KEMENTERIAN PENDIDIKAN TINGGI

JOJAPS

eISSN 2504-8457

POLITEKNIK MALAYSIA PORT DICKSON

Journal Online Jaringan Pengajian Seni Bina (JOJAPS)

Potential Concept of 'Park and Ride' at Universiti Teknologi Malaysia at Skudai Campus

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Abstract

UTM is the center point of its citizens to get to work and study, by that UTM were filled with vehicles, mainly from private vehicles and buses. Too many vehicles entering the UTM can cause traffic congestion. It also affects the car park where it is too limited in UTM. Basically vehicles have at present is overflowing and increasing every year at the request of the public and became one of the main sources to go to work or college. People are less likely to use transit vehicles such as buses and car pool to work. This is one of the main cause of traffic congestion and affect the lack of parking area in UTM. The use of too many vehicles also causes traffic congestion in certain areas in the campus. The parking problem will occur if the area was built without planning for the long term. UTM campus is also involved in this issue. For UTM citizens, parking facilities are important for those who have a vehicle. To reduce congestion and lack of parking spaces, a public method that provides ample parking and connecting with the public service was introduced and it was named the Park and Ride. Park and Ride concept gives priority to the use of buses and thus reduce the use of private vehicles.

Key-word: - sustainable campus, park and ride, transportation campus

1. Introduction

UTM is one of the largest universities in the country and one of the main places to seek knowledge. Because of UTM has become the center point for the public, especially staffs and students as well as foreigners to come to work and study, UTM has always filled with vehicles - mainly vehicles from private cars and buses. Motor vehicles such as buses, cars and motorcycles are an essential requirement nowadays. Indirectly, the use of oil as a primary fuel to propel the vehicle engine oil specially unleaded gas was liberating a lot carbon dioxide and carbon monoxide and can cause air pollution to the environment. For staffs and students at UTM vehicle become a major transport to facilitate their movement in the campus. This led to one of the problems faced by all citizens UTM to come to work and college. This situation occurs when all the people who want to get into UTM, enter at the same time.

This resulted is severe traffic jams will occurred at the entrance of UTM because of the outsider who wants to enter the campus. Overflowing vehicles entering UTM can cause traffic congestion and this will make coming late for work and lectures become the main factors for the staffs and students. It also affects the car park where it is too limited in UTM. UTM citizens also facing a problem to find the car park near the area where they work and study. This is because the existence car park in UTM can't afford the number of vehicles in the campus. Especially if there are visitors or tourists who come to UTM for some purposes, the car park issue again becomes the main problems, which it is not enough in this campus.

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Basically vehicles have in UTM now is too many and the number is growing every year at the request of the public and became one of the main transportation to go to work or to college. People are less likely to use transit vehicles such as buses and car pool to work. This is one of the main causes that will lead to traffic congestion and affect the lack of parking area in UTM. The use of too many vehicles also causes congestion in certain areas within in the university.

In addition, congestion on the roads leading to UTM becomes serious during peak hours. The situation escalated when the housing area is close to UTM and they also prefer to use private vehicles to go to work. To reduce congestion and lack of parking spaces, a public method that provides ample parking and connecting with the public service will be introduced and it is called Park and Ride. Generally, the Park and Ride is introduced for: -

i. Reduce parking problems
ii. To reduce traffic congestion in UTM, particularly because of private vehicles.
iii. Giving priority to the users of buses and thus reduce the use of private vehicles.
iv. Reduce carbon emissions and air pollution in UTM campus
v. Make a transportation system that efficient, convenient and systematic.
vi. Creating a comfortable and conducive campus environment.
vii. Help achieve campus sustainability.

However, a detailed study should be conducted to determine the potential of this concept to solve parking and traffic congestion in UTM campus. The study should be conducted to determine the extent of services provided to meet the needs of UTM or vice versa, and can be applied in the study area.

2. Objectives

This study was conducted to investigate the potential of the concept of Park and Ride in UTM campus and ultimately, reduce parking problems and traffic congestion in campus. To achieve this aim, the objective of this study is:

i. Identify issues and problems of parking in UTM campus.
ii. Understand and identify the concept Park and Ride.
iii. Proposed the concept of Park and Ride which suitable for application in UTM campus.

3. Scopes of Study

This study is limited to the scope of the following:

i. The study will be conducted at Universiti Teknologi Malaysia (UTM), Skudai, Johor only and does not include other branches located in Jalan Semarak, Kuala Lumpur and in Pekan and Kuantan in Pahang. This study will focus at Lingkaran Ilmu area which become the main attraction for staffs and students to running their daily activities. In this area located the University Administration Building, Office of Student Affairs and Treasurer UTM, Dewan Sultan Iskandar Sultan Iskandar Mosque, Zahariah of library, Student Centre, post office and banks.

ii. The scope of the study is to understand and identify the Park and Ride in general, to study and propose several ways to overcome the issues and problems in UTM campus.

4. Problem Statement

The parking problem will occur if the area was built without planning for a long term. UTM campus is also involved in this issue. In addition, users of the staffs and students at UTM campus using their own vehicles also contribute to this problem. For UTM citizens, parking facilities are important for those who have a vehicle. Parking is used by the vehicles users to park their cars in a particular period for carrying out certain activities. Besides being used to drop and pick up passenger, it facilitates the movement of staff and students from one location to another location to save time and energy.

Most of the parking in the UTM campus is used by users who park all day. This will lead to other users who want to park their vehicles in a short time are difficult to find parking close to their location. This problem will become more serious if the weather is rainy. This is because when the weather is rainy users will get to park their vehicles at the closest to their destination. A parking area is available on the campus of UTM is not enough to accommodate vehicles available for now. The number of

vehicles on campus is increasing progressively year by year will cause the vehicles parked on-street or in various places. This will cause traffic jams and accidents may also occur in the campus.

Traffic congestion occurs when the user park their vehicle with irregularities. Park the vehicle at the side of the road will reduce the area of road space. This will affect the flow of traffic and affect the course of movement of other vehicles resulting in delays of staff and students from one location to another. Private vehicle users, motorcyclists and public transport are available at the campus were involved. This will cause the operation of bus transport services that are provided in the UTM campus would be ineffective and users are not interested in using it. Due to this problem, roads have been recounted safe for pedestrians and cyclists.

Parking problems, traffic congestion, public transport, pedestrian entrance are interconnected. This problem may be addressed by controlling the entry of vehicles to the UTM campus to reduce the problem of public transport and traffic congestion by creating a transportation system that is efficient, convenient and systematic. Accordingly, the proposed Park and Ride concept was introduced to support this study, which the Park and Ride is encouraging staff and students to use private transportation and park their vehicles in the designated area and need to use the bus service that operates on a 'shuttle' around UTM campus. There were some questions raised in this study. Among them are:

i. Is the concept of Park and Ride can reduce parking problems and traffic congestion in the UTM campus?
ii. Does the concept of Park and Ride can create a transportation system that is efficient, convenient and systematic in UTM campus?
iii. Is there a need of concept of Park and Ride in handling transportation system in UTM campus?
iv. How does the concept of potential Park and Ride in handling transportation system in UTM campus?

5. Significant of Study

The importance of this study is as follows:

i. Introduce and provide an understanding of the concept of Park and Ride to the staff and students at UTM campus.
ii. Helps reduce parking problems and congestion in UTM campus.
iii. Create a transportation system that is efficient, convenient and systematic.
iv. Creating a campus atmosphere that is comfortable and conducive.
v. Proposed the concept of Park and Ride which suitable for application in UTM campus.
vi. Help as a guideline to the parties interested, especially the UTM administration in providing Park and Ride concept in UTM campus.

6. Methodology

In conducting the study in an orderly and systematic way, there are several research techniques that can be used in carrying out the study. In the implementation of the study, researchers will identify the specific methods that will be able to reach and meet the objectives set. This is to facilitate researcher during the data collection process related research. It describes the implementation stage of the study to be performed. Several methods / ways of the study will be used for securing information or data on the studies performed. Overall, this study is divided into several stages, namely:

Stage 1
A preliminary study will be conducted to identify problem parking on the campus of UTM. Issues identified studies and followed with a statement of the obvious problems of writing that will be generated. Further research objectives and scope of the study included research methodology determined to achieve the objectives.

Stage 2
Data and information for the study will be gathered before writing begins. In general, the data can be divided into two primary data and secondary data.

Primary Data
Primary data collection based on the questionnaires forms, interviews, observation. Data also based on the observation sites to study the issues and problems.

Secondary Data

For secondary data, the information collected from the reference through magazines, articles, journals, papers, Internet and parties related to the study area.

Stage 3
Primary data and secondary data collected will be analyzed using the approach / method suitable to address and resolve the issues and objectives of the study.

Stage 4
In this last stage, the formulation of the overall results of the study will be made. In addition, the limitations of the study, problem solving recommendations and issues address further research can be done by future researcher.

7. Literature Review

Definition Concept of Pak and Ride

Park and Ride is an act of park the vehicle in a parking planned and switched to other modes of transport to get to a destination one. Park and Ride conducted formally when there is the provision of parking and public transport services are available to users through the Park and Ride specific schemes *(Pickett and Gray, 1993*). The main concept is to combine the two advantages of optimizing the use of certain transportation fatherly way to the city center *(EJ Gubbins, 1988)*. According to Mohd Pauzi (2010) refers National Urbanization Policy by the Ministry of Housing and Local Government, the definition of Park and Ride is a concept in which the area is planned to put its own vehicles and the use of public transport modes. Generally, Park and Ride is a public transport system that consists of two conditions, namely:

i. Parking and comfortable
ii. The provision of public transport services that link the park with the town centre.

Park and Ride is designed to reduce traffic congestion and shortage of parking spaces in the downtown area. Park and Ride is built to provide ample parking outside the city center and connecting with public services such as buses. Park and Ride create a good combination between the parking area and public transport facilities, and it helps the user member private vehicles and makes the system more effective and efficient. Overall, this system is a parking facility that allows users to put or leave their vehicle while later exchange or by public transport such as buses, rail systems (fast flow, light rail or commuter train) or car sharing to travel to the city center. The vehicle will be stored in the car park during the day and the owners will get it back. The system thereby reduces traffic congestion and parking demand in the city center.

Function of Park and Ride

According to Mohd Pauzi (2010) the main function of Park and Ride is introduced; (1). To reduce the flow of traffic (private cars) that leads to the city center. (2). Overcoming the lack of parking in the downtown area. (3). Minimize traffic congestion in urban areas navel during peak hours. (4). Allow users to get to work or the desired destination. (5). Finally to encourage consumers to use public transport services.

Strength of Park and Ride

Among the advantages derived from the Park and Ride is; (1). Reduce traffic congestion. (2). Reduce the shortage of parking in the city center. (3). Encouraging use of public transport. (4). Save time commuting to work or destinations. (5). Reduce transportation costs. (6). Reduce carbon emissions and air pollution.

8. Findings and Discussion

To avoid the same problems occur, an alternative action that needs to be done to make a sustainable campus. These include a campaign to make carpooling; this campaign is not only focused on students even to all UTM staffs. In this way, the vehicle that entered UTM areas can be reduced and further streamline traffic traveling in all areas in UTM. This can reduce the air pollution in UTM. Next action also is adding more parking at UTM, because the parking in the education area can't accommodate vehicles available for now. Build a multilevel parking have to be considered to prevent this problem from occurring. Because vehicles parked at the side of the road will cause heavy congestion in the campus. Promoting UTM citizens to walk and cycling to work and to classes are also a way to avoid these problems occurs because it can reduce vehicle entering the UTM. The pedestrian walkway should be upgrade for the users' convenience. With parking available at the moment, the parking is in the

area of UTM can't accommodate vehicles at the moment, by that UTM encouraged staffs and students to make public transportation such as buses as an alternative to go to work or to class. This is because it can control and minimized the number of vehicles that enter UTM as well as it can smooth the traffic in the campus. By all this ways, UTM citizens can get to the workplace and classroom with smooth and comfortable. Automatically we all have created a transportation system with systematically. These are all important to create a sustainable campus development system that protects the environment and growing campus atmosphere that is comfortable and conducive.

Car Pool

Carpooling is sharing a trip with more than one person using one car only. Reduce traffic congestion in this way is not a new method. This idea was first introduced in the early 1970s when a team of experts from the World Bank's public transport studying traffic congestion in Kuala Lumpur. In Malaysia, car sharing campaign was launched in December 1994 but unfortunately it got a less response and less effective. In fact, in the 1980s when Shahrir Abd. Samad became Minister of Federal Territory carpooling campaign was introduced again. Similar campaign when Datuk Seri Ling Leong Sik was the transport minister. Carpooling campaign should be implemented on an ongoing basis and are not seasonally and should be intensified in order to create awareness about the benefits of carpooling to work and lecture for the citizens of UTM. In addition, incentives should be given to citizens of UTM to interest them. Among the benefits of car sharing include:

i. Reduce traffic congestion
ii. Reduce carbon emissions and air pollution
iii. Optimize parking space
iv. Reduce travel costs such as fuel, tolls and expenses
v. Reducing the number of vehicles on the road
vi. Fostering closer relations among colleagues and students
vii. Reduce driving stress

Upgrading Bus Services

The bus service on campus has to be upgraded and made more attractive in order to attract more UTM using this transport. The transportation such as tram will be propose, because it is more open and relaxed so they appreciate the environment. Operation time has to be more effective in a way to improve the bus service in UTM campus. The bus ride from one location to another should base on schedule. For areas far from where the main focus of higher frequency is necessary. This would maximize the use of public transport in the UTM campus

Elevated Car Park

Elevated car park is: (1). Space is provided based on what has been planned as a place to park or vehicles for use of a building for residential, commercial and institutional; and (2) .The space for drive-through parking ramp on the floor of the building where the building design is usually limited to five to six story's with a total capacity of up to 500 cars per lot. Among the advantages of the preparation is: Able to act as a parking share:

i. For the use of three or more land use and business activities, which are grouped in a same building or complex.
ii. Suitable for separate developments that do not exceed a distance of 400 meters

UTM Cycling Campaign

Cycling is an activity that is beneficial and healthy. Universiti Teknologi Malaysia has provided facilities for such purposes as providing Eco bike for free that can be used jointly by the campus community and also build some eco bike stations around UTM. A series of cycling with Vice Chancellor was held around the UTM to introduce and promote the campus together for the success of the program. Cycling is the best alternative in addressing this issue. Cycling to lectures or to the workplace should be viewed as a positive thing and the campus community should not feel ashamed. However special lanes should be established on campus.
(Noor Simran, 2010) Some of the benefits of cycling are:

i. Reduce traffic congestion
ii. Space-saving parking
iii. Creating a conducive environment and sustainable
iv.

Pedestrian Walkway

The walkway is a special area for pedestrians. Group of pedestrians is the largest group in UTM. Walkways in UTM should be upgraded with a more attractive design and beautify order to attract residents of UTM in using this route to get to work and school. According to Mohd Khairul Misram (2007) pedestrians are one of the important groups in the transport system traffic especially in urban traffic. Take a walk is the oldest way of transportation and main ways to connect people from one place to another. The facilities should be provided to ensure the safety and comfort of this group. According Haslina, 1995 makes walkway attractive, comfortable and relaxing is necessary in the preparation of a systematic pedestrian walkway to ensure comfortable, convenient and secure. The proposed is to design a walkway more attractive, upgraded the existing pavement maintenance, creating covered walkways and safe, widening pavements to bilateral and upgrade as well as beautify the existing pavement.

Summary and Conclusions

Park and Ride concept were able to alleviate the shortage of parking and traffic congestion in UTM campus. Park and Ride is encouraging staff and students to use private vehicles and park their vehicles in the designated area and need to use the bus service that runs a shuttle around UTM campus. Park and Ride system has been proven in developed countries that adopt sustainable public transport system. There is a need to provide Park and Ride to encourage staff and students to use public transport in the UTM campus. Therefore, the Park and Ride should be given priority as an alternative solution. Park and Ride should be introduced in UTM campus. This can create a transportation system that is efficient, comfortable and systematically to reduce parking problems, traffic congestion, public transport, and pedestrian entrance is interconnected. However, this approach will succeed if staff and students willing to work and turn to public transportation as the main transport. The conclusions and recommendations put forward in this study can guide the design concept of the Park and Ride that are suitable in UTM campus.

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