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Technical Proposal

Scheme : Handy Cross, M40 SCOOT Review
Client : EnterpriseMouchel

Issue: 1.0 - Rev A

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to provide SCOOT proposals to EnterpriseMouchel for the operation of the existing motorway junction at Handy Cross near High Wycombe in Buckinghamshire. The junction is also known as M40 J4.

1.2 SCOPE

This document is limited to the description of a traffic control system to be implemented at the above site and is restricted to the proposed control strategy and the equipment required.

1.3 GLOSSARY

Terms and abbreviations used in this document are as defined in the document or elsewhere in the Department of Transport advice notes, TRL Application Guides and Siemens technical handbooks.

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1.4 ISSUE TATE AND AMENDMENTS

Issue No	Revision	Comments
1.0	A	First Issue

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2.0 EXECUTIVE SUMMARY

2.1 EXISTING SITE

Handy Cross is currently set up on the Reading Borough Council UTC system and is managed by Reading on behalf of EnterpriseMouchel.

There are currently seven streams of traffic configured for the whole gyratory system which is split between two Siemens ST800 traffic signal controllers. The south side has three streams and the north side four streams.

There are also a number of beehives which are used for detection around the gyratory for both controllers to house detection. On the north side there are four beehives and the south has three. There are also a number of beehives located for count detectors which are solar powered around the gyratory.

The site currently operates under Cableless Linking Facility (CLF) although it does have the facility to run UTC fixed time plans and SCOOT. There are also queue and speed loops located around the gyratory as well as.

There are crossing facilities on the North controller.

The sites are currently set up on the UTC database as follows:

South Side:

J81111 – M40 Off Slip
J81112 – A404
J81113 – Wycombe Rd

North Side:

J81121 – M40 Off slip
J81122 – John Hall Way
J81123 – Marlow Rd
J81124 - Marlow Hill

There are currently five scoot nodes set up on the system and they are as follows:

N81124 – A404 / CIRC North side (J81124)
N81122 - John Hall / CIRC (J81122 and J81123)
N81121 – M40 EB / CIRC (J81121)
N81112 – A404 / CIRC (J81112 and J81113)
N81111 – M40 / CIRC South side (J81111)

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2.2 FIXED TIME PLANS

There are various fixed time UTC plans for each junction and these are listed below. None of the plans are actually implemented in the timetable (A is gyratory, B is approach).

J81111

1	J81111	HANDY X SOUTH	CY060 A 3, B 42
2	J81111	HANDY X SOUTH	CY060 B 6, A 27
3	J81111	HANDY X SOUTH	CY080 A 28, B 78
4	J81111	HANDY X SOUTH	CY090 B 37, A 71
10	J81111	HANDY X SOUTH	CY060 A 14, B 55
11	J81111	HANDY X SOUTH	CY060 B 39, A 54
12	J81111	HANDY X SOUTH	CY080 B 3, A 31
13	J81111	HANDY X SOUTH	CY090 B 15, A 50
20	J81111	HANDY X SOUTH	CY090 B 0, A 15

J81112

1	J81112	HANDY X SOUTH	CY060 B 9, A 34
2	J81112	HANDY X SOUTH	CY060 B 31, A 47
3	J81112	HANDY X SOUTH	CY080 B 37, A 63
4	J81112	HANDY X SOUTH	CY090 B 21, A 43
10	J81112	HANDY X SOUTH	CY060 B 40, A 57
11	J81112	HANDY X SOUTH	CY060 B 5, A 35
12	J81112	HANDY X SOUTH	CY080 B 36, A 72
13	J81112	HANDY X SOUTH	CY090 A 12, B 54
20	J81112	HANDY X SOUTH	CY090 B 5, A 20

J81113

1	J81113	HANDY X SOUTH	CY060 B 28, A 43
2	J81113	HANDY X SOUTH	CY060 A 10, B 51
3	J81113	HANDY X SOUTH	CY080 A 10, B 67
4	J81113	HANDY X SOUTH	CY090 A 16, B 73
10	J81113	HANDY X SOUTH	CY060 B 14, A 34
11	J81113	HANDY X SOUTH	CY060 B 18, A 33
12	J81113	HANDY X SOUTH	CY080 A 3, B 57
13	J81113	HANDY X SOUTH	CY090 A 15, B 86
20	J81113	HANDY X SOUTH	CY090 B 8, A 23

J81121

1	J81121	HANDY X NORTH	CY060 B 7, A 24
2	J81121	HANDY X NORTH	CY060 B 7, A 24
3	J81121	HANDY X NORTH	CY080 A 14, B 73
4	J81121	HANDY X NORTH	CY090 A 13, B 79
10	J81121	HANDY X NORTH	CY060 B 14, A 31
11	J81121	HANDY X NORTH	CY060 A 0, B 43
12	J81121	HANDY X NORTH	CY080 B 6, A 25
13	J81121	HANDY X NORTH	CY090 B 7, A 27
20	J81121	HANDY X NORTH	CY090 B 13, A 31

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J81122

1	J81122	HANDY X NORTH	CY060 B 20, A 32
2	J81122	HANDY X NORTH	CY060 B 20, A 32
3	J81122	HANDY X NORTH	CY080 B 46, A 76
4	J81122	HANDY X NORTH	CY090 A 26, B 84
10	J81122	HANDY X NORTH	CY060 B 6, A 28
11	J81122	HANDY X NORTH	CY060 B 21, A 39
12	J81122	HANDY X NORTH	CY080 A 27, B 70
13	J81122	HANDY X NORTH	CY090 A 16, B 70
20	J81122	HANDY X NORTH	CY090 B 20, A 36

J81123

1	J81123	HANDY X NORTH	CY060 A 7, B 51
2	J81123	HANDY X NORTH	CY060 A 7, B 52
3	J81123	HANDY X NORTH	CY080 B 35, A 57
4	J81123	HANDY X NORTH	CY090 A 14, B 77
10	J81123	HANDY X NORTH	CY060 B 26, A 47
11	J81123	HANDY X NORTH	CY060 B 3, A 27
12	J81123	HANDY X NORTH	CY080 A 4, B 70
13	J81123	HANDY X NORTH	CY090 B 75, A 87
20	J81123	HANDY X NORTH	CY090 B 23, A 39

J81124

1	J81124	HANDY X NORTH	CY060 C 13, B 34, A 56
2	J81124	HANDY X NORTH	CY060 C 14, B 36, A 56
3	J81124	HANDY X NORTH	CY080 C 4, B 31, A 55
4	J81124	HANDY X NORTH	CY090 A 11, C 41, B 69
10	J81124	HANDY X NORTH	CY060 B 6, A 26, C 48
11	J81124	HANDY X NORTH	CY060 B 6, A 28, C 48
12	J81124	HANDY X NORTH	CY080 A 1, C 31, B 51
13	J81124	HANDY X NORTH	CY090 C 27, B 48, A 87
20	J81124	HANDY X NORTH	CY090 A 13, B 28, C 44

2.3 SCOOT PLANS

The SCOOT Plans for each node are as follows:

N81111

J81111 – (A0)1, (B0)2

N81112

J81112 – (A0)1, (A0, B6)2

J8113 – (A0, B10, A29)1, (A0)2

N81121

J81121 – (A0)1, (B0)2

N81122

J81122 – (A0)1, (A0, B6)2

J81123 – (A0, B8, A27)1, (A0)2

N81124

J81124 – (C0)1, (A0)2, (B0)3

The current SCOOT plans in the database will not work as the minimum stage lengths do not appear to have taken into account the various offsets within a stage.

2.4 SCOOT LINKS

The following SCOOT links are currently on each node as identified below

N81111 – Links A, B and C

N81112 – Links D, E and G

N81121 – Links A, B and C

N81122 – Links D, E and G

N81124 – Links H, I, J and K

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3.0 LOOP SURVEY

Following the loop survey which was carried out by Siemens Field Services and a SCOOT Engineer the following was found:

All loops were found to be working correctly and replying as they should.

All controllers and beehives were marked accordingly as to which loop was on each detector pack.

3.1 ADDITIONAL DETECTION

Following the survey the SCOOT Engineer highlighted the requirement for additional detection. These requirements are as follows:

3.2 SOUTHBOUND CONTROLLER

3 additional loops 1m in front of stop line from the approach from the M40 slip. There are loops in that position already but they are for counting and do not go back to the traffic signal controller

The SCOOT loop on Wycombe Road is currently 66m from the stop line. Ideally this should be 80m from the stop line. The existing duct does not go back that far.

3.3 NORTHBOUND CONTROLLER

Marlow Road, the existing loop is 56.4m from the stop line. This loop should be re-positioned at a distance of 85m from the stop line.

A copy of the survey sheet is attached in Appendix A from Field Services

A copy of the marked up drawing from the SCOOT Engineer is marked up in.

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4.0 SCOOT PROGRAM

Below is a program of what will be carried out as part of the SCOOT review

4.1 REVIEW DETECTION

The initial stage of this has been completed in identifying the loops on the ground. The next stage is to identify the loops on the O.T.U and ensure they correspond with the database, i.e. allocated correctly on the O.T.U.

4.2 UTC / SCOOT DATABASE

Amend the databases to reflect what is in the controllers and also set up the SCOOT data.

4.3 SCOOT VALIDATION

Carry out a week of validation on site of the individual junctions and look at offsets for progression around the gyratory.

4.4 NETWORK VALIDATION

Carry out a week of looking at the network as a whole and progression around the gyratory. Look at peak time flows.

4.5 UTC FIXED TIME PLANS

Create UTC fixed time plans using an average of the SCOOT plan by time of day. Amend / delete existing entries .

4.6 TIMETABLE

Amend the timetable accordingly to allow different plans to run at different times of the day.

4.7 SCOOT CONTROL

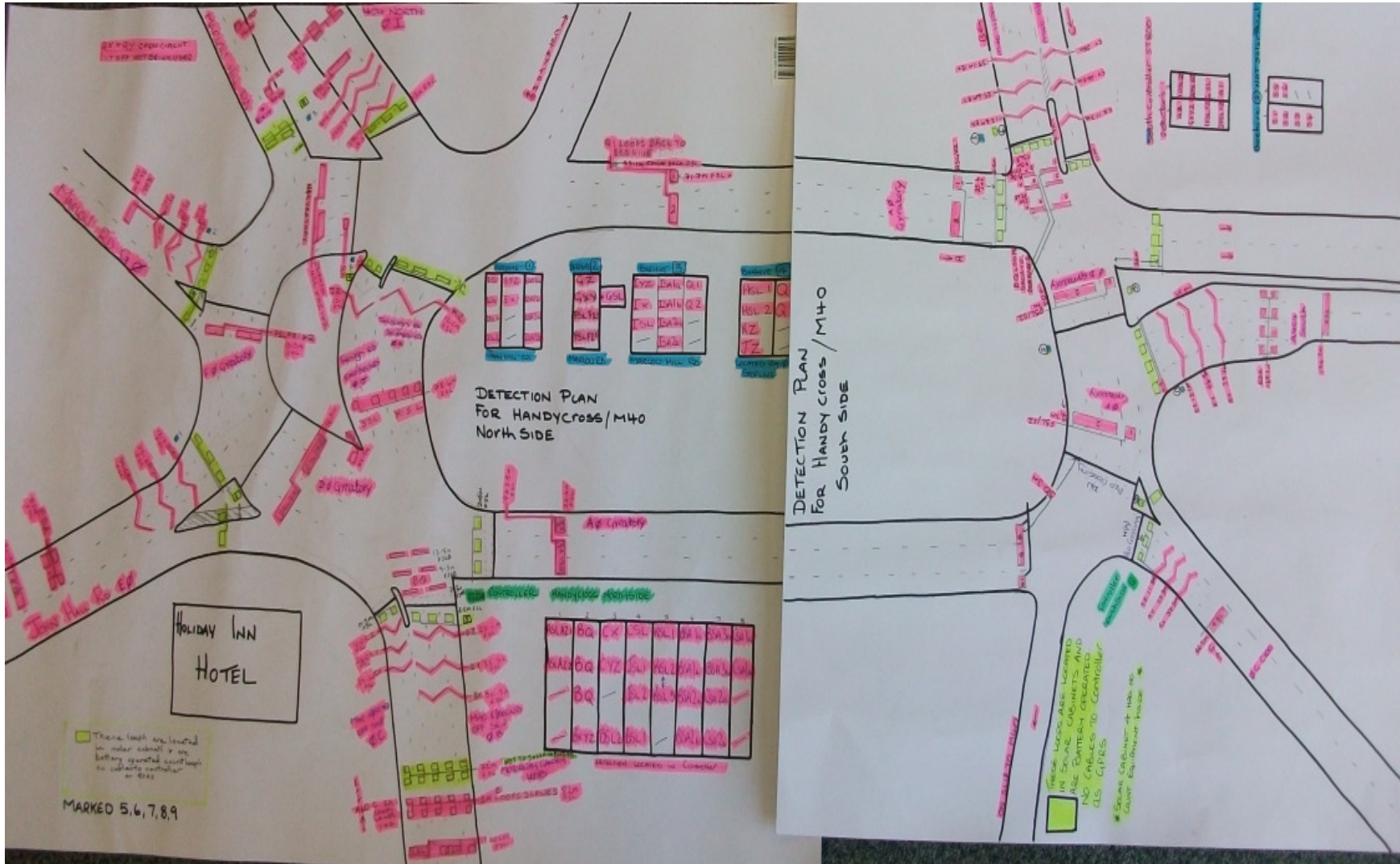
The aim is to leave the gyratory on SCOOT control and to have fixed time plans as a back up.

4.8 COMMUNICATION

With an ADSL line available at one of the controllers we will endeavour to have the sites upgraded to UTMC comms and brought back to Hampshire County Councils UTC system. This is reliant on the communication being available and all field work completed.

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APPENDIX A – FIELD SERVICE SURVEY



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APPENDIX B – SCOOT SURVEY

