

*Application of Google Street View Application for Footpaths' Inspection in
Nakhonratchasima City Municipality, Thailand*

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Abstract

Walking is one way to increase physical activity regardless of whether the purpose for walking is for transportation or leisure. Therefore, this paper aims to inspect urban footpaths in term of infrastructures and facilities based on data of Footpath Standard Inspection (FSI) from Ministry of Transport (MOT). This study selected 5 routes of Nakhonratchasima City Municipality (NCM) that were reported as a quality footpaths along public transport routes from The Study of Traffic Management and Public Transport Development Master Plan in Nakhon Ratchasima Urban Area. Moreover, Google Street View (GSV) was used for footpaths' investigation in NCM. GSV was implemented to help with prior inspecting process by allowing prospective researches to take a virtual tour before visiting. The results showed that all inspected 5 routes above-based GSV still were lacked of curb ramp and obstacles arrangement. These results are consistent with the currently true ground. Moreover, footways are now not provided facilities for disables such as protective rails and braille block. Consequently, the results of footpaths' inspection in NCM will be able to take action for planning and improving footpaths in NCM toward health and wellbeing further

Keywords: Health and wellbeing, Footpath, Google Street View

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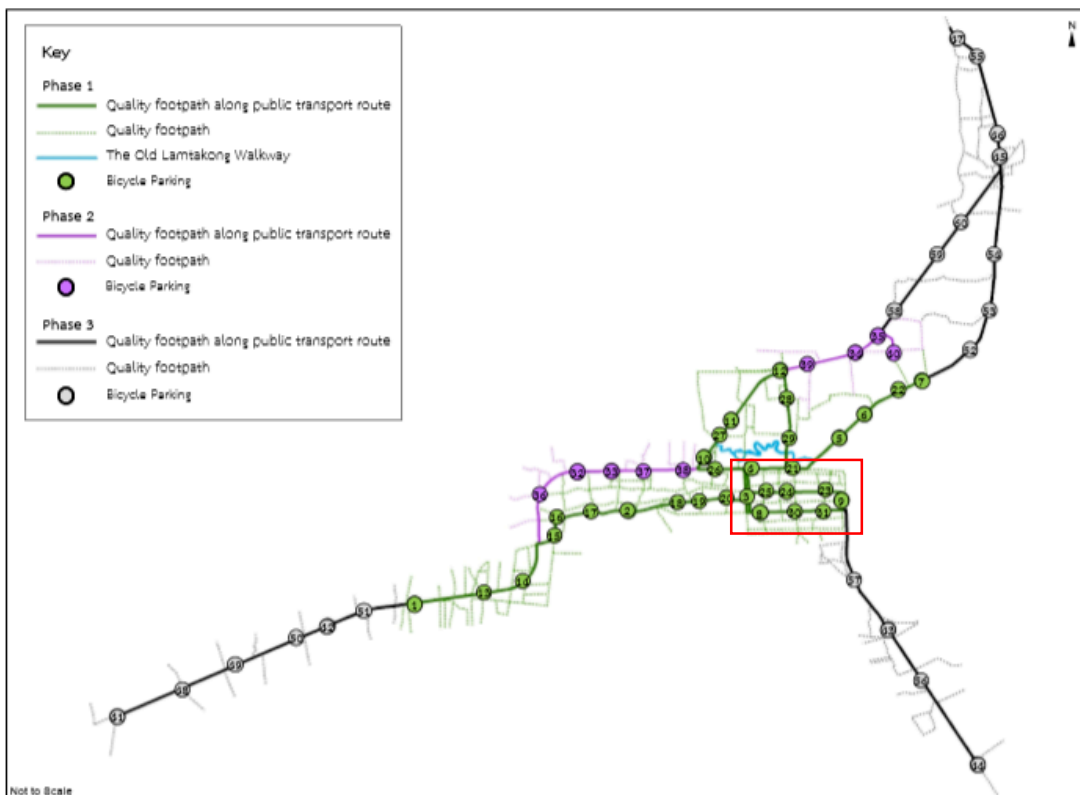
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Introduction

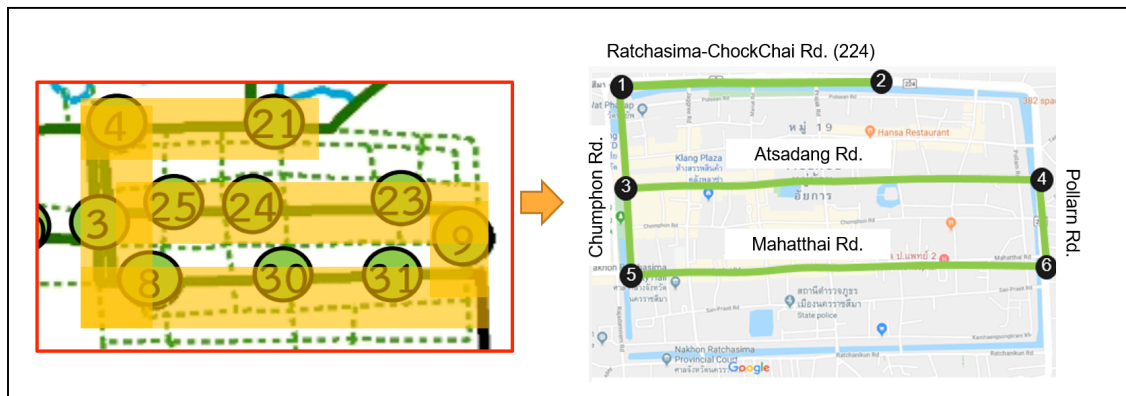
Walking is the easiest and cheapest and cheapest way to develop a healthy lifestyle. There are many health benefits for people who walk regularly, including improving medical conditions like diabetes; preventing cancer, heart attacks, and stroke; contributing to a longer life, and boosting overall well-being (Kyu et al. 2016). To encourage walking activities in an urban area, footpaths must comply with the following best practice standards of safety and support for all users. In developed countries realize the importance of sustainable traveling in the cities by maintaining the condition of the footway. The footpath is a vital roadside element as it facilitates pedestrian movement and enhances overall connectivity. Accessible, safe, comfortable and well-maintained footpaths enhance the walking experience and promote walking as a mode of transport for short-distance commuting.

The research uses secondary data for selecting the research footpath routes. The Study of Traffic Management and Public Transport Development Master Plan in Nakhon Ratchasima Urban Areas (2017) has reported that the traditional center (city moat areas) is an urgent place urban are to be developed in terms of traffic and public transport. There were 5 routes around the traditional center (city moat areas) to be inspected. The selected routes were reported as a quality footpath along public transport routes from as shown in the red circle in figure 1.



Source: office of Transport and Traffic Police and Planning Ministry of Transport
Figure1: Park and Ride, Interchange/Mode Change and appropriate Access Points for Phase 1, Phase 2 and Phase 3

The researcher use Google map to define the name road. Also the researcher have create the point of origin and ending point of each route for inspecting as show in figure 2.



Source: office of Transport and Traffic Police and Planning Ministry of Transport
Figure2: the study routes

The research is using Footpath Standard Inspection (FSI) from the Ministry of Transport, Thailand (MOT) to measure footpath in urban. There are three main elements to measure such as Walkway, Protective Rails/ Barrier and Protruding Objects. First, the pedestrian path width is not less than 1.5 meters; the pavement must be smooth, not slippery, and not rough; it should be provided ramps from sidewalks to roads, road crossing, connected building or section of different levels in order to safely and conveniently. Second, protective rails should be provided in dangerous areas to prevent slipping of the wheelchair. Third, protruding objects should be arranged to have enough sidewalk the same as standard if any necessary protruding object, there should not be more than 100 mm. and not installed less than 700 mm. height from the floor.

Google Street View application (GSV) is used to be as a tool for investigation. The image database of Google Street View is a network of adjacent 360° high-resolution panorama images, which are divided into quadratic tiles. Those images are intended to be accessed via the Google Maps static application programming interface (API) (Zamir and Shah, 2010). It helps enable people everywhere to virtually explore the world. This research implemented GSV to help with the prior inspecting process by allowing prospective researches to take a virtual. However, this application has a limitation in terms of data, it only provides the imagery from the part so the data in this research was in July 2018. Moreover, GSV has no function for distance measurement. Therefore, footpaths width cannot be inspected in this research.

After virtually investigating the footpath tour by GSV in each study routes in forward and backward as presented in Table 1.

Table 1: Footpath inspection checking list

Footpaths Route (Origin to End)	Walkway		Protective Rails/ Barrier	Protruding Objects
	Smooth Pavement	Ramps Providing	Protective Rail	Obstacles arrangement
1 to 2	✓	✓	✗	✗
3 to 4	✓	✓	✗	✗
4 to 3	✓	✓	✗	✗
5 to 6	✓	✓	✗	✗
6 to 5	✓	✓	✗	✗
1 to 5	✗	✓	✗	✗
4 to 6	✓	✓	✗	✗

Source: The researcher

It found that all inspected 5 routes were lacked of obstacles arrangement. There were many shops on the footpath. Moreover, there were some motorcycle parked on the footpath as well as a show in the sample figure 3.



Source: Google Street View

Figure3: Lack of protruding objects arrangement sample pictures. Moreover, footways are not protective rails for disables people as show in Figure 4.



Source: Google Street View
Figure3: Lack of protective rail for footpath.

Conclusions

After inspection footpath by using GSV, it showed that footpath 5 routes around the traditional center (city moat areas) in Nakhonratchasima City Municipality were lack of protruding objects arrangement and there were no facilities for disables such as protective rails. The results of footpaths' inspection in NCM will be able to take action for planning and improving footpaths in NCM toward health and wellbeing future. The research methodology is able to implement in other area.

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