

# PROPOSED TRAFFIC CALMING SCHEME IN THE LYTTTELTON ROAD RESIDENTIAL AREA

***(DRAFT)***

Client : Mr Tony Soughan

6 June 2014



**Community for Road Safety**  
**道路安全研究小組**

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## INTRODUCTION

In the morning of 17th April 2014, a pedestrian was fatally injured after being knocked down by a minibus travelling westbound outside No. 37 Lyttelton Road, Mid-levels. Thereafter residents raised concerns about the speed and safety of traffic going through their neighbourhood. Mr Tony Soughan, a resident in the area, contacted the Community for Road Safety (CRS) to discuss their concerns. Mr Soughan subsequently commissioned CRS to undertake a brief study with the following tasks:

- Conduct a traffic speed survey in the neighbourhood
- Comment on the outcome of the speed survey and existing traffic conditions
- Advise on current practices in Hong Kong and current international best practices for residential speed management
- Propose a low-cost scheme to reduce traffic speeds on the basis of international best practices, taking into account practices and traffic law in Hong Kong

## TRAFFIC CONDITIONS

The road network consisting of Lyttelton Road (west of Oaklands Avenue), Babington Path, Honiton Road and Robinson Road (west of Kotewall Road) is bounded by more major roads including Park Road (district distributor road), Oaklands Avenue and Kotewall Road (local distributor road). This road network primarily serves residential frontage developments and also the lightly used eastern entrance of the University of Hong Kong.

Lyttelton Road (west of Oaklands Avenue) is a two-way road joining the one-way Babington Path. The road consists of two tight bends where sightline is constrained by buildings to a minimum of 32m (**Diagram 1**). This becomes very unfavorable for pedestrian safety if vehicles are travelling at speeds beyond 35km/h, especially when sightlines are further blocked by parked vehicles.



Diagram 1 Sightlines at Bends on Lyttelton Road

At present measures in place to improve safety include:

- “SLOW” markings at several locations
- “Pedestrians” warning signs

According to information provided by Transport Department, there were two traffic accidents on Lyttelton Road (west of Oaklands Avenue) since 2011, apart from the fatal collision on 17<sup>th</sup> April 2014. The location is therefore not a black site.

## SPEED SURVEY

A spot speed survey was conducted during both day time and night time on Lyttelton Road (west of Oaklands Avenue). The survey was conducted with a calibrated hand-held laser speed measuring device (Lasertech Inc. model Truspeed). The target of measurement is free-flowing vehicles when the road is not blocked or only partially blocked by parked vehicles without the need for significantly slowing down or stopping.

The results are summarized in **Appendix 1** and presented in **Diagram 2** below.

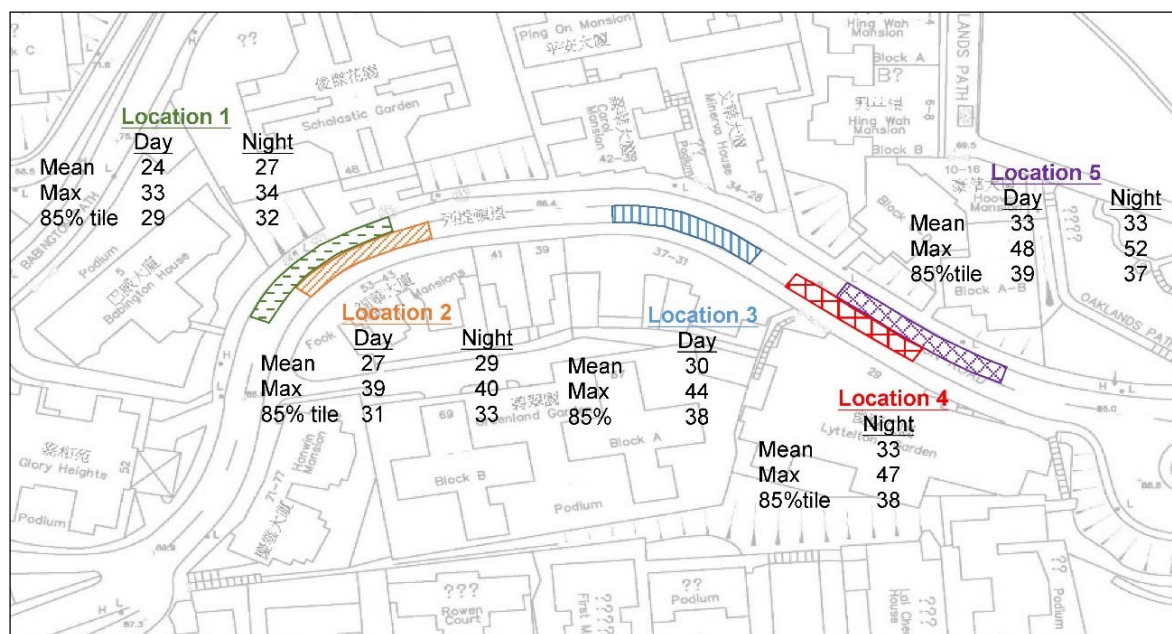


Diagram 2 Traffic Speeds on Lyttelton Road

## Discussions

Traffic speeds are generally higher on the eastern section (near Oaklands Avenue) than the western section (near Babington Path). On the western section the mean speed lies between 24km/h and 29km/h, being higher during night time. The 85%tile speed on this section lies between 29km/h and 33km/h. On the eastern section the mean speed stays at 33km/h, both during day time and night time. The 85%tile speed on this section lies between 37km/h and 39km/h, with maximum speeds reaching 52km/h. The speeds of some westbound vehicles (Location 3) exceed 40km/h approaching the bend outside No. 31 Lyttelton Road.

The mean speeds up to 33km/h suggest that generally drivers adopt a moderate speed consistent with the residential neighborhood. However, the spread of traffic speeds towards the higher side is a major concern, especially for the eastern section. This means that a fair proportion of drivers are prepared to adopt much higher speeds, up to and beyond 40km/h. Such speeds are inconsistent with the residential neighborhood and available sightlines through the bends.

## **SPEED MANAGEMENT**

### **Current Practices in Hong Kong**

In Hong Kong, the standard urban speed limit is 50km/h. Guidelines on speed limits is given in Volume 6 of the Transport Planning and Design Manual (TPDM) published by Transport Department.

Clause 6.4.2.5 of the TPDM considers that “Generally, speed limits lower than 50 km/h are not recommended for public roads, as they require a higher level of enforcement to ensure compliance, and it is doubtful that the lower speed limit imposed will contribute significantly to accident prevention.”

Clause 6.5.3.2 of the TPDM states that “Justification for a permanent speed limit of 30 km/h will need to be considered on an individual basis having regard to the particular circumstances, including the road environment, design speed and accident rate of the road under consideration. However, narrowness of the road, and/or the existence of isolated hazards along it are not sufficient reasons for the imposition of such a speed limit.”

### **Current Practices in Advanced Countries**

Contrary to the guidance given in the TPDM, the use of lower speed limit i.e. 30km/h or 40km/h, has become very popular for city centres, residential districts and school zones in advanced European countries, and more recently, in Australia and North America. A paper published in the British Medical Journal (BMJ) in 2009 <http://www.bmj.com/content/339/bmj.b4469> concluded that 20mph (32km/h) zones in London resulted in the reduction of 42% of road traffic casualties and 53% of fatal or serious casualties.

As part of the Road Safety Action Plan for London 2020, authorities “support the installation of further 20mph (32km/h) zones and limits on borough (district) roads where compatible with the functions of the local road network. This is built on the success of more than 400 20mph zones already in place. In April 2014, the City of London (core district of London) passed the resolution to proceed with a city-wide 20mph (30km/h) speed limit with few exceptions.

The mayor of Paris announced in June 2013 that 30km/h zones will be extended to eventually cover 560km of roads in the city. In New York City, the mayor announced in February 2014 a road safety action plan including city-wide 40km/h (25km/h) speed limit instead of the current 50km/h (30mph). There are also plans for eight more 30km/h (20mph) zones and 250 speed humps.

This document “Setting Local Speed Limits” (UK Department for Transport Circular 01/2013)

represents the current thinking and policy in the United Kingdom. The document is particularly relevant in that the TPDM of Hong Kong is historically linked to UK practices but has not incorporated their more recent developments. The document stipulates that “Mean Speeds” should be used as the basis for determining local speed limits. In this respect, 20mph speed limit (32km/h) is considered most appropriate where mean speed is up to 24mph (38.4km/h).

The rationale of setting lower speed is not only to reduce road casualties, but also in ensuring that residents feel safe and therefore more willing to walk and exercise. Lower speeds also contribute to less emissions and noise due to unnecessary acceleration and braking.

## **Discussions**

Lyttelton Road (west of Oaklands Avenue) is primarily a local access road serving the residential neighborhood. Based on speed survey data and current best practices worldwide, it is well qualified for a speed limit of 30km/h in conjunction with Babington Path, Honiton Road and Robinson Road (west of Kotewall Road) despite the fact that the neighborhood is not a black site. Besides better protection in terms of road safety, 30km/h speed limit has positive benefits on quality of life in the neighborhood and encourages people to walk.

Although the TPDM does not favour lower speed limits on urban streets, the use of 30km/h is permitted under the Road Traffic Ordinance. In advanced overseas countries, “30km/h zones” and “30km/h terminal signs” are often adopted to better define rules for road-users and to simplify signing. Since these are not yet available in Hong Kong, the use of 30km/h speed limit signs is the appropriate solution at this stage.

## RECOMMENDATIONS

It is recommended to gazette the road network formed by Lyttelton Road (west of Oaklands Avenue), Babington Path, Honiton Road and Robinson Road (west of Kotewall Road) with a 30km/h speed limit. This is achieved by erecting a pair of 30km/h speed limit sign at the entrance to these streets and a pair of 50km/h at their exit.

The following complementary traffic calming measures are recommended:

- a speed table outside No. 29 Lyttelton Road
- “30km/h” speed limit roundel markings over colour dressings at various locations

The proposed scheme is illustrated in **Diagrams 3 to 5**.

The speed table shall be a flat top plateau about 8m in length and 75-100mm in height with approach ramps at 7% gradient. Preferably beige or red colour dressing is applied over the speed table to make it more conspicuous, although standard road hump signs and markings alone are acceptable. This gentle design would be an optimum balance for speed reduction, noise and discomfort. As there are existing drainage gutters on both sides, construction work could be minimized.

It is estimated that traffic passing the speed table would have mean speeds around 21km/h and 85%tile speeds not more than 30km/h. This will have a beneficial effect on traffic speeds throughout Lyttelton Road westbound, and the 30km/h speed limit will be largely self-enforcing without additional police manpower for enforcement. For Lyttelton Road eastbound, the speed table would discourage traffic from accelerating too early until they arrive at the junction with Oaklands Avenue.

The main benefits of the scheme are

- raising awareness of drivers
- deterring inappropriate speeds and acceleration/braking adopted by some drivers
- creating a safer and more tranquil neighborhood for residents and pedestrians

Over time there would be opportunities to further reinforce the residential character of the neighborhood with attractive streetscape design.

The proposed scheme should not have any noticeable adverse effects on journey time and emergency service given the short length (210m) of Lyttelton Road (west of Oaklands Avenue) and the current favourable mean speed within the road network.

**DIAGRAMS**







-  30km/h Speed Limit Streets
-  Entrance/Exit of 30km/h Speed Limit Streets with Signs
-  "30" Speed Limit Roundel Markings over Colour Dressing
-  Speed Table and Associated Signing

Diagram 3 Proposed 30km/h Speed Limit Scheme

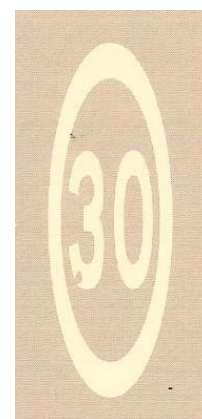


Diagram 4 Typical Raised Table with 7% Approach Ramps (L)

Diagram 5 Speed Limit Roundel Marking over Colour Dressing (R)



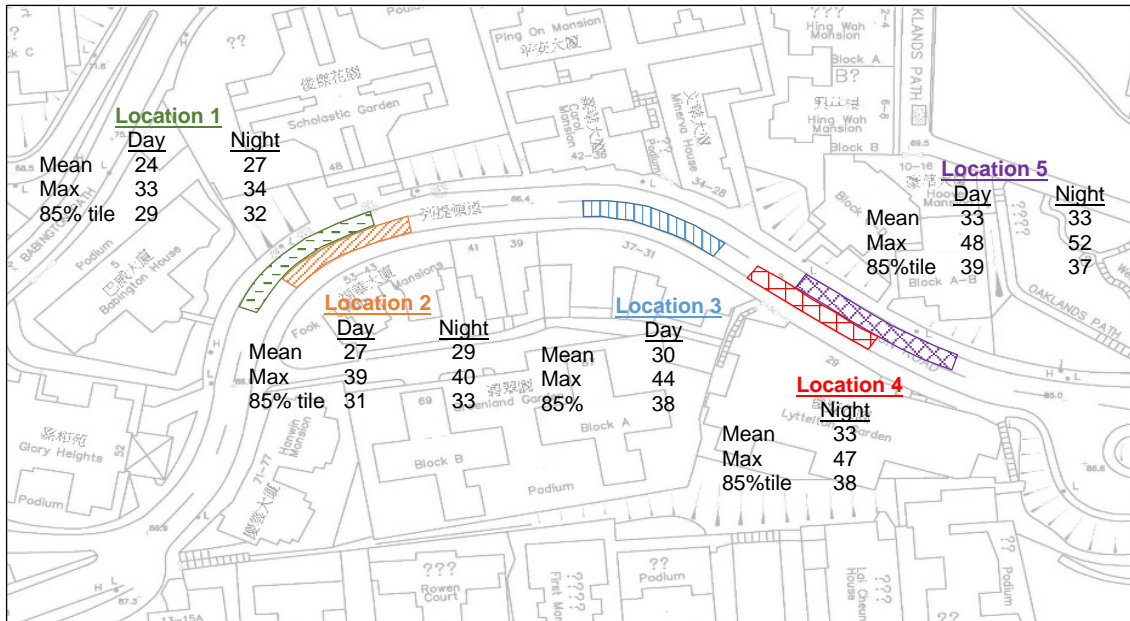
**APPENDIX A**

**SPEED SURVEY RECORDS**

A1 - Survey Information

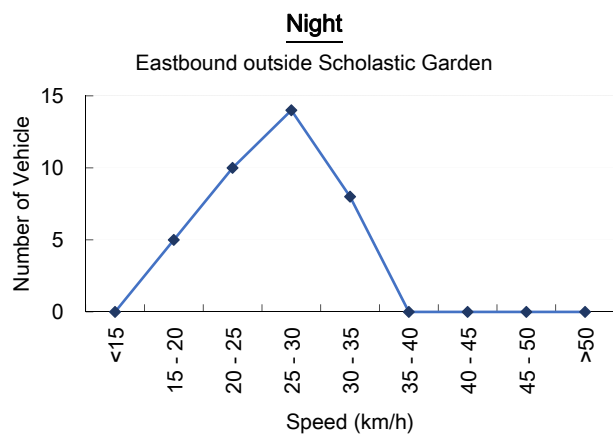
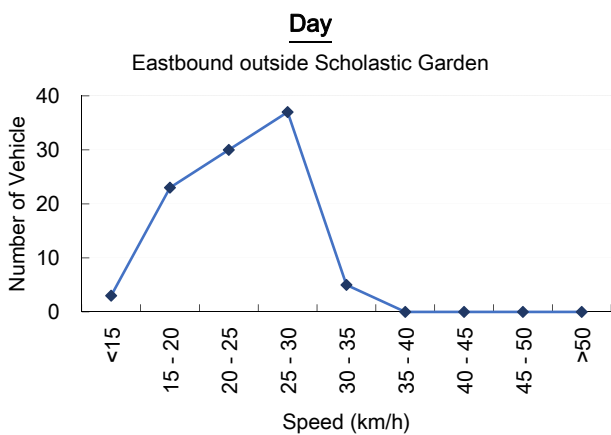
Date : 4 June 2014  
 Day of Week: Thursday  
 Time : 1500 - 1845 (Day Survey)  
 2045 - 2230 (Night Survey)  
 Location : Lyttelton Road between Oaklands Avenue and Babington Path  
 Surveyor : Julian Kwong / Micah Woo

A2 - Survey Location



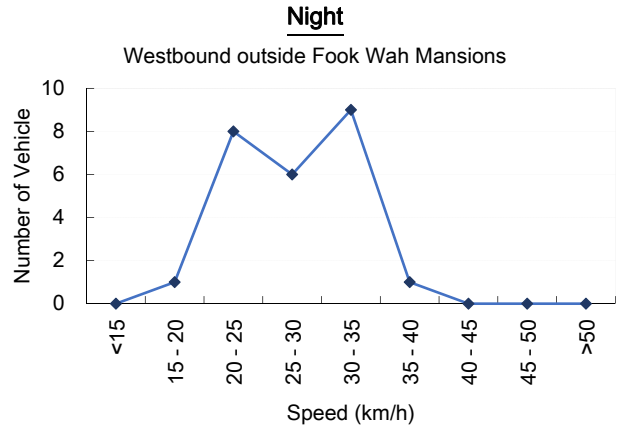
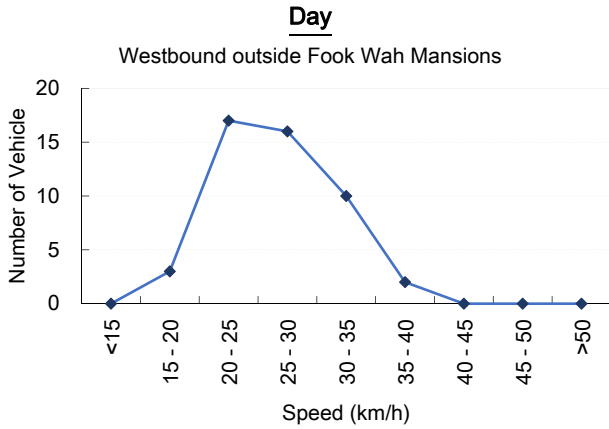
A3 - Survey Results

Location 1 -- Eastbound outside Scholastic Garden

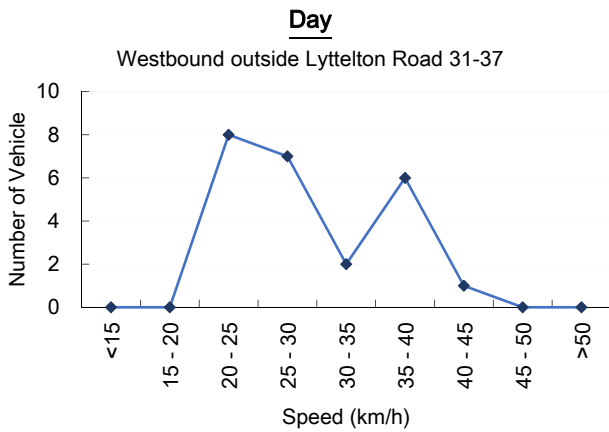


A3 - Survey Results (con't)

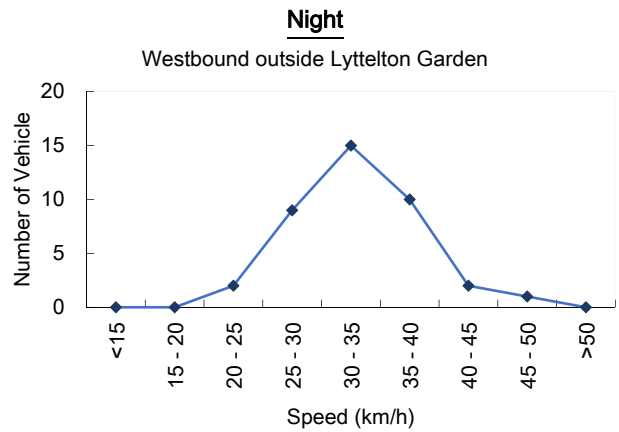
Location 2 -- Westbound outside Fook Wah Mansions



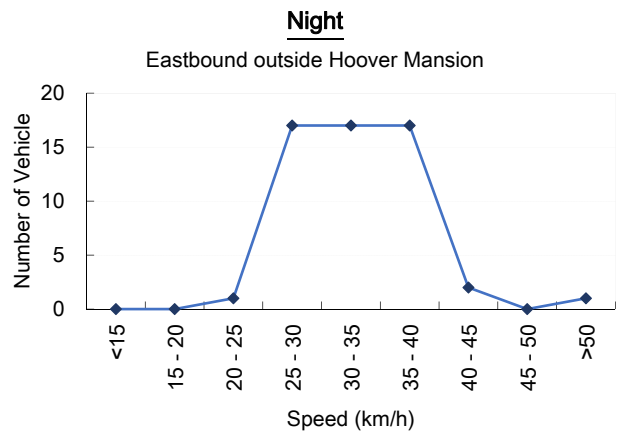
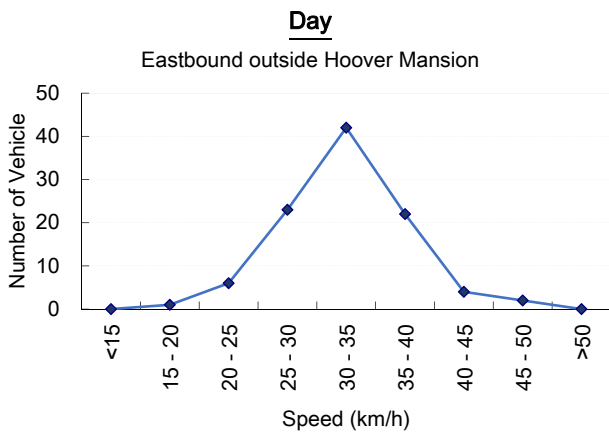
Location 3 -- Westbound outside Lyttelton Road 31-37



Location 4 -- Westbound outside Lyttelton Garden



Location 5 -- Eastbound outside Hoover Mansion



A4 - Survey Data

		1				2	
Target Location		Outside Hoover Mansion				Outside Fook Wah Mansions	
Direction of Traffic		Eastbound				Westbound	
Date		20140604				20140604	
Time		1501 - 1620				1501 - 1620 ; 1645 - 1707	
Surveyor Location		Outside Minerva House				Outside Minerva House	
Weather		Sunny				Sunny	
Road Surface		Dry				Dry	
Light Condition		Daylight				Daylight	
Street Lighting		N/A				N/A	
Survey Record		Speed	Class	Speed	Class	Speed	Class
Speed Unit: km/h  Legend: C = Private Car T = Taxi LGV = Light Good Vehicle MGV = Medium Good Vehicle HGV = Heavy Good Vehicle GMB = Green Minibus SV = School Van SmB = School Minibus MC = Motorcycle	1	33	C	22	C	24	C
	2	27	LGV	36	LGV	28	LGV
	3	33	T	42	T	25	T
	4	31	C	40	C	21	GMB
	5	27	T	32	SV	20	GMB
	6	37	C	29	C	33	GMB
	7	25	C	30	HGV	24	T
	8	34	LGV	34	T	18	C
	9	32	T	33	C	34	T
	10	33	C	38	T	26	SmB
	11	39	C	27	C	28	LGV
	12	41	SmB	36	T	23	GMB
	13	35	LVG	40	C	30	T
	14	30	C	39	T	25	GMB
	15	34	C	39	LGV	27	LGV
	16	29	MGV	29	C	31	SV
	17	28	C	47	C	24	GMB
	18	39	C	39	T	31	SmB
	19	33	C	35	C	28	GMB
	20	33	T	32	C	28	C
	21	45	C	25	C	24	C
	22	32	C	34	C	29	LGV
	23	29	C	39	T	29	C
	24	27	C	45	C	34	C
	25	26	C	34	MGV	30	GMB
	26	27	T	32	LGV	23	C
	27	34	C	28	T	31	SmB
	28	40	C	32	C	32	SmB
	29	34	T	34	C	28	GMB
	30	19	T	31	T	22	C
	31	26	C	37	LGV	30	GMB
	32	29	C	40	T	25	GMB
	33	27	C	48	C	24	C
	34	22	SmB	35	C	29	MC
	35	28	C	34	T	24	T
	36	36	T	35	SmB	28	GMB
	37	28	MGV	23	C	28	MGV
	38	34	C	36	LGV	25	T
	39	27	LGV	31	C	23	SV
	40	26	T	32	T	19	HGV
	41	25	C	35	T	31	SV
	42	29	T	32	SV	39	T
	43	33	C	37	C	29	T
	44	32	T	36	T	36	T
	45	32	C	28	C	31	T
	46	32	C	33	LGV	35	LGV
	47	33	C	36	SmB	25	SV
	48	40	C	36	LGV	24	SV
	49	35	C	32	C		
	50	32	T	34	SmB		
Number of Vehicle		100				48	
Average (km/h)		33				27	
Maximum (km/h)		48				39	
Minimum (km/h)		19				18	
85-percentile (km/h)		39				31	

A4 - Survey Data (con't)

		3				4	
Target Location		Outside Scholastic Garden				Outside Lyttelton Road 31-37	
Direction of Traffic		Eastbound				Westbound	
Date		20140604				20140604	
Time		1713 - 1810				1818 - 1842	
Surveyor Location		Outside Glory Heights				J/O Oaklands Avenue	
Weather		Sunny				Sunny	
Road Surface		Dry				Dry	
Light Condition		Daylight				Daylight	
Street Lighting		N/A				N/A	
Survey Record		Speed	Class	Speed	Class	Speed	Class
Speed Unit: km/h  Legend: C = Private Car T = Taxi LGV = Light Good Vehicle MGV = Medium Good Vehicle HGV = Heavy Good Vehicle GMB = Green Minibus SV = School Van SmB = School Minibus MC = Motorcycle	1	24	T	26	T	30	GMB
	2	19	T	20	C	28	LGV
	3	29	C	26	T	29	T
	4	15	C	29	T	36	T
	5	19	C	20	T	35	T
	6	22	C	25	C	24	GMB
	7	21	C	26	C	39	T
	8	19	C	22	C	38	T
	9	19	C	21	T	37	C
	10	21	T	27	C	25	T
	11	23	C	20	C	40	GMB
	12	19	C	27	T	27	C
	13	25	T	29	C	27	GMB
	14	22	LGV	27	C	24	C
	15	25	T	26	LGV	27	C
	16	27	T	23	C	38	C
	17	22	T	27	T	24	GMB
	18	29	T	30	C	27	C
	19	30	C	22	LGV	33	T
	20	26	C	30	LGV	44	C
	21	28	C	27	SmB	23	SV
	22	29	C	27	C	23	GMB
	23	23	LGV	24	T	23	C
	24	29	T	29	T	24	GMB
	25	15	LGV	31	C		
	26	26	C	31	C		
	27	17	SmB	16	C		
	28	19	C	23	LGV		
	29	17	C	17	T		
	30	21	T	27	C		
	31	27	LGV	28	T		
	32	30	T	23	T		
	33	26	C	18	C		
	34	31	SmB	22	C		
	35	22	C	20	C		
	36	18	C	30	T		
	37	19	LGV	31	C		
	38	20	T	23	MC		
	39	27	C	17	C		
	40	19	MC	18	T		
	41	14	C	28	T		
	42	24	T	29	C		
	43	25	T	20	T		
	44	27	C	23	LGV		
	45	21	C	25	MC		
	46	26	C	33	C		
	47	24	T	21	C		
	48	29	C	17	C		
	49	25	C				
	50	27	T				
Number of Vehicle		98				24	
Average (km/h)		24				30	
Maximum (km/h)		33				44	
Minimum (km/h)		14				23	
85-percentile (km/h)		29				38	

A4 - Survey Data (con't)

		5		6			
Target Location		Outside Lyttelton Garden		Outside Hoover Mansion			
Direction of Traffic		Westbound		Eastbound			
Date		20140604		20140604			
Time		2045 - 2130		2045 - 2130			
Surveyor Location		J/O Oaklands Avenue		J/O Oaklands Avenue			
Weather		Fine		Fine			
Road Surface		Dry		Dry			
Light Condition		Night		Night			
Street Lighting		Fair		Fair			
Survey Record		Speed	Class	Speed	Class	Speed	Class
	1	32	GMB	35	C	28	T
Speed Unit: km/h	2	47	T	52	T	28	C
	3	40	C	37	T	36	C
	4	32	C	30	T	31	C
	5	30	T	36	C	31	T
Legend: C = Private Car T = Taxi LGV = Light Good Vehicle MGV = Medium Good Vehicle HGV = Heavy Good Vehicle GMB = Green Minibus SV = School Van SmB = School Minibus MC = Motorcycle	6	35	C	31	T		
	7	31	C	27	T		
	8	30	C	29	T		
	9	30	T	36	C		
	10	39	C	38	T		
	11	38	T	38	T		
	12	31	T	38	C		
	13	37	T	36	C		
	14	36	T	45	T		
	15	32	GMB	36	T		
	16	35	T	33	T		
	17	42	T	28	T		
	18	30	C	30	C		
	19	33	T	44	T		
	20	34	T	36	T		
	21	31	T	28	T		
	22	36	T	36	T		
	23	38	C	29	LGV		
	24	36	T	33	T		
	25	32	C	37	C		
	26	28	C	36	T		
	27	26	T	32	T		
	28	34	T	35	T		
	29	34	C	23	T		
	30	40	T	31	T		
	31	25	GMB	28	T		
32	26	GMB	33	C			
33	36	T	38	T			
34	34	T	28	T			
35	33	T	40	C			
36	41	T	31	C			
37	28	C	30	C			
38	29	T	36	T			
39	21	GMB	31	T			
40			27	T			
41			26	T			
42			36	T			
43			28	T			
44			29	C			
45			33	T			
46			34	T			
47			35	C			
48			32	T			
49			32	C			
50			30	T			
Number of Vehicle		39		55			
Average (km/h)		33		33			
Maximum (km/h)		47		52			
Minimum (km/h)		21		23			
85-percentile (km/h)		38		37			

A4 - Survey Data (con't)

		7		8	
Target Location		Outside Fook Wah Mansions		Outside Scholastic Garden	
Direction of Traffic		Westbound		Eastbound	
Date		20140604		20140604	
Time		2143 - 2225		2143 - 2225	
Surveyor Location		Outside Minerva House		Outside Minerva House	
Weather		Fine		Fine	
Road Surface		Dry		Dry	
Light Condition		Night		Night	
Street Lighting		Fair		Fair	
Survey Record		Speed	Class	Speed	Class
Speed Unit: km/h  Legend: C = Private Car T = Taxi LGV = Light Good Vehicle MGV = Medium Good Vehicle HGV = Heavy Good Vehicle GMB = Green Minibus SV = School Van SmB = School Minibus MC = Motorcycle	1	32	T	22	C
	2	25	C	26	T
	3	29	C	24	C
	4	40	T	27	T
	5	24	C	25	C
	6	35	GMB	34	T
	7	32	T	33	T
	8	31	T	24	T
	9	25	C	18	MGV
	10	24	T	30	C
	11	32	T	27	T
	12	25	C	32	C
	13	32	C	19	T
	14	34	T	23	T
	15	29	T	28	T
	16	27	GMB	32	GMB
	17	25	C	21	LGV
	18	26	C	23	T
	19	20	C	30	T
	20	21	T	25	T
	21	31	T	20	C
	22	34	MC	31	T
	23	28	C	26	C
	24	24	T	27	LGV
	25	28	T	27	GMB
	26			20	T
	27			33	T
	28			18	C
	29			26	GMB
	30			24	GMB
	31			25	T
	32			29	C
	33			30	T
	34			27	T
	35			29	C
	36			32	T
	37			34	C
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
	48				
	49				
	50				
Number of Vehicle		25		37	
Average (km/h)		29		27	
Maximum (km/h)		40		34	
Minimum (km/h)		20		18	
85-percentile (km/h)		33		32	