Transport for London

Jamaica Road – Review of Bus Lane Operational Hours

A200 Jamaica Road Improvements

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Scheme Name: A200 Jamaica Road Improvements

Scheme ID: TC.006.2000188

Issue	Date	Prepared by	Reviewed by	Approved by
v.001b	22 Nov 11	GSN	JW	
Path and Filename	\\Strgbspfsw001.ns.tfl.local\myp\TDE\Scheme Information\Central Area\TC006 A200 (A3211+) Corridor\TC.006.2000188 - A200 Jamaica Road Improvements\03 Reports\Bus			

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1. Background

The A200, Jamaica Road, is a major east-west corridor located in the north of the London Borough of Southwark. The corridor is an important strategic link, carries significant volumes of traffic and a large number of cyclists and is viewed, by some, as a barrier to north / south movement. There have been a number of Mayors Questions about the corridor, and specifically about the operational hours of the existing bus lanes.

In 2010 the Traffic Design Engineering team (TDE) within Transport for London (TfL) were commissioned to undertake a review of the section of the A200 between Abbey Street in the west and Rotherhithe Roundabout in the east. The junction with Abbey Street was included within the scheme, but Rotherhithe roundabout was excluded.

The scope of the scheme was extensive and included the following elements:

1. Improvements to the pedestrian crossing facilities at the junctions of Jamaica Road with Abbey Street, St James's Road and Southwark Park Road;
2. Review of toucan crossing facility proposed at Cathay Street from Southwark Park;
3. Bus lane extension westbound from Bermondsey Station towards St James's Road;
4. Review operational hours of existing bus lane;
5. Pedestrian improvements outside Bermondsey Station as well as improved facilities along and across the entire length of Jamaica Road within the study area.

This purpose of this note is detail the work undertaken on items (3) & (4) above, the review of the operational hours of the existing bus lanes and the possible extension of the westbound bus lane outside Bermondsey Station.

2. Description

Jamaica Road within the study area is generally a two lane dual carriageway, widening to three lanes at junctions. The opposing carriageways are separated along the whole length by a hard central reservation. Pedestrian guard railing is present along almost the whole length of the central reservation.

Bus lanes are currently present in both directions. Eastbound the bus lane starts beyond the western extent of the study area and, except at junctions, runs continuously to a point approximately 70m to the west of Rotherhithe Roundabout. The westbound bus lane starts outside the eastern extent of the study area and ends beyond the western extent of the study area. However, the westbound bus lane stops to the east of Keetons Road and recommences to the west of St James's Road. Between these two points no bus lane is provided. Both eastbound and westbound bus lanes operate 'At Any Time' (i.e. Monday to Sunday, inclusive, 24 hours a day).

3. Data Collection

In order to inform this review the following data was collected:

- Bus routes and frequencies;
- Turning counts at the signalised junctions in the study area;
- Bus and general traffic journey times;
- Bus Origin & Destination survey (BODs) data; and,
- Collision data.

The following paragraphs detail how this data was collected.

Bus routes and frequencies:
This information was taken from published TfL bus maps and timetables, found on the TfL website and on www.londonbusroutes.net.

Turning counts:
Full classified turning counts were undertaken at the three signalised junctions within the study area, Abbey Street, St James's Road and Southwark Park Road. Counts were undertaken in May 2010 between 06:00 and 20:00.

Bus and general traffic journey times:
These surveys were undertaken in an attempt to determine the impact of the bus lanes on bus and general traffic speeds. The surveys were undertaken during the week commencing 24th May 2010. Over three days, Tuesday, Wednesday and Thursday, 12 bus, and the same number of car, journeys were undertaken in each direction in each period.

For each survey mode the same timing points were used so the data could be compared directly.

For each period (morning, inter and evening peaks) the data was analysed by direction (eastbound and westbound). For the bus surveys the time the bus was stationary at bus stops (the bus stop 'dwell time') was removed. For both the bus and car data the minimum, maximum and average journey times were calculated between each identified timing point. The two journey times were then directly compared, both between individual timing points and over the whole route.

Bus Origin & Destination survey (BODs) data:
The BODs data was derived from a series of surveys undertaken by London Buses across the TfL bus network on a rolling programme. For this study the number of passengers boarding and alighting at each bus stop on Jamaica Road and the number of passengers on the buses as they leave the stop was extracted. The most recent data was obtained for the relevant routes and stops on Jamaica Road and factored up, where appropriate, to allow for growth to 2010.

Collision data:
The collision data collected by the Metropolitan Police was requested and analysed for the 3 year period to March 2011. This data includes all collisions which resulted in personal injury.

4. Results of Surveys

Bus routes and frequencies:
Four daytime bus routes run along Jamaica Road through the study area (47, 188, 381 & C10) and two night buses (N47 and N381). The P12 runs along Jamaica Road between Southwark Park Road and Rotherhithe Roundabout. The five day time routes result in a total maximum frequency of 31.5 buses an hour in each direction along Jamaica Road. Table 1 below sets out the frequency of these routes.

Table 1 – Average Bus Frequency on Jamaica Road (Daytime)

Route	Buses per hour		
	AM Peak	Inter peak	PM Peak
47	6	6	6
188	8	7.5	8
381	6.5	6	4.5
C10	5	5	5
P12	6	6	6
Total	31.5	30.5	29.5

Turning counts:
Jamaica Road is also a significant route for vehicular traffic and carries a large number of cyclists. Flows along the corridor are tidal in the peak periods, with the heaviest flow in the morning peak towards the west and in the evening towards the east. Between Abbey Street and Southwark Park Road flow volumes are generally similar, but flows decrease noticeably to the west of Abbey Street and similarly increase to the east of Southwark Park Road. Tables 2 and 3 below present the flows and modal splits at the two ends of the study corridor, by direction and period. The highest flow period and direction is highlighted.

Table 2: Total Flows and modal splits at eastern extent of corridor to west of Rotherhithe Roundabout

		Total Flow (vehs)	Cars & Light vehs	Large vehs.(inc buses)	Motorcycles	Pedal Cycles
Eastbound	AM	621	76%	9%	6%	10%
	Inter	1075	87%	5%	5%	3%
	PM	1555	61%	3%	10%	26%
Westbound	AM	1482	47%	4%	11%	38%
	Inter	942	87%	7%	4%	3%
	PM	1185	88%	3%	5%	4%

Table 3: Total Flows and modal splits at western extent of corridor to west of Abbey Street

		Total Flow (vehs)	Cars and light vehs	Large vehs.(inc buses)	Motorcycles	Pedal Cycles
Eastbound	AM	373	71%	12%	5%	13%
	Inter	440	74%	9%	8%	9%
	PM	1133	45%	4%	12%	38%
Westbound	AM	1252	38%	6%	13%	44%
	Inter	389	72%	12%	9%	7%
	PM	450	75.00%	7%	6%	12%

Figures 1, 2 and 3 present the turning count information collected at Abbey Street, St James's Road and Southwark Park Road respectively. Figures 4 to 6 show the modal split of traffic along the corridor by period. All these figures are contained in Appendix 1.

Bus and general traffic journey times:
Eastbound:

- Morning Peak - While there is some indication that the bus is faster than the car on sections of route where bus lanes are present the pattern is not clear-cut and there are some sections where bus lanes exist but where the car enjoys a quicker journey. Over the whole route the bus is slower than the car, but only by 18 seconds on a whole journey time of just over 4 minutes. Such a difference could be accounted for by a buses slower acceleration, or by the deceleration to and acceleration away from, bus stops. It can be concluded that the bus lane offers a small benefit to the buses during this time period.
- Inter peak - Generally the bus enjoys faster journey times than the general traffic along the route as a whole and particularly in the bus lanes. Observations suggest that eastbound delays to Rotherhithe Roundabout are more common in the afternoon and at their worst in the evening peak. As the journey times were taken in the period 10:00 to 16:00 a number of runs would have been undertaken as congestion was beginning to build in the afternoon. Over the whole route the bus is faster than the car, but only by 30 seconds. The whole route journey time for cars and buses was around 5 minutes. It is suggested that it can be concluded that the bus lane offers benefits to buses.

- Evening peak -The bus journey time is consistently shorter than the car across the whole route. Over the whole route the car journey time is over 9 minutes while the bus journey time is just over 6 minutes. During the PM peak extensive queues have been observed from the width restriction on the entrance to Rotherhithe Tunnel. It would appear that the bus lane allows buses to by-pass the queuing vehicles and offers significant benefits for buses.

Westbound:

- Morning Peak – the collected data shows no evidence that the bus lanes benefit bus journey times during this period. Bus journey times are consistently slower than cars over lengths of route where bus lanes are present. Over the whole route the bus is slower than the car by just under 2 minutes. Such a difference could be accounted for by a buses slower acceleration, or by the deceleration to and acceleration away from, bus stops. However, the data suggests that the bus lanes offer little benefit to the buses during this time period.
- Inter peak – again the collected data shows no evidence that the bus lanes benefit bus journey times during this period. Bus journey times are consistently slower than cars over lengths of route where bus lanes are present. Over the whole route the bus is slower than the car by just under 2 minutes, as in the morning peak period. Again such a difference could be accounted for by a buses slower acceleration, or by the deceleration to, and acceleration away from, bus stops. In addition, five loading boxes are operational within the bus lane during the inter-peak period. This will limit the benefits buses may gain from the lane as they will have to rejoin the general traffic lane.
- Evening peak – as with the morning and inter-peak periods the collected data shows no evidence that the bus lanes benefit bus journey times during this period. Bus journey times are consistently slower than cars over lengths of route where bus lanes are present. Over the whole route the bus is slower than the car by just under 1.5 minutes. Again such a difference could be accounted for by a buses slower acceleration, or by the deceleration to and acceleration away from, bus stops. However, the data suggests that the bus lanes offer little benefit to the buses during this time period.

Drawing Nos. B1501200/CJ/001 and B1501200/BJ/001, in Appendix 2, present the bus and car journey time data by link and time period.

People Movement Analysis:
Based on the traffic counts and BODs data an analysis has been undertaken of the number of people travelling along Jamaica Road by bus and by other vehicular modes in each peak period. This data is shown in full on Drawing Numbers 1 to 3 in Appendix 3, but in summary:

- Throughout the day between 46% and 55% people travelling on Jamaica Road at the western extent of the study corridor (west of Abbey Street) are carried by buses;
- Throughout the day between 22% and 35% people travelling on Jamaica Road at the eastern extent of the study corridor (east of Southwark Park Road) are carried by buses;
- The percentage of people travelling on Jamaica Road by bus is highest in the west and falls steadily towards the east;
- The highest percentage of people travelling by bus occurs eastbound in the morning peak.

The above analysis details the number of people on buses, if the other road users permitted to use the bus lane are included (motorcyclists and pedal cyclists, but excluding taxis) the percentage of people travelling along Jamaica Road in the bus lanes increases. Again this data is shown in full on Drawing Numbers 1 to 3 in Appendix 3, but in summary:

- The percentage people travelling on Jamaica Road in vehicles permitted to use the bus lane is at the highest in the west and falls steadily towards the east;
- Throughout the day between 53% and 71% people travelling on Jamaica Road at the western extent of the study corridor are in, or on, vehicles permitted to use the bus lane;
- Throughout the day between 26% and 48% people travelling on Jamaica Road at the eastern extent of the study corridor are in, or on, vehicles permitted to use the bus lane;
- The highest percentage of people travelling in, or on, vehicles permitted to use the bus lane occurs westbound in the morning peak.
- The variation in the percentage of people in vehicles permitted to use the bus is greater than that observed for bus users, it is suggested that this a consequence of the large number of cyclists who use Jamaica Road.

Owing to the large number of cyclists who use the corridor, westbound in the morning peak and eastbound in the evening peak, the percentage of users in, or on, vehicles permitted to use the bus lane is significantly higher than the number on buses only, in these periods and directions.

Collision data:
Over the length of the study area (approximately 1.2km) 44 collisions were recorded during the 36 months study period, 11 of which involved cyclists. This equates to a total conflict rate of 12.22 collisions per km/year over the study area and 3.06 cycle collisions per km/year. Presenting the data in this way allows comparisons to be made between the number of collisions per km/year along the study area and the average number of collisions per km/year on other similar roads. These comparisons are detailed in Table 4 below.

Table 4: Comparison of Conflicts within Study Area with Comparable Roads

	Jamaica Road	A roads in LB Southwark	A roads in Inner London	Dual Carriageways in LB Southwark	Dual Carriageways in Inner London	TLRN
All collisions	12.22	12.11	12.69	15	9.80	11.34
Cyclists	3.06					1.53

* From Levels of collision risk in Greater London (Issue 12) February 2009

The overall collision rate on Jamaica Road is comparable with the recorded rates on similar roads in London. However, the cyclist conflict rate is higher than would be anticipated. This is not what one would expect given that cyclists enjoy the protection of bus lanes for much of the study area.

A more detailed analysis of the cyclists collisions reveals that seven occurred at junctions, where there are no bus lanes, one occurred in the westbound carriageway 10m to the west of Drummond Road where the bus lane is absent and two occurred at the junction with George Row, again where there is no bus lane. The location of the remaining collision is unclear and occurred as a cyclists was crossing on a pedestrian crossing. No cyclists appear to have been involved in a conflict when in a bus lane. It may be inferred from this data that the bus lanes, and the existing operational hours, are affording some protection to the considerable number of cyclists using Jamaica Road (c.550 cyclists per hour westbound in the morning peak and c.430 cyclists per hour eastbound in the evening peak).

5. Other factors

During the course of this study TDE have discussed both the relaxation of the bus lane operational hours and the extension of the bus lane with representatives of London Buses. They raised concerns about the impact of a reduction in bus lane operational hours on the services which run along the corridor and on the passengers. London Buses highlighted that congestion can occur before 07:00 and after 19:00 and were therefore opposed to a reduction in bus lane operational hours. They also advised of weekend delays owing to the shopping centre at Surrey Quays and football traffic to Millwall Football Club. They were therefore reluctant to relax the operational days to exclude Saturdays and Sundays.

Jamaica Road is part of Barclays Cycle Superhighway Route 4. This route, which runs from London Bridge to Woolwich, is currently in feasibility design and is due to be implemented in 2014. The aim of the Barclays Cycle Superhighway is to provide a safe, fast, direct, continuous, and comfortable way of getting from Outer London into Central London by bicycle along recognised commuter routes. These routes will benefit existing commuters, cyclists, and will attract new cyclists. For Route 4 the target increase in cycle trips along the corridor is around 250%.

6. Recommendations

Extension of bus lane:
It is understood that there is an aspiration to provide a new length of bus lane between Keetons Road and St James's Road. Based on the journey time data collected during the course of this study there would seem to be little direct bus benefit to such a measure. In all three peaks the bus is faster than the car between the current end of the bus lane at Keetons Road and the pelican crossing outside Bermondsey Underground Station. Between the crossing and St James's Road, where no bus lane currently exists, the bus is slower than the car, however a bus stop is located within this section and although dwell time has been removed the lower speeds as the bus decelerates to the stop has not.

Modelling suggests that the introduction of the bus lane would have a small impact on delays at the pelican and St. James's Road as a general traffic lane has been lost at the crossing. Observations suggest that this lane is not well used owing to the presence of a bus stop downstream. The impact could be further reduced by locating the end of the bus lane where it will have minimal impact on traffic discharge from the St. James's Road stop line.

While there would appear to be no bus journey time benefit based on the data collected the addition of a bus lane would protect the bus at times of high demand or during unusual events. In addition, given the large number of

vulnerable road users, the additional bus lane would improve the continuity of protected facilities along the corridor.

Subject to confirmation of the modelling results, and consultation, it is proposed that the bus lane extension be implemented.

Reduction in bus lane operational hours:
The data presented above demonstrates that high percentage of people currently travelling along Jamaica Road can use the bus lane, including those on buses, motorcycles and pedal cycles. At the western end of the route, west of Abbey Street, the majority of those travelling on Jamaica Road throughout the day can use the bus lane. To the east of Abbey Street, a high proportion of those travelling along Jamaica Road can use the bus lane, but at present they only form a majority of users westbound in the morning peak to the west of Southwark Park Road.

Cyclists form a large proportion of those travelling along Jamaica Road. Along the whole route 35% of westbound vehicles are pedal cycles in the morning peak and 31% of eastbound vehicles in the evening peak. This number is forecast to increase with the introduction of a Barclays Cycle Superhighway along Jamaica Road. Cyclists are vulnerable road users and the historical collision data suggests that the bus lanes are providing some protection from general traffic.

The journey time data shows a divided picture. Westbound the bus lane appears to offer little benefit to buses. However, eastbound, particularly in the afternoon and evening peak, the bus lane does appear to allow buses to by-pass the vehicles queuing to the Rotherhithe Tunnel width restriction and offers significant benefits for buses. When consulted London Buses were opposed to the reduction in operational hours on a weekday as they advised of heavy traffic before 07:00 and after 19:00. Similarly London Buses were not in favour of relaxing the operational days of the bus lanes to exclude Saturdays and Sundays as they advised of heavy traffic during the weekend. Bus lanes do generally offer benefits to buses. They allow journey times to be predicted accurately, despite congestion or other intermittent delays, and facilitate the provision of a reliable, punctual, bus service. In customer surveys reliability is often rated the most important quality of a good bus service.

It is therefore proposed that the bus lane operational hours be retained as existing.

APPENDIX 1 – TURNING COUNTS & MODAL SPLIT OF TRAFFIC

APPENDIX 2 – BUS & CAR JOURNEY TIME DATA

APPENDIX 3 – PEOPLE MOVEMENT ANALYSIS