



SURREY

COUNTY COUNCIL

A31 FARNHAM BYPASS INTERIM MEASURES, HICKLEYS CORNER & FIRGROVE HILL

WAVERLEY LOCAL COMMITTEE

16 JULY 2002

KEY ISSUE:

Authorisation to proceed with the construction of modifications to the A31 Farnham Bypass, starting in the current financial year (2002/2003).

SUMMARY:

The A31 Farnham bypass is part of the Primary Route Network, which includes motorways and trunk roads, and caters for long distance traffic between major trip generators such as airports and town centres.

The traffic signal junction at Hickleys Corner is the main crossing point between the town centre and the station and residential areas to the south.

At Firgrove Hill the bypass narrows to a single lane in each direction; the remainder of the bypass is dual carriageway, with two lanes in each direction.

A major scheme to provide a grade-separated junction at Hickleys Corner and at the same time provide a two-lane dual carriageway beneath Firgrove Hill Bridge has been under consideration for many years. Such a scheme would greatly improve the efficiency of the bypass and reduce severance between the north and south of the town.

The current Local Transport Plan (LTP), 2001 to 2006, includes provision to undertake further technical work on the major scheme. It is anticipated that this work will be completed in the current financial year, and that consultation on this scheme will be initiated by March 2003. Construction work on the major scheme could start in 2007/08.

Pending the introduction of a major scheme at Hickleys Corner, the County Council is committed to introducing lower cost measures to improve efficiency and safety on the A31 Farnham bypass. These measures are known as the A31 Interim Measures, and include modifications to the Hickleys Corner signal junction and the provision of an additional lane, or lanes, beneath Firgrove Hill Bridge.

The Executive has allocated £630,000 of capital funding to these interim measures in the current financial year (2002/2003). This report describes the measures at Hickleys Corner and Firgrove Hill Bridge, and seeks authority to proceed with construction.

OFFICER RECOMMENDATIONS:

The Committee is asked to agree:

- (i) that the modifications to the A31 Hickleys Corner traffic signal junction, as shown on drawing number MWMSB/03A (on display at the meeting), be approved for construction subject to modifications made during detailed design.
- (ii) that an additional westbound lane on the A31 beneath Firgrove Hill Bridge, as shown on drawing number MWMSB/04A (on display at the meeting), be approved for construction subject to modifications made during detailed design.
- (iii) that the Executive allocate funding estimated at £120, 000 in 2003/04 to meet the cost of completing the schemes. (Estimated total scheme costs £750,000. The Executive has allocated £630,000 in 2002/03).

1. INTRODUCTION AND BACKGROUND

- 1.1 The A31 Farnham bypass is part of the Primary Route Network. This network includes motorways and trunk roads, and caters for long distance traffic between major trip generators such as airports and town centres.
- 1.2 The traffic signal junction on the A31 at Hickleys Corner is the main crossing point for local traffic, pedestrians and cyclists travelling between the town centre to the north of the bypass and the rail station and residential areas to the south.
- 1.3 At Firgrove Hill, the bypass narrows to a single lane in each direction. The remainder of the A31 between the county boundary and the A3 at Guildford is dual carriageway with two lanes in each direction.

A31 MAJOR SCHEME

- 1.4 A major scheme to provide a grade-separated junction at Hickleys Corner and at the same time provide a two-lane dual carriageway beneath Firgrove Hill Bridge has been under consideration for many years. Such a scheme would greatly improve the efficiency of the bypass and reduce severance between the north and south of the town.
- 1.5 The current Local Transport Plan (LTP), 2001 to 2006, includes provision to undertake further technical work on the major scheme. It is anticipated that this work will be completed in the current financial year, and that consultation on this scheme will be initiated by March 2003. Construction work on the major scheme could start in 2007/08.

A31 INTERIM MEASURES

- 1.6 Pending the introduction of a major scheme at Hickleys Corner, the County Council is committed to introducing lower cost measures to improve efficiency and safety on the A31 Farnham bypass. These measures are known as the A31 Interim Measures, and include modifications to the Hickleys Corner signal junction and the provision of an additional lane, or lanes, beneath Firgrove Hill Bridge.
- 1.7 The first of the interim measures to be completed were the new traffic signals at the Shepherd and Flock junction. These came into operation in August 2000, and have proved effective in reducing queues and delays on the Farnham Bypass in the eastbound direction (towards London). This in turn has relieved traffic pressure on the town centre, which drivers sometimes use as an alternative to the bypass when congestion is particularly bad.

- 1.8 £630,000 of capital funding has been allocated to the interim measures in the current financial year (2002/2003). This report describes the measures at Hickleys Corner and Firgrove Hill Bridge, and seeks authority to proceed with construction.

2. ANALYSIS AND COMMENTARY

EXISTING CONDITIONS

- 2.1 In the westbound direction the A31 widens to four lanes on the approach to Hickleys Corner; three lanes ahead and a dedicated left turn lane into Station Hill. The three ahead lanes reduce to a single lane between the junction and Firgrove Hill Bridge, which causes traffic to slow down to merge, and frequently results in queues developing back through the junction itself.
- 2.2 A considerable volume of traffic turns left from the bypass into Station Hill. On occasions traffic queuing in the three ahead lanes extends back beyond the start of the dedicated left turn lane, which denies access to this lane for traffic wishing to turn left. At other times queuing traffic fills the dedicated left turn lane and extends back into the nearside lane of the bypass, which reduces access for ahead traffic approaching the junction. Both circumstances reduce the efficiency of the junction and suggest the left turn lane should be extended.
- 2.3 In the eastbound direction the A31 narrows from two ahead lanes at the Weydon Lane junction to a single lane beneath Firgrove Hill Bridge. Again, this causes traffic to slow down to merge, though the resulting congestion is less marked than in the westbound direction. From Firgrove Hill the road widens to two ahead lanes and a dedicated left turn lane into South Street at Hickleys Corner.
- 2.4 Right turns are not permitted from the bypass into Station Hill or South Street.
- 2.5 The traffic signals include phases for pedestrians crossing the A31. There are no pedestrian phases for crossing South Street or Station Hill. There are no pedestrian phases controlling traffic turning left from Station Hill to the A31 westbound, or for controlling traffic turning left from South Street to the A31 eastbound.
- 2.6 The junction currently has street lighting.
- 2.7 The speed limit on the A31 is currently 70mph. However, on 4 September 2001 the Waverley Partnership Area Committee resolved

that a 50mph speed limit be introduced on the section of the A31 that includes the Weydon Lane and Hickley's Corner junctions.

ACCIDENTS

- 2.8 18 personal injury accidents have been reported in the immediate vicinity of the junction in the three year period 1999 to 2001. Six of these accidents involved pedestrians, three resulting in serious injury and three resulting in slight injury.
- 2.9 The ten accidents involving vehicles only were caused in the main either by vehicles turning at the junction, or were tail-end shunt as vehicles slowed or accelerated from the traffic lights.

3. WIDENING BENEATH FIRGROVE HILL BRIDGE

- 3.1 Firgrove Hill is the worst bottleneck on the bypass, with the road narrowing to a single lane in each direction.
- 3.2 Widening the bridge itself would prove very costly. For the interim measures work has focussed on carriageway widening that can be achieved without the need to alter the bridge.
- 3.3 As part of the planned major scheme, Firgrove Hill Bridge would be widened to accommodate two lanes in each direction, as well as the ends of the slip roads leading to Hickleys Corner.
- 3.4 Consulting engineers Scott Wilson Kirkpatrick & Co Ltd were asked to undertake a technical review of the options for widening the A31 beneath the bridge, which reached the following conclusions.

Preferred option: An additional westbound lane

- 3.5 The preferred option is shown on drawing number MWMSB/04A. An additional westbound lane is provided, so that two lanes are available in this direction between Hickley's Corner and Weydon Lane.
- 3.6 A 3 metre wide shared surface (pedestrian and cycle) is provided between the two junctions on the south side of the A31. This narrows to approximately 2.5 metres beneath the bridge.
- 3.7 In combination with the modifications at Hickley's Corner, the efficiency of the bypass should be markedly improved for westbound traffic. Currently traffic slows as it merges from three lanes at Hickleys Corner to a single lane beneath the bridge, which slows the rate of discharge from the traffic signals. Two continuous lanes between the junction, the bridge, and Weydon lane will increase the discharge capacity of the traffic signals at Hickleys Corner.

Rejected Option: Two lanes in each direction

- 3.8 It would be very desirable to provide two lanes in each direction beneath the bridge, since this would improve the efficiency of the bypass for both eastbound and westbound traffic, and the possibility of doing so without costly alterations to the existing structure has been examined in detail.
- 3.9 It is just possible to accommodate a reduced dual carriageway between the abutments (support walls) of the existing bridge. Lane widths would need to be reduced, and the verge and central reserve widths would be reduced to the minimum. A concrete safety barrier would be required in the central reserve, similar to that on the A3 from the Hogs Back down to Guildford.
- 3.10 Though desirable this option has had to be discounted for the following reasons: -
- 3.11 The minimum acceptable stopping sight distance for a design speed of 50mph is 120 metres. In the eastbound direction the bridge abutment close to the carriageway and on the inside of the bend would reduce forward visibility to between 90 metres and 110 over a length of 80 metres.
- 3.12 Given the very narrow width on the central reserve, it would be necessary to provide a concrete barrier in the central reserve between opposing traffic in the two offside lanes. Concrete barrier obscures forward visibility, and due to the horizontal curvature of the road, forward visibility for traffic in the westbound offside lane would be reduced below acceptable minimum levels over a length of 380 metres. Similarly, the barrier would reduce forward visibility on the westbound approach to the traffic signals at Weydon Lane.
- 3.13 It would not be safe for pedestrians to use the very narrow (0.5 metre) verges alongside the reduced lane width dual carriageway, beneath the bridge. In order to maintain pedestrian access along the south side of the A31 corridor, it would be necessary to provide ramps up to Firgrove Hill. This would introduce a very significant disadvantage for pedestrians and cyclists.
- 3.14 This option would be considerably more costly than the addition of a single lane. Construction of the major scheme could commence in five years. The major scheme would make the pedestrian ramps to Firgrove Hill redundant, since pedestrian and cycle facilities would be provided in the verges beneath a reconstructed Firgrove Hill Bridge, so the additional capital investment associated with this option would be written off in a comparatively short period of time.

Rejected option: An additional eastbound lane

- 3.15 It would be possible to provide an additional lane in the eastbound direction rather than westbound, but this option is not recommended.
- 3.16 The worst congestion tends to be in the westbound direction, with three lanes at the stopline at Hickleys Corner merging to a single lane on the approach to the bridge. Even at off-peak times this merging traffic moves slowly, sometimes backing through the junction.

Rejected option: An additional lane operating as a tidal lane

- 3.17 An additional lane operating tidally has been considered. The potential benefits are that the direction of the extra lane could be switched to suit demand, eastbound towards London in the morning and westbound in the afternoon.
- 3.18 However this option is not recommended, for the following reasons:-
- 3.19 Traffic flows on the A31 are not markedly tidal, and generally westbound traffic flows are higher than eastbound flows during both peak hours, as the following table illustrates.

	Morning peak	Evening peak
A31 Eastbound	1689	1360
A31 Westbound	1807	2080

2002 A31 Traffic flows at Firgrove Hill Bridge

- 3.20 Tidal flow systems are not widely used in the UK, and some drivers may find the such an arrangement confusing, which in turn may result in accidents. Driver error in using the tidal lane in the wrong direction has very serious safety consequences, with the potential for head on collisions at closing speeds of around 100mph.
- 3.21 For safe operation it would be desirable for the tidal lane to have forward visibility to a standard for full overtaking, since drivers may be tempted to use the tidal lane to attempt to overtake, or in error as described above. At 50mph this would require forward visibility of 490 metres, but given the constraint of the existing bridge, forward visibility of only 120 metres can be provided
- 3.22 There are potential safety issues due to the presence of the two signal controlled functions at Hickleys Corner and Weydon Lane, introducing

side road traffic very close to the start and end of a tidal system. Drivers may confuse the green ahead arrow signals associated with the tidal lane with the traffic signals at the junctions at either end of the system.

4. HICKLEY'S CORNER

PROPOSED SCHEME

- 4.1 The proposed modifications at the Hickley's Corner junction are shown on drawing number MWMSB/03A.
- 4.2 The modifications are primarily aimed at improving conditions for pedestrians and cyclists by reducing the width of carriageway that has to be crossed on the A31, widening central reserve widths and introducing new 'green man' signal control on arms that are currently uncontrolled.
- 4.3 In the westbound direction the number of ahead lanes are reduced from three to two, and the dedicated left turn lane to Station Hill is extended in length.
- 4.4 In the eastbound direction two ahead lanes and a dedicated left turn lane are provided, as at present.
- 4.5 Signal control with pedestrian phasing is introduced for the left turn movement from South Street to the bypass eastbound. Similarly, signal control with pedestrian/ cyclist phasing is introduced for the left turn movement from Station Hill to the bypass westbound.
- 4.6 A pedestrian/cycle crossing is introduced across Station Hill.
- 4.7 The A31 central island is widened to create more space for pedestrians and cyclists.

SCHEME DEVELOPMENT

- 4.8 Options for introducing right turn movements from the A31 to both South Street and Station Hill have been investigated but rejected. Additional phases would be required for these movements, which would reduce the amount of green time available for all other movements, and result in an unacceptable increase in congestion.
- 4.9 In the westbound direction, a pedestrian refuge between the tow A31 ahead lanes and the dedicated left turn lane into Station Hill was included in earlier proposals. Carriageway widening would be required on the corner of Station Hill to accommodate this modification. Returns have recently been received from some utility companies, which indicate that the resultant cost of diverting underground equipment

would exceed £75,000. In view of this high cost, the pedestrian refuge has been omitted from the proposals.

- 4.10 Surrey County Council have agreed that the Transport research Laboratory (TRL), sponsored by central government, should undertake a trial for alterations to the phasing of the Hickley's Corner traffic signals. Known as 'double greening', the change would involve running the A31, then Station Hill, the A31 again and then South Street (the current phasing is A31, then both side streets). The A31 phases would be more frequent, but of shorter duration, with the amount of green time for the two side roads much as it is at present. The system is expected to improve the efficiency of the junction for all movements, the A31 in particular. Subject to TRL's programme, the trial should get underway in August. If, as expected, it proves a success, the same system could be adopted for the proposed scheme.
- 4.11 Suggestions have been received from a local cycle group for features at the junction that could improve amenity for cyclists (see consultations below). These suggestions are welcome, and will be investigated during detail design and incorporated as appropriate.

5. OPERATION AND CONGESTION

- 5.1 The modifications to Hickley's Corner, in combination with an additional westbound lane beneath Firgrove Hill, are expected to improve the efficiency of the junction, as well as benefiting pedestrians and cyclists.
- 5.2 In the westbound direction the existing three ahead lane are reduced to two, while the dedicated left turn lane into Station Hill is extended. The length of the left turn lane has been designed to accommodate queue lengths in both the left and ahead directions. This will reduce incidences where the left turn queue backs into the nearside lane of the bypass, hindering access to the ahead lanes, or the ahead queue denies access to the left turn lane.
- 5.3 Currently the three ahead lanes reduce to a single lane between the junction and Firgrove Hill, forcing traffic to slow to merge. The proposed scheme has two ahead lanes between the junction and the bridge, greatly smoothing the flow of traffic and the capacity in this direction.

6. CONSTRUCTION PROGRAMME AND PLANNING

- 6.1 The schemes are expected to take approximately 4 months to construct.
- 6.2 The A31 is one of the busiest roads in Surrey and detailed construction planning will be carried out to ensure disruption to traffic, and resultant impacts on Farnham Town, are kept to a minimum. Where possible off carriageway works will be carried out without lane closures. Lane

closures will only be imposed during off-peak hours. Works that require carriageway closures will be carried out overnight, with alternate way working under temporary signal control.

- 6.3 It would be possible to start the works in the late autumn, in which case they would span the Christmas period. However, to avoid potential disruption to the town during the important shopping season, it is planned that the works commence no earlier than mid-January 2003.

7. CONSULTATIONS

- 7.1 The interim measures are intended to improve the efficiency of the bypass and to improve pedestrian safety and amenity between the town and the station. The schemes are relatively remote from dwellings and other premises.
- 7.2 Given these considerations the proposals are seen as relatively non-contentious, and an exhaustive consultation exercise, such as a scheme specific public exhibition, has not been deemed necessary. Nonetheless, consultations have been carried out.

GETTING ABOUT IN FARNHAM EXHIBITION

- 7.3 The A31 interim measures were described in the July 2001 public exhibition 'Getting About in Farnham', which set out the whole of the Farnham Movement Package. The exhibition questionnaire included the question 'Do you think another lane westbound under Firgrove Hill Bridge will help reduce traffic in the town centre?' 831 responses to this question were received. 686 (83%) thought an extra lane would help reduce traffic in the town centre, and 145 (17%) thought it would not.

FARNHAM TRANSPORT CONSULTATIVE GROUP

- 7.4 The proposals were presented to the Farnham Transport Consultative Group meeting on 29 May 2002. The Group was established to discuss transport issues in and around the town, and membership is drawn from representatives of the local community, including the Chamber of Commerce, retailers, local societies, school representatives, residents associations, the emergency services and others.
- 7.5 Drawings of the proposals were issued to members of the Consultative Group, and members were asked to return any comments within two weeks. These drawings incorporated a pedestrian refuge between the A31 westbound ahead lanes and the dedicated left turn lane to Station Hill, which has subsequently been omitted from the proposals.
- 7.6 The only response received has come from Cycle Rights Network, who have suggested a number of detailed modifications at Hickley's Corner

to aid cycle movements. This is a desirable objective, and the suggestions will be examined and discussed during the detail design phase to ensure reasonable facilities for cyclists are incorporated in the works. These are likely to include wider 'toucan' crossings to accommodate both cyclists and pedestrians, and possibly short on-carriageway cycle lanes on the side road approaches (South Street and Station Hill).

EMERGENCY SERVICES

- 7.7 In early June letters were been sent to the emergency services (police, fire and ambulance), seeking their formal comments on the proposals. To date no replies have been received.

8. FINANCIAL IMPLICATIONS

- 8.1 The Executive allocated £630,000 of capital funding in the current financial year (2002/03) to the cost of constructing these schemes.
- 8.2 The estimated cost of the works described in this report is £750,000, including design, construction and site supervision.
- 8.3 Work is programmed to start in January 2003, is expected to take approximately 4 months to complete, so the construction period, and costs will span two financial years, 2002/03 and 2003/04.
- 8.4 The scheme has been sponsored by the Executive for the current financial year, without impinging on the allocation to this committee. A similar arrangement is anticipated in 2003/04 to meet the cost of completing the scheme

9. SUSTAINABLE DEVELOPMENT IMPLICATIONS

- 9.1 The modifications at Hickley's Corner are primarily aimed at improving conditions for pedestrians and cyclists travelling between the town centre, the station and residential areas to the south of the A31. A new, shared surface link is provided for pedestrians and Cyclists between Hickley's Corner and the Weydon Lane. This should encourage cycling and walking.
- 9.2 Improved efficiency of the bypass is expected to reduce traffic pressures in the town centre, particularly during peak hours, when motorists sometimes use the town to avoid congestion on the bypass.

10. CRIME & DISORDER IMPLICATIONS

10.1 There are no direct implications.

11. EQUALITIES IMPLICATIONS

11.1 There are no direct implications.

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BACKGROUND PAPERS:
