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EVALUATION OF THE EFFECT OF SLOW MARKINGS ON TRAFFIC SPEEDS



| Issue | Date | Prepared by | Reviewed by | Approved by |
|-------------------|---|----------------------|----------------|-------------|
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| Path and Filename | S:\TDE\Scheme Information\South Area\TN.033.3005034 A117 Woolwich Manor Way\Surveys\Before and After comparison | | | |

Introduction

The “SLOW” marking is a common feature on Britain’s roads, designed, as it states, to encourage drivers to slow down. This purpose of this study is to evaluate the impact of six SLOW markings on speeds. TfL often gets requests from the public to install the markings, particularly near schools.

Background

The Mayor of London’s “Better Streets” Policy, released in 2009, contains a number of suggested interventions to improve streets in London. One of these is to declutter, where highway authorities are challenged to:

“justify each piece of equipment and obstruction with a presumption that it should be removed unless there is a clear case for retention. Look particularly carefully at the need for signs, posts, guard rails, bollards and road markings.”

Chapter 5 of the Traffic Signs Manual produced by the Department for Transport states that the slow marking “is most effective when it complements a warning sign”. Two sites were therefore chosen where there are warning signs and both these sites were by schools.

Chapter 5 also states “Discretion should be exercised in the use of the marking to ensure that its impact is not reduced”. For the purpose of this study it was actually quite difficult to find suitable locations to place the slow markings, preciously due to the proliferation of their use.

Data Collection

Four locations were chosen, two of which had slow markings installed in both directions making a total of six trial sites. The sites were chosen where the impact of the marking could be isolated. Traffic speed data was obtained prior to the installation of the SLOW markings, and after, using two methods:

- Radar speed gun used manually (100 readings taking the first vehicles within platoons on off peak free flow conditions)
- As a check, automatic radar equipment for three of the markings

Control Sites

Traffic speeds can vary naturally, so it is important to try and isolate the specific impact of the slow markings. To assess this, traffic speed data was also gathered at two control sites where site conditions were unchanged; Pampisford Road (South Croydon) and A204 Tulse Hill. This data was used as a comparison against sites where the SLOW markings were installed.

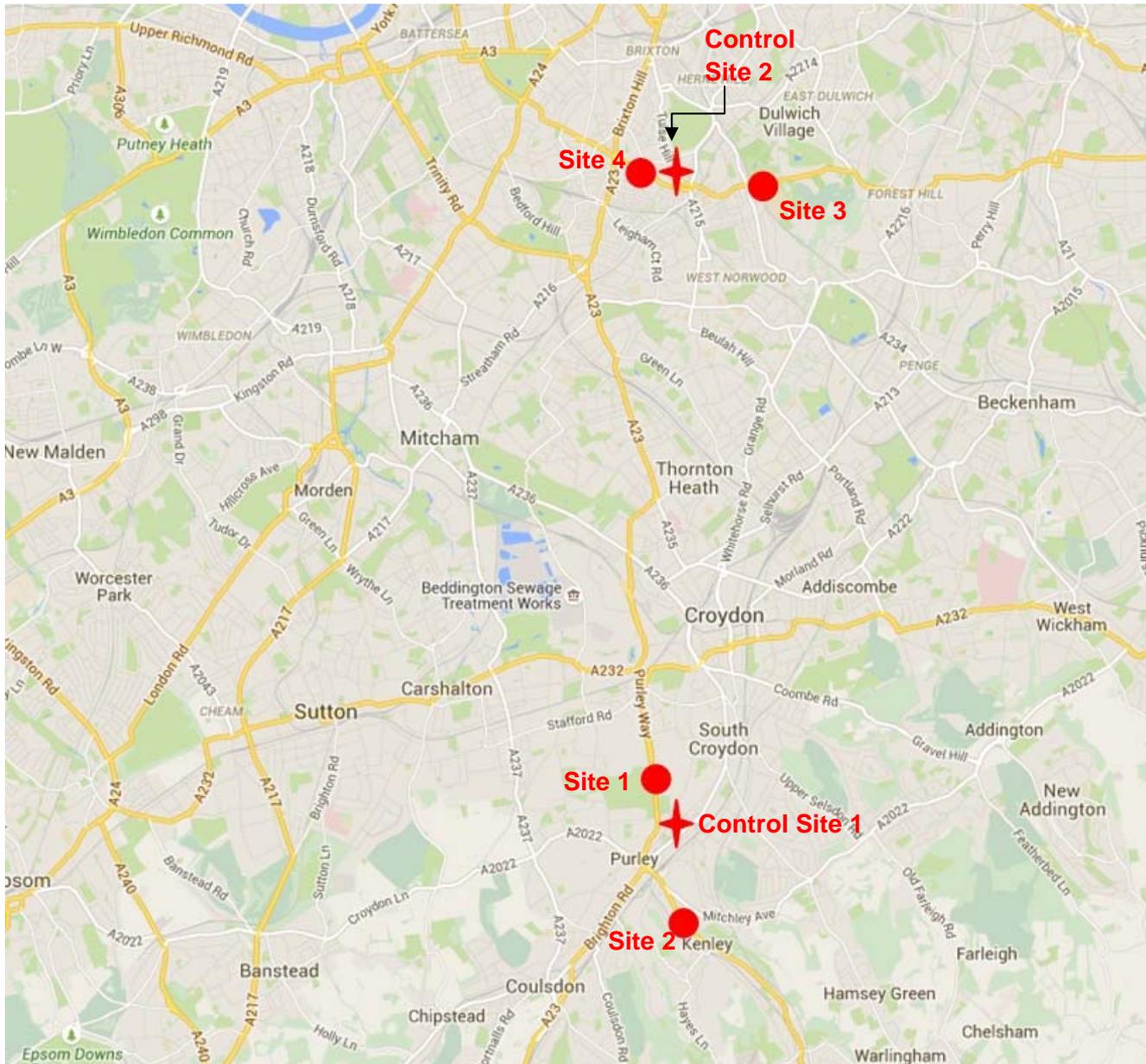
| Radar Speed Gun | | | | |
|---------------------------|---------------------|-------|------------------|------------------------|
| Control Site | Average Speed (mph) | | Difference (mph) | Statistical Conclusion |
| | Before | After | | |
| Control Site 1 Northbound | 33.13 | 34.95 | + 1.84 | Insignificant |
| Control Site 1 Southbound | 34.45 | 34.19 | - 0.26 | Insignificant |
| Control Site 2 Southbound | 29.24 | 29.19 | - 0.05 | Insignificant |

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Statistical Test

According to the [Department for Transport](#), the best statistical method to evaluate the effectiveness of speed reduction measures is the T-distribution test. All results were tested at the 95% confidence level and the analysis shows if the results were significant or insignificant. Insignificant results indicate that the change falls within the natural variation of speeds and unlikely to be as a result of the slow markings.

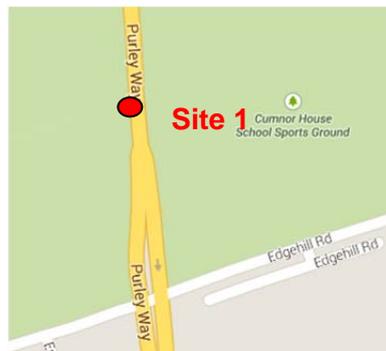
Site Locations



Results

Site 1 – A23 Purley Way

The A23 Purley Way is situated in Purley with a speed limit of 40mph. SLOW markings were installed in both directions along the stretch adjacent to Cumnor House School Sports Ground as there is little congestion during peak hours and where no speed reduction measures existed. The majority of speeds along this straight road are between 40mph and 90 mph.



| Manual Radar Speed Gun | | | | |
|------------------------|---------------------|-------|------------------|------------------------|
| Site 1 | Average Speed (mph) | | Difference (mph) | Statistical Conclusion |
| | Before | After | | |
| Northbound | 44.13 | 43.13 | - 1.00 | Insignificant |
| Southbound | 41.33 | 39.56 | - 1.77 | Insignificant |

| Automatic Radar Equipment | | | | |
|---------------------------|--------------------|-------------------|------------------|------------------------|
| Site 1a Northbound | Before' Mean Speed | After' Mean Speed | Difference (mph) | Statistical Conclusion |
| Tuesday | 45.5 | 46.3 | +0.8 | insignificant |
| Wednesday | 45.2 | 46.1 | +0.9 | insignificant |
| Thursday | 45.7 | 45.7 | 0.0 | insignificant |

| Automatic Radar Equipment | | | | |
|---------------------------|--------------------|-------------------|------------------|------------------------|
| Site 1b Southbound | Before' Mean Speed | After' Mean Speed | Difference (mph) | Statistical Conclusion |
| Tuesday | 45.1 | 45.5 | +0.4 | insignificant |
| Wednesday | 44.0 | 45.5 | +1.5 | insignificant |
| Thursday | 44.0 | 45.8 | +1.8 | insignificant |

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Site 2 – A22 Godstone Road

The A22 Godstone Road is a 30mph road located in Kenley. SLOW markings were installed in both directions on Godstone Road. Most traffic speeds along the stretch of road beside Riddlesdown Wood lie between 30mph and 50mph. Godstone road has few side roads and an irregular bus service.



| Manual Radar Speed Gun | | | | |
|------------------------|---------------------|-------|------------------|------------------------|
| Site 2 | Average Speed (mph) | | Difference (mph) | Statistical Conclusion |
| | Before | After | | |
| Northbound | 33.84 | 33.51 | - 0.33 | Insignificant |
| Southbound | 37.21 | 36.90 | - 0.31 | Insignificant |

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Site 3 – Thurlow Park Road

Thurlow Park Road has a speed limit of 30mph, situated in Dulwich along the South Circular Road. There are a number of schools in the area and the marking was installed alongside an existing school warning sign and on the approach to a bend.



| Manual Radar Speed Gun | | | | |
|------------------------|---------------------|-------|------------------|---------------|
| Site 3 | Average Speed (mph) | | Difference (mph) | Conclusion |
| | Before | After | | |
| Eastbound | 29.01 | 30.14 | + 1.13 | Insignificant |

| Automatic Radar Equipment | | | | |
|---------------------------|--------------------|-------------------|------------------|------------------------|
| Site 3a - EB | Before' Mean Speed | After' Mean Speed | Difference (mph) | Statistical Conclusion |
| | | 22.7 | 22.2 | -0.5 |

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Site 4 – Christchurch Road

Christchurch Road has a speed limit of 30mph, situated in Streatham. The SLOW marking site is close by to Fenstanton Primary School where there is an informal crossing. Again it was installed adjacent to an existing warning sign.



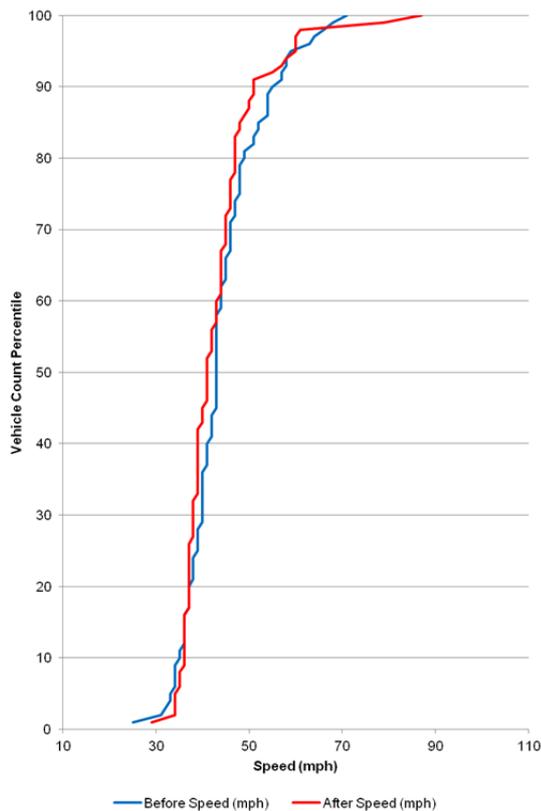
| Manual Radar Speed Gun | | | | |
|------------------------|---------------------|-------|------------------|---------------|
| Site 4 | Average Speed (mph) | | Difference (mph) | Conclusion |
| | Before | After | | |
| Eastbound | 29.74 | 28.88 | - 0.86 | Insignificant |

Discussion of Results

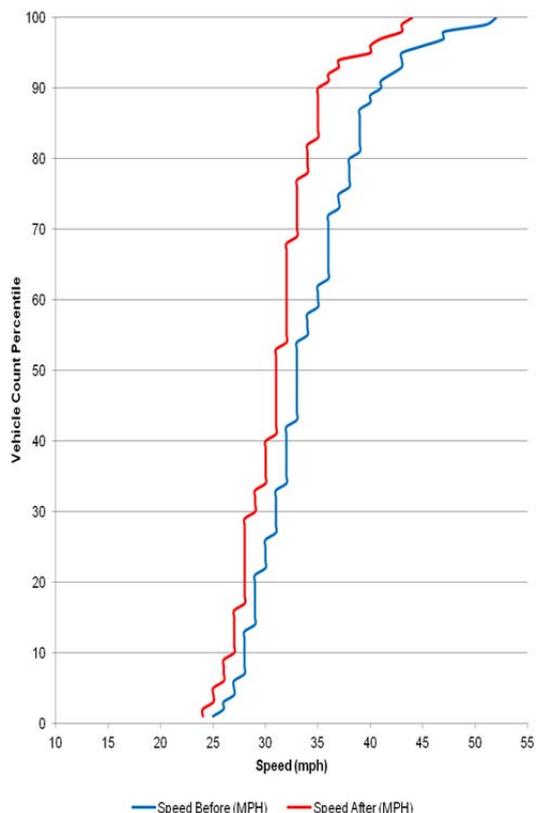
At all sites there were both slight increases and decreases in speeds after the introduction of SLOW markings. However statistical analysis of these has shown that they were all insignificant. There is thus no evidence that the SLOW markings had any impact on traffic speeds. A theory behind this could be that SLOW markings are seen so frequently that their proliferation has indeed rendered them ineffective.

As an interesting comparison, the A232 Wickham Road is a site where [centre line markings were removed](#) from the carriageway. Graphs have been created to visually represent the data collated from the radar speed gun at a slow marking site and a centre line removal site. The expectation is that at a site where engineering measures have reduced speed, the 'After' line should shift to the left of the 'Before.' Considering the effect of the centre line removal, there is a distinct separation between the before and after speed graph lines; the entire 'After' graph line has shifted to the left of the 'Before.' This separation is evidence of the reduction of traffic speed due to the centre line removal. However, the SLOW marking graph lines do not display such a distinct separation, instead the before and after speed graph lines are intertwined. This visual representation alone shows that the SLOW markings were not effective at reducing speeds.

SLOW Marking Site 2 – Godstone Road (Northbound)



Centre line Removal – A232 Wickham Road (Eastbound)



Conclusion

SLOW markings were ineffective at reducing average vehicle speeds at all six sites where they were installed

For further information please contact sam.wright@tfl.gov.uk