

# Community engagement and public awareness on safe city program based on road safety initiatives

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**Abstract.** The Ministry of Housing and Local Government (KPKT) initiated Safe City Program in August 2004 as a move towards creating a safe communities and environment in urban areas to improve public quality of life. It served as a crime prevention measure in ensuring the crime rate in the city can be reduced and enables the residents to live, comfortably and safely without fear. To implement this program, each municipal council's department of town and country planning lead the effort by designing a safe environment and reduce the chance to commit crimes. This study aims to evaluate public awareness of safe city program implementation in Johor Bahru district. Community engagement is important to make sure local community fully aware about safe city program and help in making the program successful. To determine the level of awareness, 80 questionnaires were distributed to public community around affected areas. The data were then analysed using spread sheet program and SPSS. Result has shown that public awareness is closely related with physical visibility for each safe city initiatives. The significant of the study is to provide strategy to increase public awareness for the continuation of safe city program in the future.

## 1. Introduction

The foundation of Safe City concept came from the old proverb 'preventing is better than treatment'. To prevent from crime taking place, cooperative partnerships between authority and community is essential. This community engagement needs to be made as integral part of the local crime prevention programme. An operational safe city program cannot be implemented effectively without participation of the local community. On the other hand, active participation of the local community depends on their awareness.

Theoretically, engagement features attributes of connection, interaction, participation, and involvement designed to accomplish an outcome at individual, organization, or social levels [1]. Current research acknowledges the importance of engagement's socially-situated nature [2]. Community engagement seeks to better engage the community to achieve long-term and sustainable outcomes, processes, relationships, discourse, decision-making, or implementation.

The concept of awareness has to be generated at the community level [3]. Meetings and awareness programs can be organised to make the local community aware of the crime prevention measure and management. Separation of pedestrian walkways from motorised lane can only be effective if people



use the pedestrian walkways properly to avoid snatching theft. Better lighting can increase community pride and cohesiveness, leading to a greater willingness to intervene in crime and to report it.

## 2 Literature Review

### 2.1 Safe city program

The purpose for safe city program is to create city that free from violent damage property, snatch theft, house breaking, and robbery [4]. One promising approach is to invest in making the physical environment less conducive to criminal activity [5]. The Malaysia Ministry of Housing and Local Government (KPKT) initiated Safe City Program in August 2004. 38 municipal councils (PBT) were selected to implement the Safe City Program. The participated PBT's department of town and country planning lead the effort by designing strategy which reduces the chance to commit crimes thus creating a safe environment.

Among the measures taken in term of crime prevention approach are through the design of physical environment, strategies for empowering target areas and management strategies, community participation and public awareness (Table 1). A basic tenet for this crime prevention approach programs is Jeffery's Crime Prevention through Environmental Design (CPTED) model [6, 7]. The main purpose of CPTED techniques is to reduce crime opportunities through modification and manipulation of the built environment. Apparently, the environmental element is one of the factors considered by criminals in deciding whether or not to commit an act of crime [8].

**Table 1.** Safe city framework [4].

	<b>Design Environment</b>	<b>Parties Involved</b>	<b>Development Community</b>
<b>Safe City Features</b>	Change environment: micro change that include endurance, sustainable procedure such as increase lighting brightness in residential areas, emergency communication tool installation and others	Policy and crime prevention strategy in development plan	Crime prevention awareness among people through education and Society involvement through neighbourhood association and crime prevention committee formation
<b>Target</b>	Residential environment that free from criminal activity Residential area		

### 2.2 Safe city initiatives

Safe city programme implementation in Malaysia can be categorised in three approaches. These three approaches are further divided into 23 measures for crime prevention. However, this study will focus on 12 measures targeting on road safety initiatives as shown in Table 2.

**Table 2.** Road safety initiative description.

<b>Road safety initiatives</b>	<b>Description</b>
Separation of lanes for pedestrians and motor vehicles	Separation to decrease potential harms to pedestrians from the roadside and when they are crossing streets [9, 10]. Modifications to the built environment can reduce the risk and severity of vehicle-pedestrian crashes [11]

Construction of bollards	Bollards are a simple, practical, and cost-effective way to protect pedestrians by providing a protective physical barrier [12]. Offer protection in cases where a vehicle loses control and breach the street limits at high speed [13]
Crime information sharing through Geographic Information System, GIS-Based Mapping	GIS is a technological tool refers to an Information Technology solution including process, structure and people within which the IT solution operates [14]. Utilised for municipal police department by creating geo-coding and crime mapping [15]
Provision of Police Posts	Enhance the image of the police among victims and public. It can also decrease feelings of vulnerability among the public at large [16]. Increase public security by highly-visible policing presence [17]
Crime Prevention Signage	The effectiveness of the signage as a cheap and simple intervention suggests that there can be considerable crime-reduction benefits to engaging the psychology of surveillance, even in the absence of surveillance itself [18]
Safety Mirrors	Lateral visibility at road junctions can be improved by a convex mirror. Safety mirror appears as a device that enhances safety behaviour and can be recommended as a traffic aid [19]
Maintenance of untidy and unkempt areas	Crucially, research suggests that the routine maintenance of the urban environment will significantly assist in reducing crime [30]. Continual use of public areas promoted by the creation of open, permeable environment with mixed land uses was the most effective way of ensuring informal surveillance and to discourage criminal activities [21]
Locking facilities for Motorcycles	Dedicated motorcycle parking with locking facilities not only helps in providing an organized parking area for motorcycle but also availability of secure parking space
Installation of Closed-Circuit Television (CCTV)	Mechanical surveillance strategies such as CCTV have the capacity to promote surveillance opportunities and part of capable guardianship [22]. If offenders perceive that they can be observed they may be less likely to offend, given the increased potential for intervention, apprehension and prosecution [23]
Lighting up potential crime areas	Street lighting fall into natural surveillance category. Natural surveillance provide visibility for public areas [7] and higher chance to notice strangers in addition to prevent crime from happening

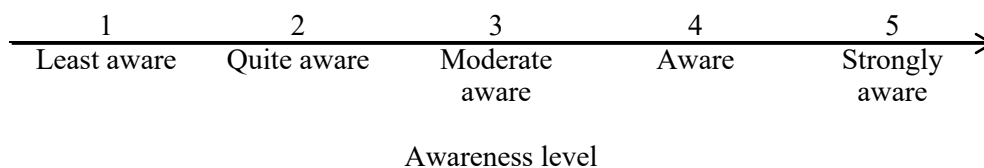
Distributing pamphlets on crime prevention	Creating awareness on crime prevention action and to strengthen the bond between the police and the public [24]. The distribution of printed educational materials in public places helped heighten the awareness of the citizens on various modus operandi of criminal elements [25]
Improving surveillance in housing areas	Informal surveillance (by neighbour to neighbour) concentrates on the ability of local social institution to reduce crime in residential neighbourhood [26]. Frequent formal surveillance by security and police is another possible improvement action.

Only 12 initiatives were selected. This is because, from the 23 measure, only 12 selected are road safety initiative. The rest include non-road safety initiative crime prevention measure such as police mobile station and generation of appropriate activities at vulnerable crime spot.

### 3 Methodology

#### 3.1 Data collection

This study used close-ended questionnaire consists of four main sections. Section A contains demographic survey for respondents. Section B list 12 crime prevention approaches, respondents were required to rank their awareness level according to 5 levels Likert's scale (Figure 1).



**Figure 1.** Section B questionnaire Likert's scale.

Section C consists of facilities assessment toward risk incurred. Finally, section D includes two questions on respondent opinions about safe city program approach and strategy. Questionnaires were distributed to public community around affected areas in addition to online survey for pre- identified areas. The survey was conducted in Johor Bahru City Council areas focusing on road safety initiatives.

#### 3.2 Data analysis

Frequency analytical method was used to analyse the respondent answer choice. The respondent frequency was shown in the form of index range based on

$$\text{Index range} = \text{mean lowest score} + \text{mean score difference} \quad (1)$$

The mean lowest score represent the smallest summation for each questionnaire item. Meanwhile, the mean score difference were calculated using the formula

$$\text{mean score difference} = \frac{\text{mean high score} - \text{mean score}}{\text{number of score categories}} \quad (2)$$

Once the calculation was made, a more suitable awareness levels according to respondents' views were formed. The new index range is shown in Table 3.

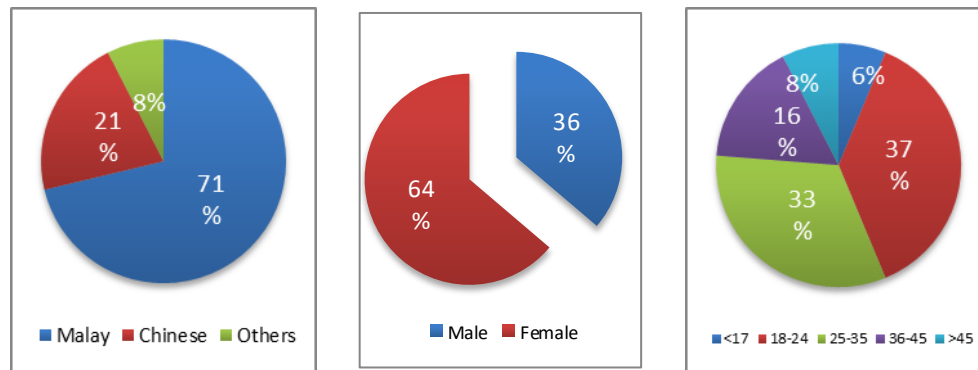
**Table 3.** Index range.

Index Range	Influencing Stage
4.514 – 4.63	Strongly aware
4.395 – 4.513	Aware
4.227 – 4.394	Moderately aware
4.159 – 4.226	Quite aware
4.04 – 4.158	Least aware

## 4 Result and discussion

### 4.1 Respondent demographic

Figure 2 shows respondent demographic in term of (a) race, (b) gender and (c) age range. Description for the analysis is further discussed below.

**Figure 2(a).** Race.**(b).** Gender.**(c).** Age range.

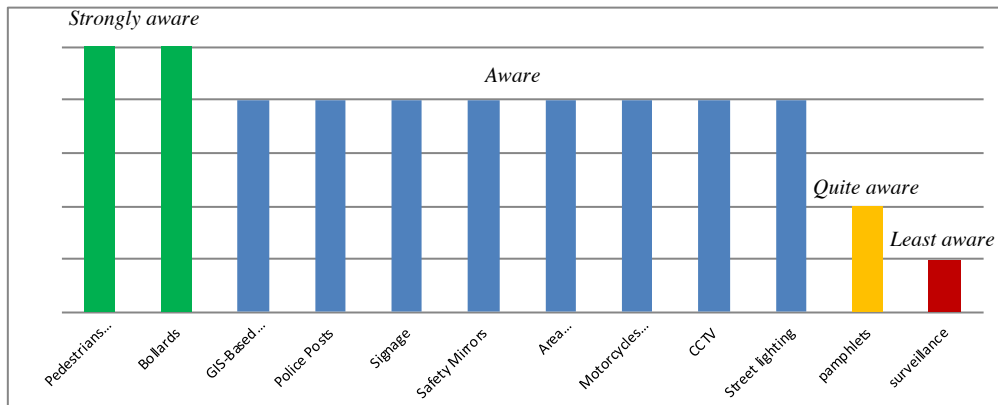
Majority of the respondents were Malay ( $n = 57$ ) followed by Chinese ( $n = 17$ ). The rest consist of Indian and other races. The high number of Malay might due to the location of questionnaire distribution, as it is a Malay populated area. On the other hand, majority of the respondent were female ( $n = 51$ ). Female are shown to be more approachable for surveying and more interested to involve in any community activities [27, 28]. Most respondent were young adult in the range of 18 – 24 years followed by 25 – 35 years old. Similar study has also shown that younger people are more likely to participate than older people in survey [28].

### 4.2 Awareness level

Figure 3 provide the level awareness for each safe city initiatives according to 80 respondents in Johor Bahru area. The awareness level followed Figure 1 level description where rank 5 indicate strongly aware level and rank 1 shows least aware level. Community engagement is the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people.

Community engagement is a powerful vehicle for bringing about environmental and behavioural changes that will improve the security of the community and its members. It often involves partnerships and coalitions that help mobilize resources and influence systems, change relationships among partners, and serve as catalysts for changing policies, programs, and practices [2].

Findings shown that public are strongly aware of two safe city initiatives which are separation of lanes for pedestrians and motor vehicles and construction of bollards. Additionally, result also show that public are mostly aware about majority of the safe city initiatives such as provision of police posts, maintenance of untidy and unkempt areas, installation of safety mirrors, street lighting and crime prevention signage. Such awareness might because this initiative requires physical construction and visible to public.



**Figure 3.** Safe city initiatives awareness.

On the other hand, public were less aware about any crime prevention pamphlet distribution and were not aware at all of any improvement in surveillance in housing areas. Reasons for lack of awareness can be explained in two parts. First, the distribution was targeted for school children which were not this study main respondent age range. Second, surveillance improvement can be rather subtle and since it's more in societal manner, lack physical development and visibility with this study respondent. In summary, it is shown that the awareness is closely related with physical visibility. It is therefore important that visibility, awareness and appreciation exists at the level of the general public as well as at the level of local authority planner about in providing deliverable safe city initiatives.

#### 4.3. Increase awareness strategies

Statistic shown that crime index in Malaysia for robbery is 14 128 cases and snatch is 239 cases in 2017 [29]. Proactive actions are required to reduce this crime rates in creating safe city. Multiple studies have shown that safe city initiatives are able to minimise crimes [7, 20]. However, public participation is necessary for maximum effectiveness. Among strategy to increase awareness is by improving communication and public information and engagement between authority and public [30].

Secondly is by providing key prevention information out to certain target audience and encourage them to take action in preventing or reducing crime. Research shows that initiatives targeted and delivered in local communities have more impact than state-wide or general campaigns. People take more notice of information that is about their local community [31]. Educating the public is one of the most important strategies for preventing crime. The basic foundation of safer community is when the public know how they can enhance neighbourhood safety and identify actions they can take to reduce their risk of crime.

## 5. Conclusion

Successful safe city program depends on effective process and active participation from parties concern such as local authorities and community. Community engagement needs to be made as integral part of the local crime prevention programme. Active engagement can only come from increase awareness. Findings show that the awareness is closely related with physical visibility. Hence, it is imperative that visibility for each safe city initiatives is made aware at the level of the general public. This study also suggested some strategies to increase public awareness by improving communication between all involved parties and to disseminate key information directly to target audience.

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## References

- [1] K A Johnston 2018 *The Handbook of Communication Engagement* **1** pp 19-32
- [2] Centres for Disease Control and Prevention 1997 *CDC/ATSDR Committee on Community Engagement*
- [3] J K Newport and G G Jawahar 2003 *Disaster Prevention and Management: An International Journal* **12**(1) pp 33-36
- [4] NKRA 2013 *Bandar Selamat 2<sup>nd</sup> ed.* (Kuala Lumpur Malaysia)
- [5] A Chalfi, B Hansen, J Lerner and L Parker 2019 *Crime Lab New York*
- [6] C R Jeffery 1971 *Crime Prevention Through Environmental Design* (Beverly Hills, CA.:Sage Publications)
- [7] C Casteel and C Peek-Asa 2000 *American Journal of Preventive Medicine* **18** (4) pp 99-115
- [8] L S Anastasia and E E John 2007 *American Journal of Health Promotion* **21** (4) 380-389
- [9] S Marisamynathan and P Vedagiri 2018 *Transport* **33** (1) pp 249-259
- [10] R R Braun and M F Roddin 1978 *NCHRP Report* **189** 1
- [11] R A Retting, S A Ferguson and A T McCartt 2003 *American journal of public health* **93** 9 pp 1456-1463
- [12] Reliance foundry 2017 Stay safe with bollards: The key to security with design value. Retrieved from <https://www.reliance-foundry.com/blog/bollards-security-safety-design#gref> on 8th July 2019
- [13] Verge 2017 Road safety–Importance of bollards and barriers. Retrieved from <https://www.vergesafetybarriers.com.au/road-safety-importance-bollards-barriers/> on 8th July 2019
- [14] S Chainey and C Smith 2006 *A review of GIS-based information sharing systems* (Home Office Online Report 02/06)
- [15] M R Leipnik and D P Albert 2002 *GIS in law enforcement: Implementation issues and case studies* (CRC Press)
- [16] B Rogers 2004 *Re-inventing the police station-Police–public relations, reassurance and the future of the Police Estate* (London: Institute for public policy research)
- [17] S Hudes 2018 *Police introduce mobile police station to be used throughout city centre* (Calgary Sun)
- [18] D Nettle, K Nott and M Bateson 2012 *PLoS ONE* **7** (12) e51738
- [19] D Moukhwas 1987 *Applied ergonomics* **18** (2) pp 133-136
- [20] P M Cozens, D Hillier and G Prescott 2001 *Property Management* **19** (4) pp 222-248
- [21] P Cozens and T Love 2009 *Built Environment* **35** (3) pp 346-365
- [22] K Painter and N Tilley 1999 *Surveillance of Public Space: CCTV, Street Lighting and Crime Prevention* (Monsey, N.Y.: Criminal Justice Press)
- [23] P M Cozens, G Saville and D Hillier 2005 *Journal of Property Management* **23** (5) pp 328-356
- [24] C Tan *Star Online* Retrieved on 8th July 2019  
<https://www.thestar.com.my/news/community/2011/06/24/superbikers-and-cyclists-to-distribute-pamphlets-on-crime-prevention-to-public/#qK6FJ0SMUsfETITA.99>
- [25] D T Mallari 2015 *Inquirer* Retrieved on 8th July 2019  
<https://newsinfo.inquirer.net/737990/cops-new-anticrime-weapons-flyers-leaflets#ixzz5t3Ukh0jq>
- [26] T Hope 1995 *Crime and Justice* **19** pp 21-89
- [27] D L Moore and J Tarnai 2002 *Survey Nonresponse* (New York: John Wiley & Sons) pp 197–211
- [28] G Smith 2008 *Does gender influence online survey participation? A record-linkage analysis of university faculty online survey response behaviour* (ERIC Document Reproduction Service) No. ED 501717
- [29] Department of Statistic Malaysia, Crime Statistic, Malaysia, 2018. Retrieved from [https://www.dosm.gov.my/v1/index.php?r=column/cthemByCat&cat=455&bul\\_id=SnJIWjNGZ3VWajUraDIbCfPmMQ3JWUT09&menu\\_id=U3VPMldoYUxzVzFaYmNkWXZteGduZz09](https://www.dosm.gov.my/v1/index.php?r=column/cthemByCat&cat=455&bul_id=SnJIWjNGZ3VWajUraDIbCfPmMQ3JWUT09&menu_id=U3VPMldoYUxzVzFaYmNkWXZteGduZz09) on 8th July 2019

- [30] R Schein, K Wilson and J E Keelan 2011 *Literature review on effectiveness of the use of social media: a report for Peel Public Health* (Peel Public Health)
- [31] NCJRS 2000 *Raising Awareness and Educating the Public - National Crime Prevention Council* (United States: National Citizens' Crime Prevention Campaign)