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CRITERIA AND ATTRIBUTES FOR THE 20-MINUTE CITY CONCEPT (KP20M) IN BALIK PULAU, PULAU PINANG

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Abstract

This article reports on the progress of a community project that involves Universiti Sains Malaysia, PLANMalaysia, Penang Disaster Management Committee and local community organisations. The purpose of this project is to measure the suitability of this neighbourhood in Balik Pulau that qualifies to be considered as a pilot project that is able to achieve a level comparable to the pilot project in Melbourne, Australia. This 20-Minute City project aims to assess the attributes and criteria, examine the study area's preparedness to address disaster based on the assessed attributes and criteria, and strengthen the resilience of the study area via practising locally mould 20-Minute City attributes and criteria. This is done by looking at the use of space (spatial) and capacity (public facilities, infrastructure, buildings & other land use categories) based on the needs of existing communities. 20-Minute City Concept was initially brought forward to promote the idea of living locally – people can meet most of their needs within a 20-minute walk from home. COVID-19 has abruptly tweaked living locally into living sustainably, where the profound COVID-19 destructive effect has accelerated the necessity of developing a community that is resilient to risk. The study area technically has 20-Minute City's attributes and criteria; however, they are yet to be fully assessed on its readiness aspect. This study is appropriately done now to see this concept potentially incorporated in some Malaysia development policies, especially after the COVID-19 outbreak as a pandemic since this new city concept has become a new trend of new neighbourhood norm. Understanding the feasibility of these attributes and criteria will help in planning an effective disaster management plan which then creates a resilient and competitive community towards understanding distances and features as being practised in the 20-minute neighbourhoods in Australia.

Keywords: Community Project; COVID-19 Pandemic; Resilient; New City Concept; New Neighbourhood Norm

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INTRODUCTION

20-Minute City Concept was initially brought forward to promote the idea of living locally – people can meet most of their needs within a 20-minute walk from home. COVID-19 has abruptly twisted living locally into living sustainably, where the profound COVID-19 destructive effect has accelerated the need to develop a community that is resilient to risk (UN-Habitat, 2020). The study area technically has 20-Minute City's attributes and criteria; however, they are yet to be fully assessed on its readiness aspect (Wang et al., 2016). Understanding the feasibility of these attributes and criteria will help in an effective disaster management plan, creating a resilient and competitive community (Song, 2015). This will increase the opportunity to be socially and economically viable on its own (Amann & Juraszovich, 2017). This 20-Minute City project aims to assess the attributes and criteria, examine the study area's preparedness to address disaster based on the assessed attributes and criteria, and strengthen the resilience of the study area via practising locally mould 20-Minute City attributes and criteria. This is done by looking at the use of space (spatial) and capacity (public facilities, infrastructure, buildings & other land use categories) based on the needs of existing communities (Egila & Agbola, 2012). Therefore, the identification of criteria and attributes in the study area are the step towards understanding distances and features as being practised in the 20-minute neighbourhoods in Australia.

Once the 20-Minute City Concept can be identified in this study location in Malaysia, a proposal will be made by Universiti Sains Malaysia, PLANMalaysia, the State Disaster Management Committee and the local community organisation of Balik Pulau (Figure 1) to the Victoria State Government Department of Environment, Land, Water & Planning, Australia on the potential of becoming a partner in their existing 20-Minute Neighborhood Pilot Program. In Australia, this concept has already been incorporated into the long-term physical planning of Plan Melbourne 2017-2050; Direction 5 — Create a city of 20-minute neighbourhoods. Malaysia still does not have the planning to see this concept in its major physical development policies (Roosli et al., 2019). After the COVID-19 outbreak as a pandemic, this new city concept needs to be studied and has become a new trend of new norms neighbourhood as recommended by the PLANMalaysia. Planning has dramatically changed post-pandemic life; most residents in affected areas must remain at home and follow the Ministry of Health (MOH) and KKM SOPs to obtain daily necessities. This scenario corresponds with the implementation of KP20M, which promotes easy access to daily necessities by walking, cycling, or safely using public transportation. The implementation of KP20M necessitates the cooperation and participation of numerous parties, beginning with local governments, developers, public transportation operators, non-governmental organizations (NGOs), and public awareness (PLANMalaysia).

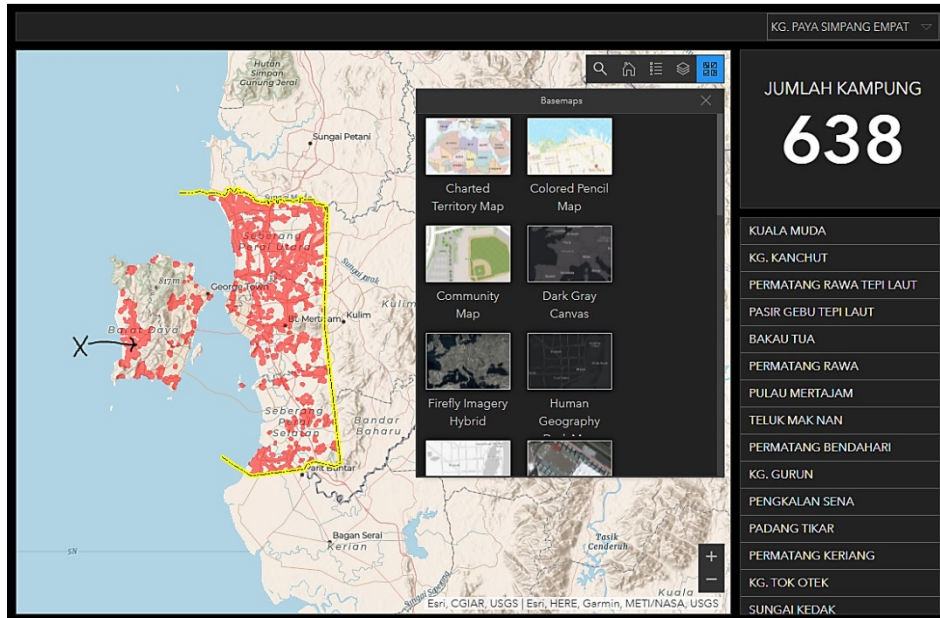


Figure 1: Keyplan of Balik Pulau (PLANMalaysia, 2021)

METHODS & MATERIALS

This community project is divided into two (2) phases (Figure 2). Phase one (1) has started (since 20th August 2021) with sponsorship received from four (4) sponsors, namely Universiti Sains Malaysia (research team), PLANMalaysia (federal town planning authority), State Disaster Management Committee (local authority) and local community organisation. The ongoing Phase one (1) will cover the 1st objective out of 3. Phase two (2) needs to be done to get results that qualify to be considered as a pilot project that is able to achieve a level comparable to the pilot project in Australia. This study will only focus on phase one (1), which will answer the first objective.

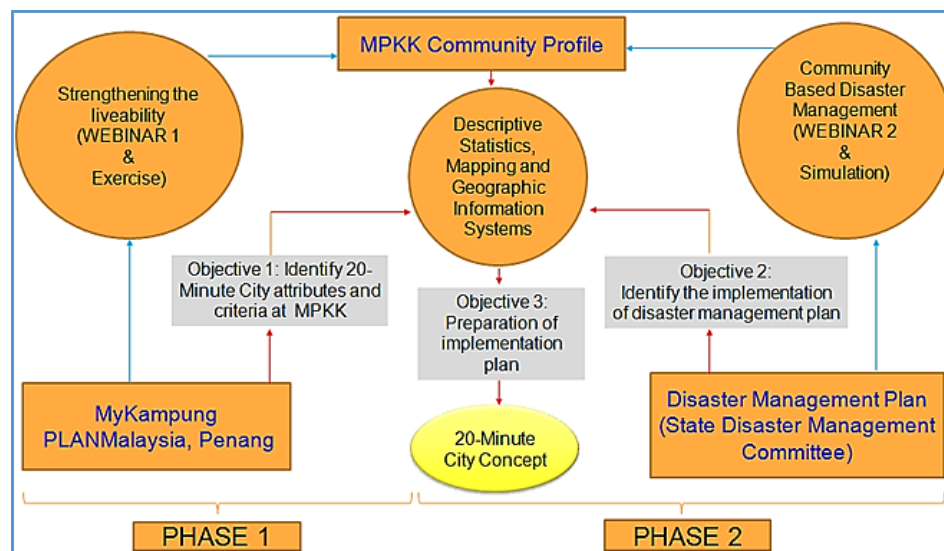


Figure 2: Implementation Framework

The current study is based on academic reports of original investigations and policy guidelines focusing on major urban themes necessary for effective criteria and attributes of future townships, as shown in Table 1. The researcher will extract the relevant attributes from these reports and use those criteria in this study. The attributes and criteria for this study will be chosen by considering the use of space (spatial) and capacity (public facilities, infrastructure, buildings, and other land use categories) concerning the needs of existing communities.

Table 1: Authors with Coherent Title/Theme

Author	Title/Theme
Amann & Jurasszovich (2017)	Urban Agenda
Roosli et al. (2019)	New Urbanism
Greenfield (2013)	Smart Cities
Deakin & Allwinkle (2007)	Sustainable Urban Regeneration
Egila & Agbola (2012)	ICT & Physical Planning Practice
Gaughan et al. (2013)	Population Distribution
Ong, K & Fong, J. (2016)	Transportation
Song, K. B. (2015)	Sustainable Cities
Ujang, (2012)	Urban Place Identity
Wang et al. (2016)	Quality Assessment & Physical Planning
Ministry of Health (2017)	Typhoid Case/Outbreak Management Guidelines FWBD/TYP/GP/003 Typhoid Case/Outbreak Management Guidelines

UN-Habitat (2020)	UN-Habitat Covid-19 Policy and Programme Framework
Ministry of Housing and Local Governance (2019)	National Community Policy
PLANMalaysia (varies)	National Housing Policy GPP Green Neighborhood GPP Healthy Walkable City GPP Community Facilities GPP Commercial Area GPP Transit-Oriented Development GPP Vertical Mixed-Use GPP Housing Planning GPP Disaster Resilient Cities In Malaysia National Physical Plan, Structure Plan & Local Plan Geo-disasters In Land Use Planning DPF National Village (<i>Desa Negara</i>) 2030 National Urbanization Policy

A detailed review of the above mentioned research is being done through content analysis to develop a policy agenda to follow the livable townships in the future, aiming at the well-being and economic stability of its residents (Greenfield, 2013). The objective is to propose a strategic framework aimed at sustainable urban development and better current and future townships as follows:

Objective 1: To identify matching criteria and attributes of 20-Minute City in the study area (Balik Pulau, Pulau Pinang, Malaysia)

On top of the policy statement from the disaster management blueprint, identification of the criteria and attributes for the 20-minute city, mapping potential demand for walking also can be provided along each route to the centre, using census data on where people lived in the local area (Gaughan et al., 2013). The mapping then will work with the councils' local plan to identify the most important walking routes to each centre as shown in Figure 3. This work is based on the desk study already available by the Department of Transport.

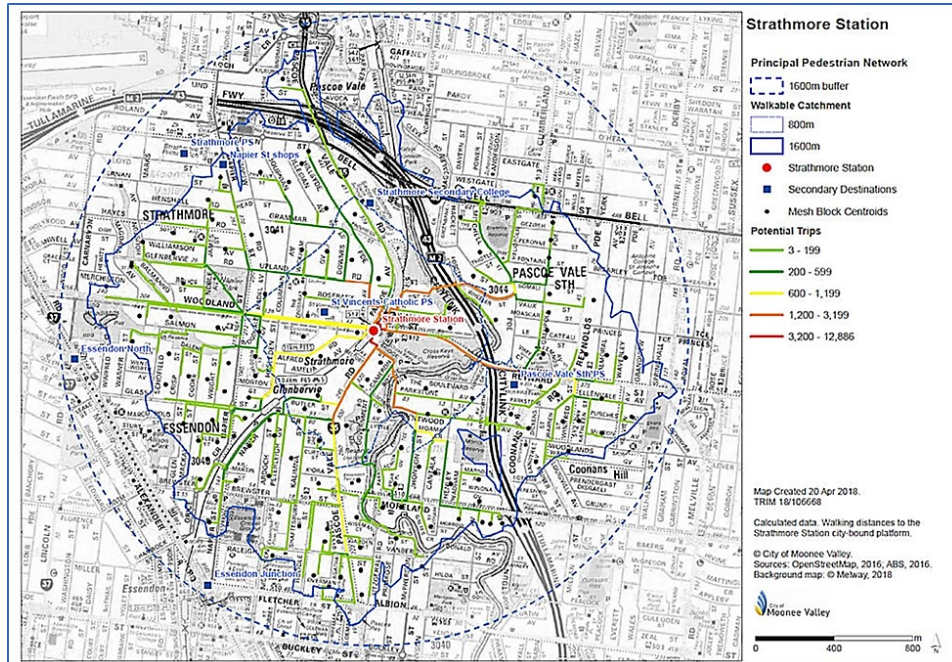


Figure 3: Identifying Distance and Features within the Specific Radius (Victoria State Government, 2021)

ANALYSIS & DISCUSSIONS

For the analysis, on top of local community baseline data, formal indicators will be used to measure the formal components of a neighbourhood and street in promoting sustainability to support walkability, biking or other public transport (Porla & Renne, 2005). This study utilised two indicators: urban fabric and street indicators. For the first indicator (urban fabric), eight indicators were used, including accessibility (pedsheds), land use diversity, public/private realm, natural surveillance (fronts and backs), permeability/street connectivity, employment density, number of buildings, and number of lots. For example, the mapping of a 'pedshed' or walkable catchment enables an assessment to be made about the interconnectedness and accessibility of the street network for pedestrians. To map the pedshed, a 400- and/or 800-m circle is drawn around a transit stop which assumes a 5- and 10-min walk, respectively, as in Figure 4.

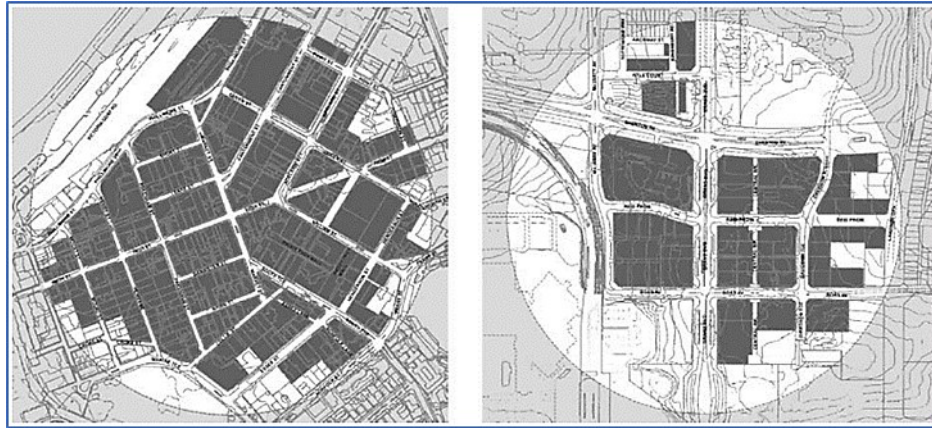


Figure 4: Urban Fabric Indicators: Pedshed Maps (Porla & Renne, 2005)

Meanwhile, second indicators (street indicators) will be used to dissect the individual components of an area to understand the building blocks of a successful (or unsuccessful) as compared to street design. Whether the street is planned or built, these indicators can be used to improve the vitality of a street (Porla & Renne, 2005). Measurements were taken using AutoCAD and GIS along the centre of the street, 25m apart. Once the measurements have been developed, each image will be analysed to gather the measurements for the indicators, including sky exposure, facade continuity, softness, social width, visual complexity, number of buildings, and detractors. Although this project will utilise AutoCad and GIS, photos will also be used from existing streets to supplement measurements from ‘virtual’ streets to be built in a 3D program. Samples of the Layout are shown in Figure 5.

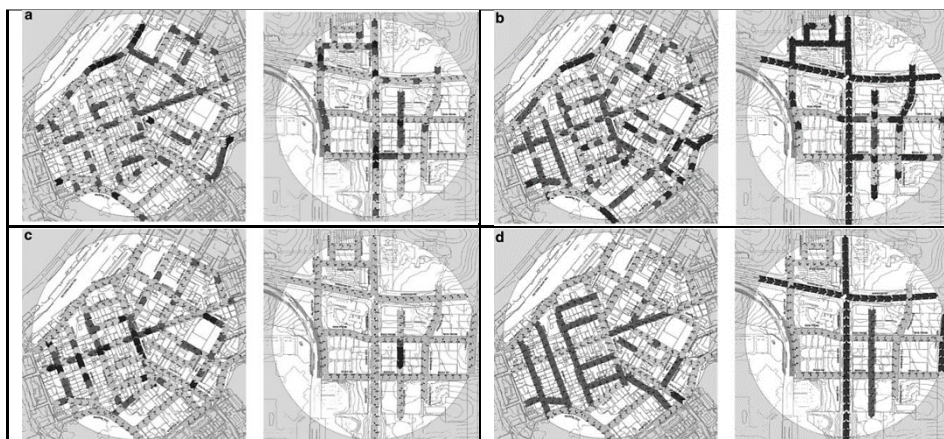


Figure 5: Street Indicators, Samples of Layout. (a) Sky Exposure. (b) Facade Continuity. (c) Softness. (d) Social width (Porla & Renne, 2005)

Criteria for the 20 Minute City Concept (KP20M)

The two major considerations in achieving a 20-minute neighbourhood are the distance and features. Research shows that 20-minutes is the maximum time people are willing to walk to meet their daily needs locally (Badland et al., 2014) (Figure 6). People can walk 2 km in 20 minutes, or cycle 5 km in 20 minutes and still get access to other public transport. A 20-minute neighbourhood must consist of:

- be safe, accessible, and well connected for pedestrians and cyclists to optimise active transport,
- offer high-quality public realm and open space,
- provide services and destinations that support local living,
- facilitate access to quality public transport that connects people to jobs and higher-order services,
- deliver housing/population at densities that make local services and transport viable, and
- facilitate thriving local economies.

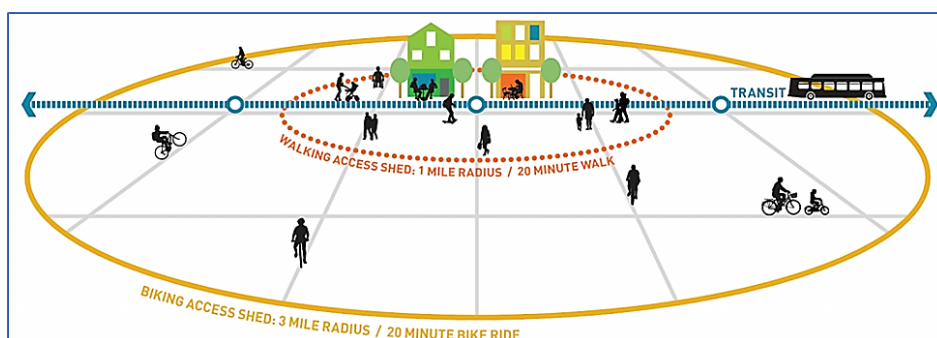


Figure 6: Distances According to 20-Minute Neighbourhoods' Concept (Badland et al., 2014)

The data based on the identification of these proposed criteria from the literature (Gunn et al., 2017) will be processed and matched with local criteria based on GIS information. There are four characteristics of such places and detailed in Figure 7 as follow:

- Ecology, for a green and sustainable city
- Proximity, to live at a reduced distance from one's work activities
- Solidarity, forging connections between people
- Participation, to actively involve citizens in transforming the spaces in which they live.



Figure 7: Features of 20-Minute Neighbourhoods' Concept (Gunn et al., 2017)

Attributes for the 20 Minute City Concept (KP20M)

The core of a 20-minute neighbourhood is its walkability and priority given to pedestrians. 800 metres (about half a mile) is the distance of a 20-minute neighbourhood or 20 minutes in time (based on average walking times of healthy adults). Whilst, public transport is to be supported, these distances within a neighbourhood are not usually covered by public transport; it is more helpful to think of public transport as linking neighbourhoods (Ong & Fong, 2016). Cycling might do if there were good cycling infrastructure, but the idea of the 20-minute neighbourhood is to give priority consideration to pedestrians and walkability.

Based on Isa (2020), city design is an ongoing process in shaping the image and identity of the city, its surroundings and the community environment. Some researchers distinguish between place identity and place attachment (Qazimi, 2014), and many works have attempted to explain and determine the relationship between people and their backgrounds in various ways. Place identity and place attachment are some of those concepts that relate humans to their surroundings. However, place identity is more than just an attachment; it also includes one's perception and understanding of their surroundings. (Isa, 2022). Research on urban place identity and place attachment features significant attributes and elements of local places depending on locality, as shown in Table 2.

Table 2: Attributes and elements relevant to urban place identity

Component	Attributes	Elements
Physical Element	Accessibility	Location; access & layout Signage; greenery/trees; view; landscape features; building & facade; landmark/nodes; & shopping complexes
	Legibility	
Activity	Vitality	Liveliness; street activity; people watching; entertainment
	Diversity/ Choice	Product/services; sport & eating spots; day & night activities; mixture of people; price;
	Transaction	Banking & communication centres; & street vendors
Image	Legibility	Image; & popularity
	Distinctiveness	Public open spaces; distinction; uniqueness; traditional
	Comfort	Resting space; convenience; facilities; environmental quality; maintenance;
	Safety/Security	Surveillance; & pedestrian

Source: Ujang (2012)

This study refers to the spatial and non-spatial database of villages in the state of Penang, which contains the boundaries of each village and a clearer, practical and comprehensive attribute profile based on the village category as contained in the National Rural Physical Planning Policy 2030 (Figure 8). This village profile database will be used to match the criteria identified earlier.

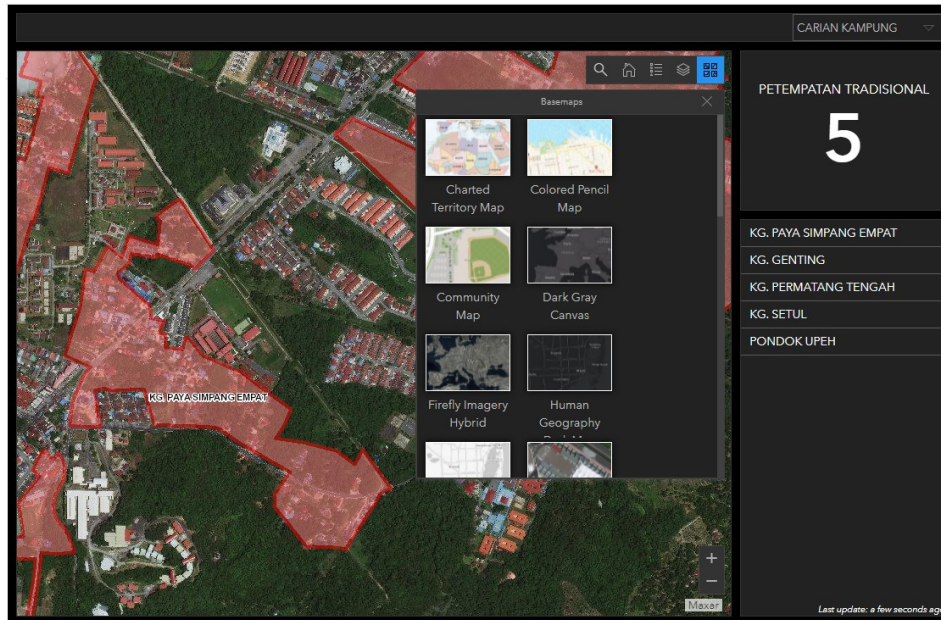


Figure 8: The Boundary of the Study Area (PLANMalaysia, 2021)

CONCLUSIONS

There is greater awareness of risk because of the pandemics, the increasing frequency of disasters and the challenges of climate change. This means that society is once again looking at models of ‘30- and 20-minute cities or neighbourhoods’, notably initiated in Australia, and the 15-Minute City concept in Paris, especially since the Paris Climate Agreement came into force. Such models build on New Urbanism and Transit-Oriented Development (TOD) principles and find their roots in the ‘neighbourhood unit’ idea. This is a new urban design. It aims to improve the quality of life by creating cities where a resident's needs (jobs, food, recreation, green space, housing, medical facilities, small businesses and more) can be reached within 15 minutes by foot, bike, or public transit. This is as recommended by PLANMalaysia for better connectivity. Town planners and decision-makers need to skilfully optimise every inch of the town and rural area in the following:

1. Understand the current spatial and land use condition and utilise the understanding to improve community socio-economic planning in a targeted/strategic manner.
2. Gain a clear picture of the role and contribution that the community can make in physical development and utilise it to plan an effective development based on existing and future land use allocations.

3. Awareness and capacity building are fundamental in successfully operating locally mould 20-Minute City's attributes and criteria.
4. Potential collaboration between Southeast Asia country (Malaysia) and the Victoria State Government Department of Environment, Land, Water & Planning, Australia, towards creating 20-minute neighbourhoods in Malaysia's major planning policies.

Understanding the feasibility of these attributes and criteria will help in planning an effective disaster management plan which then create a resilient and competitive community towards understanding distances and features as practised in the 20-minute neighbourhoods in Australia, which needs to be adapted to the local context in Malaysia. Finally, with the results of other similar studies in the future, it is hoped to inspire the improvement of current physical planning policies at various development planning levels.

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