THAMMASAT REVIEW
PRINT ISSN: 0859-5747 ONLINE ISSN: 2630-0303
Volume 24 No 2 (July-December) 2021 [Page 24-40]

# Rehabilitation of the Abandoned Land Under Luang Praditmanutham Expressway to a Neighborhood Park with a Participatory Process

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Received 2 January 2021; Received in revised form 14 February 2021
Accepted 9 March 2021; Available online Day Month year

## Abstract

In order to increase the green area ratio of the city and meet World Health Organization (WHO) standards, Bangkok city planners attempt to transform abandoned land under expressways into public green spaces. The land under the Luang Praditmanutham expressway is surrounded by a number of urban communities, is currently in a state of deterioration, and is ineffectively used. This article is based on participatory research aiming to (1) investigate potential uses and constraints of the land, (2) scrutinize needs of the surrounding communities, and (3) propose a suitable park design for the Luang Praditmanutham expressway development plan. The research methodology was divided into 3 phrases: site survey, needs analysis, and public hearing. The research findings are derived by content analysis and triangulation. This research found that (1) the abandoned land under the Luang Praditmanutham expressway has the potential to be transformed to a neighborhood park, (2) the residents in the surrounding communities have a high demand for area development especially for greenery spaces and parking lots, (3) the alternative park design concept of “Nature in the City” won over the “Community and Sport” concept reflecting the needs of the community for natural area rather than community activities. Contributions from this study include (1) promoting a participatory process in the development plan, (2) fostering a collaborative learning process in the stage of decision making, and (3) enhancing urban space to make a city more sustainable.

## Keywords

Rehabilitation, Abandoned land under the expressway, Participatory process, Neighborhood park

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## Introduction

Few would dispute the claim that public parks are a significant urban element that improve the quality in urban life (Bonaiuto et al., 2003). If a city has a sufficient number of public parks with appropriate and harmonious landscape design, people in the city tend to have a good urban life style. They are able to breath fresh air, exercise, relax and do other recreational activities. People in a city will subsequently return their energy to develop their city and country. Therefore, it is significant to have a sufficient number of the parks with appropriate design for the urban population. According to a 2015 survey by the Bangkok's Public Park Bureau, the city has only 2.26 percent of the total area. The ratio of the park area to the population is only 6.2 square meters per person approximately. This ratio is far below the international standard of 15 square meters per person provided by the WHO (The World Health Organization, 2011). The city of Bangkok should increase the green public space to improve the quality of urban life. Nowadays, with the currently high growth rate of the city, large elevated highway networks have been built in order to solve traffic congestion, which leads to significant economic damage. Under these massive elevated networks is empty land, which is mostly unused, unsafe, and difficult to access.

According to the Expressway Authority of Thailand (2002), there are currently a total of 1,577 rais of land under the Bangkok's highway. This land continues to grow as more highways are built. The city has prepared the 2032 Master Plan for the green areas, which proposes the rehabilitation programs for these abandoned lands under the expressway or likewise into the various forms of recreational areas. The project's study area is the land under the Luang Praditmanutham expressway, which is a part of the Ramintra-Art Narong expressway linking the city of Bangkok to the north part. The site is located near the beginning of the expressway, starting from the Pattana Medical Center Clinic to Prachauthit intersection. The Luang Praditmanutham expressway has a total length of 12 kilometers, however, only 700 meters for the project cover an area of 30,000 square meters or 18.75 rais. In 2002, the EXAT and Bangkok Metropolitan Administration (BMA) coordinated in developing the study areas for the benefit of nearby communities. However, site preliminary survey in December 2018 suggested that the public space under the expressway around Luang Praditmanutham road was still in desolate and deteriorated condition with uses only for crossing road or passing by. It is possible that overall use of the area does not cover the requirements of nearby residents, causing an inefficient use of this area. Therefore, the study was conducted using a public participatory process in order to find the needs of the surrounding communities, and use the results as guidelines to develop alternative designs to develop and improve of the area for effective uses. The study also tried to balance between the the requirements of the communities and suitability of the site's environment.

## Objectives of the Study

1. To study the potentials and limitations in terms of the physical, social and cultural aspects of the abandoned land under the Luang Praditmanutham expressway.

2. To study attitudes and needs of the surrounding communities towards the site using a public participatory process in order to provide guidelines for a new neighborhood park development.

3. To propose an alternative neighborhood park that is suitable for the site and the needs of the community.

## Conceptual Framework of the Study

Rapid city growth results in expansion of both the quantity and quality of the mass transportation network (Trancik, 1986). The more a city expands, the more development of transportation systems such as elevated roads and tunnels to efficiently connect the freeway to different parts of the city or between cities. However, these elevated transportation structures have been placed over the original city plan, making it more likely to separate the city. Using the land below these structures is troublesome and leads to a vast amount of the abandoned land in the city, which often brings social problems such as deteriorated neighborhoods and homeless people (Page & Berger, 2006). Such problems decrease the quality of a city. In 1968, Stanley remarked that if abandoned lands are transformed to recreational areas, it can provide a good healthcare for city's residents and make the city more beautiful. The American Planning Association (2006) provided guidelines for an abandoned land development including 1) bring economic, social and environmental benefits to the city; 2) decrease the cause of factors that threaten the health of the city; 3) reduce congestion in the city center by transforming the land to green areas; 4) have community's members participate in brainstorming ideas for future development; 5) improve physical and environmental characters of the land and also enhance the land's unique culture and identity; 6) enable to basic necessities of a diverse economy, 7) be healthy with a health service system. From the review, it is possible that the project study area can be rehabilitated, improved and eventually usable. These 8 guidelines will be applied as key indicators for the study.

Based on the concepts of abandoned land development and the participatory process, a conceptual framework for the study was constructed. For successful rehabilitation of the abandoned land under the Luang Praditmanutham expressway, the proposed neighborhood design relies on 8 relevant indicators as illustrated in the Figure 1.

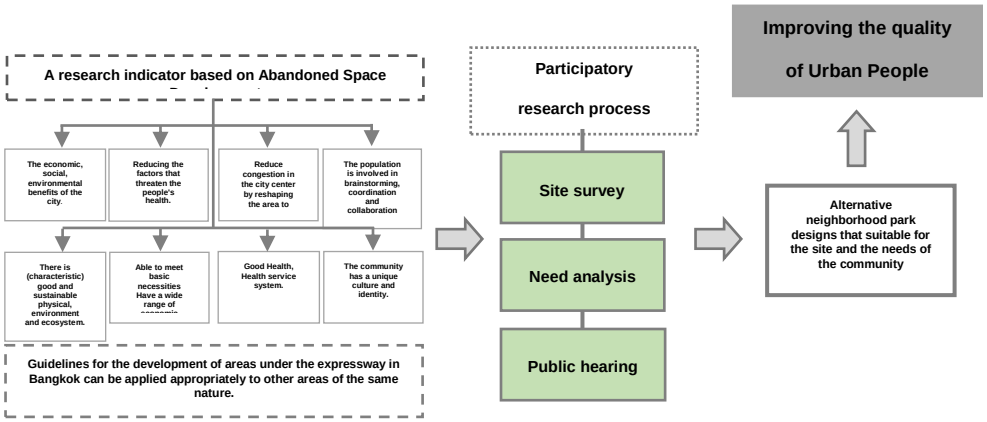


**Figure 1** Conceptual Framework of the Study

## Research Method

Planning techniques often keep local people out of the decision-making process, which severely limits the ability to deliver results from a local level, and can reinforce centralized decision-making. In the 1940s, participatory research was developed by Kurt Lewin to use research for social action (Adelman, 2006). The participatory process is a method of conducting a form of public gathering activities to solve a community's problems effectively (ibid). The process provides a platform for people of communities to express views, exchange information and state their opinions. The process basically has community's members participate in specific activities and collects their opinions regarding environment, values, needs and supports to achieve certain goals (Kokphol, 2009). All parties involved should participate in this process from the beginning to final stage so that they can acquire an overall understanding and learn to modify the project together, which will eventually benefit them all. Therefore, it is necessary to give a chance to everyone to participate equally and neutrally. Participants should be willing to participate in activities so that their opinions are valid.

After hearing opinions, decision makers can seek alternative solutions regarding suitable and mutually acceptable projects. Development based on the community's participatory process is called bottom to top development, and can be applied along with top to bottom development. In 1979, Uphoff remarked that there are many different groups of people that come into play for a community project including 1) local people, 2) local leaders, 3) government officials, and 4) professionals or volunteer organizations.

Through a learning exchange process this study sought to find a proper neighborhood park design for the land under the Luang Praditmanutham expressway. It considered what was suitable for the context of the area and the requirements of the community.

## Research Process

This participatory research included the following steps.

**1. Site survey**

The study investigated 3 aspects of the site: 1) natural attributes, 2) social, cultural, and historical attributes, and 3) aesthetics. Potential advantages and limitations of all 3 aspects can be beneficial when considering the park design.

**2. Need analysis**

The study employed 2 research tools (i.e., questionnaires and semi- structured interviews) in order to investigate the attitudes and needs of residents living near the site.

**2.1 Questionnaires**

There were 2 sets of questionnaires. The first one was used to survey public opinions on the existing uses and conditions of the area. This first survey also investigated the needs of local community members in terms of facilities and spaces for future development of the area. The sample size was 369 residents. These residents were selected through purposive sampling of a 12,500 population in 14 surrounding communities. The second questionnaire explored the opinions of local community members regarding alternative park designs.

**2.2 Semi-structured interviews**

In this research, in-depth interviews were conducted for clarifying the needs of the surrounding communities towards the site. The research informants were 11 key active local community leaders selected by purposive sampling.

**3. Public-hearing**

During the last stage, stakeholders were invited to a public hearing to discuss 2 initial neighborhood park designs for the land under the Luang Praditmanutham expressway. Seventy participants, including relevant public agencies, community leaders, professionals and experts engaged in this brainstorming workshop.

## Research Findings and Discussion

### Potential Benefits and Constraints of the Study Area

The study area was near the entrance of the expressway, starting from the Pattana Medical Center Clinic to Prachauthit intersection as shown in Figure 2. The 700 meter-site sits within the 12 kilometers Luang Praditmanutham expressway covering an area of 30,000 square meters or 18.75 rais. Images of the site are as shown in Figures 2-7. Based on regulations by the Department of Public Works and Town Planning, the area of 18.45 rais can be categorized as a neighborhood park, which serves 2,000 - 10,000 residents within a

radius of 300 - 500 meters applied as a framework of site analysis in this study (Figures 10 - 15). After analyzing of the site, potential benefits and limitations of the site can be identified.


**Figure 2** Location of the site.

**Figure 3 - 8** Images of the site.

**Source:** At the site location, taken on 1 May, 2020

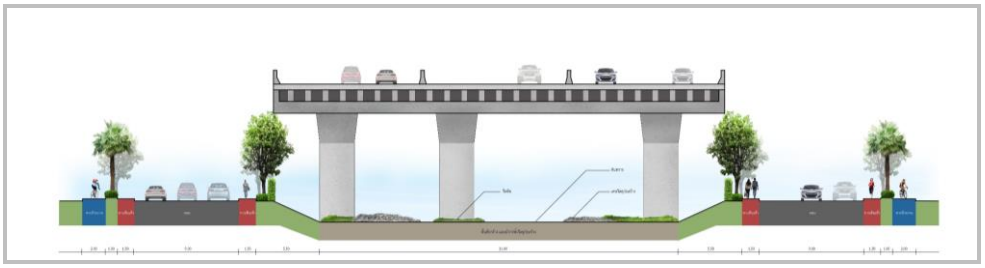

**Figure 9** Site section

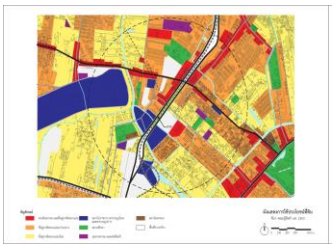

**Figure 10** Analysis of land use

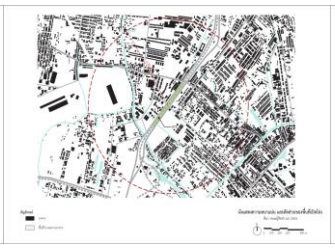

**Figure 11** Analysis of density

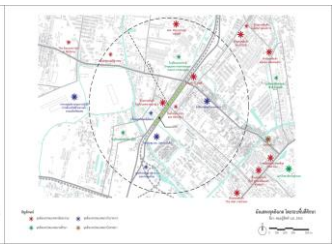

**Figure 12** Analysis of node

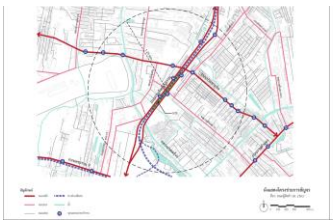

**Figure 13** Analysis of road network

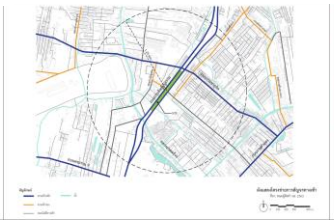

**Figure 14** Analysis of pedestrian network

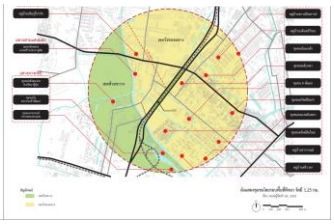

**Figure 15** Analysis of surrounding communities

### 1. Analysis of Built Environments

The study area is an area nearby Bangkok's Central Business District (CBD) of Phra-Ram 9 with heavy traffic congestions, which is the main obstacle to access to the area. With conditions of being under the expressway with 2 sides adjacent to four-lane roads, the area is unable to be utilized. There are insufficient crossing and overpasses way. Access to the site is difficult, inconvenient, and unsafe. These conditions are definitely constraints of the site. However, being a narrow and long parallel to the road of a high density area nearby the heart of Bangkok, the site is surrounded with many city's facilities and nodes of activities including number of middle-rise buildings, condominiums, shops, housing neighborhoods. These states of site can be counted as a high potential of the site. People from surrounding communities will be able to connect with these city's facilities if pedestrian networks are well-

developed. Canal network was significant in the past as major commutation routes, water sources and drainage. Nonetheless, nowadays its presence significantly decreased.

**2. Analysis of Natural Environments**

The area under the expressway is typically low with 0.50 - 2.00 meters lower from the road level. The site is generally flat with slope of 1-3 percent with steep relatively slope of approximately 7-10 percent around edges of the site. The soil in the area is the Bangkok soils, which are fertile from river sediments mixed with clay soils resulting in poor drainage. Considering its slope and poor-drainage soils, the area must be prone to flooding. However, the flooding risk maybe lower due to being adjacent with the Lad-Phrao Canal and Chollapratan canal and Phlappla Canal. Thus, the new development should cover increasing efficiency in drainage management. The new drainage system should be linked thoroughly and make it more accessible.

Being under the expressway, the site should be dark. However, with over 12-metre height of the expressway (as shown in Figure 9), trees and plants are able to receive sufficient sunlight to grow well. Two groups of trees are found in the area. The first is local plants such as Bodhi Tree, Alstonia scholaris (Payasatban) are sparsely spread in the abandoned area. Newly cultivated plants are found around the sidewalk area provides beauty sighting such as Mahogany and Macarthurs Palm. These two groups of trees provide shade resulting in heat accumulation providing comfort in the area. However, some areas may look quite dark with high density of trees. To sum up, tree lines along the road should be provided. And green areas that are clear to create good atmosphere can be increased.

**3. Aesthetics Analysis**

The site is in a deteriorated condition as being an abandoned land under the expressway with occasional uses only for crossing road or passing by. The passing vehicles on both sides of the site has caused a great deal of air pollution. Besides disorganized trees within the site, surrounding green space is lacking. Based on the findings, the site is aesthetically unpleasant. In addition, with its long length, the site can be viewed with wide-angle, but blind spots in some areas, which can directly affect the safety of the occupants in the area. The new development should provide an open space to reduce the blind-spots. This open space should have a lively atmosphere to attract more activities in the area. In addition, having a public green area should definitely bring benefit to surrounding context and people in the area.

## Needs of the Surrounding Communities towards the Site

### 1. Results from questionnaire analysis

**Table 1** Summarizes the personal data of the samples (369 people)

| Item(s) | Range | Frequency | Frequency (total) | Percentage (%) |
|---|---|---|---|---|
| Age | 10 – 20 | 30 | 369 | 8.13 |
| | 21 - 30 | 75 | | 20.05 |
| | 31 - 40 | 126 | | 34.15 |
| | 41 - 60 | 64 | | 17.34 |
| | More than 60 | 74 | | 20.33 |
| Education | Primary school | - | 369 | - |
| | High School | 102 | | 27.64 |
| | College/ University | 225 | | 60.97 |
| | Master's Degree/ Doctor of Philosophy | 35 | | 9.49 |
| | Graduate or above | 7 | | 1.90 |
| Occupation | Employee | 124 | 369 | 33.60 |
| | Students | 50 | | 13.56 |
| | Officers of Governmental Sector/ State Enterprise | 43 | | 11.65 |
| | Personal business | 30 | | 8.13 |
| | Staff of Private Sector | 50 | | 13.55 |
| | Retirement | 72 | | 19.51 |
| | Others | - | | - |
| Income (per month) | Less than 5,000 Baht | 40 | 369 | 10.84 |
| | 5,001 – 20,000 Baht | 236 | | 63.96 |
| | 20,001 – 40,000 Baht | 63 | | 17.07 |
| | More than 40,001 Baht | 30 | | 8.13 |
| Number of times to use space | 1 - 2 times a week | 14 | 369 | 3.80 |
| | 1 - 2 times a month | 81 | | 21.95 |
| | Frequently | 274 | | 74.25 |
| Utilization in the area | Walking | 298 | 369 | 80.76 |
| | Bicycle | 41 | | 11.11 |
| | Private car | 5 | | 1.35 |
| | Motorcycle | 25 | | 6.78 |
| | Others | - | | - |
| Activities in the area | A walkway from the residence | 124 | 369 | 33.60 |
| | Relaxation | 20 | | 5.42 |
| | Exercise | 36 | | 9.76 |
| | Entertainment | 2 | | 0.54 |
| | Passing by | 170 | | 46.07 |
| | Other | 17 | | 4.61 |

According to Table 1, the majority of respondents is in working people age between 31-40 years (34.15 %) and elderly age group with over 60 years old (20.33%). Looking at major respondents in the two age groups, needs for the areas use are likely to be different. People in working age may need to use the area for more active activities, while the elderly group is more likely to require spaces for relaxation in a serene environment. In terms of education, most respondents are the studious group at college or university (62.33%). Most of them are employee (33.60%) with the income 5,001-20,000 baht per month (63.96%),

which can be classified as a middle range to low range income. This group of people tends to spend most of their time making for a living, and spend less money on their activities when going out. Most of the respondents have their accommodation in the study area where those involved and affected by the site design. This may be the reason of their site visitation frequently (74.25%). Most use the area for passing by (46.07%) for nearby exercise areas. Thus, these respondents reach the area in the morning and evening by walking (80.76%), as a result of the data. Summarily, it can be said that these group sample respondents are quite familiar with the location, so the results can truly reflect the 'voice' from the surrounding community.

The majority of the samples considered the study area to be problematic or limited area, both in the design (86.99%), facilities (79.13%), safety (51.76%), health (68.83%), and environment (43.90%), However, that area still has potentials to be developed for the benefit of the community in the future as the residents in the community have a high demand (55.56%) for area development. According to Table *2*, additional needs requested by people in the communities can be categorized into three groups consisting of 1) active functions of walk-running path (37.13%), bicycle lane (25.47%), and exercise area (24.12%), playground (24.39%), 2) passive functions of greenery space (69.11%), relaxation area (24.93%), pavilion (26.56%), meeting area (24.73%), multi-purposed space (26.56%), bench (56.37%), small shop (32.52), and 3) service functions of public toilet (43.36%), parking lots (69.11%), and pet points (62.06%). The findings suggested that the passive function especially the greenery space is in a high demand.

**Table 2** Needed facilities for the new development of the abandoned land under Luang Praditmanutham Expressway

| Issues | Percentage | | | | | Average | S.D. | Levels |
|---|---|---|---|---|---|---|---|---|
| | Highest | High | Moderate | Poor | Very poor | | | |
| **Walk-running circulation** | 18.70 | 22.22 | 37.13 | 7.86 | 14.09 | 3.24 | 1.56 | Moderate |
| **Bicycle circulation** | 28.18 | 19.78 | 21.69 | 19.24 | 11.11 | 3.35 | 1.85 | Moderate |
| **Exercise area** | 20.87 | 24.12 | 18.43 | 18.97 | 17.61 | 3.12 | 1.96 | Moderate |
| **Playground** | 24.93 | 22.22 | 21.41 | 11.11 | 20.33 | 3.20 | 2.11 | Moderate |
| **Greenery space** | 69.11 | 5.69 | 3.79 | 18.16 | 3.25 | 4.19 | 1.72 | High |
| **The relaxation area** | 26.02 | 18.16 | 18.16 | 22.48 | 15.18 | 3.17 | 2.03 | Moderate |
| **Pavilion** | 24.12 | 26.56 | 15.99 | 14.63 | 18.70 | 3.28 | 2.08 | Moderate |
| **Meeting area** | 24.93 | 17.34 | 23.31 | 15.72 | 18.70 | 3.14 | 2.06 | Moderate |
| **Multi-purposed area** | 22.48 | 26.56 | 17.62 | 15.18 | 18.16 | 3.20 | 2.01 | Moderate |
| **Exercise space** | 24.93 | 18.16 | 26.56 | 12.19 | 18.16 | 3.19 | 1.99 | Moderate |

| Issues | Percentage | | | | | Average | S.D. | Levels |
|---|---|---|---|---|---|---|---|---|
| | Highest | High | Moderate | Poor | Very poor | | | |
| **Bench** | 56.37 | 11.11 | 8.13 | 21.14 | 3.25 | 3.96 | 1.79 | Moderate |

**Table 2** Needed facilities for the new development of the abandoned land under Luang Praditmanutham Expressway (Continued)

| Issues | Percentage | | | | | Average | S.D. | Levels |
|---|---|---|---|---|---|---|---|---|
| | Highest | High | Moderate | Poor | Very poor | | | |
| **Small shops** | 32.52 | 23.31 | 8.13 | 15.72 | 20.32 | 3.35 | 2.41 | Moderate |
| **Public toilet** | 43.36 | 24.12 | 17.62 | 6.23 | 8.67 | 3.87 | 1.63 | Moderate |
| **Parking lots** | 69.11 | 14.63 | 5.15 | 8.13 | 2.98 | 4.39 | 1.19 | High |
| **Pet point** | - | 62.06 | 23.04 | 14.90 | - | 3.47 | 1.94 | Moderate |
| **Total Average** | | | | | | **3.24** | **1.89** | **Moderate** |

### 2. Interview analysis results

Eleven people participated derive from four surrounding communities including Nom Klao Community, Bueng Rama 9 Pattana Community, Sab Sin Kao Community, and 9 Pattana community. Most participants were between 51 and 67 years, which were elderly but mixed with working age and retirement. All them access the site in the evening time around 16.00-18.00 pm. This is quite typical time in accessing outdoor recreational area in Thailand as during the daytime, the heat from the sun is always strong especially during the interview time, which was in March 2020. Most interviewees agreed in terms of insufficient no facilities on the site. A few participants remarked as follows;

> *"Overall look of the site including compressed soil, gigantic expressway columns, and a few green spaces and trees, makes the area unpleasant to be used."*

> *As for the scenery of the area, there are following comments;*

> *"The site's scenery is unattractive and too dark making them feel unsafe to walk passing by."*

However, as the site is the largest empty land in the area, they sometimes visited the site for recreational purposes such as walking, etc. The participants also pointed that community meeting spaces are too few. They preferred the space for community activity including the local handicrafts, which is mostly a product of Klong Phlapphla community. The interviewees also pointed that there was a large amount of garbage being disposed of in the area. In conclusion, the interview results perfectly match with the questionnaire's ones. A demand for the study area to be developed especially as recreational use is confirmedly high.

## Initial Neighborhood Park Designs

With matched results of questionnaire and interviews, it is confirmed that a recreational space is greatly needed. The findings suggested that functions of the new neighborhood park development should include of walk-running path, bicycle lane, exercise area, playground, green space, relaxation area, pavilion, meeting area, multi-purpose space, bench, small shop, public toilet, parking lots, and pet points. Considering the new desired functions, the land under the Luang Praditmanutham expressway can be further progressed into two different alternative approaches. One can emphasize in more passive recreational space with greenery, whilst the other can aim for more active purposes. Consequently, two alternative designs are developed providing basic functions and facilities according to the results of the community needs study. Contemplation of each design theme is also based on potential and constraints of the study area such as having a green open space to reduce blind-spots, and decrease air pollution, etc. Details of each conceptual design approach are as follows;

**1. Nature in the City Design**

In 2015, Foley and Kistemann remarked that being in nature can improve physical and mental health and well-being of people especially stressful ones spending their daily life in the city surrounding with tall buildings. This alternative design theme focuses on bringing nature into the city with most natural components. Big trees are used mixed with medium height trees to open for the natural light and decrease polluted air. Long natural wetland is placed in the middle of the site in order to create natural atmosphere and to reduce flooding. Although there are more passive functions, some active ones such as walking and bike lanes are also provided. Accesses, pedestrian network, and parking lots are provided at two ends of the park. This design theme meets the following project's indicators; 1) reduce factors threaten urban health, 2) reduce crowded city by greenfield, 3) public participation, and 4) sustainable Cities.


**Figure 16** Masterplan of the 1st Alternative Design

**Figure 17** Section of the 1st Alternative Design

**2. Community and Sport**

With its location nearby Bangkok's CBD, space for community's gathering and exchanging and sport activities are rare. The theme proposes active activities platforms for surrounding communities including basketball fields, badminton fields, and community multi-purposed plaza. To solve site's limitation, the theme provides an urban drainage system. The big trees and plants are placed to welcome the light and reduce air pollution same as the previous theme but in a more formal manner to match with the concept. This 2nd theme meets the following project's indicators; 1) economic benefit, social and environmental of the city, 2) reduce factors threaten urban health, 3) reduce crowded city by greenfield, and 4) public participation; and 5) public health.

**Figure 18** Masterplan of the 2nd Alternative Design

**Figure 19** Section of the 2nd Alternative Design

## Results of Public Participatory Process for the Alternative Design

In order to make decision upon the two alternative neighborhood park designs, the 2nd questionnaire was distributed to 70 participants. Differently from the results of the 1st questionnaire, participants of the process were mostly in working age (31-40 years old) (34.15%). Many elderly (41-60 years old) attended with 17.34%; whilst, adolescents (10-20 years old) also joined the public hearings with 8.13%. Comparing with process of the questionnaire, the participatory process definitely demands more active involvement, which may be an obstacle for the elderly to join. Regarding of the participants' workwise, most of them are employee (50.70%) with the income 5,001-20,000 baht per month (76.96%), which can be classified as a middle range to low range income. A new neighborhood park should be well-benefit to this group of participants if there is no charge fee or the cost of access is not high. To decide between the two designs, the participants received a score pad, where they could mark the preferred alternative with scale of 1 to 5. Level of satisfaction on the alternative design is comprised of as excellent (4-5), good (3-4), moderate (2-3), and very poor (below 2). The result was that the alternative design 1 of "the nature in the city" won with 94 points; whilst the "alternative design 2: community and sport" received 63 points.

According to the scores and questionnaire results in the Table 3, it is clear that nature and passive recreational facilities won over more active one. Findings of the public hearing process matches with the 1st questionnaire's results – green space is in a high demand. The alternative design 1: nature in the city was favorable and suited for all groups of people including majority of participants, who were in working ages and elderly with low-income. Moreover, considering condition of the site being abandoned and deteriorated area under the expressway, we can see why the greenery functions are preferred. Overall aspects of the alternative design 1 were satisfied especially in terms of overall masterplan, and planting design, which are arguably representative of the concept nature in the city. The participants seemed to be quite pleased with traffic design, pedestrian, overall composition, overall utilization, multi-purposed area, relaxation area, water area, and aesthetic of the design. Participants seemed to moderately satisfy with accessibility, bicycle circulation, playground area, and parking especially for their insufficiency. This could be because this park design scheme aimed to provide more natural functions and scenery, areas for these elements were then minimized. If the plan got implemented, these elements should be provided more to meet the communities' demand. Additional comments include covering needs of all types of users especially disabled. On the other hand, the alternative design 2: community and sport mostly received moderate satisfaction. This 2nd theme is criticized for its insufficient parking areas and space utilization resulting in a lack of convenience and security in accessing the operation did not support. There are additional suggestions of the 2nd questionnaire mentioning that the knowledge of the community's history should be added to

enhance its community's identity to the new neighborhood park. This aspect can be added in the new neighborhood park design as well if the plan got built.

**Table 3** Satisfaction on the alternative design of the land under Luang Praditmanutham Expressway, Bangkok

| Aspects/ Elements | | Percentage | | | | | Average | S.D. | Levels |
|---|---|---|---|---|---|---|---|---|---|
| | | Very Satisfied | Satisfied | Moderate | Dissatisfied | Very Dissatisfied | | | |
| **Overall plan** | Alternative 1 | 54.05 | 29.73 | 16.22 | 0.00 | 0.00 | 4.37 | 0.60 | Excellent |
| | Alternative 2 | 13.51 | 29.73 | 16.22 | 40.54 | 0.00 | 3.16 | 1.12 | Moderate |
| **Accessibility** | Alternative 1 | 0.00 | 32.43 | 45.95 | 21.62 | 0.00 | 3.10 | 0.73 | Moderate |
| | Alternative 2 | 0.00 | 0.00 | 45.95 | 54.05 | 0.00 | 2.45 | 0.51 | Poor |
| **Vehicular circulation** | Alternative 1 | 5.40 | 45.95 | 32.43 | 16.22 | 0.00 | 3.40 | 0.83 | Good |
| | Alternative 2 | 0.00 | 43.24 | 35.14 | 21.62 | 0.00 | 3.21 | 0.79 | Good |
| **Pedestrian circulation** | Alternative 1 | 2.70 | 59.46 | 37.84 | 0.00 | 0.00 | 3.64 | 0.29 | Good |
| | Alternative 2 | 0.00 | 29.72 | 51.35 | 18.93 | 0.00 | 3.10 | 0.70 | Good |
| **Bicycle circulation** | Alternative 1 | 0.00 | 10.81 | 45.95 | 43.24 | 0.00 | 2.67 | 0.67 | Moderate |
| | Alternative 2 | 0.00 | 16.22 | 32.43 | 51.35 | 0.00 | 2.62 | 0.75 | Moderate |
| **Parking** | Alternative 1 | 0.00 | 40.54 | 56.76 | 2.70 | 0.00 | 3.37 | 0.55 | Moderate |
| | Alternative 2 | 0.00 | 43.24 | 45.95 | 10.81 | 0.00 | 3.32 | 0.67 | Moderate |
| **Overall composition** | Alternative 1 | 0.00 | 64.87 | 29.73 | 5.40 | 0.00 | 3.59 | 0.60 | Good |
| | Alternative 2 | 5.40 | 10.81 | 56.76 | 27.03 | 0.00 | 2.40 | 0.78 | Moderate |
| **Overall utilization** | Alternative 1 | 0.00 | 21.62 | 64.87 | 13.51 | 0.00 | 3.08 | 0.55 | Good |
| | Alternative 2 | 0.00 | 5.40 | 43.24 | 32.43 | 18.93 | 2.35 | 0.85 | Moderate |
| **Multipurposed-area** | Alternative 1 | 0.00 | 16.22 | 70.27 | 13.51 | 0.00 | 3.02 | 0.55 | Good |
| | Alternative 2 | 0.00 | 16.22 | 32.43 | 37.84 | 13.51 | 2.51 | 0.93 | Moderate |
| **Relaxation area** | Alternative 1 | 24.30 | 18.93 | 37.84 | 18.93 | 0.00 | 3.48 | 1.07 | Good |
| | Alternative 2 | 2.70 | 18.92 | 35.14 | 43.24 | 0.00 | 2.81 | 0.84 | Moderate |
| **Playground area** | Alternative 1 | 0.00 | 5.40 | 72.98 | 21.62 | 0.00 | 2.83 | 1.32 | Moderate |
| | Alternative 2 | 0.00 | 21.62 | 54.06 | 13.51 | 10.81 | 2.86 | 0.89 | Moderate |
| **Plant design** | Alternative 1 | 40.54 | 51.36 | 5.40 | 2.70 | 0.00 | 4.29 | 0.70 | Excellent |
| | Alternative 2 | 0.00 | 13.51 | 37.84 | 45.95 | 2.70 | 2.62 | 0.76 | Moderate |
| **Water area** | Alternative 1 | 0.00 | 32.44 | 40.55 | 24.31 | 2.70 | 3.02 | 0.83 | Good |
| | Alternative 2 | 5.40 | 21.62 | 59.47 | 10.81 | 2.70 | 3.16 | 0.80 | Good |
| **Aesthetics of the area** | Alternative 1 | 2.70 | 48.66 | 37.84 | 5.40 | 5.40 | 3.37 | 0.86 | Good |
| | Alternative 2 | 8.12 | 67.58 | 24.30 | 0.00 | 0.00 | 3.83 | 0.54 | Good |
| | | **Alternative 1** | | | | | 3.37 | 0.73 | Good |
| | | **Alternative 2** | | | | | 2.89 | 0.78 | Moderate |

## Summary

The participatory process of the study allowed 14 communities to be united, which is quite a rare event considering their location nearby Bangkok's CBD. Nevertheless, by having all stakeholders joined together, the process gave everyone equal opportunities minimizing conflicts among communities' members regarding the abandoned land. The process was

able to create a productive discussion and a mutual agreement to develop positive solutions for a new neighborhood park under the Luang Praditmanutham Expressway. Subsequently, it is hoped that values of the waste abandoned land shall gain more recognized so that they can be considered for new kinds of development. Additionally, with the chosen concept of nature in the city, the neighborhood park under the Luang Praditmanutham Expressway can be developed on a basis of a clear understanding of the site's potentials and constraints to ensure that the new development respects the existing site.

**Recommendations**

The suggestion for further study is that questionnaire participants and participatory stakeholders can be focused more closely to strengthen the accountability of the research's findings. Respondents from various groups, especially those of different ages, require different activities and functions. Elderly residences tend to look for more passive activities and more green space than adolescence. Therefore, number of each group's representative is critical. In addition, past and recent interests and leisure activities of participants should also be investigated and analyzed along with outcomes of the research. Researchers must be aware that community members have placed their credibility on the line through the partnership. If researchers and community's members do not devote adequate time and energy to relationship building, they may find the challenges posed by the participatory process to be overwhelming. With honest discussions and a transparency, the research can help to accomplish the task.

Lastly, support from government agencies is essential to make a solid answer for the area. The BMA and EXAT should lead the development of the area along with the community's involvement so that better outcomes can be assured. The study's results can also be beneficial for new land developments under expressways elsewhere. It is hoped that the findings from this study can act as guidelines for parks under expressways in Bangkok, which will subsequently increase the green area ratio of the city.

## Acknowledgement

The article was a part of a research titled " a study of underpass park improvement of expressway around Praditmanootham road with coherency of community's uses and contextual surroundings." The research was funded by a 2018 Thammasat University Research Fund grant issued of 115/2561.

## References

Adelman, C. (2006, August 11). *Education Action Research: Kurt Lewin and the Origins of Action Research.* https://www.tandfonline.com/doi/abs/10.1080/0965079930010102

American Planning Association. (2006). *Planning And Urban Design Standards Student Edition: planning and Urban Design Standards.* John Wiley & Sons, Inc.

Bonaiuto, M., Fornara, F. & Bonnes, M. (2003). Indexes of perceived residential environment quality and neighborhood attachment in urban environments: a confirmation study on the city of Rome. *Landscape and Urban Planning*, *65*( 1 -2 ) , 41-52. https://www.sciencedirect.com/science/article/abs/pii/S0169204602002360

Expressway Authority of Thailand. (2002). *Overview of operation in 2541*. Expressway Authority of Thailand.

Foley, R., & Kistemann, T. (2015, August 1). *National Library of Medicine*: *Blue space geographies: Enabling health in place. Health Place Online.* https://www.ncbi.nlm.nih.gov/pubmed/26238330

Kokphol, O. (2009). *Personnel Guide for Public Participation For local administrators.* Charansanitwong Printing.

Page, G.W. & Berger, R.S. (2006). Characteristics and Land Use of Contaminated Brownfield Properties in Voluntary Cleanup Agreement Programs. *Land Use Policy, 23*(4 ), 551-559. https://www.sciencedirect.com/journal/land-use-policy/vol/23/issue/4

Stanley, B. T. (1968, March 31). *The New York Preservation Archive Project: Knowledge of city planning.* http://www.nypap.org/preservation-history/stanley-tankel/

Sustainablecitiesnetwork. (2011, July 13). *Sustainable Cities International blog: The Quiet Evolution of Water Planning.* https://plusnetwork.wordpress.com/

Trancik, R. (1986). *Finding Lost Space: Theories of Urban Design.* Van Nostrand Reinhold Company.

Uphoff, N., Cohen, J. M., & Goldsmith, A. A. (1979). *Feasibility and Application of Rural Development Participation: A State-of-the-Art Paper*. Rural Development Committee, Cornell University.