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DESCRIPTION AND DISCUSSION OF THE A453 CLIFTON SINGLE 4 LANE SCHEME

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Description and discussion of the A453 Clifton single 4 lane scheme

Introduction

The scheme evolved from the Strategy to encourage public transport and mode change away from excessive private journeys by road. The Strategy acknowledged that some residual highway construction would probably be needed to overcome the problems of congestion. The scheme therefore aims to achieve the necessary level of capacity for the residual road traffic, with minimum impact on the local community and environment.

Operational performance

The basic standard adopted for the whole of the Clifton section of the A453 is the provision of two uninterrupted lanes in each direction. The three main junctions, at Crusader, Green Lane, and Farnborough Road, would be roundabouts with traffic signal control on all entries and internal segments. This traffic capacity of this combination has been assessed using established techniques. They indicated that it would cope with the forecast levels of traffic during the Study period.

A strictly urban standard of road provision is envisaged. The approach aims to provide reliable journey times rather than the absolute shortest time through the Clifton section. It includes a 30mph speed limit, appropriate for the combination of junctions, traffic signals, and crossings, although 40mph could be considered for the section between Green Lane and Farnborough Road if a footbridge is built for the University main crossing point.

Layout

The Multi-Modal Study has prepared outline layouts for the various elements of the scheme in order to demonstrate their feasibility and consider their effects. The exact positioning of the widened A453 carriageway is not determined, but basically is intended to be equal on both sides of the existing road and at the same level. However, the objective is to fit the road into the existing highway space available with minimum disruption.

Bus lay-byes are included for all the existing bus stops. Crusader roundabout would be retained with minor widening and enlargement of the entry and exit carriageways. At Green Lane the existing split carriageway priority junction would be amended to operate as a signal controlled roundabout. The exact shape and location of the roundabout should be designed to minimise local impact. At Farnborough Road junction the existing traffic signals would be completely replaced by a new roundabout with traffic signal control similar to the one for Crusader junction.

The approach to detailed design will be very important for this scheme. Traffic management, road safety, and road landscape expertise will need to have leading roles. There are reasons why the road should be a single four lane carriageway with only minimum lengths of central islands:

- Dualling would increase the perceived design standard and encourage high speed
- Dualling would increase the visual dominance of the road in its surroundings
- Local splitting of the carriageway at crossings and junctions would draw attention to them and encourage caution. It would also introduce slight changes of direction in the A453 traffic lanes, again encouraging caution.
- A single 4 lane carriageway would be better able to function in cases of incidents or roadworks.
- A dual carriageway layout would not be safer than the single four lane layout.

The design features, traffic controls, and speed limits, are intended to act together to optimise the scheme.

Local Environment

The existing local environment of the A453 through Clifton and the effect of schemes has been carefully considered. The over-riding characteristic is that it is a residential area with a university campus. Despite complaints about existing traffic noise, nearby houses have a pleasant outlook thanks to the trees and hedges lining the wide space between them and the road. Noise levels are not exceptional. Equally noisy conditions can be found alongside many ordinary roads that do not have the benefit of wide verges.

Although there are quite large numbers of pedestrian movements in the vicinity of the A453, in the central part at least, between Green Lane and Farnborough Road the hedges and other planting have the effect of funnelling movement across the A453 to the official crossing points at the Pelican crossings and at the Farnborough road traffic signals. Altogether the existing planted verges perform an extremely valuable function in protecting and shielding the local community. They also are a dominant visual feature extending from north of Farnborough Road to south of Green Lane, balancing the scale of the road and the larger vehicles using it. It is important that the road scheme preserves this shield intact. The additional noise of increased traffic can be offset with detailed contouring of the verges and the addition of low walls where necessary.

Crossing facilities

There are 5 points through Clifton where pedestrians can cross the A453 under
The protection of signal control, either at pelican crossings or with a ‘Green Man’. The pelican crossing south of Green Lane has a ‘Puffin’ facility detecting the presence of people on the crossing. Overall the pedestrian safety record has been a cause for concern in the past. Accidents appear to have arisen from misjudgement or misunderstandings in the use of the pelican crossings. The site south of Green Lane is often used by children, whilst at the university access, students cross to the bus stop and children cross to reach the Woods and Trent valley. At these sites it is recommended that footbridges be investigated.

There are well known obstacles for footbridge schemes:

- Having to climb and descend up to 6m
- Provision of 1 in 12 or 1 in 20 approach ramps
- The length of the route compared with walking across the road
- The unfriendly environment on the bridge
- The intrusion of the structure and the people using it.

The topography south of Green Lane is sympathetic to a footbridge, with raised ground on the west side and an extensive lateral verge towards the houses to the east. At the University access there is lateral space but no help from the topography.
The safety of the at-grade crossings would be significantly improved with the four lane scheme by enabling one direction of traffic to be crossed at a time and allowing greater separation between the stop line and the crossing.

At the northern and southern ends of the Clifton corridor the situation is somewhat different from the central section. At Farnborough Road a roundabout would take up more space than the existing traffic signal junction. The wide verges on the west side are contoured with fewer trees. Sufficient verge would remain to restore most of the mitigating effect with re-contouring and further planting to break up the open aspect and reduce the visual impact of the traffic signals. The houses on the east side would require detailed attention to visual and noise shielding.

To the south of Crusader Roundabout the road scheme is part of the M1 – Clifton dual carriageway scheme. The houses on both sides have only moderately wide verges. Conventional highway noise fences should be considered in combination with a planting scheme.

There is good scope for devising a scheme with a low level of impact through Clifton.