ASSESSMENT OF ON-STREET PARKING AND TRAFFIC CONGESTION PROBLEMS AT HAMPTON STREET, LONDON BOROUGH OF SOUTHWARK, LONDON, UNITED KINGDOM.

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ABSTRACT

Parking is synonymous to traffic congestion because failure to meet parking demand of people in a city leads to on-street parking which ultimately results to traffic congestion. Traffic congestion is a condition that occurs on roads when demand for parking is more than supply, and the features of traffic congestion are slower speeds, longer trip times, and increased vehicular queueing. The non-availability of space in urban centres has increased demand for parking space especially in urban centres. Inadequate off-street parking in most of our urban centres contributes to the problem of on-street parking coupled with inadequate traffic management.

The aim of this field work is to obtain the total number of parking available, the concentration of parking and the duration of parking while the objectives were to:

To determine the parking demand and to determine the parking supply.

The methodology used was to collect data manually by taking note of the registration numbers of all parked vehicles in the area of study, which was patrolled in a period of thirty minutes interval. Since the survey was a four-hour duration survey, the study area was patrolled eight consecutive times.

The study found the maximum occupancy at 12:00pm to be 68% with 27 vehicles parked, 12:30pm to be 60%, 1:00pm to be 60%, 1:30pm to be 58%, 2:00pm to be 63%, 2:30pm to be 60%, 3:00pm to be 60%, 3:30pm to be 53%, and 4:00pm to be 40% with 16 vehicles parked.

The study recommends that ancillary parking facilities should be provided to take care of peak periods.

The study concludes that demand was less than supply on this particular date, owing probably to the fact that the weather was very cold and windy. The temperature had dropped to 3°C on this date and many people preferred to stay indoors.

Key Words: On-street parking, Traffic congestion, Transportation planning, Traffic management, Urban centres.

1.0 INTRODUCTION

On-street parking refers to the parking space made available along the curb or shoulder of a street or road that are designed to accommodate vehicles (Olorunfemi, 2013). The use of an on-street parking affects traffic movement in three ways; it reduces the street's capacity, it reduces safety, and increases service conflict (Richard and David, 2007).

On-street parking causes safety and congestion problems by blocking one or two traffic lanes, reducing visibility, insecurity and forcing pedestrians to walk in the road, if proper footpaths are not provided and it also obstructs access for emergency services thereby resulting into accidents and affecting traffic flow (Rye, 2010).

On-street parking constitutes one major problem that makes traffic situation chaotic. There are cases of double parking along these narrow roads which causes traffic congestion. This is due to the non-availability of off-street parking facilities along the roads coupled with inadequate traffic management (Asiyanbola and Akinpelu, 2012).

Traffic congestion is as a result of urban growth in terms of population increase and the spatial expansion of urban centres which carries with it increase in car ownership, and movement of peoplefor employment purpose, leisure, education, and other activities (Osoba, 2012). The situation is getting worse with the growing number of visitors and patrons as a result of urban revitalisation, suburban development, and the increasing trend of mobility making parking situation more challenging. Therefore parking needs to be given attention as an important aspect of transportation planning (Jeffrey, 2007)

2.0 LITERATURE REVIEW

Parking is a major problem in today's road network. This is because in most of the cities in developing countries, the planning of road network lacks the provision of the entire basic infrastructure for safe and orderly movement of vehicles (Akhuewu, 2010).

An ideal road network should have exclusive lanes in order to demarcate fast moving and slow moving vehicles, cycle lanes, exclusive bus lanes, and service lanes (Sivabramanian and Malarvizhi, 2007). However, increase in number of vehicles without adequate infrastructure, has compounded the problem of traffic congestion, traffic delay, parking problems, accidents, and urban land use severance (Raji and Waziri, 2008).

One of the major goals of transportation planning is to ease the movement of passengers and goods on urban roads. In many cities, the world over, undesirable degree of traffic congestion is the order of the day.

However, for a city to function as a system, transportation must be efficient and reliable to facilitate, not only intercity movement of people and their goods, but to also encourage intra-city movement, i.e. from point of origin to point of destination (Akhuewu, 2010).

In developed countries like Europe and America, most vehicle owners in a commercial area parked their cars in line with parking principles and guidelines. This is due to the fact that parking spaces that are enough for both motorists and those residing within the area are provided. This is because the cities were well planned with the inclusion of parking facilities to ensure that there are no obstructions on the streets. This is remarkably different from what is obtainable in Africa or the developing countries.

The provision of adequate parking spaces in busy urban centres is becoming more difficult because of increase in population, leading to increase in the number of car ownership. And because there are inadequate parking spaces in urban cities, motorists are compelled to compete for the few available parking spaces and this results to on-street parking which normally disrupts the free flow of traffic in such areas.

CIHT (1987) observed that the demand for car parking vary between long duration parking for commuter, short stay parking for shoppers, and short to medium term for people using the town for entertainment, business or other similar activities. As a result of the variation in parking duration and parking demand, it was observed that urban parking problem can be solved through a judicious combination of the on-street and off-street parking facilities.

3.0 METHODOLOGY.

Pilot survey was conducted the previous day to be abreast of what was going to be encountered in the real or actual survey.

The on-street parking beat survey was carried out at Hampton street between the hours of 12.00 and 4.00pm, covering a total of 4 (four) hours. Observations were taken every 30 (thirty) minutes to ensure periods of high demands are captured and any parking pattern are identifiable.

The study area has available total space for 40 vehicles by using the estimation of one car to 6m of kerb (CIHT, 1987).

The data was collected manually by taking note of the registration numbers of all parked vehicles in the area of study, which was patrolled in a period of thirty minutes intervals, and the number of vehicle found parking for each patrol was noted. The percentage of parked vehicles was calculated in relation to 40, being the maximum space capacity of the street. Since the survey was a four-hour duration survey, the study was patrolled eight consecutive times.

BACKGROUND OF STUDY

Hampton Street is off Newington Butts, which is a very busy road both day and night, few metres away from a massive popular shopping mall at Elephant and Castle, within inner London. There are many other shopping malls, hotels and two universities including the London South Bank University near the study area, and all these are generators of traffic congestion. The study area is located within London Borough of Southwark, London, United Kingdom.
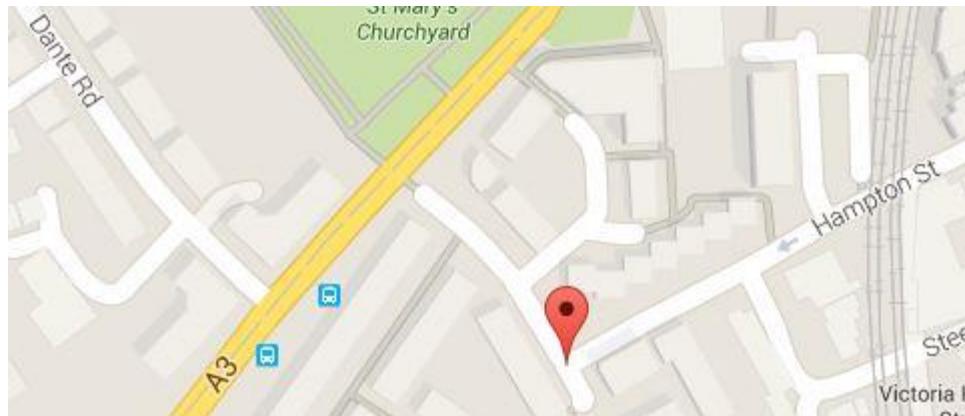
PARKING CHARACTERISTICS OF THE STUDY AREA.

Yellow lines were measured (single and double) and parking bays and other characteristics of the area were noted. The study area had the following parking characteristics:

- Parking resident permit: (including Saturdays from 6:30am – 6:30pm)
- Parking display ticket:
- Cycles only: (6m)
- Restriction single yellow line: (12m).
- Restriction double yellow line:(15m).
- Restriction keep clear: (Nil).
- Blue badges: (Nil).
- Disabled parking: (Nil)

4.0 RESULTS AND DISCUSSIONS

RESULTS:

Time (1/2hr increment)

12:00		12:30		1:00		1:30		2:00		2:30		3:00		3:30		4:00	
KUT	-	KUT	-	KUT	-	KUT	4	EUV	1	KMZ	-	KMZ	2				
BMD	-	BMD	-	BMD	-	BMD	-	BMD	-	BMD	-	BMD	-	BMD		BMD	9
LGY	-	LGY	-	LGY	-	LGY	4	OFL	-	OFL	-	OFL	-	OFL	4	TYK	9
TYK	-	TYK	-	TYK	-	TYK	-	TYK	-	TYK	-	TYK	-	TYK		WMJ	9
WMJ	-	WMJ	-	WMJ	-	WMJ	-	WMJ	-	WMJ	-	WMJ	-	WMJ		CBA	9
CBA	-	CBA	-	CBA	-	CBA	-	CBA	-	CBA	-	CBA	-	CBA		NBM	9
NBM	-	NBM	-	NBM	-	NBM	-	NBM	-	NBM	-	NBM	-	NBM		DPB	9
DPB	-	DPB	-	DPB	-	DPB	-	DPB	-	DPB	-	DPB	-	DPB		YPM	9
YPM	-	YPM	-	YPM	-	YPM	-	YPM	-	YPM	-	YPM	-	YPM			
VJF	-	VJF	-	VJF	-	VJF	-	VJF	5	PCX	-	PCX	-	PCX	3	XKM	9
XKM	-	XKM	-	XKM	-	XKM	-	XKM	-	XKM	-	XKM	-	XKM			
KGX	-	KGX	2	FTD	-	FTD	-	FTD	-	FYD	-	FTD	-	FTD	6		
KOJ	-	KOJ	2					SGU	1							FNM	9
FNM	-	FNM		FNM	-	FNM	-	FNM	-	FNM	-	FNM	-	FNM			
FYT	1		-													UMO	9
UMO	-	UMO	-	UMO	-	UMO	-	UMO	-	UMO	-	UMO	-	UMO		MHE	9
MHE	-	MHE	-	MHE	-	MHE	-	MHE	-	MHE	-	MHE	-	MHE			
HCK	-	HCK	-	HCK	-	HCK	-	HCK	-	HCK	-	HCK	7			HLO	9
HLO	-	HLO	-	HLO	-	HLO	-	HLO	-	HLO	-	HLO	-	HLO		OJG	9
OJG	-	OJG	-	OJG	-	OJG	-	OJG	-	OJG	-	OJG	-	OJG			

PZK	-	PZK		PZK	-	PZK	-	PZK	-	PZK	-	PZK	7		
TKY	1		-	DTN	1	VVV	-	VVV	-	VVV	-	VVV	4	VCL	9
VEL	-	VEL	-	VEL	3	WHR	-	WHR	-	WHR	-	WHR	5	FMG	9
VCL	-	VCL	-	VCL	-	VCL	-	VCL	-	VCL	-	VCL		MJE	9
FMG	-	FMG	-	FMG	-	FMG	-	FMG	-	FMG	-	FMG	-		
MJE	-	MJE		MJE	-	MJE	-	MJE	-	MJE	-	MJE	-		
WVN	1														

27
1

24   24   23   25   24   24   21

BEAT DATA.

	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00
Parking occupancy.	27	24	24	23	25	24	24	21	16
%parking occupancy.	68%	60%	60%	58%	63%	60%	60%	53%	40%

DURATION (hrs)

Parking duration.	0 - 0.5 (0.5)	0.5 –1 (1)	1-1.5 (1.5)	1.5-2 (2)	2-2.5 (2.5)	2.5-3 (3)	3-3.5 (3.5)	3.5-4 (4)	TOTAL
Number of vehicles.	6	3	2	4	2	1	2	16	36

DISCUSSIONS:

The study area has available parking space for **40** vehicles. The maximum occupancy was recorded at 12:00pm with 68% and **27** vehicles parked and the minimum was observed at 4:00pm with 40% and **16** vehicles parked.

The study that was conducted using field observation found the **Maximum occupancy** at 12:00pm with 27 vehicles parked representing 68% of the total available parking space, 12:30pm with 24 vehicles parked representing 60% of the total available parking space, 1:00pm with 24 vehicles parked representing 60% of the total available parking space, 1:30pm with 23 vehicles parked representing 58% of the total available parking space, 2:00pm with 25 vehicles parked representing 63% of the total available parking space, 2:30pm with 24 vehicles parked representing 60% of the total available parking space, 3:00pm with 24 vehicles parked representing 60% of the total available parking space, 3:30pm with 21 vehicles parked representing 53% of the total available parking space, and 4:00pm with 16 vehicles parked representing 40% of the total available parking space.

Parking duration and number of parked vehicles: 6 vehicles was parked for a duration of 30 minutes, 3 vehicles was parked for a duration of 1 hour, 2 vehicles was parked for a duration 1½, 4 vehicles was parked for a duration of 2 hours, 2 vehicles was parked for a duration of 2½, 1 vehicle was parked for a duration of 3 hours, 2 vehicles was found parked for a duration of 3½, and 16 vehicles was found parked for a duration of 4 hours.

5.0 RECOMMENDATIONS AND CONCLUSIONS

RECOMMENDATIONS.

The study recommends that government should embark on public awareness campaigns as a basic tool for accomplishing effective traffic management control.

Adequate enforcement of traffic rules and regulations by disciplined law enforcement agents.

Off-street parking facilities should be provided within the study area, since insufficient off-street parking facilities leads to on-street parking, thereby reducing the effective width of the road.

CONCLUSIONS.

The study that was conducted using field observation to collect the required data at Hampton Street, to ascertain whether demand is more than supply found the maximum occupancy at 12:00pm to be 68% with 27 vehicles parked, 12:30pm to be 60% with 24 vehicles parked, 1:00pm to be 60% with 24 vehicles parked, 1:30pm to be 58% with 23 vehicles parked, 2:00pm to be 63% with 25 vehicles parked, 2:30pm to be 60% with 24 vehicles parked, 3:00pm to be 60% with 24 vehicles parked, 3:30pm to be 53% with 21 vehicles parked, and 4:00pm to be 40% with 16 vehicles parked.

The study concludes that supply was more than demand on this particular date, owing probably to cold weather and the windy nature of that day, because the temperature haddropped to 3∘C on this date and many people preferred to stay indoors.

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