



safer roads for everyone

20 mph Speed Limit and Zones

on behalf of London Borough of Merton

DRAFT - Interim Monitoring Analysis

TMS Project No: XXXX

Date: July 2012



Contents

1	Introduction	2
2	Methodology	2
3	20 mph Speed Limit and Zone Analysis	3
4	Overall 20 mph Zone and Limit Analysis	4
5	Conclusions.....	32
6	Recommendations	33

20 mph Speed Limit and Zones

Interim Monitoring Analysis

1 Introduction

- 1.1 This report refers to an Interim Monitoring Analysis of the 20 mph Speed Limit and Zones in Merton commissioned by London Borough of Merton.
- 1.2 TMS Consultancy was established in 1990 to provide specialist consultancy, research and training services in traffic management and road safety Engineering. TMS currently provides these services to a wide client base in both the public and private sectors in the UK and internationally. TMS Consultancy has an internationally recognised reputation in this field of work and runs the industry standard RoSPA 2-week Road Safety Engineering (AIP) and 1-week Advanced Road Safety Engineering training courses.

2 Methodology

- 2.1 TMS Consultancy has been commissioned by London Borough of Merton to carry-out an Interim Monitoring Analysis of their 20mph Speed Limits and Zones. The Interim Monitoring Analysis comprises of:
 - Analysis of the before and after accident data at each of the individual Limits and Zones
 - Analysis of the before and after Traffic Flow and Traffic Speed data at each of the individual Limits and Zones
 - Overall comparison of the accidents, traffic flows and traffic speeds of the Limits and Zones as a whole.
- 2.2 The Interim Monitoring Analysis has been carried out by:

Darren Newbold – MSc, BSc (Hons), MCIHT, MSoRSA
Engineer, TMS Consultancy

Robert Cycles - BSc (Hons), MCIHT, MSoRSA
Senior Road Safety Consultant, TMS Consultancy
- 2.3 Accident data for years 2007 to 2011 was provided by London Borough of Merton as well as before and after traffic flow and speed data for each site.
- 2.4 A summary table of the 'before and after accident data' can be found in Appendix A. A summary table of the 'before and after traffic flow and vehicle speeds' can be found in Appendix B.

3 20 mph Speed Limit and Zone Analysis

3.1 High Path 20 mph Zone

3.1.1 The 20mph zone within the area is bordered by Merantun Way, Morden Road, Merton High Street and Mill Road. For this area to comply with the requirements and regulations, additional speed cushions were installed on High Path (within the vicinity of 25 High Path); Nelson Grove Road (within the vicinity of the entrance into Merton Place and Norfolk House); Meadow Road (within the vicinity of 19 Meadow Road) and Croft Road (within the vicinity of 25 Croft Road).

3.1.2 The 20mph Zone was implemented in October 2008 (actual date is unknown). Due to the range of the data, it has only been possible to analyse 12 months 'before' data, which includes personal injury accidents (PIA) between 1/10/07 and 30/09/08. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 14/11/08 to 13/11/09.

3.1.2 There has been one reported PIA within the High Path Zone in the 12 months prior to the scheme, giving a frequency of one PIA per year.

Table 3.1.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	1	1	0	0	0

3.1.3 There has been no reported PIA within the High Path Zone in the 12 months after the scheme, giving a frequency of no PIA per year.

Table 3.1.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.1.4 The accident data appears to show that PIAs have reduced within the High Path Zone since the implementation of the scheme (however, this is based only on 12 months before and 12 months after data). There are no immediate concerns for any particular vulnerable user group.

3.1.5 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for High Path totalled 20,822 and post survey flows totalled 69,059. Although this appears to represent a 300% increase, the pre survey was carried out over two days and the post over seven days, therefore the flows are incomparable.

3.1.6 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.1.6 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	16.29	17.24	+ 0.95	+ 5.8
Average speeds (mph)	12.31	13.73	+ 1.42	+ 11.5

3.1.7 No conclusion can be drawn with regards to before and after traffic flow surveys as the two sets of data were incomparable. However, the speed survey data shows that both 85 %ile and average speeds have increased within the zone (5.8% and 11.5% respectively).

3.2 Pelham Road 20 mph Zone

3.2.1 Pelham Road 20 mph Zone is bounded by The Broadway, Morden Road, Kingston Road and Gladstone Road (included).

3.2.2 The 20mph Zone was implemented on 5th January 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 05/01/07 to 04/01/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 05/02/09 to 04/02/09.

3.2.3 There has been no reported PIA within the Pelham Road Zone in the 24 months prior to the scheme, giving a frequency of 0 PIA per year.

Table 3.2.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.2.4 There have been four reported PIA within the Pelham Road Zone in the 12 months after the scheme, giving a frequency of 4 PIA per year.

Table 3.2.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	4	2	2	0	0

3.2.5 The data shows that PIA have increased within Pelham Road since the implementation of the scheme (4 in 12 months after compared to 0 in 24 months before), with riders of two wheeled vehicle proving most vulnerable (2 P2W and 2 pedal cycle accidents).

3.2.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Pelham Road totalled 12,979 and post survey flows totalled 41,159. Although this appears to represent a 300% increase, the pre survey was carried out over two days and the post over seven days, therefore the flows are incomparable.

3.2.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.2.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	26.56	29.94	+3.38	+ 12.7
Average speeds (mph)	20.86	19.73	- 1.13	- 5.4

3.2.8 No conclusion can be drawn with regards to before and after traffic flow surveys as the two sets of data were incomparable. However, the speed survey data shows that both 85 %ile have increased (13%) within the zone but average speeds have fallen (5.4%).

3.3 Parkway 20 mph Zone

3.3.1 The 20mph zone is bordered by Grand Drive, Canon Hill Lane and Heath Drive/Parkway (both included).

3.3.2 The 20mph Zone was implemented on 16th February 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 16/02/07 to 15/02/2009. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 16/03/09 to 15/03/10.

3.3.3 There has been one reported PIA within the Parkway Zone in the 24 months prior to the scheme, giving a frequency of 0.5 PIA per year.

Table 3.3.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	1	0	0	0	0

3.3.4 There has been no reported PIA within the Parkway Zone in the 12 months after the scheme, giving a frequency of 0 PIA per year.

Table 3.3.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.3.5 There were no reported PIAs in the 12 months following the implementation of the scheme. This represents a minor reduction in accidents and no immediate concerns for any particular vulnerable user group.

3.3.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Parkway Zone totalled 16,865 and post survey flows totalled 21,532. This represents an increase of 4,667 (22%) increase in traffic flows following the implementation of the scheme.

3.3.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.3.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	27.17	26.83	- 0.34	-1.25
Average speeds (mph)	21.8	21.47	- 0.33	- 1.5

3.3.8 Traffic flows within the Parkway Zone increased by nearly a quarter following the implementation of the scheme. However, there were reductions in the 85 %ile and average speeds (1.25% and 1.5% respectively).

3.4 Pollards Hill 20 mph Zone

3.4.1 Pollards Hill Area is bounded by South Lodge Avenue and Chestnut Grove Zone) and Galpin's Road which is included within the 20 mph speed limit area. The introduction of a 20mph speed limit requires signage to be installed at all the entry points into the area. The scheme also includes the 20mph speed limit repeater signs throughout. Physical measures have been provided on South Lodge Avenue which include raised table junctions at Wide Way roundabout, Tavistock Crescent, Yorkshire Road, four pedestrian refuge islands with associated speed cushions and one pedestrian refuge island without speed cushions. An additional raised table junction has been provided at the junction of Berkshire Way and Tavistock Crescent. Existing traffic calming features are present on Yorkshire Road and Lancaster Avenue consisting mainly of raised features at side roads.

3.4.2 The 20mph Zone was implemented on 7th June 2010. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 07/06/08 to 06/06/10 Allowing for a month for

construction works and a settling down time, the 'after' data is for the 12 month period from 07/07/10 to 06/07/11.

3.4.3 There has been eight reported PIA within the Pollards Hill Zone in the 24 months prior to the scheme, giving a frequency of 4 PIA per year.

Table 3.4.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	7	0	1	4	2

3.4.4 There has been 2 reported PIA within the Pollards Hill Zone in the 12 months after the scheme, giving a frequency of 2 PIA per year.

Table 3.4.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	2	0	0	1	1

3.4.5 The accident analysis shows that the yearly accident rate has halved in the 12 months since the scheme was implemented. Both accidents that occurred in the after period were both from vulnerable road user groups (1 pedestrian and 1 child).

3.4.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Pollards Hill totalled 130,015 and post survey flows totalled 132,527. This represents an increase of 2,512 (2%) increase after the implementation of the scheme.

3.4.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.4.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	33.78	29.83	- 3.95	- 11.7
Average speeds (mph)	29.83	24.98	- 3.4	- 11.4

3.4.8 Traffic flows within the Pollards Hill area increased very slightly (2%) in the post scheme implementation survey. Traffic speeds reduced significantly with 85% ile speeds down by 11.7% and average speeds by 11.4%.

3.5 Eastfields 20 mph Zone

- 3.5.1 The 20mph zone is bounded by Commonsides East, Grove Road, Tamworth Lane and Cedars Avenue (all included).
- 3.5.2 The 20mph Zone was implemented on 7th June 2010. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 07/06/08 and 06/06/10. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 07/07/10 to 06/07/11.
- 3.5.3 There have been three reported PIA within the Eastfields Zone in the 24 months prior to the scheme, giving a frequency of 1.5 PIA per year.

Table 3.5.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	3	1	0	2	2

- 3.5.4 There have been five reported PIA within the Eastfields Zone in the 12 months after the scheme, giving a frequency of 5 PIA per year.

Table 3.5.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	5	2	0	1	1

- 3.5.5 The annual accident rate increased significantly (more than 3 times) in 12 months following the implementation of the scheme from 1.5 per year to 5 per year. Four of the five reported PIA involved vulnerable user groups (2 P2W, 1 pedestrian and 1 child).
- 3.5.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Eastfields totalled 24,380 and post survey flows totalled 24,380. The before and after surveys show no change in traffic flows since the implementation of the scheme.
- 3.5.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.5.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	20.36	20.25	- 0.11	- 0.5
Average speeds (mph)	16.03	15.85	- 0.18	- 1.1

3.5.8 There was no change in traffic flows before and after the scheme implementation. However, the scheme has experienced a slight reduction in vehicle speeds with 85%ile speeds reduced by 0.5% and average speeds by 1.1%.

3.6 Ridgway 20 mph Zone

3.6.1 The scheme consists of the implementation of a 20mph zone for the Ridgway Area bounded by Ridgway and Worple Road. 20 mph zone and 30 mph entry signage is to be provided at all entries into the zone as well as raised junction tables. Speed cushions are to be provided on Thornton Road, Denmark Road, Murray Road, Ridgway Place, Spencer Hill, Denmark Avenue and Thornton Hill.

3.6.2 The 20mph Zone was implemented on 17th August 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 17/08/07 and 16/08/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 17/09/09 to 16/09/10.

3.6.3 There has been no reported PIA within the Ridgway Zone in the 24 months prior to the scheme, giving a frequency of 0 PIA per year.

Table 3.6.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.6.4 There has been no reported PIA within the Ridgway Zone in the 12 months after the scheme, giving a frequency of 0 PIA per year.

Table 3.6.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.6.5 Ridgway zone has no history of accidents in either the pre or post scheme implementation periods.

3.6.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Ridgway totalled 25,711 and post survey flows totalled 24,179. This represents a reduction on traffic flows of 1532 (6%).

3.6.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.6.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	29.88	27.84	- 2.04	- 6.8
Average speeds (mph)	23.94	22.29	- 1.65	- 6.9

3.6.8 The 20 mph zone at Ridgway has performed very well at reducing traffic flows with post scheme flows down by 6%. Vehicle speeds have also been reduced with 85% ile speeds and average speeds down by nearly 7% each.

3.7 Lake Road 20 mph Zone

3.7.1 The 20mph zone covers Lake Road, Church Hill, St. Mary's Road, Leeward Gardens, Pine Grove, Ricards Road, Leopold Avenue and St Aubyn's Avenue.

3.7.2 The 20mph Zone was implemented on 17th July 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 17/07/07 and 16/07/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 17/08/09 to 16/08/10.

3.7.3 There has been no reported PIA within the Lake Road Zone in the 24 months prior to the scheme, giving a frequency of 0 PIA per year.

Table 3.7.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.7.4 There has been one reported PIA within the Lake Road Zone in the 12 months after the scheme, giving a frequency of 1 PIA per year.

Table 3.7.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	1	0	0	1	1

- 3.7.5 There has been an increase in PIA within the Lake Road zone since the implementation of the scheme, with one slight child accident being recorded. However, this small increase may be insignificant in the long term when a longer after period can be assessed.
- 3.7.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Lake Road totalled 47,769 and post survey flows totalled 45,964. This represents a reduction on traffic flows of 1805 (3.4%).
- 3.7.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.7.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	30.7	27.52	- 3.18	- 10.4
Average speeds (mph)	25.93	22.65	- 3.28	- 12.6

- 3.7.8 The 20mph zone at Lake Road has performed very well at reducing traffic flows with post scheme flows down by 3.4%. Vehicle speeds have also been reduced with 85% ile speeds down by 10.4% and average speeds down by 12.6%.

3.8 Hillcross Avenue 20 mph Zone

- 3.8.1 The 20mph zone is a short section that begins to the west of Monkleigh Road and ends adjacent to Ashridge Way.
- 3.8.2 The date of implementation of the 20 mph Zone at Hillcross Avenue is unknown. Therefore it has not been possible to ascertain before and after periods for the accident analysis. Only one PIA has occurred within the four year period of 2007 to 2010.
- 3.8.3 No before and after traffic flow and traffic speed survey data has been provided.
- 3.8.4 It has not been possible to analyse the performance of the Hillcross Avenue 20mph zone at this time due to the lack of data available.

3.9 Commonsides East 20 mph Zone

- 3.9.1 The 20mph zone includes Commonsides East, Hallowell Close, Pentlands Close, St George's Road, Tamworth Lane, Tamworth Park, Worthington Close, Cambridge Road, Oxford Close, Marlowe Square and Barnfield Avenue.

3.9.2 The 20mph Zone was implemented on 7th June 2010. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 07/06/08 and 06/06/10. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 07/07/10 to 06/07/11.

3.9.3 There has been six reported PIA within the Commonsides East Zone in the 24 months prior to the scheme, giving a frequency of 3 PIA per year.

Table 3.9.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	6	1	1	2	2

3.9.4 There have been four reported PIA within the Commonsides East Zone in the 12 months after the scheme, giving a frequency of 4 PIA per year.

Table 3.9.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	3	1	0	2	1

3.9.5 The annual accident rate at Commonsides East has increased slightly in the 12 months following the scheme implementation. Vulnerable road user groups are highly represented in those accidents recorded (1 P2W, 2 pedestrian and 1 child).

3.9.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Commonsides East totalled 383,891 and post survey flows totalled 334,219. This represents a reduction on traffic flows of 49,672 (13%).

3.9.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.9.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	30.87	29.1	- 1.77	- 6.1
Average speeds (mph)	25.48	23.98	- 1.5	- 5.9

3.9.8 The 20 mph zone at Commonsides East has performed very well at reducing traffic flows with post scheme flows down by 13%. Vehicle speeds have also been reduced with 85% ile speeds and average speeds both down by 6%.

3.10 Cromwell Road 20 mph Zone

- 3.10.1 The scheme consists of the implementation of a 20mph zone for the Cromwell Road area. This area was already subject to traffic calming, this scheme consists of the introduction of 20 mph Zone entry/exit signs at all entry/exit junctions. The 20mph zone is bounded by Gap Road, Haydon's Road, the railway line and Ashcombe Road (inclusive).
- 3.10.2 The 20mph Zone was implemented on 24th January 2011. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 24/01/09 and 23/01/11. As LB Merton only have accident data available up to the end of 2011, a suitable after period cannot be assessed.
- 3.10.3 There has been no reported PIA within the Cromwell Road Zone in the 24 months prior to the scheme, giving a frequency of 0 PIA per year.

Table 3.10.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

- 3.10.4 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Cromwell Road totalled 130,374 and post survey flows totalled 128,563. This represents a reduction on traffic flows of 1811 (1.4%).
- 3.10.5 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.10.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	23.34	23.84	+ 0.5	+ 2.1
Average speeds (mph)	19.16	19.53	+ 0.37	+ 1.9

- 3.10.6 The 20 mph zone at Cromwell Road has performed very well at reducing traffic flows with post scheme flows down by 1.4%. Vehicle speeds however have increased slightly, with 85% ile speeds up by 2.1% and average speeds up by 1.9%.

3.11 West Barnes 20 mph Zone

- 3.11.1 The scheme consists of the implementation of a 20mph zone for the West Barnes Area. West Barnes Lane, Phyllis Avenue, Adela Avenue, Estella Avenue and Seaforth Avenue all feature existing traffic calming features. Additional traffic calming features are to be provided on Estella Avenue (3 pairs) and Douglas Avenue (2 sets of 3).
- 3.11.2 The 20mph Zone was implemented on 18th January 2010. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 18/01/08 and 17/01/10. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 19/02/10 to 18/02/11.
- 3.11.3 There has been two reported PIA within the West Barnes Zone in the 24 months prior to the scheme, giving a frequency of 1 PIA per year.

Table 3.11.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	2	1	0	0	0

- 3.11.4 There has been no reported PIA within the West Barnes Zone in the 12 months after the scheme, giving a frequency of 0 PIA per year.

Table 3.11.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

- 3.11.5 There have been no reported PIA within the West Barnes 20 mph zone within the 12 month after period which shows a reduction in the annual accident rate.
- 3.11.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for West Barnes totalled 139,187 and post survey flows totalled 192,479. This represents a traffic flow increase of 53,292 (38.3%).
- 3.11.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the zone. Average 85 percentile speeds and average mean speeds were calculated for the whole of the zone.

Table 3.11.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	27.95	25.54	- 2.41	- 8.6
Average speeds (mph)	22.46	20.3	- 2.16	- 9.6

3.11.8 Traffic flows within the West Barnes 20 mph area increased significantly following the implementation of the scheme (38%). However, the scheme has performed well with regards to reducing vehicle speeds, with 85 %ile speeds down by 8.6% and average speeds down by 9.6%.

3.12 Trinity Road 20 mph Limit

3.12.1 Trinity Road area had been identified as an area for a 20mph limit. The area is bounded by The Broadway; Queen's Road; Trinity Road; South Park Road and Haydon's Road.

3.12.2 The 20mph Limit was implemented on 5th January 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 05/01/07 and 04/01/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 05/02/09 to 04/02/10.

3.12.3 There has been six reported PIA within the Trinity Road Limit in the 24 months prior to the scheme, giving a frequency of 3 PIA per year.

Table 3.12.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	5	1	1	1	1

3.12.4 There has been two reported PIA within the Trinity Road Limit in the 12 months after the scheme, giving a frequency of 2 PIA per year.

Table 3.12.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	2	0	0	0	0

3.12.5 There has been a slight reduction (1/3) in the annual accident rate since the implementation of the scheme. There are no immediate concerns for vulnerable road users as they were not represented in the accident data.

3.12.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Trinity Road totalled 32,410 and post survey flows totalled 103,029. Although this appears to represent a 300% increase, the pre survey was carried out over two days and the post over seven days, therefore the flows are incomparable.

3.12.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.12.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	25.13	24.3	- 0.83	- 3.3
Average speeds (mph)	20.28	14.88	- 5.4	- 26.6

3.12.8 No conclusion can be drawn with regards to before and after traffic flow surveys as the two sets of data were incomparable. However, the speed survey data shows that both 85 %ile and average speeds have decreased within the limit (3.3% and 26.6% respectively).

3.13 Merton Hall Road 20 mph Limit

3.13.1 Merton Hall Road, Wilton Crescent, Fairlawn Road, Toynbee Road and Dundonald Road are the only roads within the proposed area with existing traffic calming features. The roads without any traffic calming features are Henfield Road, Rayleigh Road, Cliveden Road, Wilton Grove, Mayfield Road, Kingswood Road, Sherwood Road, Avebury Road, Braeside Avenue, Mandeville Close, Rotherwood Close, Merton Hall Gardens, The Quadrant, Dennis Park Crescent, Burstow Road, Trevor Road, William Road, Newtown Road, Cochrane Road, Goodenough Road, and Caroline Road.

3.13.2 The 20mph Limit was implemented on 2nd March 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 02/03/07 and 01/03/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 02/04/09 to 01/04/10.

3.13.3 There has been two reported PIA within the Merton Hall Road Limit in the 24 months prior to the scheme, giving a frequency of 1 PIA per year.

Table 3.11.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	2	0	0	0	1

3.13.4 There has been no reported PIA within the Merton Hall Road Limit in the 12 months after the scheme, giving a frequency of 0 PIA per year.

Table 3.13.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.13.5 There were no reported PIA in the 12 months following the implementation of the scheme. There are no immediate concerns for vulnerable road users as they were not represented in the accident data.

3.13.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Merton Hall Road totalled 47,566 and post survey flows totalled 56,203. This represents an increase in traffic flows of 8637 (18%).

3.13.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.13.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	26.02	24.78	- 1.24	- 4.8
Average speeds (mph)	20.68	19.5	- 1.18	- 5.7

3.13.8 Traffic flows within the limit increased by 18% in the post implementation survey. The limit performed well with regards to traffic speeds with 85%ile speeds down by 4.8% and average speeds don by 5.7%.

3.14 Quicks Road 20 mph Limit

3.14.1 The roads that are encompassed by the Quicks Road Area 20 mph Speed limit are Victory road, Nelson road, Hardy Road, Hamilton Road, Trafalgar Road, Quicks Road, Ridley Road, Latimer Road, Cardigan Road, Wycliffe Road and Haccombe Road.

3.14.2 The 20mph Limit was implemented on 5th January 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 05/01/07 and 04/01/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 04/02/09 to 03/02/10

3.14.3 There has been one reported PIA within the Quicks Road Limit in the 24 months prior to the scheme, giving a frequency of 0.5 PIA per year.

Table 3.14.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	0	1	0	0	0

3.14.4 There has been one reported PIA within the Quicks Road Limit in the 12 months after the scheme, giving a frequency of 1 PIA per year.

Table 3.14.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	1	0	0	0	0

3.14.5 There has been a slight increase in PIA within the Quicks Road limit since the implementation of the scheme, with one slight child accident being recorded. However, this small increase may be insignificant in the long term when a longer after period can be assessed. There is no immediate concern for any of the vulnerable road user groups.

3.14.6 No traffic flow and vehicle speed before survey was carried out for the scheme. Post survey traffic flows for the scheme totalled 38,187.

3.14.7 Results post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.14.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	n/a	25.53	n/a	n/a
Average speeds (mph)	n/a	18.01	n/a	n/a

3.14.8 It has not been possible to draw any conclusions about the performance of the limit with regards to traffic flows and traffic speeds as no before survey was taken.

3.15 Merton Park 20 mph Limit

3.15.1 Merton Park Area is bounded by Kingston Road, Canon Hill Lane, Martin Way, Crown Lane, London Road and Morden Road, none of which are included within the scheme. Dorset Road, Church Lane, Mostyn Road, Sheridan Road, Poplar Road, Kenley Road, Tybenham Road, Leafield Road, Aylward Road, Sandbourne Avenue, Windermere Avenue and Grasmere Avenue all feature existing traffic calming measures. Roads that do not feature traffic calming features are Langley Road, Poplar Road South, Circle Gardens, Cranleigh Road, Church Path, Manor Road, Manor Gardens, Watery Lane and Wessex Avenue. The introduction of a 20mph limit requires signage to be installed at all the entry points into the area and no additional traffic calming features.

3.15.2 The 20mph Limit was implemented on 30th March 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 30/03/07 and 29/03/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 1/05/09 to 30/04/10.

3.15.3 There have been five reported PIA within the Merton Park Limit in the 24 months prior to the scheme, giving a frequency of 2.5 PIA per year.

Table 3.15.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	5	0	3	1	1

3.15.4 There have been eight reported PIA within the Merton Park Limit in the 12 months after the scheme, giving a frequency of 8 PIA per year.

Table 3.15.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	7	2	4	0	1

3.15.5 There has been a significant increase in the annual accident rate within the Merton Park 20 mph limit (from 2.5 per year to 8 per year). Of the eight reported PIAs in the 12 months after the scheme implementation there has been one serious accident. Of the eight PIA, seven have represented vulnerable road users with 2 P2W, 4 pedal cycle and 1 child accidents having been reported.

3.15.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Merton Park totalled 207,063 and post survey flows totalled 202,491. This represents a reduction in traffic flows of 4572 (2%).

3.15.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.15.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	27.75	27.27	- 0.48	- 1.7
Average speeds (mph)	22.58	13.48	- 9.1	- 40.3

3.15.8 The 20 mph limit has performed well with regards to traffic flows and vehicle speeds. Traffic flows have reduced by 2% in the post implementation survey whilst 85%ile speeds are down by 1.7% and average speeds down by 40.3%.

3.16 Melrose Avenue 20 mph Limit

3.16.1 The 20mph limit is bounded by Durnsford Road, Arthur Road, Revelstoke Road and Melrose Avenue (included).

3.16.2 The 20mph Limit was implemented on 9th February 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 09/02/07 and 08/02/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 09/03/09 to 08/03/10.

3.16.3 There has been one reported PIA within the Melrose Avenue Limit in the 24 months prior to the scheme, giving a frequency of 0.5 PIA per year.

Table 3.16.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	0	0	0	0	0

3.16.4 There has been no reported PIA within the Melrose Avenue Limit in the 12 months after the scheme, giving a frequency of 0 PIA per year.

Table 3.16.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.16.5 There were no reported PIA in the 12 months following the implementation of the scheme. There are no immediate concerns for vulnerable road users as they were not represented in the accident data.

3.16.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Melrose Avenue totalled 10,311 and post survey flows totalled 8997. This represents a reduction in traffic flows of 1314 (12.7%).

3.16.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.16.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	28.18	25.82	- 2.36	- 8.4
Average speeds (mph)	21.75	21.32	- 0.43	- 1.97

3.16.8 The 20 mph limit mph limit has performed well with regards to traffic flows and vehicle speeds. Traffic flows have reduced by 12.7% in the post implementation survey whilst 85%ile speeds are down by 8.4% and average speeds down by 2%.

3.17 Wandle Road 20 mph Limit

3.17.1 Wandle Road Area is a 20 mph speed limit. Wandle Road, The Drive, Lilleshall Road, Llanharry Road and Montacute Road all feature existing traffic calming features. Other roads within the speed limit area are Pollard Road, Seddon Road, Morton Road, Milner Road, Edward Avenue and Muchelney Road. The introduction of a 20mph limit requires signage to be installed at all the entry points into the area. 20mph repeater signs are provided regularly throughout the scheme. Three priority give way buidlouts have been provided on Seddon Road.

3.17.2 The 20mph Limit was implemented on 8th June 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 08/06/07 and 07/06/09 Allowing for a month for

construction works and a settling down time, the 'after' data is for the 12 month period from 08/07/09 to 07/07/10.

3.17.3 There has been four reported PIA within the Wandle Road Limit in the 24 months prior to the scheme, giving a frequency of 2 PIA per year.

Table 3.17.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	4	0	1	2	1

3.17.4 There has been two reported PIA within the Wandle Road Limit in the 12 months after the scheme, giving a frequency of 2 PIA per year.

Table 3.17.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	1	0	0	0	0

3.17.5 The annual accident rate at the Wandle Road 20 mph limit has remained constant between the before and after periods. There is no immediate concern for vulnerable road user groups as they have not been represented in the accident data following the scheme implementation.

3.17.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Wandle Road totalled 16,556 and post survey flows totalled 28,211. This represents an increase in traffic flows of 11,655 (70%).

3.17.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.17.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	28.93	30.39	+ 1.46	+ 5
Average speeds (mph)	22.68	23.39	+ 0.71	+ 3.1

3.17.8 Traffic flows within Wandle Road limit have increased in the post scheme survey with flows up by 70%. Traffic speeds were also up, 8%ile speeds by 5% and average speeds by 3.1%.

3.18 Ashbourne Road 20 mph limit

3.18.1 The 20mph limit is bounded by London Road, Streatham Road and Ashbourne Road (inclusive).

3.18.2 The 20mph Limit was implemented on 9th March 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 09/03/07 and 08/03/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 09/04/09 to 10/04/10.

3.18.3 There have been three reported PIA within the Ashbourne Road Limit in the 24 months prior to the scheme, giving a frequency of 1.5 PIA per year.

Table 3.18.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	3	0	1	0	1

3.18.4 There has been two reported PIA within the Ashbourne Road Limit in the 12 months after the scheme, giving a frequency of 2 PIA per year.

Table 3.18.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	1	0	1	0	0

3.18.5 There has been a slight increase in the annual accident rate since the implementation of the scheme (1.5 per year up to 2 per year). There was one pedal cycle PIA reported before and this is replicated in the after period. There are no concerns for other vulnerable road user groups.

3.18.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Ashbourne Road totalled 18,360 and post survey flows totalled 18,353. This represents a decrease in traffic flows of 7 (0.04%).

3.18.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.18.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	27.55	26.17	- 1.38	- 5
Average speeds (mph)	21.63	20.53	- 1.1	- 5

3.18.8 The 20 mph limit mph limit has performed well with regards to traffic flows and vehicle speeds. Traffic flows have reduced by 0.04% in the post implementation survey whilst 85%ile speeds and average speeds are both down by 5%.

3.19 Cambridge Road 20 mph Limit

3.19.1 Cambridge Road scheme is a short section of 20 mph speed limit which terminates to the west at the junction with Coombe Lane and the east at the junction with Pepy's Road. The introduction of a 20mph limit requires signage to be installed at all the entry points into the area and no additional traffic calming features. 20mph repeater signs are provided regularly throughout the scheme. There are existing speed humps on the section between Durham Road and Pepy's Road.

3.19.2 The implementation date of the Cambridge Road 20 mph Limit is unknown. Therefore it has not been possible to ascertain before and after periods for the accident analysis. Only one PIA has occurred within the four year period of 2007 to 2010. There were no PIA reported between 2007 and 2010.

3.19.4 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Cambridge Road totalled 18,898 and post survey flows totalled 22,765. This represents an increase of 2867 (14.4%).

3.19.5 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.19.5 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	29.95	26.53	- 3.32	- 11.1
Average speeds (mph)	24.8	21.73	- 3.07	- 12.4

3.19.6 Traffic flows within the limit increased by 14.4% in the post implementation survey. However, vehicle speeds were significantly down, with 85%ile speeds down by 11.1% and average speeds by 12.4%.

3.20 Claremont Avenue 20 mph Limit

3.20.1 Claremont Avenue Area is bounded by Burlington Road, Malden Way (Kingston bypass) southwest bound on slip and West Barnes Lane (which is included within the scheme). The only road to include existing traffic calming features throughout the scheme is Claremont Avenue. The introduction of a 20mph limit requires signage to be installed at all the entry points into the area and no additional traffic calming features. 20mph repeater signs are provided regularly throughout the scheme.

3.20.2 The 20mph Limit was implemented on 18th January 2010. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 18/01/08 and 17/01/10. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 19/02/10 to 18/02/11.

3.20.3 There has been one reported PIA within the Claremont Avenue Limit in the 24 months prior to the scheme, giving a frequency of 0.5 PIA per year.

Table 3.20.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	1	0	0	0	0

3.20.4 There has been no reported PIA within the Claremont Avenue Limit in the 12 months after the scheme, giving a frequency of 0 PIA per year.

Table 3.20.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.20.5 There were no reported PIA in the 12 months following the implementation of the scheme. There are no immediate concerns for vulnerable road users as they were not represented in the accident data.

3.20.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Claremont Avenue totalled 66,981 and post survey flows totalled 73,134. This represents an increase in traffic flows of 10,153 (15%).

3.20.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.20.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	28.17	27.95	- 0.22	- 0.8
Average speeds (mph)	22.47	22.31	- 0.16	- 0.7

3.20.8 Traffic flows within the limit increased by 15% in the post implementation survey. Marginal reductions in vehicle speeds were recorded with 85%ile speeds down by 0.8% and average speeds by 0.7%.

3.21 Ernle Road 20 mph Limit

3.21.1 Ernle Road Area is a 20 mph speed limit which is entered at the junctions of Ernle Road with Copse Hill and Woodhayes Road and the junction of Dunstall Road with Woodhayes Road. The introduction of a 20mph limit requires signage to be installed at all the entry points into the area. 20mph repeater signs are provided regularly throughout the scheme. Raised table junctions have been provided on Ernle Road at the junctions with Copse Hill and Woodhayes Road. An additional speed table is to be provided on Ernle Road outside no. 18.

3.21.2 The 20mph Limit was implemented on 30th March 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 30/03/07 and 29/03/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 01/04/09 to 31/03/10.

3.21.3 There has been one reported PIA within the Ernle Road Limit in the 24 months prior to the scheme, giving a frequency of 0.5 PIA per year.

Table 3.21.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	1	0	0	0	0

3.21.4 There has been no reported PIA within the Ernle Road Limit in the 12 months after the scheme, giving a frequency of 0 PIA per year.

Table 3.21.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	0	0	0	0	0

3.21.5 There were no reported PIA in the 12 months following the implementation of the scheme. There are no immediate concerns for vulnerable road users as they were not represented in the accident data.

3.21.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Ernle Road totalled 16,996 and post survey flows totalled 14,482. This represents a reduction in traffic flows of 2514 (14.8%).

3.21.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.21.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	29.28	29.02	- 0.26	- 0.9
Average speeds (mph)	22.98	22.95	- 0.03	- 0.1

3.21.8 The 20mph limit mph limit has performed well with regards to traffic flows and vehicle speeds. Traffic flows have reduced by nearly 15% in the post implementation survey whilst 85%ile speeds and average speeds are both down marginally by 0.9 and 0.1% respectively.

3.22 Edge Hill 20 mph Limit

3.22.1 Edge Hill 20 mph limit is bounded by Ridgway, Worple Road and The Downs (inclusive). Other roads included within the limit are Edge Hill, Darlaston Road and numerous other minor side roads. Existing traffic calming features are present on The Downs and Edge Hill.

3.22.2 The 20mph Limit was implemented on 22nd February 2010. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 22/02/08 and 21/02/10. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 22/03/10 to 21/03/11.

3.22.3 There has been one reported PIA within the Edge Hill Limit in the 24 months prior to the scheme, giving a frequency of 0.5 PIA per year.

Table 3.22.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	1	0	0	2	0

3.22.4 There has been one reported PIA within the Edge Hill Limit in the 12 months after the scheme, giving a frequency of 1 PIA per year.

Table 3.22.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	0	0	1	0	0

3.22.5 The annual accident rate increased slightly in the 12 months following the implementation of the scheme (0.5 per year to 1 per year). With one serious pedal cycle accident occurring.

3.22.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Edge Hill totalled 31,708 and post survey flows totalled 32,578. This represents an increase in traffic flows of 870 (2.7%).

3.22.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.22.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	28.18	27.6	- 0.58	- 2.1
Average speeds (mph)	22	21.53	- 0.47	- 2.1

3.22.8 Traffic flows within the limit increased by 2.7% in the post implementation survey. However, 85%ile speed and average speeds reduced by 2.1% each.

3.23 Farm Road 20 mph Limit

3.23.1 Farm Road Area is bounded by Green Lane, St Helier Avenue and Central Road of which none are included within the 20 mph speed limit. The introduction of a 20mph speed limit requires signage to be installed at all the entry points into the area. The scheme also includes the 20mph speed limit repeater signs throughout. Physical measures have been provided on Middleton Road (six sets of 3 speed cushions). Existing traffic calming features (speed humps and cushions) are present on Farm Road, Canterbury Road and Furness Road.

3.23.2 The 20mph Limit was implemented on 23rd February 2009. Due to the range of the data, it has only been possible to analyse 24 months 'before' data, which includes personal injury accidents (PIA) between 23/02/07 and 22/02/09. Allowing for a month for construction works and a settling down time, the 'after' data is for the 12 month period from 23/03/09 to 22/03/10.

3.23.3 There has been five reported PIA within the Farm Road Limit in the 24 months prior to the scheme, giving a frequency of 2.5 PIA per year.

Table 3.23.3 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	2	3	0	1	2	1

3.23.4 There has been two reported PIA within the Farm Road Limit in the 12 months after the scheme, giving a frequency of 2 PIA per year.

Table 3.23.4 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	0	2	0	0	0	0

3.23.5 The annual accident rate within the limit reduced marginally from 2.5 per year to 2 per year. None of the accidents recorded in the post 12 month period involved vulnerable road users.

3.23.6 Results for the pre and post traffic flow surveys have been provided by LB Merton. The total traffic flows in the pre survey for Farm Road totalled 54,915 and post survey flows totalled 58,180. This represents an increase in traffic flows of 3265 (6%).

3.23.7 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the limit. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Table 3.23.7 'Before and After' Vehicle speeds

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	26.03	25.59	- 0.44	- 1.7
Average speeds (mph)	21.65	20.65	- 1	- 4.6

3.23.8 Traffic flows within the limit increased by 6% in the post implementation survey. However, 85%ile speed and average speeds reduced by 1.7% and 4.6% respectively.

4 Overall 20 mph Zone and Limit Analysis

4.1 Due to the small number of accidents at the zones and limit on an individual basis, the following analysis combines the individual scheme data into the relevant zones or limits overall. Cromwell Road and Hillcross Avenue have not been included within the PIA analysis due to insufficient 'after' data and unknown construction period respectively. Cambridge Road has been excluded from the limit analysis as the implementation is unknown.

4.2 Within the 20 mph zones, there have been 21 PIA in the 24 months prior to the schemes, giving a frequency of 10.5 PIA per year. This equates to 1.17 accidents per zone per year.

Table 4.2 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	20	4	2	8	6

4.3 Within the 20 mph zones, there have been 16 PIA in the 12 months after the schemes, giving a frequency of 16 PIA per year. This equates to 1.78 accidents per zone per year.

Table 4.3 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	1	15	5	2	5	4

4.4 Within the 20 mph limits, there have been 32 PIA in the 24 months prior to the schemes, giving a frequency of 16 PIA per year. This equates to 1.33 accidents per limit per year.

Table 4.4 'Before' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	5	27	3	7	8	6

4.5 Within the 20 mph limits, there have been 18 PIA in the 12 months after the schemes, giving a frequency of 18 PIA per year. This equates to 1.5 accidents per limit per year.

Table 4.5 'After' PIA severity and vulnerable user category

Fatal	Serious	Slight	P2W	Pedal Cycle	Pedestrian	Child (<= 16)
0	4	14	2	6	0	1

4.6 Both zones and limits experienced a slight increase in the annual accident rate but this analysis is limited due to the short before and after periods assessed. It is likely that the longer term average will reflect a lower PIA rate. 20 mph limits performed slightly better than 20 mph zones with a smaller increase in PIA (increase of 0.17 accidents per year per limit as opposed to 0.61 accidents per year per zone). There were no recorded pedestrian accidents within the 20 mph limits compared to 8 before and only 1 child accident compared to 6 before (child accidents are still quite high within zones – 4 reported). Powered 2 Wheeled vehicle and pedal cycle accidents remain common in both limits and zones.

4.7 Results for the pre and post traffic flow surveys have been provided by LB Merton.

The total traffic flows in the pre survey for All Zones totalled 898,192 and post survey flows totalled 903,843. This represents an increase in traffic flows of 5651 (0.6%).

Please note that traffic flows for Pelham Road and High Path have not been included due to incomparable before and after surveys. No traffic or speed survey data was provided for Hillcross Avenue so this zone has also been excluded.

The total traffic flows in the pre survey for All Limits totalled 504,461 and post survey flows totalled 530,139. This represents an increase in traffic flows of 25,678 (5%).

Please note that Quicks Road has been excluded as no before traffic flow or speed data was provided. Trinity Road has also been excluded as the before and after survey data was incomparable.

4.8 Results of the pre and post traffic speed surveys were provided in a tabular form for the various roads within the schemes. Average 85 percentile speeds and average mean speeds were calculated for the whole of the limit.

Please note that speed data for Hillcross Avenue has not been included as no surveys were provided. Quicks Road has also been excluded as no before data was provided.

Table 4.8 Average Before and After Speeds for ALL Zones

Average	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	26.69	25.79	-0.9	-3.37
Average speeds (mph)	21.64	20.45	-1.19	-5.5

Table 4.8 Average Before and After Speeds for All Limits

	Before	After	Change (mph)	Change (%)
85% ile speeds (mph)	27.65	26.9	-0.75	-2.7
Average speeds (mph)	22.05	20.32	-1.73	-7.8

5 Conclusions

- 5.1 Both Zones and Limits experienced an increase in PIA per year with the increase in zones greater than that of limits (0.61 per year per zone compared to 0.17 per year per limit).
- 5.2 Limits experienced a significant reduction in pedestrian and child accidents.
- 5.3 P2W and pedal cycle accidents remain constant in both zones and limits.
- 5.4 Zones experienced a greater reduction in 85 %ile speeds (3.7% reduction on average per zone compared to 2.7% in limits).
- 5.5 Limits experienced a greater reduction in average speeds (7.8% reduction on average per limit compared to 5.5% in zones).
- 5.6 Overall vehicle speeds were down for limits and zones.
- 5.7 Zones performed best with regards to traffic flows, experiencing a marginal increase in total flows across the zones of 0.6%. The increase on the sum of flows on limits was 5%. However, it is unknown whether specific local conditions (i.e. road works, weather etc) may have contributed to exceptionally high increases in certain zones or limits.
- 5.8 Pelham Road and Eastfields (zones) and Merton Park were the worst performing schemes for accidents (see sections 3.2, 3.5 and 3.15 for more detail).

6 Recommendations

- 6.1 The accident analysis should be reviewed again when a longer after period is available. The longer term averages will give a more accurate reflection of any real change in accidents and statistical analysis can also be applied.
- 6.2 In areas where two wheeled vehicles are still vulnerable (which is reflected in the accident statistics); additional measures should be considered.
- 6.3 Pelham Road and Cromwell Road (zones) and Wandle Road (limit) all experienced an increase in vehicle speeds. Additional traffic calming features may be required.

Assessor

Darren Newbold – MSc, BSc (Hons), MCIHT, MSoRSA
Engineer, TMS Consultancy

Signed

Date

Checked by:

Robert Cycles - BSc (Hons), MCIHT, MSoRSA
Senior Road Safety Consultant, TMS Consultancy

Signed

Date

TMS Consultancy

Vanguard Centre
University of Warwick Science Park
Sir William Lyons Road
Coventry
CV4 7EZ

' + 44 (0)24 7669 0900

6 + 44 (0)24 7669 0274

* info@tmsconsultancy.co.uk

8 www.tmsconsultancy.co.uk

APPENDIX A

'Before and After' Accident Summary Table

Zone or Limit	Before (24 Months)						After (12 Months)								
	Accs Per Year	Serious	Slight	Total	Pedal Cycle	P2W	Pedestrian	Accs Per Year	Serious	Slight	Total	Pedal Cycle	P2W	Pedestrian	<=16
High Path				Only 12 months	Before – 1 accident	P2W rider	slight								
Pelham Road	0	0	0	0	0	0	0	0	0	4	4	2	2	0	0
Parkway	0.5	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Pollards Hill	4	1	7	8	1	0	4	2	0	2	2	0	0	1	1
Eastfields	1.5	0	3	3	0	2	2	5	0	5	5	0	2	1	1
Ridgway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake Road	0	0	0	0	0	0	0	1	0	1	1	0	0	1	1
Hillcross Avenue	Construction period unknown – 1 accident June 2007														
Commonside East	3	0	6	6	1	2	2	4	1	3	4	0	1	2	1
Cromwell Road	0	0	0	0	0	0	0	Insufficient After Data							
West Barnes	1	0	2	2	0	1	0	0	0	0	0	0	0	0	0
Trinity Road	3	1	5	6	1	1	1	2	0	2	2	0	0	0	0
Merton Hall Road	1	0	2	2	0	0	0	1	0	0	0	0	0	0	0
Quicks Road	0.5	1	0	1	0	1	0	1	0	1	1	0	0	0	0
Merton Park	2.5	0	5	5	3	0	1	8	1	7	8	4	2	0	1
Melrose Avenue	0.5	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Wandle Road	2	0	4	4	1	0	2	2	1	1	2	0	0	0	0
Ashbourne Road	1.5	0	3	3	1	0	0	2	1	1	2	1	1	0	0
Cambridge Road	Construction period unknown – no accidents between 2007 and 2010 (inclusive)														
Claremont Avenue	0.5	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Ernie Road	0.5	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Edge Hill	0.5	0	2	2	0	0	2	1	1	0	1	1	0	0	0
Farm Road	2.5	2	1	5	1	0	2	1	2	0	2	0	0	0	0



APPENDIX B

'Before and After' Traffic Flow and Vehicle Speed Summary Table



LB Merton 20 mph ZONES										
Scheme	Before			After			Change (+/-)			Comments
	Total Flows	85%ile Speeds (mph)	Average Speed (mph)	Total Flows	85%ile Speeds (mph)	Average Speed (mph)	Total Flows	85%ile Speeds (mph)	Average Speed (mph)	
Pelham Road Area	12979	26.56	20.86	41159	23.94	19.73	3.38	1.13	1.13	Traffic Flows not comparable
High Path Area	20822	16.29	12.31	69059	17.24	13.73	0.95	1.42	1.42	Traffic Flows not comparable
Parkway Area	16865	27.17	26.83	21532	21.8	21.47	-0.34	-0.34	-0.33	
Ridgway Place Area	25711	29.88	23.94	24173	27.84	22.29	-2.04	-1.65	-1.65	
Lake Road Area	47768	30.7	25.33	45964	27.52	22.65	-3.18	-3.28	-3.28	
Pollards Hill Area	13015	33.78	28.38	12927	29.83	24.98	-3.95	-3.4	-3.4	
West Barnes Area	19187	27.95	22.46	192479	25.54	20.3	-2.41	-2.16	-2.16	
Eastfields Area	24380	20.36	16.03	24380	20.25	15.85	-0.11	-0.18	-0.18	
Commonside East Area	383891	30.87	25.48	334219	23.1	23.98	-1.77	-1.5	-1.5	
Cromwell Road Area	130374	23.34	19.16	128563	23.84	19.53	0.5	0.37	0.37	
Total ZONES	831993.00	268.90	216.35	104061.00	257.33	204.51	-8.37	-11.84	-11.84	
Ave Per ZONE	831993.00	26.89	21.64	104061.00	25.79	20.45	-0.90	-1.16	-1.16	
Total Zones Adjusted	888192.00			903843.00						Flows removed for Pelham and High Path
LB Merton 20 mph LIMITS										
Scheme	Before			After			Change (+/-)			Comments
	Total Flows	85%ile Speeds (mph)	Average Speed (mph)	Total Flows	85%ile Speeds (mph)	Average Speed (mph)	Total Flows	85%ile Speeds (mph)	Average Speed (mph)	
Trinity Road Area	32410	25.13	20.28	103029	24.3	14.88	-0.83	-3.4	-3.4	Traffic Flows not comparable
Merton Park Area	207053	27.75	22.58	202491	27.27	13.48	-0.48	-1.18	-1.18	
Merton Hall Road Area	47566	26.02	20.68	56203	24.78	19.5	-1.24	-1.18	-1.18	
Guile's Road Area	0	0	0	38187	25.53	18.01	25.53	18.01	18.01	No before survey
Melrose Avenue Area	10311	28.18	21.75	8997	25.62	21.32	-2.36	-0.43	-0.43	
Farm Road Area	54915	26.03	21.65	58180	25.59	20.65	-0.44	-1	-1	
16556	28.93	22.68	28211	30.39	23.39	1.46	0.71	0.71		
Ashbourne Road Area	83560	27.95	21.63	18353	26.17	20.53	-1.38	-1.1	-1.1	
Ernie Road Area	16996	29.28	22.98	14482	29.02	22.95	-0.26	-0.03	-0.03	
Edge Hill Area	31708	28.18	22	32578	27.6	21.53	-0.68	-0.47	-0.47	
Claremont Avenue Area	66880	28.17	22.47	72134	27.95	23.31	-0.22	-0.16	-0.16	
Cambridge Road Area	19698	23.95	24.8	22763	26.63	21.73	-3.32	-3.07	-3.07	
Pollards Hill Area	14107	26.63	21.15	14745	27.33	21.53	0.7	0.38	0.38	
Total LIMITS	536871.00	331.80	264.65	671955.00	348.38	261.81	16.58	-2.84	-2.84	
Ave Per LIMIT	4139777	25.52	20.36	51642.63	26.80	20.14	1.28	-0.22	-0.22	
Total LIMITS ADJUSTED	504461.00	331.80	264.65	530133.00	322.85	243.80	-8.95	-20.85	-20.85	Quicks Road Removed - flows for Trinity
Ave Per LIMIT	46960.09	27.85	22.06	48194.45	26.90	20.32	-0.76	-1.74	-1.74	
Summary										
85%ile speeds		Ave 85%ile Zone	Average Speed		Ave Speed/Zone	Traffic Flows				
20 mph ZONES		-0.9	-11.84		-1.18	5651				
20 mph LIMITS		-0.75	-20.85		-1.74	26678				