

APPENDIX C – CASE STUDY 1

Road safety improvement Scheme: Collision Reduction Scheme 2012/2013

Location: Waldegrave Road junction High Street Teddington

Background

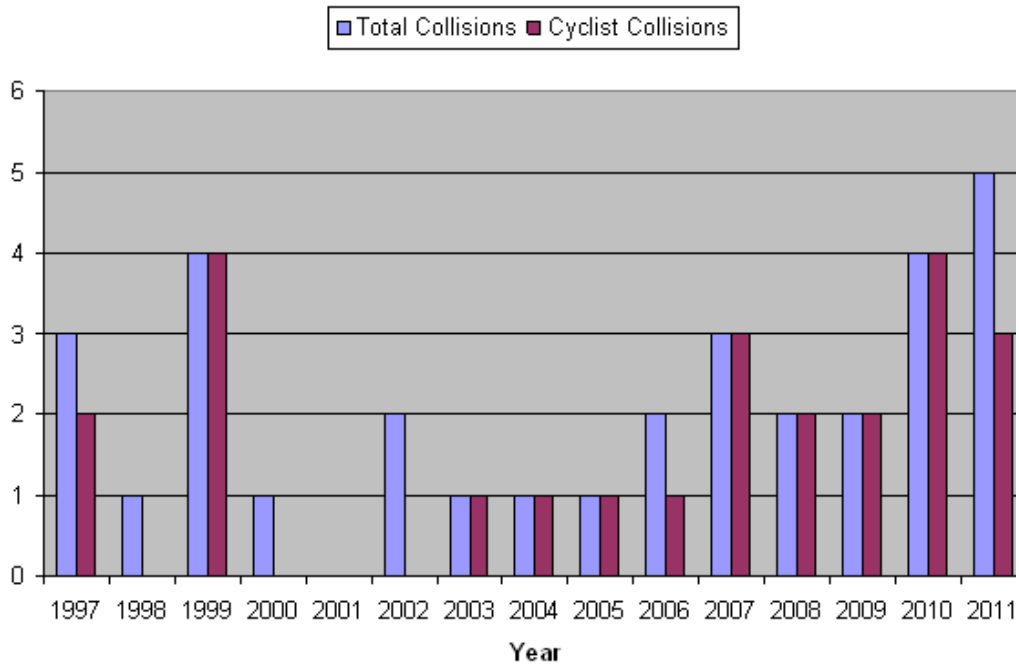
Following a collision analysis across the borough in 2012, concerns were raised with regards the junction of Waldegrave Road with High Street, Teddington. There was a total of 16 recorded injury collisions during a five-year period at this junction.

The lane arrangement on the bridge was a two-lane vehicle approach with a central cycle lane for cyclists travelling straight ahead into the High Street. Site observations and the collision statistics suggested that there were a number of factors involved. A key factor was the potential for cycle speed. This was due to the downward gradient of the railway bridge. There is also a steep gradient for vehicles exiting Waldegrave Road and drivers were considered to be misjudging the speed of cyclists. It was also observed that left turning vehicles into Waldegrave Road, especially if high sided, would mask cyclists in the central lane.

Collisions

Fourteen of these collisions involved a pedal cyclist, with twelve all following the same manoeuvre. These cyclists were travelling over the railway bridge, into the High Street, colliding with a vehicle exiting Waldegrave Road, mostly right turning. The number of accidents at this junction was well above the borough average of 0.3/year for mini roundabouts.

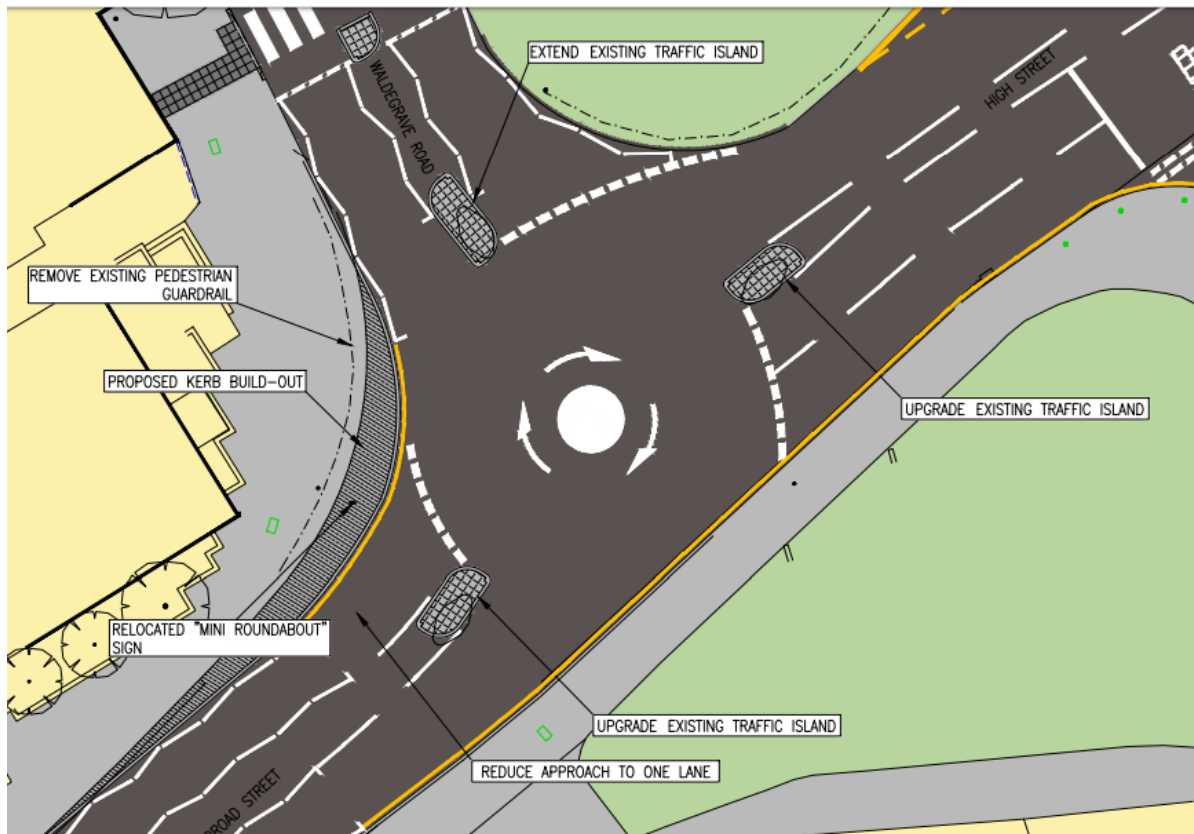
The graph below shows the **total number of collisions v cyclists collisions at the roundabout between 1997 and 2011.**



Proposed improvements

In response to the collisions, a scheme was designed which reduced the approach from the railway bridge to one lane by extending out the footway. This would reduce the risk of cyclists being masked by other vehicles and also help to improve visibility for drivers exiting Waldegrave Road. The extended footway would also assist drivers exiting Waldegrave Road in adding some deflection thus helping to reduce vehicle speeds.

A traffic modelling exercise was undertaken to determine the effects on capacity through the junction. The results showed that there would be approximately 5 to 6 additional vehicles queueing on the railway bridge arm during the peak period, this was considered to be statistically acceptable. The existing guard railing was also proposed to be removed to further enhance sightlines for drivers exiting Waldegrave Road.



Consultation

The proposed scheme was consulted on and a summary of responses received is below:

- The Police were supportive and in agreement that cycle speed off the bridge played a part in the collisions.
- London Buses were supportive
- Both the London Cycle Campaign and Richmond Cycle Campaign would have preferred to see greater deflection at the junction, however, they agreed that this would be difficult within the existing kerb layout and with the requirement for large vehicles to turn at the junction.
- 59 properties consulted around the junction, 19 objections were received, 3 emails received in support and four who broadly agreed but had some concerns.

Approval

The scheme was approved by the Cabinet Member for Highways and Streetscene in January 2013 and constructed in March 2013.

Before:



After:



Post assessment

A five-year collision review after completion shows that there have been five personal injury collisions between April 2013 and April 2018. Of these 5 collisions, 4 involved pedal cyclists with 2 of these being the same manoeuvre as previously reported, cyclists entering the roundabout from the bridge direction and colliding with right turning vehicles exiting Waldegrave Road.

Conclusion.

There has been a significant reduction in collisions between the 5 year before data and 5 year after data.

The FYRR (First Year Rate of return) is a simple, practical method of economic evaluation used nationally that compares the scheme cost with the expected safety benefit, expressed in terms of notional road accident cost savings to society depending on the severity of the accident. The calculation below shows a FYRR of **457%** which would suggest that the scheme was excellent value for money and had the desired effect of collision reduction. The recently introduced boroughwide 20mph speed limit should help to bring the collision rates (5 in the last 5 years) down even further.

FYRR Calculation:

16 collisions total in 5 years prior to scheme

Scheme saved 2/3 collisions

Therefore, accidents saved over 5 years = 10

Annual accidents saved = $10/5 = 2$

Average cost of collision in 2013 = £80,000

Cost of accident saved per year = $2 \times £80k = £160,000$

Total cost of scheme when constructed in 2013 = £35,000

FYRR = $(£160,000/£35,000) \times 100\% = 457\%$