zones is not only related to accessibility but also on the spatial regions. This could be seen in the planning of public amenities near the main road to cater the for public views while the residential zone is situated end of the roads for privacy. Another node in the precinct is the parks and the gardens around the precincts. These parks and the gardens serve their purpose as a means of social gatherings and human activities but the lack of regular maintenance by the authorities cause some of the parks and gardens are in bad physical conditions. This will lead to a negative impact on the unity between the residents and their surrounding urban environments.

## 6. Conclusion

In this study, researcher has been identified the five urban design elements in the selected area in Precinct 9, Putrajaya through these qualitative analyses method by studying the urban elements through the inventory of the layout plan, observations and interview the residents to determine its characteristics and to evaluate on the response of the community. The results of this study showed

that all of the urban design elements play a specific role in turning urban areas functional, vibrant and attractive for the communities. The design of Putrajaya as a new city in a garden concept was successfully build as planned to reveal their various functions from the urban design elements especially to its residents and communities. Their continuous design in the precinct showed the prospect in its pattern each included visual perspective, the zoning and space of each areas, nodes and landmarks as the visual identity key to the city.

With the well-planned design as a city in the garden, there are some improvements are needed to highlight the main functions of the identity of the individual images, public community and physical fabric. The case study of precinct 9 shows that the overall plan and design is successfully presented throughout their urban design elements in people understanding by visual and observing the basic layout or the views of the well-planned used area. Urban design elements are very important factors to connect people and the place in the urban context in providing a different experience to them and strengthen the mental image of a particular area. However, prolong the framework observation period can lead to the better results in this study. In addition, other research methodology should be used such as record and specific interview. By interviewing communities, it will allow them to have stronger mental image with the area to strengthen the results in this study. Therefore, the researcher will better understand and familiar with the real situation around the study area.

## 7. Acknowledgements

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## 8. References

- Ariffini, S. B. (2003). Putrajaya, Malaysia. *Australian Planner*, 40(3), 40-42.
- Basri Rashid (2013) Elemen destinasi dan kesan terhadap pengalaman percutian. *Malaysian Journal of Society and Space* 9(4), 118-127.
- Brettel, A. (2006) The Effects of “Order” and “Disorder” on Human Cognitive Perception in Navigating Through Urban Environments.
- Bogdan, R. C., & Biklen, S. K. (1998). *Qualitative research in education: An introduction to theory and methods* (3rd ed.). Needham Heights, MA: Allyn & Bacon.
- Hall, Peter. (2014). *Cities of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880*. 4th Ed. West Sussex: Blackwell Publishing.
- Hassan, A. S. (2005). *Konsep rekabentuk bandar di Semenanjung Malaysia: Kuala Lumpur dan bandar-bandar di sekitarnya*. *Universiti Sains Malaysia Press, Penang*.
- Hassan, Ahmad Sanusi, Arab, Yasser & Ismail, M. (2015). Architectural Styles and Developments of Apartments in Putrajaya, Malaysia. *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies*, 4 (3), 191-206.
- Jaffe, E. D. & Nebenzahl, I. D., 2006. *National Image and Competitive Advantage: The Theory and*

Practice of Place Branding. Copenhagen: Copenhagen Business School Press, 2nd Ed.

Lydon, Mike, Garcia, Antony & Duany, Andres. (2015). Tactical Urbanism: Short-term Action for Long-term Change. Washington D.C.: The Street Plans Collaborative Inc.

Lynch, K. (1960). The Image of the City. Massachusetts: The MIT Press.

Moser, S. (2009). Putrajaya: Malaysia's new federal administrative capital. *Cities*, Vol. 27(4), pp. 285–297.

McAndrew, F.T. (1993) Environmental Psychology. Brooks/Cole Publishing Company.

Kotler P., Haider D., Rein I., (1993), Marketing Places: Attracting Investment and Tourism to Cities, States and Nations, Free Press, 1993.

Peter Hall, Mark Tewdwr-Jones (2010). Urban and Regional Planning.

Stern, Robert A.M., Fishman, David & Tilove, Jacob. (2013). Paradise Planned: The Garden Suburb and the Modern City. New York: The Monacelli Press.

Sulsters, W.A. (2005) Mental mapping, Viewing the Urban Landscapes of the Mind. International Conference “Doing, Thinking, Feeling Home: The Mental Geography of Residential Environment”, at the OTB in the City of Delft, Netherlands, 14-15 October 2005.



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