



Exploring the Urban Interstitial Spaces and its Potential Usage at DUKE Highway

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Abstract

The development of the urban highway in and around the city has created vast quantities of left over spaces that seldom integrated into formal planning and design. Vague on purpose, the interstitial spaces formed from these concrete “rivers” are referred as lost spaces. This paper aims to explore the urban interstices and investigate its possible usage. Site observation and photographic recordings of a case study were employed. The site characteristics were recorded in which findings suggested that the interstitial spaces have the potential to be planned and designed to cater adjacent community needs and usage.

Keywords: Elevated Highways; Interstitial Spaces; Lost Spaces; Possible Usage

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1.0 Introduction

This conceptual paper explores the potential and suggests possible usage of the often overlooked left over spaces that are the byproduct of elevated urban highways. As the number of private vehicles rises and urban area expands so does demand for better connectivity. The increase in demand thus drives the development of roadways within the urban area primarily the construction of highways. Following this, transportation infrastructure is one of the major drivers of landscape change worldwide (Bürgi et al. 2004; Forman et al. 2003; Meyer and Turner 1994). Landscape fragmentation caused by transportation infrastructure has some effects on almost all components of landscapes, including aesthetic, ecological, historical, and recreational qualities (Forman et al. 2003; National Research Council 2002; Canters, 1995;). The development of high-performance infrastructure particularly highways that dissect though urban spaces have resulted in the formation of empty and leftover spaces.

The spaces along and under elevated highways affect the way we experience the city. They disconnect neighbourhoods, produce undesirable views, and act as physical and psychological barriers making the pedestrian experience unpleasant (Trancik, 1986). Adding to this, the unclear territoriality of these spaces sometimes leads to land misuses such as dumping debris, abandoning of cars, or illegal activities (Hamersma et al., 2017; Shoab and Ghendy, 2013; Mohamad and Kiggundu, 2007; Nor, 2001; Gee, 2002; Trancik, 1986). The inappropriate use of the vacant spaces under elevated highways might lead to social and economic problems in addition to being unsightly and lowering the value of adjacent properties (Halprin, 1966).

Elevated highways are described as pieces of infrastructure which seldom attract people's affection and pose a constant provocation, although practical and financial reasons suggest to simply accepting their presence. (Harnack and Cohler, 2011). Following this, Crisman, (2012) stated that the resulting interstice, "a space that intervenes between one thing and another," often generates seemingly uninhabitable zones and problematic discontinuities in the physical and social fabric. Issues relating to the formation and unclear function of these lost spaces has mostly been discussed in the western world and still limited within surrounding region (Sanches and Pellegrino, 2016; Clements, 2013; Qamaruz-Zaman et al., 2013; Hormingo and Morita, 2004).

1.1 Issues, aim and objective of study

Scholars, designers and planners, spanning multiple fields of practice, have noted that the issue is a result from of a lack of integration during the planning and design process, and that the problem of left over spaces is indeed a gap that is to be addressed (Akinci et al., 2016; Prasetyo & Iverson 2014; Crisman, 2009, Mossop, 2006; Trancik, 1986). Barter's study (2004) disclosed significant issues about highways in Kuala Lumpur which demonstrates the high ratio of highways as compared to the number of population (68 meters per 1000 population). Therefore, to address the issues at hand, there is a need to understand the current situation of the existing left-over spaces which is the aim of this paper. Based on the stated aim, the objective of the study is to assess the typologies of spaces and its

characteristics underneath elevated highway based on available literature as well as to explore the possibilities of usage for spaces underneath the elevated highway

2.0 Literature Review

Since the 1950s, scholars' and researchers' interest in urban highways and its impact on urban fabric has become prominent in both academic and popular culture writings. One prominent example was the movie "Citizen Jane: Battle for the City" which was opened on April 21, 2017 (Lawson, 2017). This rousing documentary was about journalist-activist, Jane Jacobs and her fight against elevated highways in New York City in the 1960s. The following section provides insight into topics related to elevated highways as studied and investigated by previous researchers.

2.1 Urban Highways: A Connector of Urban Core-Satellite Cities

Merrilees et al. (2013) in their article, "City Branding: A Facilitating Framework for stressed Satellite Cities, discuss how workers and students travel to work in the major city and return to satellite city using congested highways. They define satellite cities as a phenomenon of population expansion, and changes in industrial bases, property development and demands for more affordable housing. Figure 1 illustrates the concept of satellite town in modern city planning. In contrast to the traditional urban fabric that promotes walking activities around cities, the zoning system in modern city planning has made urban dwellers highly dependent on urban highways. 109



Fig. 1: The concept of satellite town in modern city planning, illustrating urban highways as important urban infrastructure that links sub-core and main core area
(Source: Sahabuddin, 2011)

After Malaysia gained independence from the British in 1957, Kuala Lumpur as a capital city has experienced rapid development that has changed the physical and social infrastructures. Petaling Jaya, Shah Alam, Putrajaya, Cyberjaya and Damansara have been

established to support population expansion, changes in industrial bases, property development and demands for more affordable housing. According to Dasimah (2001), it evident that urban inhabitant in these satellite cities is much dependent on urban highways.

Urban highways such as the North-South Expressway (NKVE), Duta-Ulu Klang Expressway DUKE), New Pantai Expressways were constructed to facilitate urban commuters to travel to work. In this context, Mega malls often serve as major nodes between workplace and home, resulting in high dependency on urban highways for most urban residents (Figure 4). Barter (2004), provides several prominent examples of a high reliance on highways in Kuala Lumpur Metropolitan- IKEA in Cheras was established closed to MEX (The Maju Expressway), AEON Mall in Shah Alam and Mid Valley Mega Mall in Bangsar were built next to the Federal Highway.

2.2 The Impact of Elevated highways on Urban spatial discontinuity

The term 'elevated highway' or 'expressway' and 'flyover' has interchangeably been used in academic writings. The former is often used in the context of United State of America (Samuel, 2006). The later, however, has commonly been accepted in the United Kingdom and most Commonwealth countries (Akinci et al. 2016). Throughout this paper, the term 'elevated highway' has been adopted by the authors. The function of elevated urban highways that could transfer and mobile people around cities is understandable.

Conversely, the presence of this urban type infrastructure somehow generates specific spaces with idiosyncratic spatial characteristics (Hauck and Kleinekort, 2011). The emergence of undefined and unusable of spaces under highways viaduct has been increased, which disrupted the urban space's landscape system, land use and public areas (Akinci et al. 2016). The undefined and unusable spaces under the elevated highways often referred as "interstitial space" (Wall, 2011), "terrain vague" (Rico, 2011), "SLOAPS-Space leftover after planning, (Carmona, 2010), "gap spaces" (Hormingo and Morita, 2004), "wastelands", "derelict areas" (Doron, 2000) and "lost space" (Trancik, 1986).

Saouma (2008) conducted a thorough analysis of the impact of elevated highways in the urban area. Her findings revealed six (6) types of impacts: [1] Symbol of progression, increase accessibility and mobility; [2] Dominant structure in urban fabric; [3] Segregate community or neighbourhood, become physical and psychological barrier and visual intrusion; [4] Produce undefined space which often misused; [5] Allow minimum natural lighting and poor ventilation at space under the elevated structure and [6] Generate negative spaces or lost spaces which always been neglected. The six impacts are shown in Figure 2.



Fig. 2: The six impacts of elevated highways in urban areas as explored and illustrated by Saouma (Source: Saouma, 2008)

2.3 From Lost Space to Innovative Usable Spaces

Since the early 21st Century, many researchers have shown interest and attempted to transform the leftover spaces caused by elevated highways. Hence, the work of Hormingo and Morita (2004) is worthwhile to mention. Despite the lost spaces which often associated with negative activities or characteristics and unstable, the duo has been optimistic about this issue. They emphasized on how the gap spaces generated by elevated railways can be explored to improve the urban system connectivity. Their conceptual idea behind the "gap spaces" is shown in Figure 3.

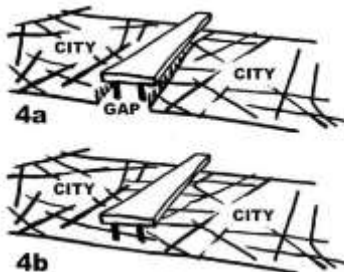


Fig. 3: Gap spaces generated by elevated highway/railway (4a) and through innovative design, the gap space shall be connected (4b)
(Source: Hormingo & Morita, 2004)

3.0 Methodology

This research employs a case study which allows the authors to examine contemporary phenomenon within the real-life situation using the qualitative method. Site observation and data collection of the left-over spaces on site were guided by a systematic framework established by Frank (2011). The framework allowed the authors to document systematically the activities, location, time, characteristics, site adaptation as well as the status of the activity within the studied site. The observed variables were analysed and summarized as represented in Table 1. Duta Ulu Kelang Expressway or abbreviated as DUKE is one of the expressway possesses one of the longest span total elevated route amongst the highway in Kuala Lumpur, hence the selection of this site as a case study. It is elevated, primarily parts that run across dense urban communities and neighbourhoods resulting in the presence of multiple interstitial spaces. Diverse in form, these spaces share the common conditions of enclosure, emptiness and in some parts unclear function. Along the expressway, these byproducts are enclosed by large scaled infrastructural forms in contrasting scale to the void it holds below. The site of the case study is located underneath the DUKE highway near the Jalan Pahang ramp and Sentul Pasar Interchange. As of current, the surrounding major site context includes religious institutions - Jamiul Ehsan Mosque, commercial lots as well as a newly built mix residential tower – The Reach @ Titiwangsa. The findings of this particular study were limited to the observation of the site at the particular span of time.

4.0 Results and Discussion

DUKE Highway is an 18-km long highway spanning from Jalan Duta to Taman Hillview in Ulu Klang (Figure 10) and poses one of the longest span total elevated route amongst the highway in Kuala Lumpur, hence the selection of this site as a case study. The expressway was constructed to provide the essential linkage between New Klang Valley Expressway E1 (NKVE), Kuala Lumpur-Karak Expressway 2-E8 and Kuala Lumpur Middle Ring Road 2 (MRR2). The expressway used to be known as the Kuala Lumpur North East Expressway (KLNEE). It is the main element in the Kuala Lumpur Structure Plan 2020 as specified in the Transportation Research of the Japan International Cooperation Agency (JICA) conducted by the Kuala Lumpur City Hall (Dewan Bandaraya Kuala Lumpur) (DBKL) in 1985.



Fig. 4 and 5: Selling of food and beverages underneath DUKE near the Jalan Pahang – Sentul Pasar Interchange
(Source: Author)



Fig. 6 and 7: Pedestrians and motorcyclist taking refuge from the rain underneath the highway.
(Source: Author)





Fig. 9 and 10: Ambiguity and vagueness in specific function are represented in these two photographs.

(Source: Author)

Table 1. Summary of the Site Analysis. DUKE – Jalan Pahang – Sentul Pasar Interchange

Activity	Location	Time	Site Characteristics	Adaptation	Status
Selling of food items	Near roadside, on road shoulder	Daytime only, from mid-morning to late evening	Adjacent to passing road (Jalan Pahang) and pedestrian ways	Temporary, modular and non-permanent tables and stools	Illegal but sometimes tolerated. Unclear
Vehicular parking	Inner part of the space underneath DUKE	Daytime only. Morning until late evening.	Expansive, unobstructed surface, somewhat secluded, dark.	Some areas have wire fencing, but no parking lot markings	Tolerated, legal. Unclear as space is not formal parking area
Temporary shelter from weather	Near roadside (Jalan Pahang)	During rainy weather. Day and night	Open space, permanent sitting near elevated highway's columns.	Permanent sitting made from galvanized steel pipe set up by the local council to be used as sitting/waiting area for pedestrians	Tolerated. Legal
Waste dumping	Inner part of the space underneath DUKE	-	Open space, secluded area of the site.	-	Illegal

(Source: Author)

5.0 Conclusion

The characteristics observed from the case of DUKE puts forth several key issues and challenges, the fragmentary nature of these lines of infrastructure has sealed off the urban fabric that has minimal connection to the adjacent spaces. As described by Sola-Morales (1995), these are spaces with unincorporated margins, interior islands void of activity, oversights; these areas are simply un-inhabited, unsafe, un-productive. In a nutshell, they

are foreign to the urban system, mentally exterior in the physical interior of the city, its negative image. As described in the KL Structure Plan 2020, infrastructures have caused adjacent spaces and areas or neighbourhoods to be divided and that they remain physically close but virtually inaccessible to each other. This key issue is significantly apparent through the observation of the case study. The lack of continuity at the ground level regarding support activities, scale as well as a definitive space function has caused severe vagueness regarding function and use of the space.

After careful examination of the case-study presented, it is clear that the case study of the Jalan Pahang – Sentul Pasar Interchange under the DUKE possess such characteristics as so often described in various kinds of literature pertaining the topic of left over spaces as a result of infrastructural development. The apparent situation calls for a reconsideration of the design discipline and paradigm as mentioned by Rico (2011), where the author argues that these spaces need to be critically assessed regarding its spatial effects, bio-political production as well as functional performance. The infrastructural landscape has been widely discussed throughout the latter half of the 20th century, with various terms coined to describe the emptiness associated with their low level of accessibility as well as the potentials that they open for designers (Lerup, 2000; Sola-Morales, 1995). The findings of this study contribute to a better understanding of the impact of the elevated highway at the case study. The analysed literature has supported argument about the extent which satellite city in modern urban planning has contributed to the rapid development of elevated urban highways. Although the presence of elevated highway at the study area has increased connectivity and mobility among city dwellers, the emergence of leftover spaces has also contributed to discontinuity of urban spaces. The leftover spaces found under the elevated highway are small, irregular and enclosed, which demonstrate fragmented urban spaces with unclear function. Adding to this, the occurrence of elevated highway has validated issue related to infrastructure which caused adjacent spaces that are often inaccessible mentioned in the Kuala Lumpur Structure Plan 2020. The urban fabric and its spaces shall be perceived as a system that is well integrated and efficiently functioned. Hence, the proactive steps should be taken into consideration by landscape architects, architects, planners and designers alike. The challenges associated with these types of spaces shall be viewed from a different perspective. The existence of leftover spaces at the study area of should be taken as opportunities to reimagine and reinstate the spaces as a form of urban connector. These interstitial spaces could be transformed into a space that supports human scaled activities as a direct contrast to the vehicular scaled activities right above it.. Suggestions for future study could include a prolonged observation of a particular site whilst including feedbacks and inputs from local users and surrounding communities in order to extend the value of the study as well as provide a more wholistic understanding of a particular site.

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