4. A5 TRUNK ROUTE - DUNSTABLE QUEUE RELOCATION SCHEME

1.0 PURPOSE OF REPORT

1.1 To update the Committee on the progress of "Greenwave" Scheme and other issues related to the A5 trunk route through Dunstable.

2.0 RECOMMENDATION

2.1 That the Committee notes the progress made in influencing changes to the scheme.

3.0 BACKGROUND

3.1 Extensive congestion, long traffic queues and delays at many locations in Dunstable town centre were everyday occurrences prior to the introduction of Dunstable Queue Relocation Scheme which is also known as the Greenwave project.

3.2 These problems were caused by high traffic flows along the A5 and A505 through the centre of Dunstable.

3.3 The double mini roundabout in the town centre regularly exceeded its capacity and gridlocks occurred bringing traffic to a standstill.

3.4 As part of the Government's multi-modal study, possibility of a bypass was being considered. But, in the meantime, it was necessary to do something to give the town centre more time to cope with ever increasing traffic problem.

3.5 In July 2002, the Highways Agency proposed a solution to the above problems which came to be known as the "Greenwave" project (figure 1). The measures contained in this solution were:

3.5.1 To relocate the build-up of the traffic that occurred along the A5 in the town centre to the outskirt of the built-up area of Dunstable.

3.5.2 Hold inbound traffic at the traffic lights at French's Avenue to the north, and Beech Road to the south.

3.5.3 To release pulses of traffic along the A5 towards the town centre. These waves of traffic will be monitored as they pass through the town and a traffic management control system will improve journey time along the High Street.

3.5.4 Reduce the level of congestion and queuing that occurs along the A5 and A505 to avoid traffic grid-lock at the town centre junction.

3.6 The expected benefits of the scheme were described as:

3.6.1 Improved journey times along the **High street**

3.6.2 Greater journey time reliability in the town centre for buses, motorists and other public transport.

3.6.3 Reduced congestion along the **High Street** making it more convenient to visit the shops, businesses and leisure facilities in the town.

3.6.4 Queues will be relocated to the outskirts of the town, but time will be recovered when inside these 'holding gateways'.

3.6.5 Improved environmental and pedestrian facilities in the town centre.

3.6.6 Safer pedestrian crossing facilities along the A5 in Dunstable.

4.0 IMPLEMENTATION OF THE DUNSTABLE QUEUE RELOCATION SCHEME

4.1 Introduction of the scheme

4.1.1 Recently, the Transport Secretary has announced a number of new schemes to relieve congested roads. These include a Dunstable Northern Bypass. However, in the interim period, the Dunstable Queue Relocation Scheme (Greenwave) is the main project aimed at achieving traffic related environmental and safety improvements in Dunstable Town Centre.

4.1.2 The situation prior to these changes was characterised by congestion and delays. As a measure of a level of congestion prior to the changes, in 1998, queues at the double mini-roundabout junction, extended approximately 600m northwards (during the morning peak) and 900m southwards (during the evening peak). Queuing on the West street and Church Street approaches to the junction were also significant. Queues at this and other junctions in town were subject to considerable daily variation. (Data from a report by Carillion URS for the Highways Agency)

4.1.3 By mid-summer of 2002, a number of changes had been implemented. These included:

4.1.3.1 A pedestrian environment improvement scheme for the full length of High Street North.

4.1.3.2 Two new signalised junction replacing the double mini-roundabout and the roundabout at A5/Houghton Road.

4.1.3.3 New PUFFIN crossings were installed to optimise pedestrian crossing times and keep traffic delay to a minimum.

4.1.3.4 Improvements to pavements and crossing points.

4.1.4 An important forecast benefit of the scheme was accident saving at newly signalised junctions in town and at the turning towards Caddington.

4.1.5 During the first half of 2003, signals and crossings on the A5 in Dunstable were linked into the SCOOT controlled system, operated by Bedfordshire County Council

The SCOOT System (Split Cycle and Offset Optimisation Technique) Offers benefits to road user by co-ordinating the operation of closely located signals in urban areas and can bring about more consistent journey times.

4.1.6 Starting from the mid-summer of 2003, validation of the SCOOT system was carried out.

4.1.7 During Periodic Consultation between the representatives of the Highways Agency and the District and Town Councils, other emerging problems were discussed and further refinement to the scheme were carried out.

4.2 Progress of the scheme

4.2.1 Next phase of the scheme was to introduce 'gating' at either end of the A5 through Dunstable. This would allow the traffic to be withheld at the following signalised junctions outside the town centre, thus controlling the volume of traffic entering the centre:

The junction of the A5 and French's Avenue, north of the Town;

The junction of A5 and Beech Road, South of the Town.

4.2.2 Firstly, signals were monitored under SCOOT without gating. Under certain ideal circumstances SCOOT may allow smooth flow of traffic without a need for 'gating'.

4.2.3 However, traffic patterns in the town centre did not allow this to happen and the northern gate was switched on towards the end of 2003.

4.2.4 The southern gate was switch on following implementation of further changes to staging pattern of the Town Centre traffic lights designed to improve traffic flow and better co-ordination with the nearby PUFFIN crossings. These changes were agreed during consultation with us.

4.2.5 The gates at either end are automatically switched on once a specified level of saturation has been reached on a critical link (in this case the junction of A5/Church Street/West Street). The gate will then restrain the traffic until the saturation at the critical link has ceased, or the queue at the gate has backed too far.

4.2.6 Queue length sensors will prevent the queues at either gate to extend beyond a set limit. This is to prevent lengthy queues which could encourage rat-running through the surrounding villages.

4.2.7 Once the queue length, at either gate, reaches the maximum allowed, that gates will automatically switch off and the traffic lights operations will revert back to default setting (ungated), for a period of ten minutes.

4.3 Journey time surveys

4.3.1 Carillion-URS, on behalf of the Highways Agency, undertook surveys to compare the journey times before and after the implementation of SCOOT.

4.3.2 Surveys in May 2000, prior to implementation of SCOOT consisted of large numbers of runs on both the A5 and on the main East-West route along Church Street and West Street, during AM peak, PM peak and off-peak periods.

4.3.3 Survey runs undertaken subsequent to SCOOT becoming operational were between February and June 2003.

4.3.4 Table 1 shows the Increase in general traffic levels on the A5 in Dunstable, between the 'before' and 'after' survey sets. The lowest increase in A5 traffic levels occurred in PM peak northbound and the highest in PM peak southbound.

4.3.5 Table 2 shows Changes in traffic flows after introduction of traffic signals in Dunstable. Automatic traffic counts were carried out at 15 sites in and around Dunstable for 1 week during May/June 2002 and again in May/June 2003.

4.3.6 The most significant increases occurred in Caddington, Kensworth and Lowther road. These increases, coupled with decreases in Dunstable town centre, need further investigation as they could indicate rat-runs to avoid delays through Dunstable.

5.0 CONCLUSION

5.1 At the heart of the scheme is the conversion, to signalised junction, of the double mini-roundabout at the High Street/Church Street/West Street junction and the roundabout at Houghton Road/High Street Junction.

5.2 The capacity of a roundabout is inherently greater than signalised junction as traffic signals introduce lost time between phases of green signals.

5.3 However, in Dunstable, the old roundabout did not work as efficiently as it should have because of the limited space available and congestion on the adjacent roads, which blocked back through the junction. Also the double roundabout had an above average number of accidents

5.4 The absence of more effective measures such as a significant reduction in long distance traffic through Dunstable has, effectively, left the introduction of the signals in conjunction with demand-responsive PUFFIN crossings as the only viable means of co-ordinating queues at the junctions and providing safe crossing points for pedestrians.

5.5 The Council, working closely with Dunstable Town Council, spent a considerable amount of time in representing community concerns to the Highways Agency and in most cases successfully, seeking appropriate changes to the scheme.

5.6 Changes to the scheme which were made as results of the above meetings included:

5.6.1 Better co-ordination of traffic lights at the High Street/Church Street/West Street junction with Nearby Puffin Crossings

5.6.2 More effective Staging/phasing pattern for the traffic lights at the above junction

5.6.3 Introduction of an indicative arrow for right turns from High Street North to West street to reduce risk of accidents

5.6.4 Introduction of indicative right turn arrow from Houghton Road to the A5

5.6.5 Repositioning of the pedestrian crossing green/red man lights to the correct height/side at several sites

5.6.6 Other road-safety, environmental improvements

5.7 As a results of regular consultations between the officers and District and Town Councillors representing Dunstable and Officers of the Highways Agency and their specialist Consultants Carillion-URS, changes have been made to the staging patterns, phasing and timing of traffic lights, improving their operation and co-ordination with the pedestrian crossings. These have noticeably, improved the flow of traffic and pedestrian safety.

5.8 However, there are other problems yet to be addressed. The most urgent of these is the difficulty associated with right-turns from West Street to High Street South. We are advised by Carillion-URS that they are aware of the problem but this is a particularly difficult problem to resolve.

5.9 The implication of SCOOT has not been beneficial in terms of reducing travelling times through Dunstable but there are signs its has reduced the variance of travelling times of the A5.

5.10 It should be noted that the A5 through Dunstable is characterised by a large number of pedestrian crossings which are necessary for the safety of pedestrians, particularly school children. This, as well, impacts on the flow of traffic and limits the effectiveness of technical solutions.

5.11 Road safety problem, particularly in areas west of Dunstable, is a major issue. This problem could increase if traffic flows, through the town centre, are further restricted causing rat-runs through these areas.

5.12 The District Council is currently in communication with the Highways Agency Route Manager for this section of the A5 and the County Council regarding the rat-running and road safety problems in Dunstable and surrounding areas.

5.13 As a number of changes have been made to the signals since the above survey was carried out, available data does not accurately describe the present situation.

5.14 We understand that the Highways Agency will be carrying out further survey in the near future. This survey should give us a better understanding of how the scheme is working.

5.15 We will continue our discussions with the Highways Agency and the County Council, working towards improving the performance of this scheme, as best as possible.

5.16 We are, at the same time, involved in discussions with the highway authorities about all other relevant transport issues, particularly that of the Dunstable Northern Bypass and the implications of the recent decisions on translink.

6.0 ENVIRONMENTAL IMPLICATIONS STATEMENT

6.1 This report is a progress report. Therefore, in terms of South Beds District Council's Corporate Environmental Policy, the recommendations are exempt from environmental assessment.

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Background Papers: List any documents which disclose facts or matters on which the report is based or been relied on to a material extent in preparing the report.

Table 2 Summary of traffic growth over survey period, taken from HA ATC site near Caddington, south side of Dunstable

		Flow (Veh/hr)		
		BEFORE implementation of SCOOT	AFTER implementation of SCOOT	*Growth (%)*
A5 Northbound	AM Peak	699	741	*+6%*
	PM Peak	1153	1189	*+3%*
A5 Southbound	AM Peak	1299	1387	*+7%*
	PM Peak	801	898	*+12%*

* Oct 2000 count used due to limited availability of data

3.2 ATC data for additional routes in and around Dunstable

Automatic traffic counts were carried out at 15 sites in and around Dunstable for 1 week during May/June in 2002 and again in May/June 2003. The following table summarises changes in the busiest traffic flows after the introduction of traffic signals in Dunstable between the dates of these counts. Changes of 10% or more are highlighted - increases in green, decreases in blue.

Table 3 Changes in Traffic Flows after introduction of traffic signals in Dunstable

	Monday - Friday						Saturday	
	Change 0700 - 0900		Change 1100 - 1400		Change 1600 - 1800		Change 1100 - 1400	
	Veh/h	*%*	Veh/h	*%*	Veh/h	*%*	Veh/h	*%*
A5 French's Ave	-289	*-26%*	+5	*<1%*	-188	*-17%*	-105	*-12%*
Brewers Hill Rd	-42	*-9%*	+12	*+5%*	-45	*-10%*	-29	*-8%*
Tottenhoe	-7	*-2%*	+3	*+2%*	+55	*-22%*	-11	*-7%*
Eaton Bray	-55	*-15%*	+18	*+15%*	+20	*+9%*	+12	*+7%*
Thorn Road	-18	*-3%*	+21	*+8%*	-68	*-11%*	-3	*-1%*
A5 High St North	-27	*-3%*	+13	*+2%*	-100	*-11%*	-269	*-35%*
Houghton Rd	+37	*+5%*	-33	*-6%*	-58	*-9%*	-115	*-17%*
Church St	-242	*-22%*	-153	*-16%*	-287	*-25%*	-212	*-20%*
A5 High St South	-92	*-11%*	-6	*<1%*	-58	*-7%*	-49	*-7%*
West St	-29	*-5%*	-7	*-1%*	-5	*<1%*	+3	*<1%*
Lowther Road	-4	*<1%*	+15	*+7%*	+50	*+13%*	-11	*-4%*
A5 Caddington Turn	+30	*+2%*	-7	*-1%*	+90	*+9%*	-55	*-8%*
Kensworth	+23	*+7%*	+12	*+6%*	+50	*+12%*	-3	*-1%*
Slip End								
Caddington	-7	*-1%*	+16	*+8%*	+135	*+39%*	+10	*+3%*

Note:
Peak flow changes are in busiest direction.
Busiest flows on Church Street are eastbound in both peaks
Busiest flows on West Street are westbound in both peaks
Busiest flows on High Street South are northbound in both peaks
Busiest flows on High Street North are tidal (am southbound, pm northbound)
Off peak and weekend flow changes are average of both directions.

Data from Carillin-URS report for the Highways Agency- July 2003

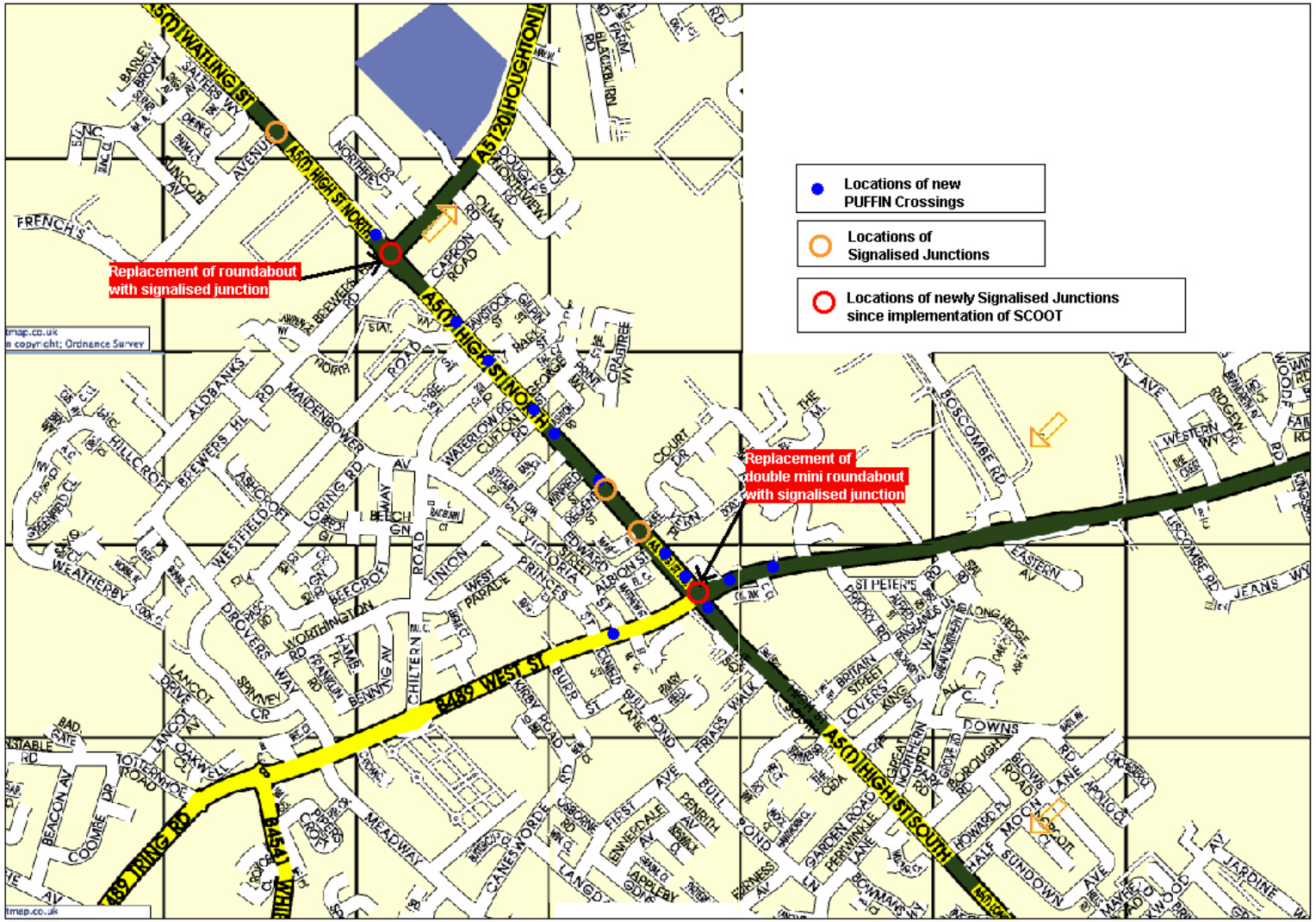

Figure 1

Location Plan of Crossings and signalised junctions in Dunstable Town Centre