London Borough of Barnet
Traffic & Development Design Team

Feasibility study

A1000 / CHURCH LANE JUNCTION
by MARTIN PRIMARY SCHOOL

Job Number:	60664
Doc Ref:	CorrA1000/60664
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Document History

Revision	Purpose	Originated	Checked	Approved	Date
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1. Introduction

Project Background

1.1 The Traffic and Development Team has been asked to carry out a feasibility study looking at the impact and benefits of providing traffic signals at the junction of the A1000 with Church Lane.

1.2 This feasibility study is being conducted following concerns expressed by local residents and parents of children attending Martin Primary School over pedestrian safety at that location.

1.3 Fig 1.1 below highlights the site's location.

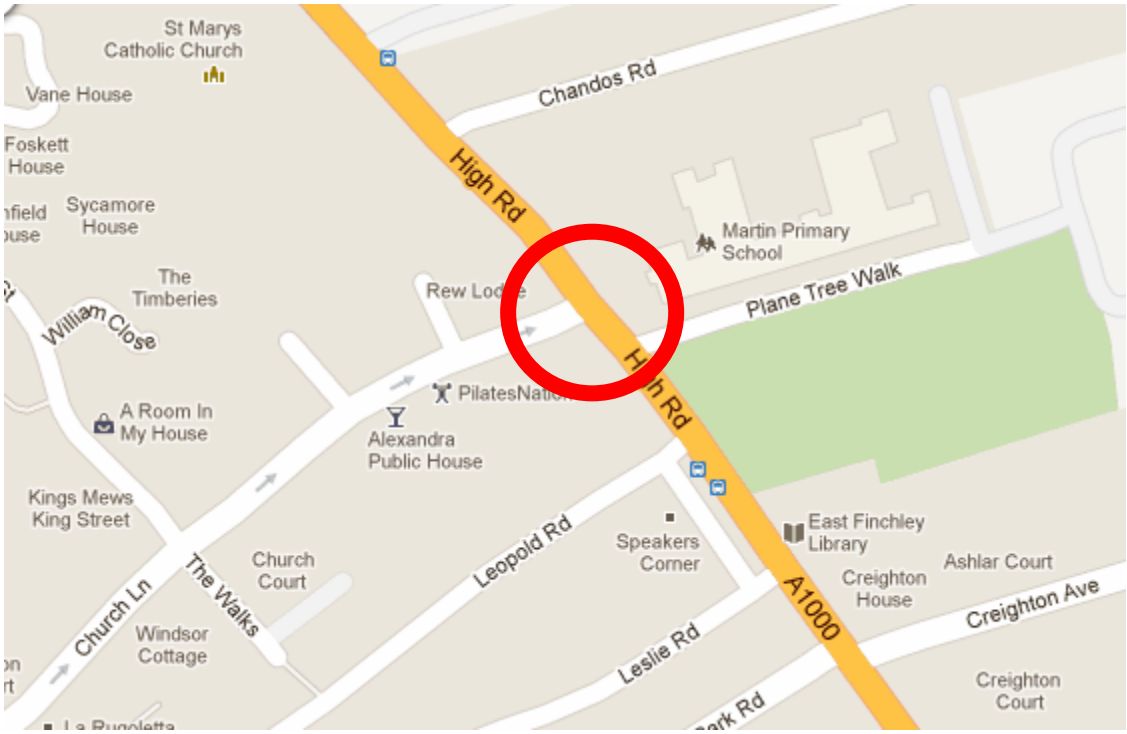


Fig 1.1 Location plan junction of A1000 High Road with Church Lane

2. Existing Site Characteristics

Current Layout

2.1 A plan showing the existing layout of the junction can be found in Appendix A.

2.2 The junction is a standard major-minor priority junction with a give way on Church Lane. Church Lane operates one-way eastbound.

2.3 A zebra crossing (in Church Lane) and a pelican crossing (across the southern arm of the A1000) are present to assist pedestrian movements at the site. Guardrails are erected around these crossings to channel the flow of pedestrians.

2.4 The entrance to Martin Primary School is located on the eastern side of the junction. The majority of pedestrian movements at the junction are linked to school activities and therefore concentrated around the morning drop off and afternoon pick up times.

2.5 A petrol station is located on the south western side of the junction with two vehicular accesses; one on the A1000, and one in Church Lane. Although access and egress is allowed at both, the majority of vehicles tend access the station from the A1000 and leave via Church Lane.

2.6 Designated parking bays are present along the A1000 on the south eastern side and both north the eastern and western sides of the junction. Unrestricted parking occur on the northern side of Church Lane approximately 40 metres from the junction.

Traffic Flows

2.7 Traffic flow at the junction have been obtained using the results of a classified manual count for traffic exiting Church Lane and an automated count for vehicles travelling along the A1000 both carried out in February 2012.

2.8 A 15% growth factor was applied to the count done for the A1000 to convert the results from vehicle numbers to Passenger Car Units (PCU).

2.9 Since pedestrian activity at the site is mainly linked with the school, the traffic flows studied were those for the morning drop off and afternoon pick up times when pedestrian crossing facilities are expected to be used the most thus reducing the junction's capacity.

2.10 Traffic flows on a typical weekday between 8:30-9:30am and 15:30-16:30pm are resented in table 2.1 overleaf:

Weekday: 8.30am-9.30am 15.30pm-16.30pm	A1000 North	A1000 South	Church Lane	Total
A1000 North	0 0	945 809	0 0	945 809
A1000 South	734 1011	0 0	0 0	734 1011
Church Lane	172 203	208 172	0 0	**380** **375**
Total	**906** **1214**	**1153** **981**	0 0	**2059** **2195**

Table 2.1: Current flow PCU.

2.11 As can be seen the flow of traffic along the A1000 is tidal with more traffic proceeding southbound in the morning and northbound in the afternoon. Turning movements out of Church Lane also present a tidal distribution.

2.12 Pedestrian numbers at the junction are at their highest during morning peak when in excess of 500 pedestrians pass through the junction.

Accident Statistics

2.13 Four slight personal injury accidents have occurred in the three years period between 1 January 2009 and 31 December 2011. A brief summary of these personal injury accidents is given below.

2.14 One was a rear end shunt in Church Lane 28m west of the junction involving two cars. This accident is the only one is this group to have happened outside daylight hours.

2.15 Two involved vehicles failing to give way when turning right out of Church Lane onto the A1000 one of which involved a motorcycle.

2.16 The last one involved an elderly passenger on board a local bus who fell as the bus moved from a stationary position when travelling northbound along the A1000 south of the pelican crossing.

2.17 The full detail of these accidents can be found in Appendix B of this report.

Current Junction Operation

2.18 The site operates as a priority junction with traffic in Church Lane giving way to traffic on the A1000. Traffic in Church Lane can move slowly and form rolling queue as on top of giving way to the A1000 it also give way to pedestrian using the zebra crossing.

2.19 Opportunities to come out of Church Lane are also affected by the operation of the pelican crossing. When the pelican crossing is activated gaps appear in the northbound flow allowing left turners to proceed. On the other hand vehicles willing to turn right out of Church Lane can be impeded to do so by southbound vehicles queuing at the stop line.

2.20 Traffic along the A1000 flows freely except when the pelican crossing is activated by pedestrian. Queues formed as a result are up to seven cars in lengths but clear fully once the right of way is re-established for the A1000.

2.21 Pedestrian movements around the junction appear to be well catered for by both the zebra and the pelican crossings.

2.22 The default recall time for pelican crossings is set at 20 seconds meaning that the maximum time someone would need to wait once the red man is on is 20 seconds.

3. Alternative Junction Control

Traffic Signal

3.1 In order to address the pedestrian safety concerns expressed at the location, three signalised layouts are being explored in this report.

3.2 The proposed traffic signal phases for the junction which are common to all three layouts are presented in Diagram 3.1 below.

- Phase A: A1000 southbound (traffic)
- Phase B: A1000 northbound (traffic)
- Phase C: Church Lane (traffic)
- Phase D: Green man for Church Lane (pedestrian)
- Phase E: Green man for A1000 (pedestrian)

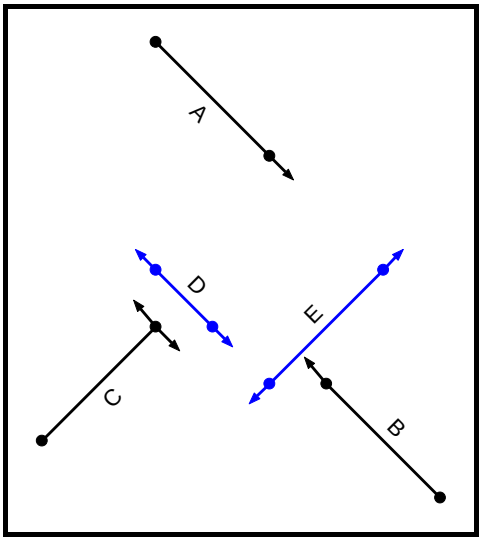


Diagram 3.1: Traffic signal phases.

3.3 The traffic signal sequence for this layout site would run first the main road, then the pedestrians, before finally allowing traffic in Church Lane to proceed. A representation of this sequence is given in Diagram 3.2 below.

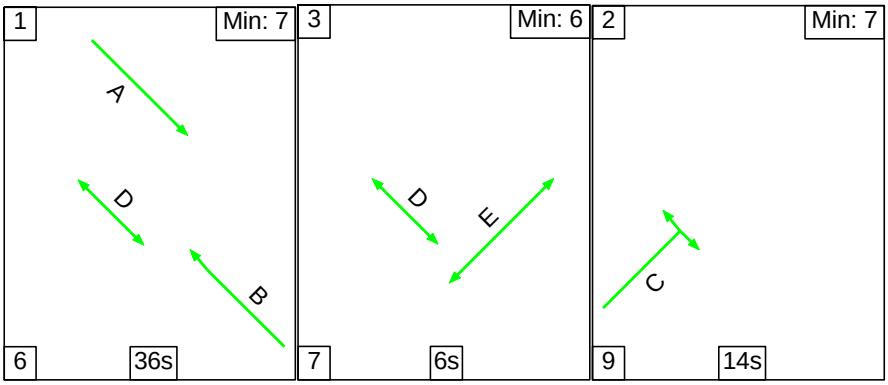


Diagram 3.2: Traffic signal sequence.

3.4 The maximum cycle time (one revolution of the traffic light sequence) has been set at 78 seconds to provide a balance between the need to assist pedestrians whilst keeping traffic moving at the junction. With a green man time of 6 seconds this means that the maximum waiting time for pedestrian who would have just missed out the green man invitation to cross would be 72 seconds.

Layout 1

3.5 The first layout is the simplest and proposes to maintain the pedestrian crossing for the A1000 and its associated stop line in their current locations.

3.6 Under this scenario a green man crossing would replace the current zebra crossing in Church Lane and stop lines will be placed to control

traffic coming out Church Lane and proceeding southbound along the A1000.

3.7 A copy of drawing number 60664_F_OPT1_01 presenting this layout can be found in appendix C.

3.8 Since the kerb lines around the junction will remain unchanged, there would be no need to protect or relocate underground services thus saving on potentially expensive works.

Layout 2

3.9 The second layout is similar to the first one apart from the fact that the existing pedestrian crossing location across the A1000 and its associated northbound stop line are moved north toward Church Lane.

3.10 This is to allow for a more compact junction layout to be achieved thus reducing the amount of lost time required in the timing of the traffic lights.

3.11 Should this layout be preferred further assessment would need to be made to ensure that the relocation of the crossing does not affect its popularity for pedestrians accessing the school.

3.12 A copy of drawing number 60664_F_OPT2_01 presenting this layout can be found in appendix C.

Layout 3

3.13 The third layout would see the provision of short flares on the three approach lanes to increase the capacity of the junction.

3.14 Kerb lines would need to be modified as a result thus substantially increasing the cost of implementing this layout compared with the other two. Ground investigations would need to be carried out to assert whether underground services would need to be relocated as a result and what the associated costs of such relocations would be.

3.15 Parking provisions around the junction and the southbound cycle lane would need to be reduced in order to provide the necessary merge distances along the A1000 to bring traffic back from two to one lane.

3.16 A copy of drawing number 60664_F_OPT3_01 presenting this layout can be found in appendix C.

Performance Comparison

3.17 The performances of each layout during the morning and afternoon peaks have been forecasted using the traffic modelling software Linsig.

3.18 Table 3.1 & 3.2 below present the degree of saturation, delay per vehicle, and average queue for each approach in the AM and PM peaks.

Link Num	Link Desc	Layout 1			Layout 2			Layout 3		
		Degree of Saturation (%)	Delay per Vehicle (s/PCU)	Mean Max Queue (pcu)	Degree of Saturation (%)	Delay per Vehicle (s/PCU)	Mean Max Queue (pcu)	Degree of Saturation (%)	Delay per Vehicle (s/PCU)	Mean Max Queue (pcu)
1/1	A1000 NB Ahead	79.5	25	15	79.5	25	15	69.1	17.7	12.1
2/1	A1000 SB Ahead	110.7	224.6	72.7	107.8	181.5	61.9	93.1	38.5	24.4
3/1	Church Lane Left and Right	109.8	248.3	30.8	109.8	248.3	30.8	91.5	72.3	12.3
Cycle Time (s): 78										

Table 3.1: Performance comparison AM peak

Link Num	Link Desc	Layout 1			Layout 2			Layout 3		
		Degree of Saturation (%)	Delay per Vehicle (s/PCU)	Mean Max Queue (pcu)	Degree of Saturation (%)	Delay per Vehicle (s/PCU)	Mean Max Queue (pcu)	Degree of Saturation (%)	Delay per Vehicle (s/PCU)	Mean Max Queue (pcu)
1/1	A1000 NB Ahead	109.5	205.1	72.9	109.5	205.1	72.9	95.2	43.1	28.2
2/1	A1000 SB Ahead	94.7	50.3	23.5	92.3	41.6	21.3	79.7	23	15.6
3/1	Church Lane Left and Right	108.3	229	28.3	108.3	229	28.3	90.3	68.7	11.7
Cycle Time (s): 78										

Table 3.2: Performance comparison PM peak

3.19 As can be seen the degree of saturation for all three layouts are high leading to delay and queues on all three approaches.

3.20 The compact format of layout 2 allows slightly better performances to be achieved for the A1000 southbound direction, although this improvement remains marginal.

3.21 Layout 3 performs best out of those reviewed due to the proposed two lane approaches at the junction. The results are however unsatisfactory with degrees of saturation in excess of 90%.

3.22 Full modelling output can be found in Appendix D

Cost Comparison

3.23 The estimated costs of implementing the various layouts are presented in table 3.3 below:

Item	Layout 1	Layout 2	Layout 3
Construction cost	£ 10,000	£ 12,000	£ 100,000
Protection of statutory services (tbc)	£ NA	£ NA	£ tbc with further studies
Traffic Signal supply and installation cost	£ 35,000	£ 35,000	£ 35,000
Professional fees to design, consult and Supervise the scheme	£10 000	£10 000	£20 000
Total	**£ 50,000**	**£ 52,000**	**£ 155,000**

Table 3.3: Cost comparison

3.24 As can be seen the first two options are similar in price whereas the third is three time more expensive. The main difference in cost is due to the required kerb line amendments to provide the two lane approaches for layout 3.

3.25 Note that the cost of relocating underground services would also need to be added to the estimate for layout 3. Should this layout be favoured further investigations would need to take place to ascertain these costs.

4. Discussion

4.1 All three proposed layouts would provide controlled green man crossings in Church lane and the A1000. While this might initially be perceived as an improvement for pedestrians, controlling the entire junction with traffic signals means that pedestrian waiting times will increase from a maximum of 20 to 72 seconds

4.2 Added delays would also be encountered when attempting to cross Church Lane and the A1000 in succession as the pedestrian phase cannot be made to accommodate the completion of both crossing movements in the same cycle. In the worst case scenario pedestrians might be asked to wait 72s for the first green man to appear and then

assuming that they have reached the second crossing point within 15s be required to wait another 63s for the green to appear on the second crossing. This would bring the overall time taken to use both crossing to two and a half minutes.

4.3 In terms of capacity wise there does not appear to be significant benefits in opting for the compact layout proposed in layout 2. As such should signalisation occur it is expected that the crossing for the A1000 would remain in its current location.

4.4 From a traffic perspective the queues and delays predicted as a result of signalising the junction are substantially worse than those currently experienced on site. While layout 3 performs better than the other two it is still not as efficient as the current layout and would come at a cost both financially and in term of loss of parking for the area.

4.5 The accident review done in chapter 2 shows that no pedestrian personal injury accidents have occurred at the location in the last three years.

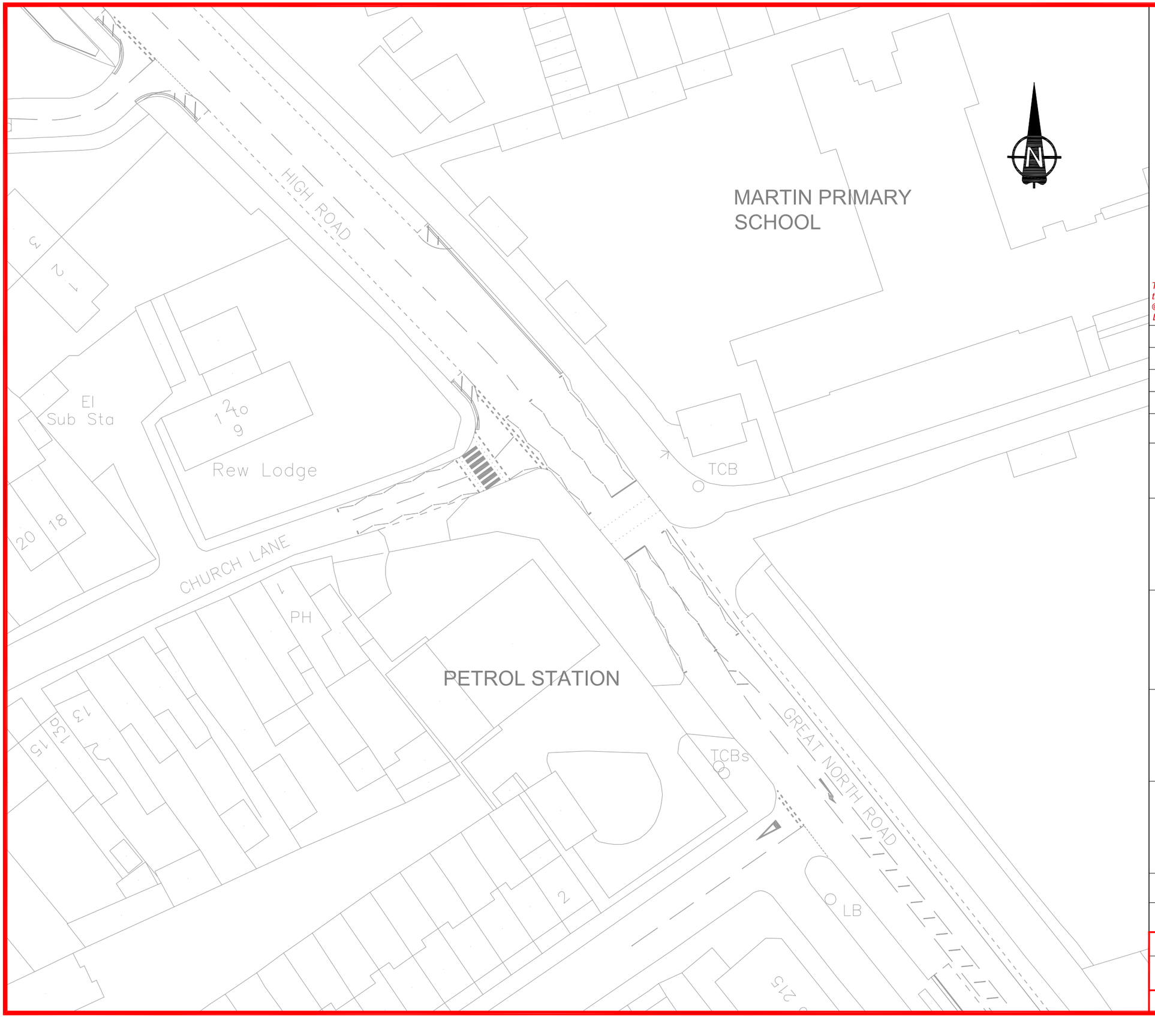
5. Conclusion & Recommendation

5.1 The design team was asked to assess the benefits of providing traffic signals to fully control the junction of the A1000 with Church Lane. This investigation was carried out in response to concerns over pedestrian safety at the junction expressed by parents and carers of pupils attending Martin School adjacent to the junction.

5.2 The review of three possible layouts showed that accommodating traffic signals at the junction would have a substantial detrimental effect on the movement of both pedestrians and traffic at the junction.

5.3 Given the absence of personal injury accidents involving pedestrians at the site in the last three year and the current presence of controlled pedestrian crossings at the site this report concludes that signalisation would not be appropriate for this site.

Appendix A: Existing Layout Drawing



NOTES:-

Revision and Date		Description	Initial

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BARNET
LONDON BOROUGH

DESIGN TEAM

SCHEME:
High Road / Church Lane Junction Review
-

TITLE:
Existing Layout
-
-

Scales: 1.500		Date: May 2012
Initiated: NR	Drawn: AA	Checked: LW

DRAWING NO:
60664_F_EX_01

Acad Ref. 60664_F_001

Appendix B: Personal Injury Accident Record

Accidents between dates **01/01/2009 and 31/12/2011** (36) months
Selection: **Notes:**
Selected using Build Query :

0109SX20058 30/01/2009 Thursday Time 1900 Vehicles 2 Casualties 1 Slight
Fine with high winds Road surface Dry Darkness: street lights present and lit
Special Conditions None Road Type Single carriageway
V2 HIT V1 FROM BEHIND AND THEN DROVE OFF
Occurred on CHURCH RD 28M W OF HIGH RD

Vehicle Reference 1 Car Slowing or Stopping
Not in restricted lane No skidding, jack-knifing or overturning
First point of impact Back Age of Driver 60 Breath test Driver not contacted
Vehicle direction NE to SW Driver Postcode HA1
FRV Not foreign registered vehicle Journey Other/Not known

Casualty Reference: 1 Age: 60 Female Driver/rider Severity: Slight

Vehicle Reference 2 Car Slowing or Stopping
Not in restricted lane No skidding, jack-knifing or overturning
First point of impact Front Age of Driver Breath test Driver not contacted
Vehicle direction NE to SW Driver Postcode Unknown
FRV Not foreign registered vehicle Journey Other/Not known

0110SX20341 27/03/2010 Friday Time 1901 Vehicles 3 Casualties 1 Slight
Fine with high winds Road surface Dry Darkness: street lights present and lit
Special Conditions None Road Type Single carriageway
V1 STRUCK ON N/S BY V2 MOVING FWD OUT OF SIDE ROAD
Occurred on HIGH ROAD J/W CHURCH LANE

Vehicle Reference 1 Car Slowing or Stopping
Not in restricted lane No skidding, jack-knifing or overturning
First point of impact Nearside Age of Driver 22 Breath test Negative
Vehicle direction NW to SE Driver Postcode EN5
FRV Not foreign registered vehicle Journey Commuting to/from work

Casualty Reference: 1 Age: 22 Male Driver/rider Severity: Slight

Vehicle Reference 2 Car Moving off
Not in restricted lane No skidding, jack-knifing or overturning
First point of impact Front Age of Driver 26 Breath test Negative
Vehicle direction NE to SW Driver Postcode N2
FRV Not foreign registered vehicle Journey Commuting to/from work
Vehicle Reference 3 Goods <= 3.5 tonnes mgw Parked
Not in restricted lane No skidding, jack-knifing or overturning
First point of impact Offside Age of Driver Breath test Driver not contacted
Vehicle direction Park to Parked Driver Postcode Unknown
FRV Not foreign registered vehicle Journey Other/Not known

0111SX20196 15/01/2011 Friday Time 1230 Vehicles 2 Casualties 1 Slight
Fine with high winds Road surface Dry Daylight:street lights present
Special Conditions None Road Type Single carriageway
V2 HAS TURNED RIGHT ACROSS PATH OF ONCOMING V1 CAUSING COLLISION.
Occurred on HIGH ROAD J/W CHURCH LANE

Vehicle Reference 1 Motorcycle over 125cc and up to 500cc Going ahead
Not in restricted lane No skidding, jack-knifing or overturning

Accidents between dates **01/01/2009 and 31/12/2011** (36) months
Selection: **Notes:**
Selected using Build Query :

First point of impact Front Age of Driver 30 Breath test Driver not contacted
Vehicle direction NW to SE Driver Postcode EN8
FRV Not foreign registered vehicle Journey Other/Not known

Casualty Reference: 1 Age: 30 Male Driver/rider Severity: Slight

Vehicle Reference 2 Car Turning right
Not in restricted lane No skidding, jack-knifing or overturning
First point of impact Offside Age of Driver 26 Breath test Driver not contacted
Vehicle direction SE to SW Driver Postcode N10
FRV Not foreign registered vehicle Journey Other/Not known

0111SX20567 04/07/2011 Sunday Time 0951 Vehicles 1 Casualties 1 Slight
Fine with high winds Road surface Dry Daylight:street lights present
Special Conditions None Road Type Single carriageway
PASSENGER HAS FALLEN AS V1 HAS MOVED OFF FROM STATIONARY POSITION. - [PASS FALLS AS V1 MOVES OFF (C001)]
Occurred on HIGH ROAD J/W CHURCH LANE

Vehicle Reference 1 Bus or coach Moving off
Not in restricted lane No skidding, jack-knifing or overturning
First point of impact Did not impact Age of Driver 48 Breath test Driver not contacted
Vehicle direction NW to SE Driver Postcode Unknown
FRV Not foreign registered vehicle Journey Other/Not known

Casualty Reference: 1 Age: 82 Female Passenger Severity: Slight

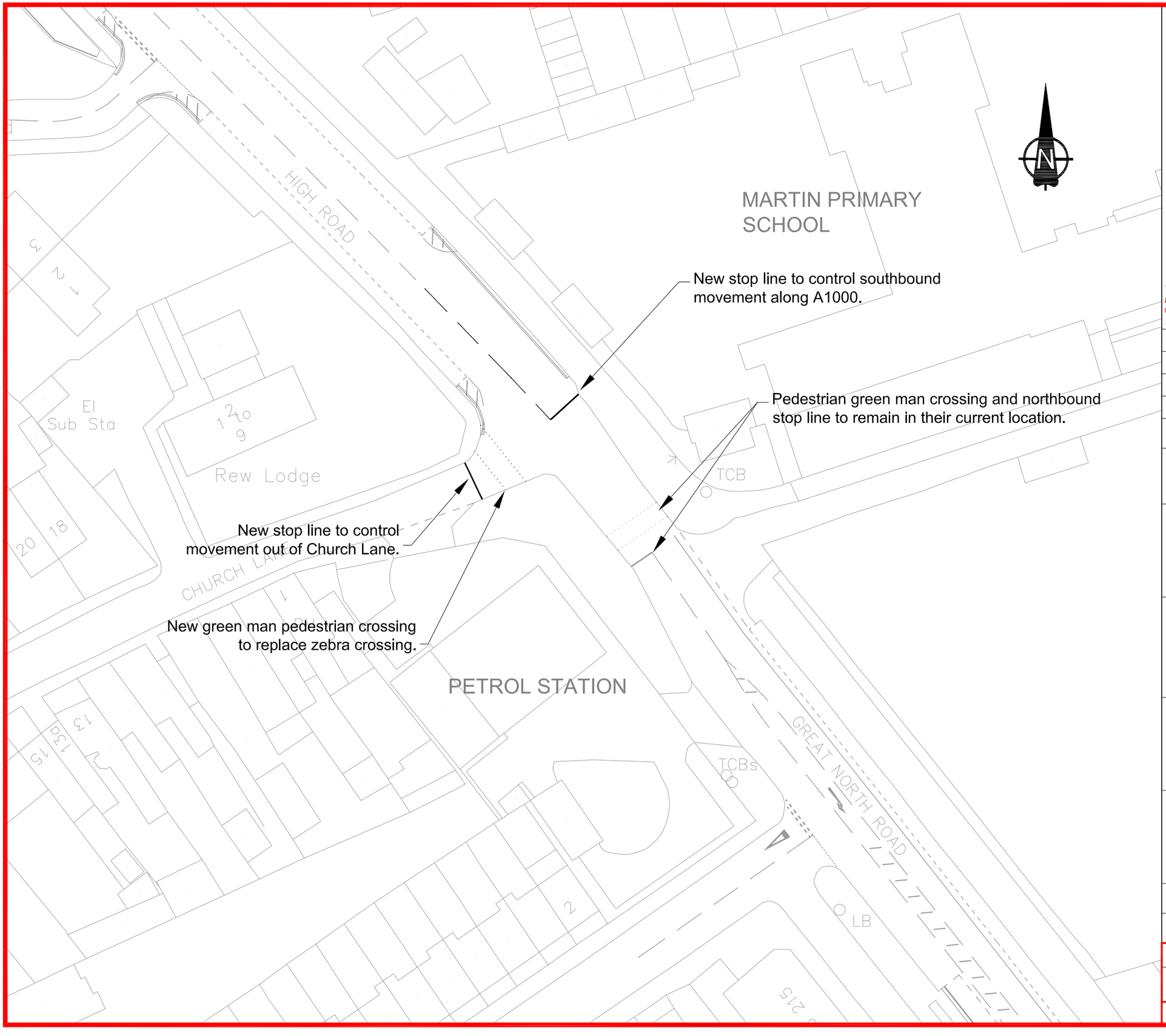
Accidents involving:

	Fatal	Serious	Slight	Total
Motor vehicles only (excluding 2-wheels)	0	0	3	3
2-wheeled motor vehicles	0	0	1	1
Pedal cycles	0	0	0	0
Horses & other	0	0	0	0
Total	0	0	4	4

Casualties:

	Fatal	Serious	Slight	Total
Vehicle driver	0	0	2	2
Passenger	0	0	1	1
Motorcycle rider	0	0	1	1
Cyclist	0	0	0	0
Pedestrian	0	0	0	0
Other	0	0	0	0
Total	0	0	4	4

Appendix C: Proposed Layouts



NOTES:-

Revision and Date		Description	Initial

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BARNET
LONDON BOROUGH

DESIGN TEAM

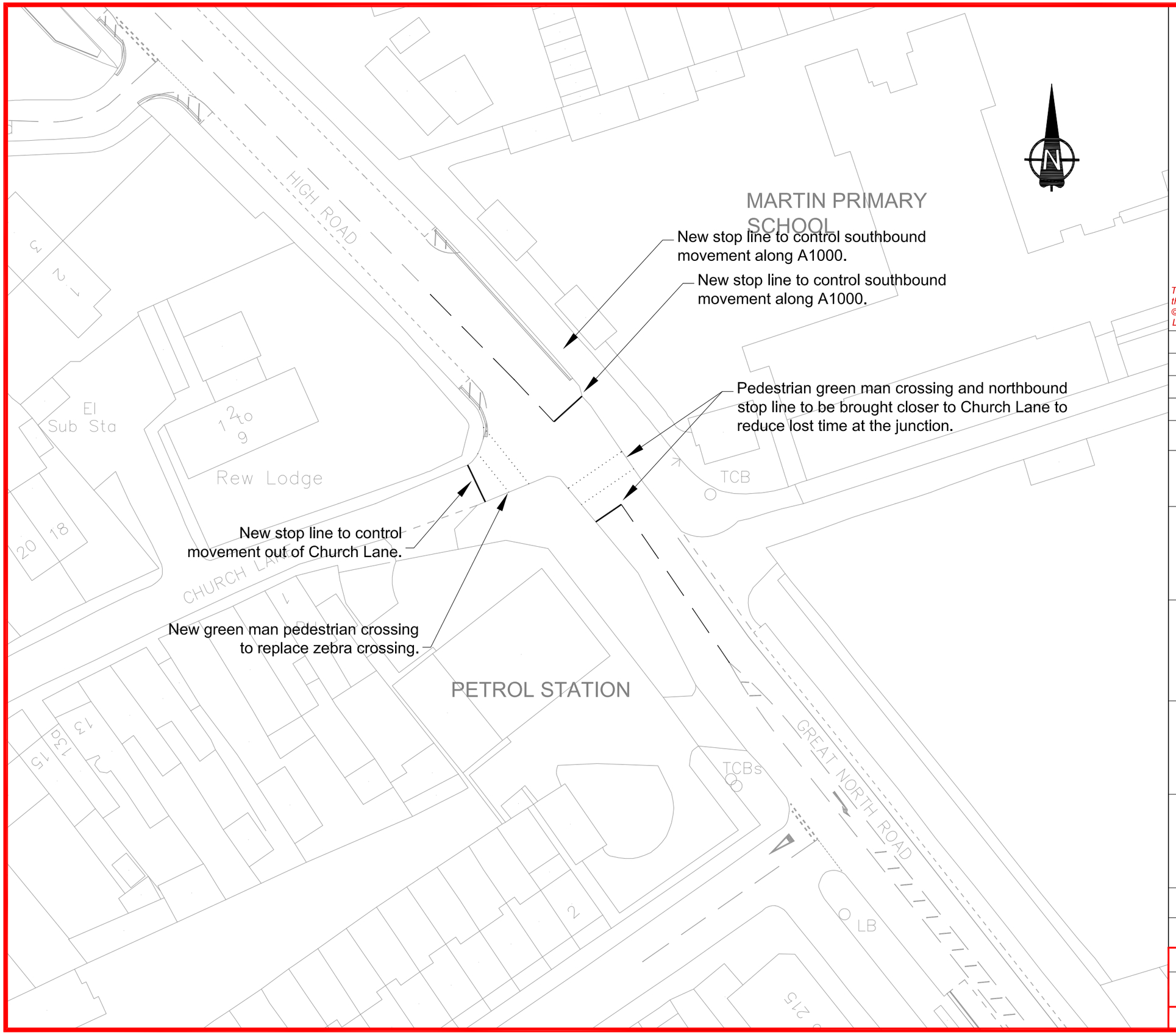
SCHEME:
High Road / Church Lane Junction Review
-

TITLE:
Proposed Layout Option 1
-

Scales: 1.500		Date: May 2012
Initiated: NR	Drawn: AA	Checked: LW

DRAWING NO: 60664_F_OPT1_01

Acad Ref. 60664_F_001



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Revision and Date		Description	Initial

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Interim Director of Environment, Planning & Regeneration

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BARNET
LONDON BOROUGH

DESIGN TEAM

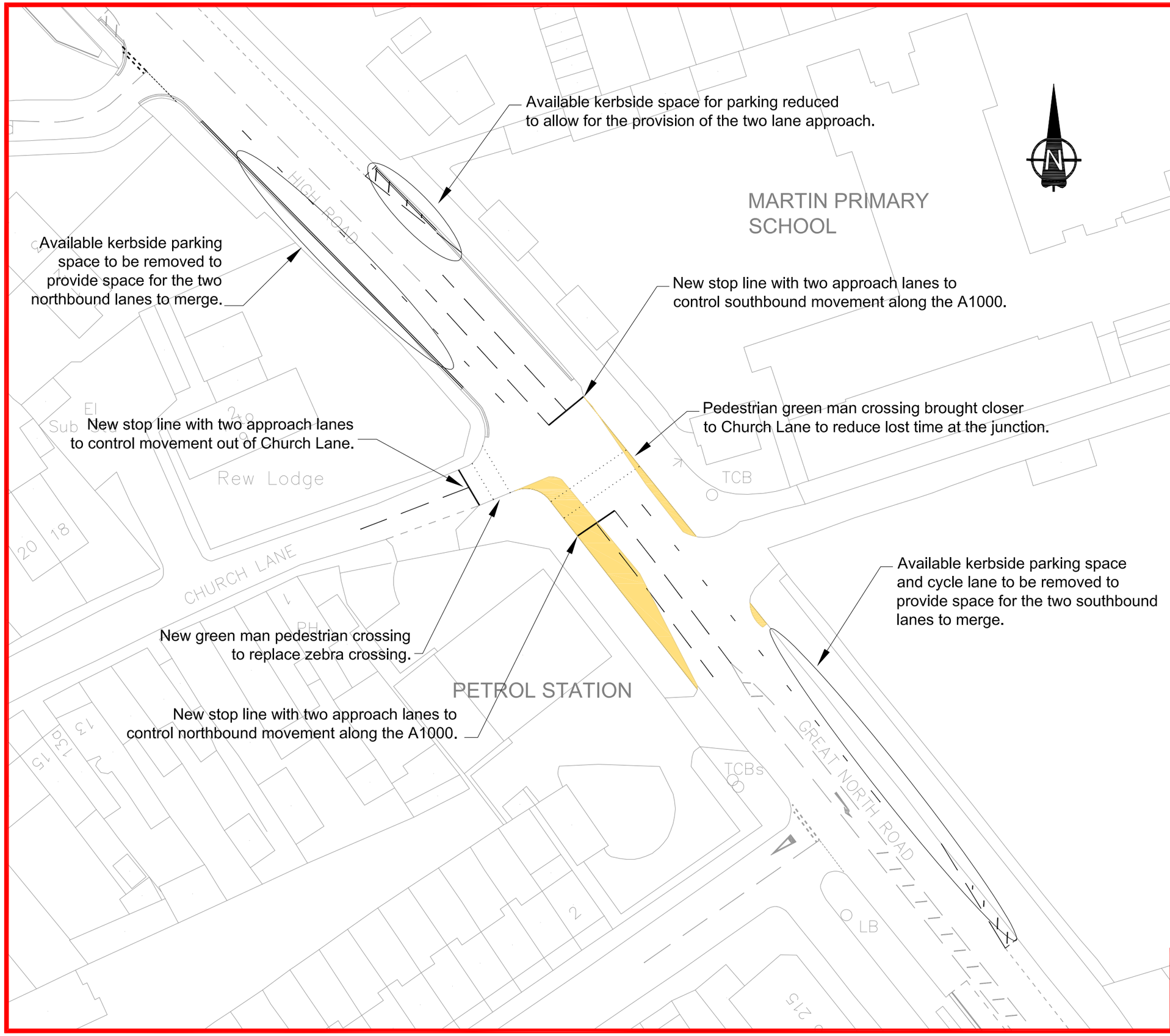
SCHEME:
High Road / Church Lane
Junction Review
-

TITLE:
Proposed Layout
Option 2
-

Scales: 1.500		Date: May 2012
Initiated: NR	Drawn: AA	Checked: LW

DRAWING NO:
60664_F_OPT2_01

Acad Ref. 60664_F_001



NOTES:-

Footway area to be converted to carriageway to enable road widening.

Revision and Date		Description	Initial

Pam Wharfe
Interim Director of Environment, Planning & Regeneration

North London Business Park
Oakleigh Road South
New Southgate N11 1NP
Tel. 020 8359 2000

BARNET
LONDON BOROUGH
DESIGN TEAM

SCHEME:
High Road / Church Lane Junction Review
-

TITLE:
Proposed Layout Option 3
-

Scales: 1.500		Date: May 2012
Initiated: NR	Drawn: AA	Checked: LW

DRAWING NO:
60664_F_OPT3_01

Acad Ref. 60664_F_001

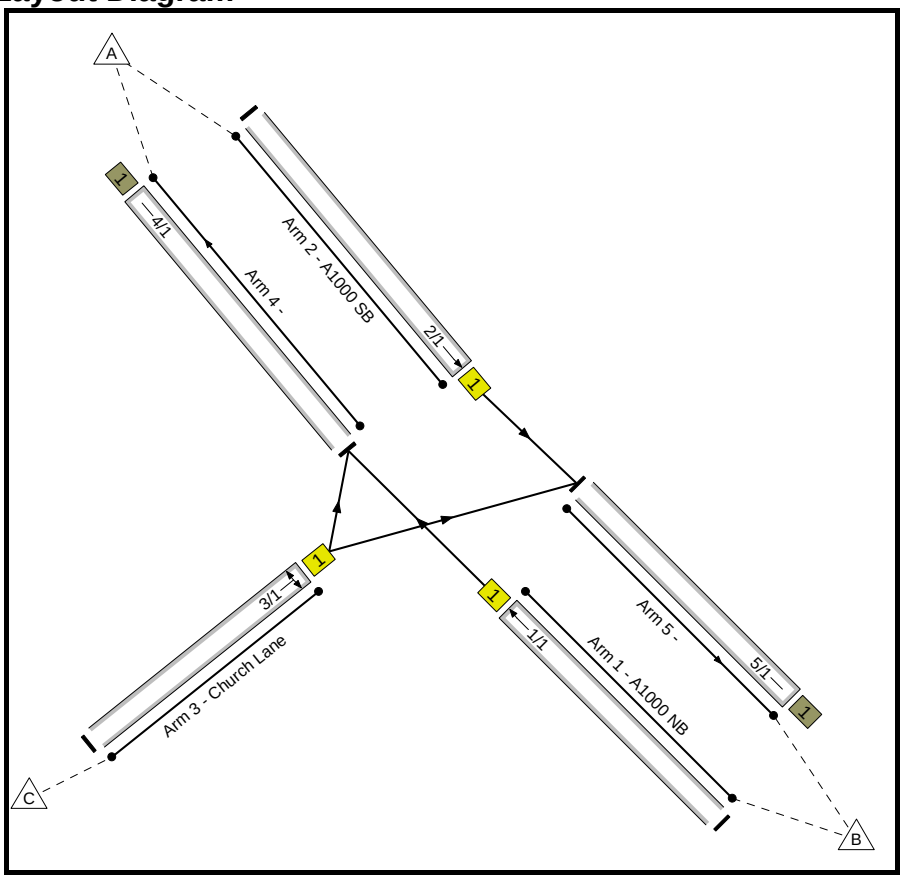
Appendix D: Modelling outputs

Full Input Data And Results

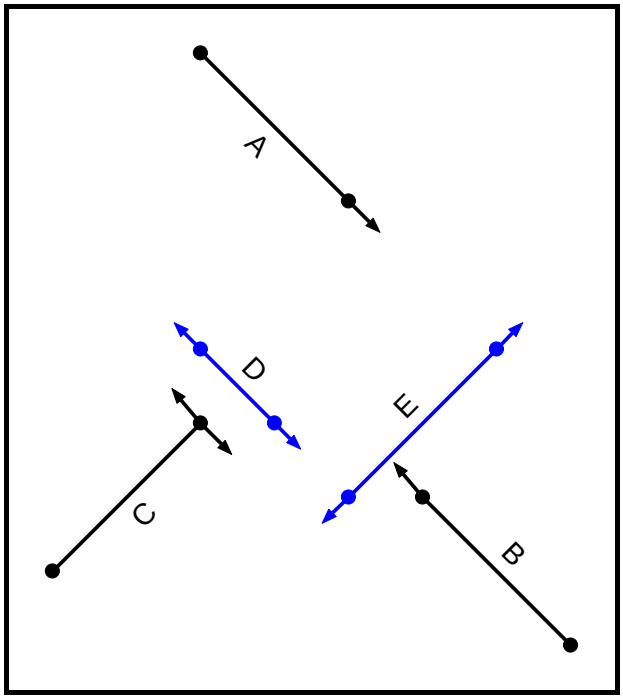
User and Project Details

Project:	**Signalisation Feasibility**
Title:	
Location:	A1000 High Road / Church Lane
File name:	A1000 Church La Opt1 wide.lsgx
Author:	Antoine Aubert
Company:	LBBarnet
Address:	
Controller:	Generic
SCN:	
Notes:	

Junction Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase type	Assoc Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	5
C	Traffic		7	7
D	Pedestrian		6	6
E	Pedestrian		6	6

Phase Intergreens Matrix

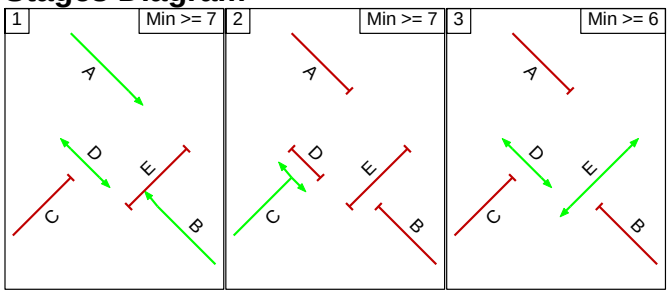
Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		-	5	-	7
	B	-		6	-	5
	C	6	5		5	8
	D	-	-	9		-
	E	9	9	9	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B D
2	C
3	D E

Full Input Data And Results

Stages Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	4	4
1	2	B	Losing	3	3
1	3	B	Losing	2	2

Prohibited Stage Changes

From Stage \ To Stage	1	2	3
1		9	7
2	6		8
3	9	9	

Link Input Data

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	A1000 NB Ahead	U	1	B	2	3
2/1	A1000 SB Ahead	U	1	A	2	3
3/1	Church Lane Left Right	U	1	C	2	3
4/1		U	1		2	3
5/1		U	1		2	3

Lane Input Data

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (A1000 NB Lane 1)	Link 1 (A1000 NB Ahead)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 4 Ahead	Inf
2/1 (A1000 SB Lane 1)	Link 1 (A1000 SB Ahead)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 5 Ahead	Inf
3/1 (Church Lane Lane 1)	Link 1 (Church Lane Left Right)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 4 Left	Inf
									Arm 5 Right	Inf
4/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Flow Group 1'	08:30	09:30	01:00	
2: 'Flow Group 2'	15:30	16:30	01:00	

Flow Group 1: 'Flow Group 1'

Traffic Flow Matrix

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	945	-	945
	B	734	0	-	734
	C	172	208	-	380
	Tot.	906	1153	-	2059

Link Traffic Flows

Arm/Link	Flow Group 1: Flow Group 1
1/1	734
2/1	945
3/1	380
4/1	906
5/1	1153

Lane Saturation Flows

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A1000 NB Lane 1)	This lane uses a directly entered Saturation Flow						1800
2/1 (A1000 SB Lane 1)	This lane uses a directly entered Saturation Flow						1800
3/1 (Church Lane Lane 1)	This lane uses a directly entered Saturation Flow						1800
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf

Flow Group 2: 'Flow Group 2'

Traffic Flow Matrix

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	809	-	809
	B	1011	0	-	1011
	C	203	172	-	375
	Tot.	1214	981	-	2195

Link Traffic Flows

Arm/Link	Flow Group 2: Flow Group 2
1/1	1011
2/1	809
3/1	375
4/1	1214
5/1	981

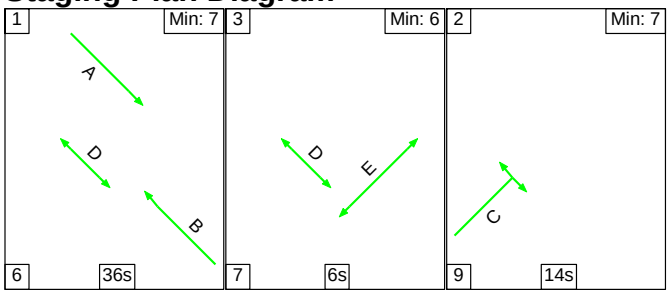
Lane Saturation Flows

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A1000 NB Lane 1)	This lane uses a directly entered Saturation Flow						1800
2/1 (A1000 SB Lane 1)	This lane uses a directly entered Saturation Flow						1800
3/1 (Church Lane Lane 1)	This lane uses a directly entered Saturation Flow						1800
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf

Scenario 3: 'Morning Drop Off Plan 2'

Staging Plan 2: 'Staging Plan No. 2'
Flow Group 1: 'Flow Group 1'

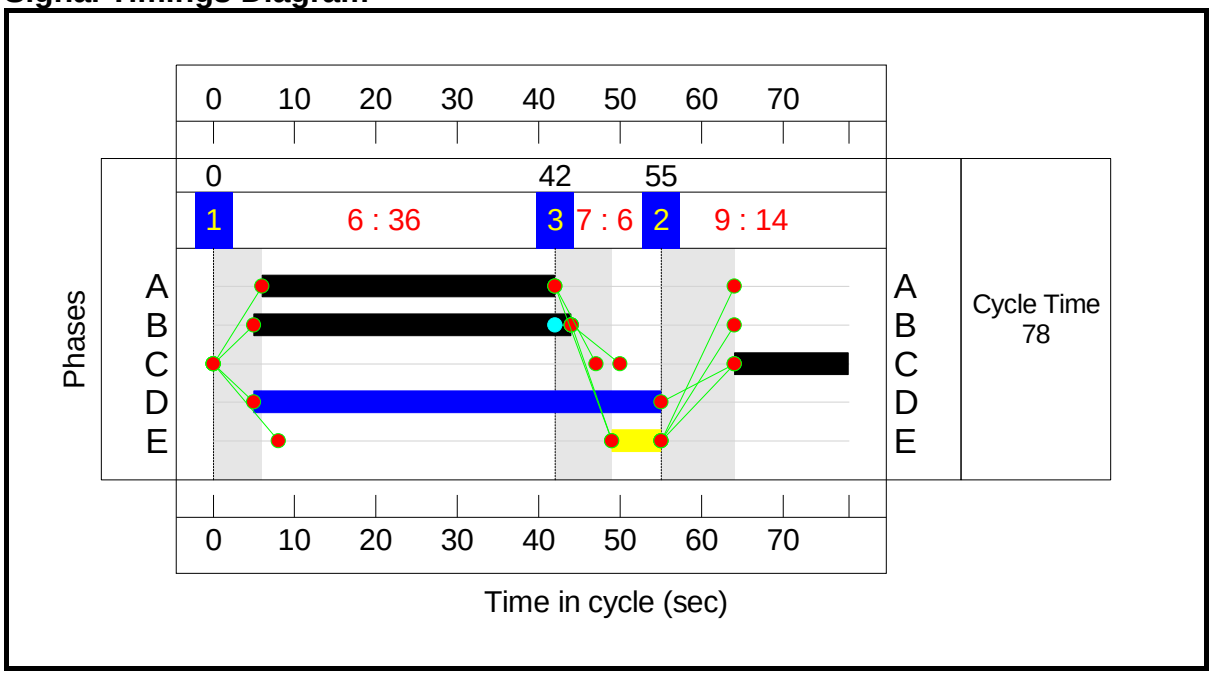
Staging Plan Diagram



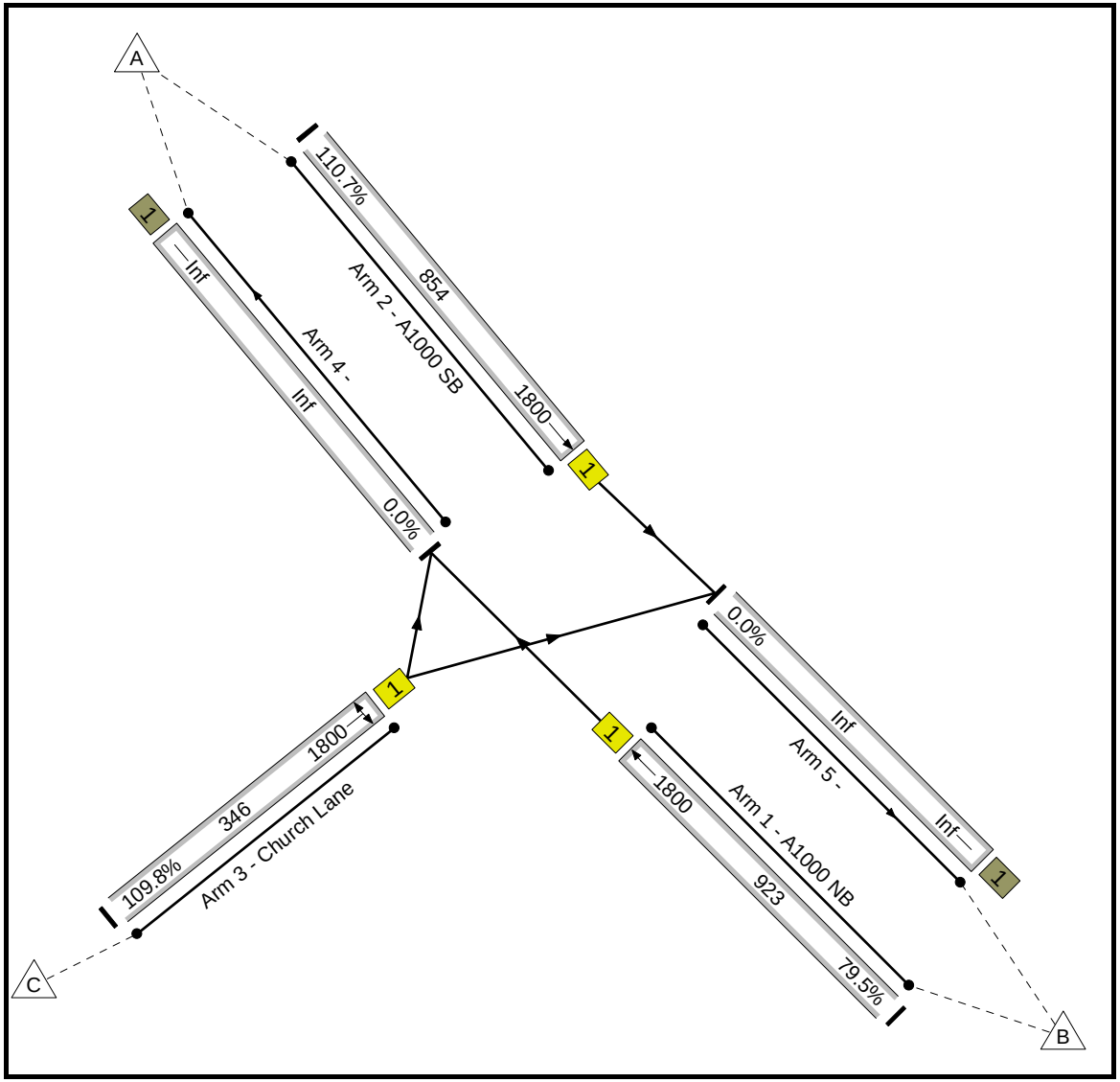
Stage Timings

Stage	1	3	2
Duration	36	6	14
Change Point	0	42	55

Signal Timings Diagram



Junction Layout Diagram



Link Results

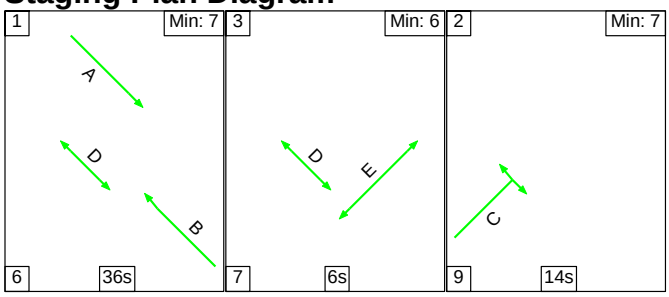
Link Num	Link Desc	Link Type	Stage Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Ave Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/1	A1000 NB Ahead	U	N/A	N/A	B		1	39	-	734	1800	1800	923	79.5
2/1	A1000 SB Ahead	U	N/A	N/A	A		1	36	-	945	1800	1800	854	110.7
3/1	Church Lane Left Right	U	N/A	N/A	C		1	14	-	380	1800	1800	346	109.8
4/1		U	N/A	N/A	-		-	-	-	906	Inf	Inf	Inf	0.0
5/1		U	N/A	N/A	-		-	-	-	1153	Inf	Inf	Inf	0.0

Link Num	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
1/1	734	734	-	-	-	3.2	1.9	-	5.1	25.0	13.0	1.9	15.0	
2/1	945	854	-	-	-	8.7	50.3	-	58.9	224.6	22.4	50.3	72.7	
3/1	380	346	-	-	-	4.8	21.4	-	26.2	248.3	9.4	21.4	30.8	
4/1	891	891	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
5/1	1043	1043	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	

PRC for Signalled Links (%): -23.0 Total Delay for Signalled Links (pcuHr): 90.25
PRC Over All Links (%): -23.0 Total Delay Over All Links(pcuHr): 90.25 Cycle Time (s): 78

Scenario 4: 'Afternoon Pick Up Plan 2'
Staging Plan 2: 'Staging Plan No. 2'
Flow Group 2: 'Flow Group 2'

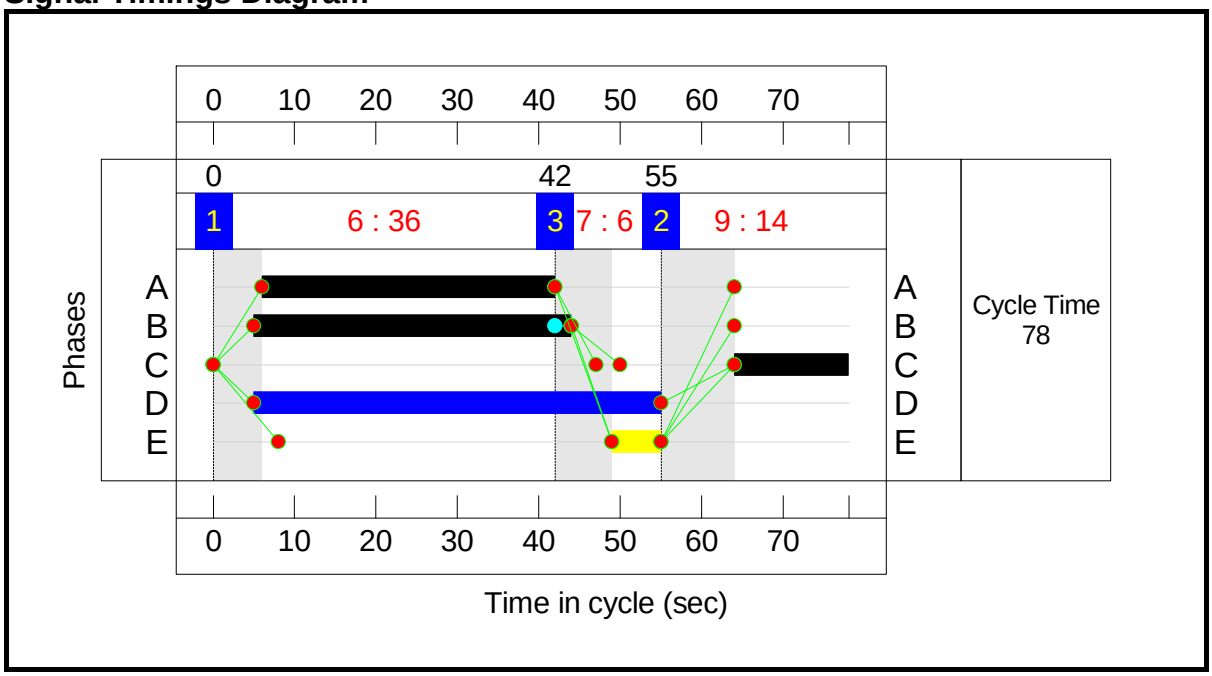
Staging Plan Diagram



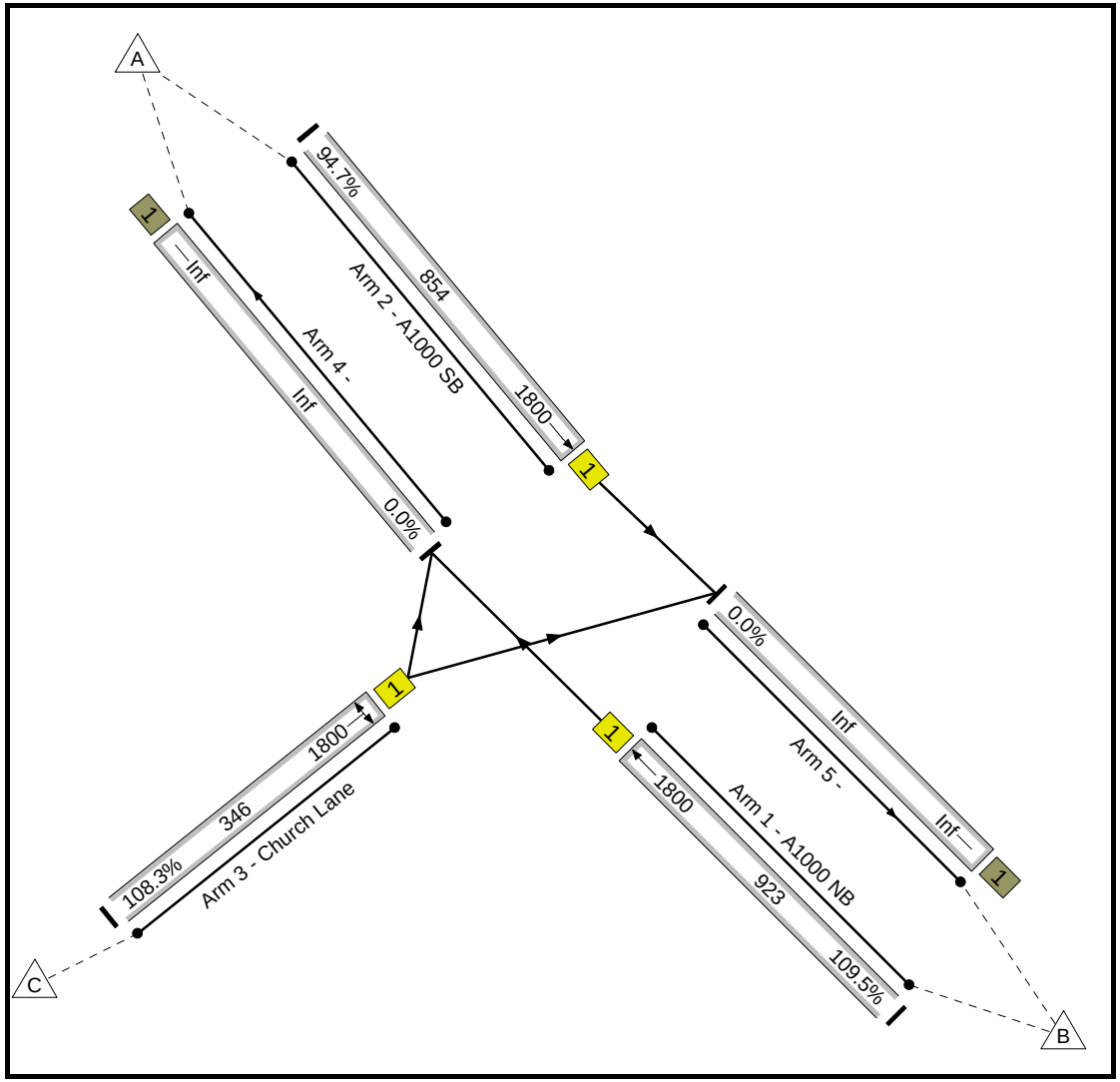
Stage Timings

Stage	1	3	2
Duration	36	6	14
Change Point	0	42	55

Signal Timings Diagram



Junction Layout Diagram



Link Results

Link Num	Link Desc	Link Type	Stage Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Ave Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/1	A1000 NB Ahead	U	N/A	N/A	B		1	39	-	1011	1800	1800	923	109.5
2/1	A1000 SB Ahead	U	N/A	N/A	A		1	36	-	809	1800	1800	854	94.7
3/1	Church Lane Left Right	U	N/A	N/A	C		1	14	-	375	1800	1800	346	108.3
4/1		U	N/A	N/A	-		-	-	-	1214	Inf	Inf	Inf	0.0
5/1		U	N/A	N/A	-		-	-	-	981	Inf	Inf	Inf	0.0

Link Num	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
1/1	1011	923	-	-	-	8.5	49.1	-	57.6	205.1	23.8	49.1	72.9	
2/1	809	809	-	-	-	4.4	6.9	-	11.3	50.3	16.6	6.9	23.5	
3/1	375	346	-	-	-	4.6	19.3	-	23.9	229.0	9.1	19.3	28.3	
4/1	1110	1110	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
5/1	968	968	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	

PRC for Signalled Links (%): -21.7 Total Delay for Signalled Links (pcuHr): 92.76

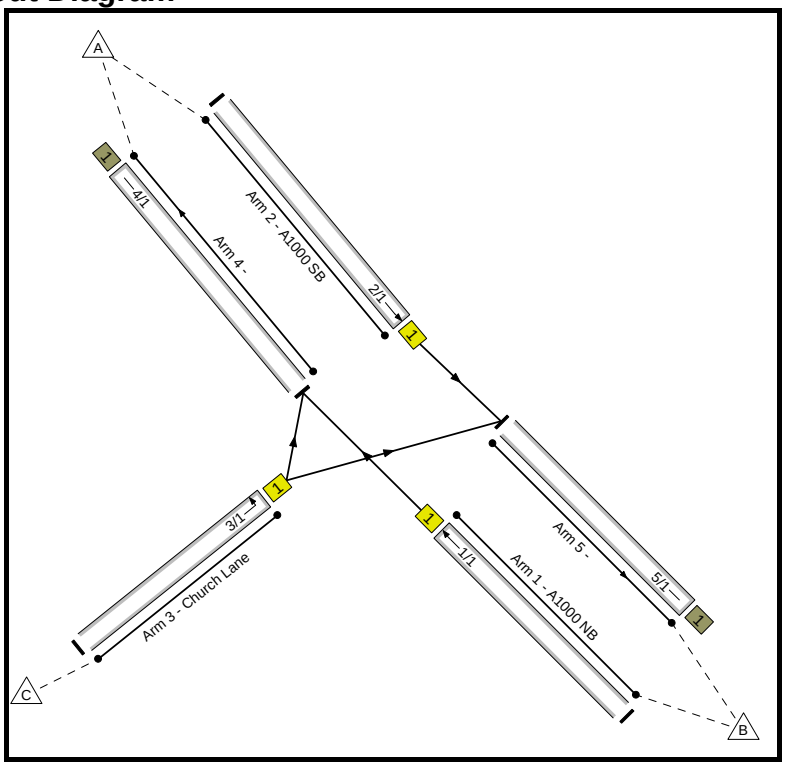
PRC Over All Links (%): -21.7 Total Delay Over All Links(pcuHr): 92.76 Cycle Time (s): 78

Full Input Data And Results

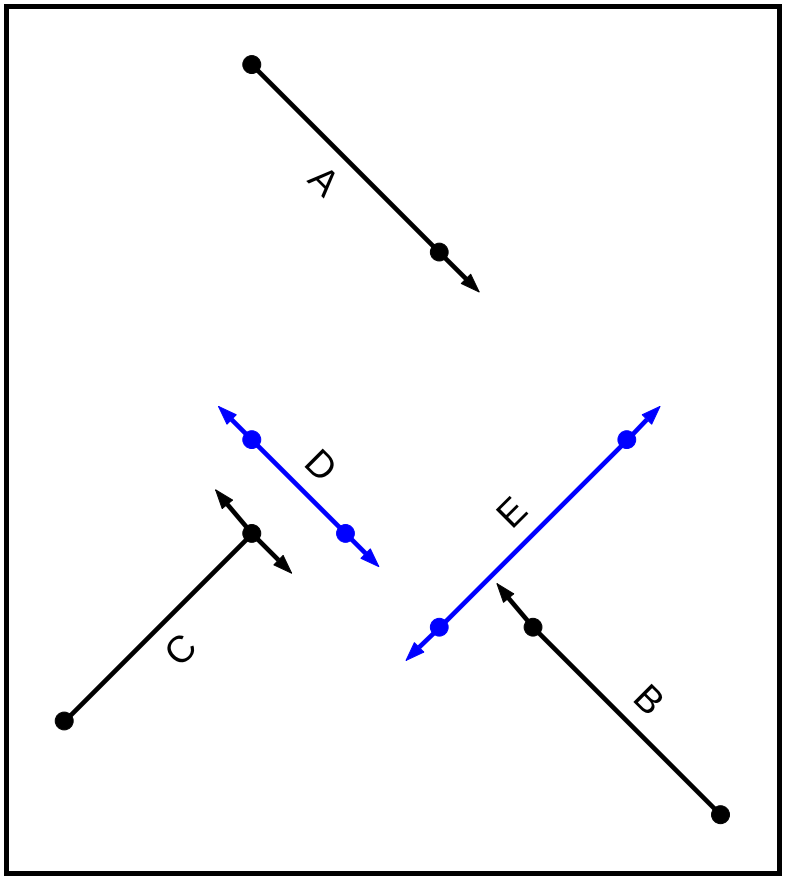
User and Project Details

Project:	**Signalisation Feasibility**
Title:	
Location:	A1000 High Road / Church Lane
File name:	A1000 Church La Opt2 compact.lsgx
Author:	Antoine Aubert
Company:	LBBarnet
Address:	
Controller:	Generic
SCN:	
Notes:	

Junction Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase type	Assoc Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	6
C	Traffic		7	7
D	Pedestrian		6	6
E	Pedestrian		6	6

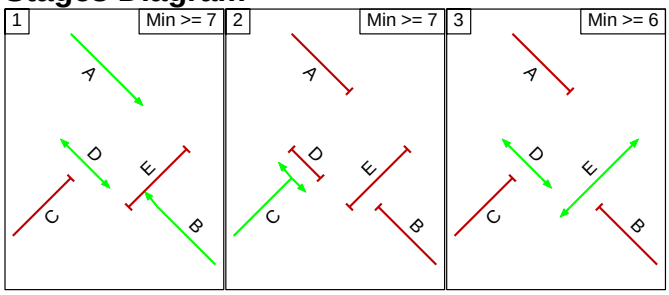
Phase Intergreens Matrix

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		-	5	-	6
	B	-		5	-	5
	C	6	5		5	7
	D	-	-	9		-
	E	9	9	9	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B D
2	C
3	D E

Stages Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	4	4
1	2	B	Losing	3	3
1	3	B	Losing	1	1

Prohibited Stage Changes

		To Stage		
		1	2	3
From Stage	1		9	6
	2	6		7
	3	9	9	

Link Input Data

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	A1000 NB Ahead	U	1	B	2	3
2/1	A1000 SB Ahead	U	1	A	2	3
3/1	Church Lane Left Right	U	1	C	2	3
4/1		U	1		2	3
5/1		U	1		2	3

Lane Input Data

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (A1000 NB Lane 1)	Link 1 (A1000 NB Ahead)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 4 Ahead	Inf
2/1 (A1000 SB Lane 1)	Link 1 (A1000 SB Ahead)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 5 Ahead	Inf
3/1 (Church Lane Lane 1)	Link 1 (Church Lane Left Right)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 4 Left	Inf
4/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Flow Group 1'	08:30	09:30	01:00	
2: 'Flow Group 2'	15:30	16:30	01:00	

Flow Group 1: 'Flow Group 1'

Traffic Flow Matrix

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	945	-	945
	B	734	0	-	734
	C	172	208	-	380
	Tot.	906	1153	-	2059

Link Traffic Flows

Arm/Link	Flow Group 1: Flow Group 1
1/1	734
2/1	945
3/1	380
4/1	906
5/1	1153

Lane Saturation Flows

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A1000 NB Lane 1)	This lane uses a directly entered Saturation Flow						1800
2/1 (A1000 SB Lane 1)	This lane uses a directly entered Saturation Flow						1800
3/1 (Church Lane Lane 1)	This lane uses a directly entered Saturation Flow						1800
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf

Flow Group 2: 'Flow Group 2'

Traffic Flow Matrix

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	809	-	809
	B	1011	0	-	1011
	C	203	172	-	375
	Tot.	1214	981	-	2195

Link Traffic Flows

Arm/Link	Flow Group 2: Flow Group 2
1/1	1011
2/1	809
3/1	375
4/1	1214
5/1	981

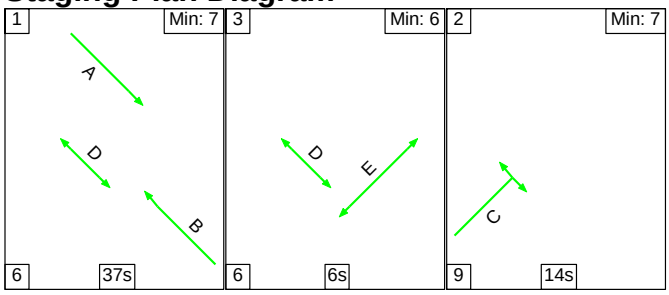
Lane Saturation Flows

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A1000 NB Lane 1)	This lane uses a directly entered Saturation Flow						1800
2/1 (A1000 SB Lane 1)	This lane uses a directly entered Saturation Flow						1800
3/1 (Church Lane Lane 1)	This lane uses a directly entered Saturation Flow						1800
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf

Scenario 3: 'Morning Drop Off Plan 2'

Staging Plan 2: 'Staging Plan No. 2'
Flow Group 1: 'Flow Group 1'

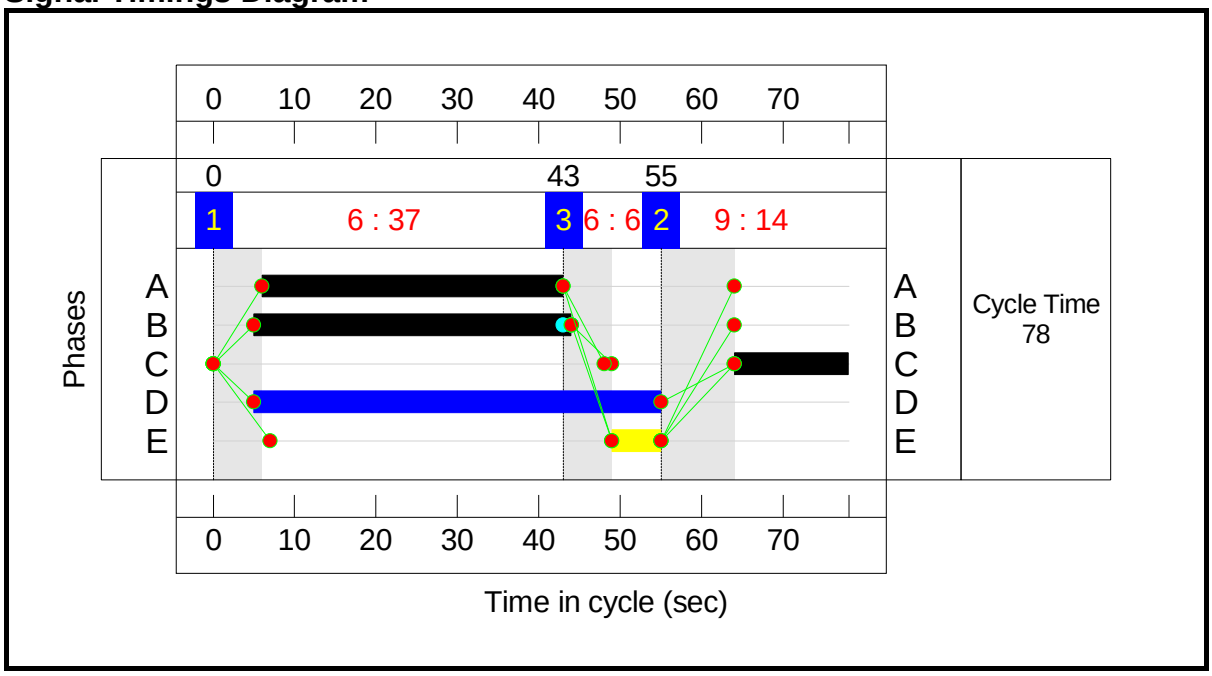
Staging Plan Diagram



Stage Timings

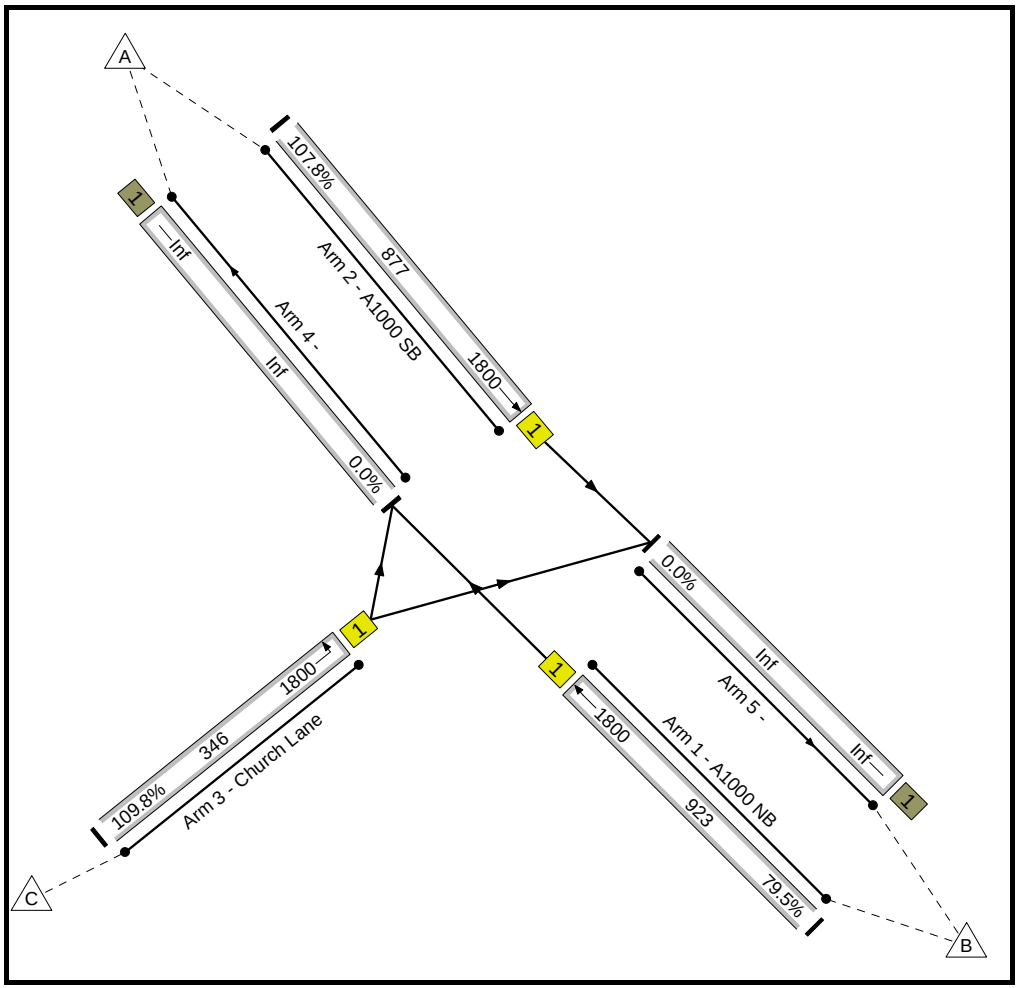
Stage	1	3	2
Duration	37	6	14
Change Point	0	43	55

Signal Timings Diagram



Full Input Data And Results

Junction Layout Diagram



Link Results

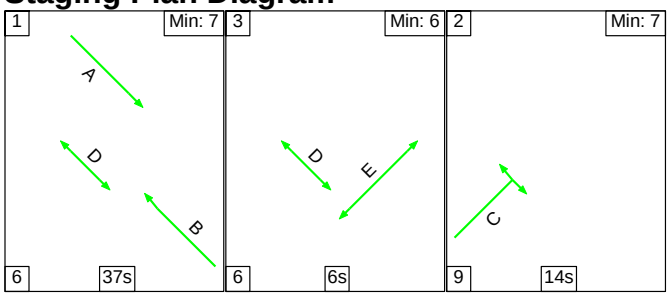
Link Num	Link Desc	Link Type	Stage Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Ave Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/1	A1000 NB Ahead	U	N/A	N/A	B		1	39	-	734	1800	1800	923	79.5
2/1	A1000 SB Ahead	U	N/A	N/A	A		1	37	-	945	1800	1800	877	107.8
3/1	Church Lane Left Right	U	N/A	N/A	C		1	14	-	380	1800	1800	346	109.8
4/1		U	N/A	N/A	-		-	-	-	906	Inf	Inf	Inf	0.0
5/1		U	N/A	N/A	-		-	-	-	1153	Inf	Inf	Inf	0.0

Link Num	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
1/1	734	734	-	-	-	3.2	1.9	-	5.1	25.0	13.0	1.9	15.0	
2/1	945	877	-	-	-	7.7	40.0	-	47.7	181.5	21.9	40.0	61.9	
3/1	380	346	-	-	-	4.8	21.4	-	26.2	248.3	9.4	21.4	30.8	
4/1	891	891	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
5/1	1066	1066	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	

PRC for Signalled Links (%): -22.0 Total Delay for Signalled Links (pcuHr): 78.95
PRC Over All Links (%): -22.0 Total Delay Over All Links(pcuHr): 78.95 Cycle Time (s): 78

Scenario 4: 'Afternoon Pick Up Plan 2'
Staging Plan 2: 'Staging Plan No. 2'
Flow Group 2: 'Flow Group 2'

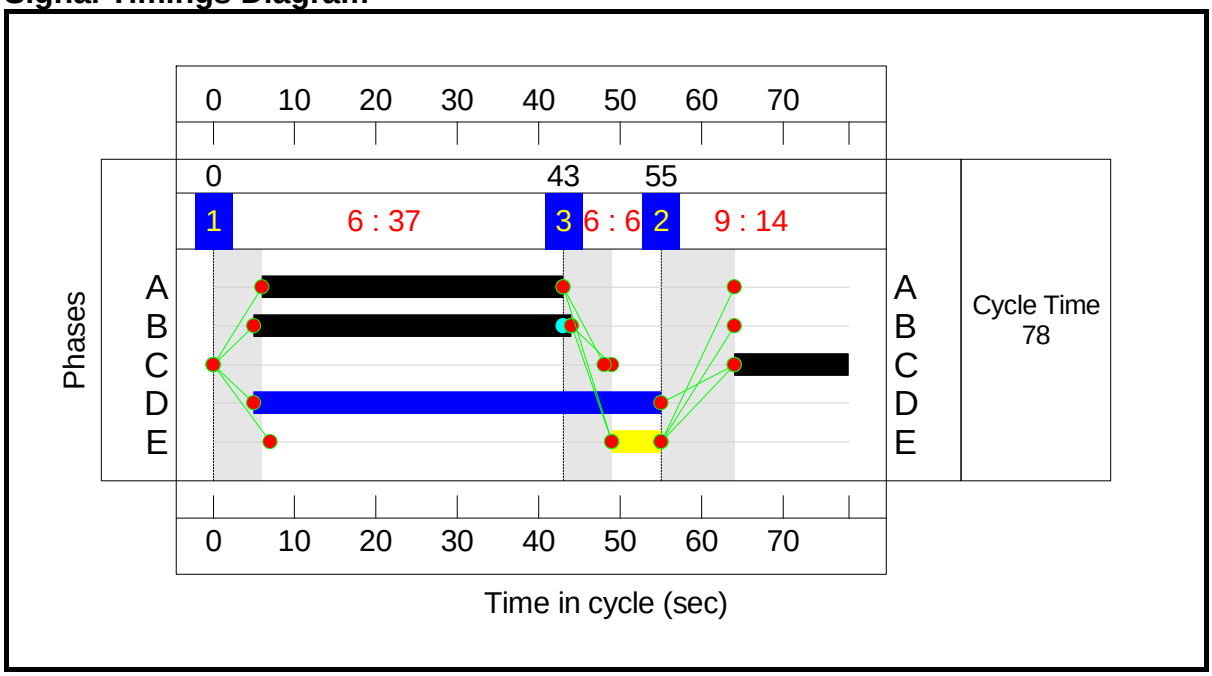
Staging Plan Diagram



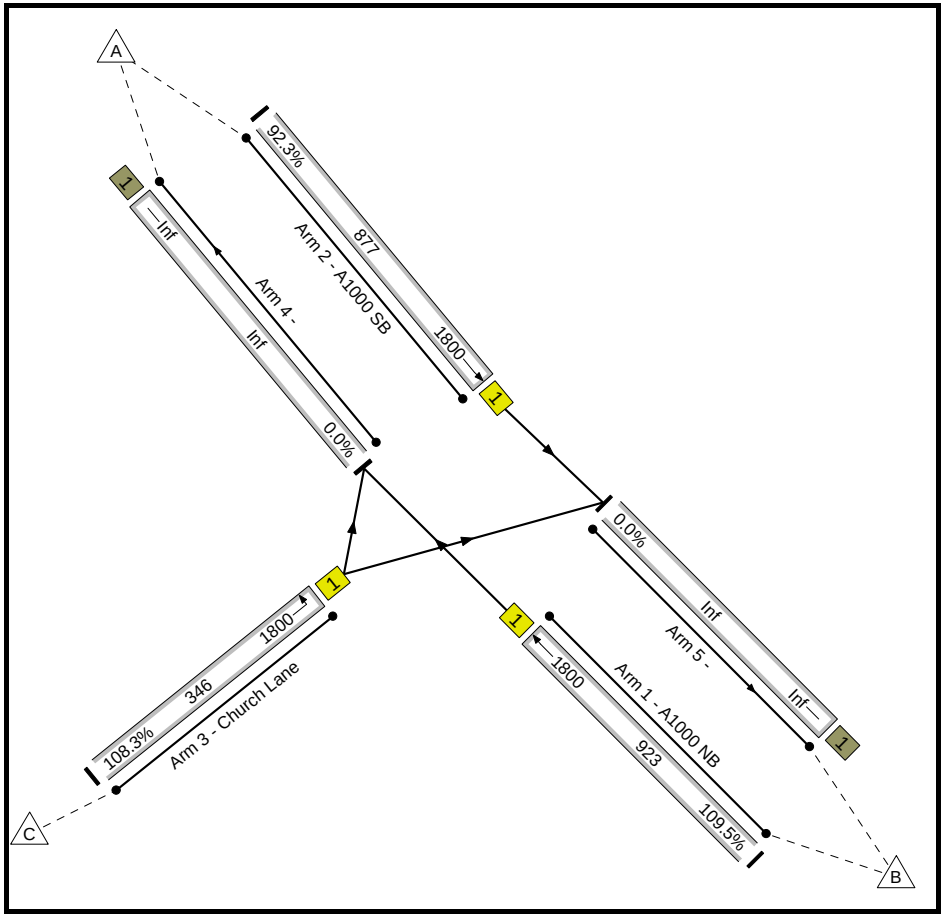
Stage Timings

Stage	1	3	2
Duration	37	6	14
Change Point	0	43	55

Signal Timings Diagram



Junction Layout Diagram



Link Results

Link Num	Link Desc	Link Type	Stage Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Ave Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/1	A1000 NB Ahead	U	N/A	N/A	B		1	39	-	1011	1800	1800	923	109.5
2/1	A1000 SB Ahead	U	N/A	N/A	A		1	37	-	809	1800	1800	877	92.3
3/1	Church Lane Left Right	U	N/A	N/A	C		1	14	-	375	1800	1800	346	108.3
4/1		U	N/A	N/A	-		-	-	-	1214	Inf	Inf	Inf	0.0
5/1		U	N/A	N/A	-		-	-	-	981	Inf	Inf	Inf	0.0

Link Num	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
1/1	1011	923	-	-	-	8.5	49.1	-	57.6	205.1	23.8	49.1	72.9	
2/1	809	809	-	-	-	4.2	5.2	-	9.4	41.6	16.2	5.2	21.3	
3/1	375	346	-	-	-	4.6	19.3	-	23.9	229.0	9.1	19.3	28.3	
4/1	1110	1110	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
5/1	968	968	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	

PRC for Signalled Links (%): -21.7 Total Delay for Signalled Links (pcuHr): 90.82

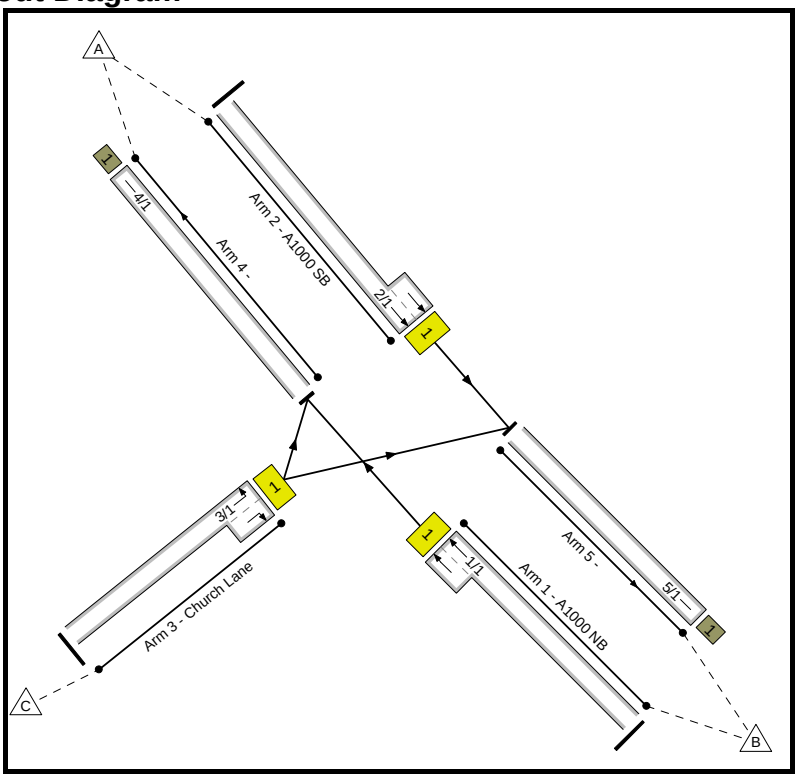
PRC Over All Links (%): -21.7 Total Delay Over All Links(pcuHr): 90.82 Cycle Time (s): 78

Full Input Data And Results

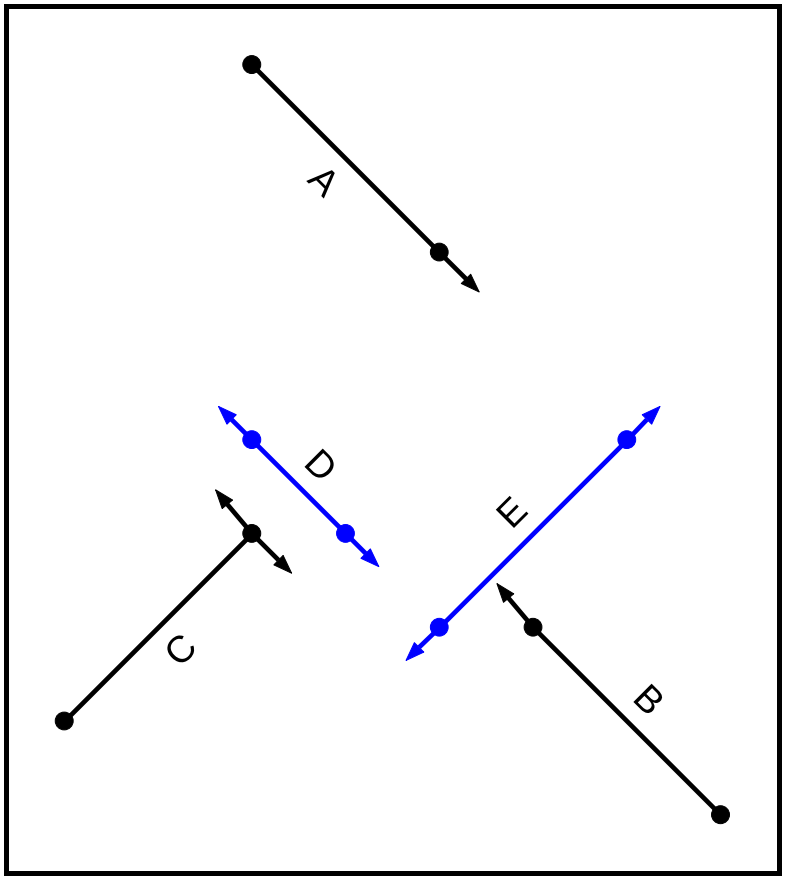
User and Project Details

Project:	**Signalisation Feasibility**
Title:	
Location:	A1000 High Road / Church Lane
File name:	A1000 Church La Opt3 compact 2la app.lsgx
Author:	Antoine Aubert
Company:	LBBarnet
Address:	
Controller:	Generic
SCN:	
Notes:	

Junction Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase type	Assoc Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	6
C	Traffic		7	7
D	Pedestrian		6	6
E	Pedestrian		6	6

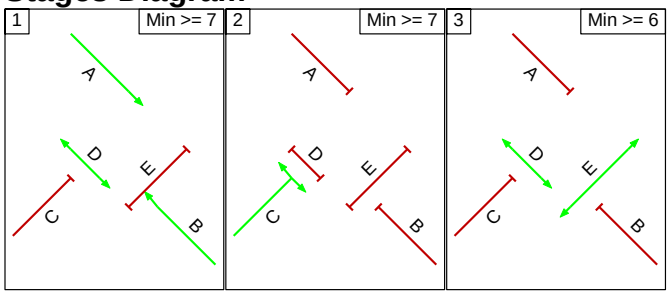
Phase Intergreens Matrix

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		-	5	-	6
	B	-		5	-	5
	C	6	5		5	7
	D	-	-	9		-
	E	12	12	12	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B D
2	C
3	D E

Stages Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	4	4
1	2	B	Losing	3	3
1	3	B	Losing	1	1

Prohibited Stage Changes

		To Stage		
		1	2	3
From Stage	1		9	6
	2	6		7
	3	12	12	

Link Input Data

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	A1000 NB Ahead	U	2	B	2	3
2/1	A1000 SB Ahead	U	2	A	2	3
3/1	Church Lane Left Right	U	2	C	2	3
4/1		U	1		2	3
5/1		U	1		2	3

Lane Input Data

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (A1000 NB Lane 1)	Link 1 (A1000 NB Ahead)	5.0	See below	User	1800	3.25	0.00	Y	Arm 4 Ahead	Inf
1/2 (A1000 NB Lane 2)	Link 1 (A1000 NB Ahead)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 4 Ahead	Inf
2/1 (A1000 SB Lane 1)	Link 1 (A1000 SB Ahead)	5.0	See below	User	1800	3.25	0.00	Y	Arm 5 Ahead	Inf
2/2 (A1000 SB Lane 2)	Link 1 (A1000 SB Ahead)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 5 Ahead	Inf
3/1 (Church Lane Lane 1)	Link 1 (Church Lane Left Right)	Inf	Inf	User	1800	3.25	0.00	Y	Arm 4 Left	Inf
3/2 (Church Lane Lane 2)	Link 1 (Church Lane Left Right)	3.0	See below	User	1800	3.25	0.00	Y	Arm 5 Right	Inf
4/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		

Arm/ Lane	Link Num	Expected Usage (PCU)	
		Flow Group 1	Flow Group 2
1/1 (A1000 NB Lane 1)	Link 1 (A1000 NB Ahead)	3.0	3.0
2/1 (A1000 SB Lane 1)	Link 1 (A1000 SB Ahead)	3.0	3.0
3/2 (Church Lane Lane 2)	Link 1 (Church Lane Left Right)	3.0	3.0

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Flow Group 1'	08:30	09:30	01:00	
2: 'Flow Group 2'	15:30	16:30	01:00	

Flow Group 1: 'Flow Group 1'

Traffic Flow Matrix

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	945	-	945
	B	734	0	-	734
	C	172	208	-	380
	Tot.	906	1153	-	2059

Link Traffic Flows

Arm/Link	Flow Group 1: Flow Group 1
1/1	734
2/1	945
3/1	380
4/1	906
5/1	1153

Lane Saturation Flows

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A1000 NB Lane 1)	This lane uses a directly entered Saturation Flow						1800
1/2 (A1000 NB Lane 2)	This lane uses a directly entered Saturation Flow						1800
2/1 (A1000 SB Lane 1)	This lane uses a directly entered Saturation Flow						1800
2/2 (A1000 SB Lane 2)	This lane uses a directly entered Saturation Flow						1800
3/1 (Church Lane Lane 1)	This lane uses a directly entered Saturation Flow						1800
3/2 (Church Lane Lane 2)	This lane uses a directly entered Saturation Flow						1800
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf

Flow Group 2: 'Flow Group 2'

Traffic Flow Matrix

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	809	-	809
	B	1011	0	-	1011
	C	203	172	-	375
	Tot.	1214	981	-	2195

Link Traffic Flows

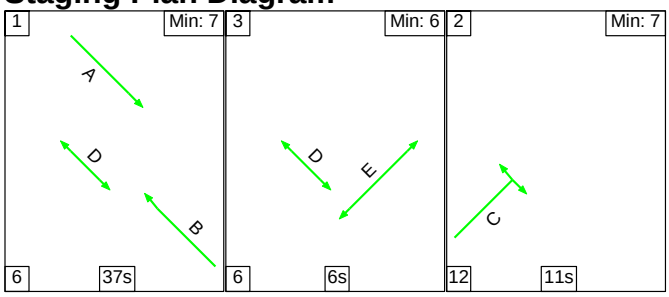
Arm/Link	Flow Group 2: Flow Group 2
1/1	1011
2/1	809
3/1	375
4/1	1214
5/1	981

Lane Saturation Flows

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A1000 NB Lane 1)	This lane uses a directly entered Saturation Flow						1800
1/2 (A1000 NB Lane 2)	This lane uses a directly entered Saturation Flow						1800
2/1 (A1000 SB Lane 1)	This lane uses a directly entered Saturation Flow						1800
2/2 (A1000 SB Lane 2)	This lane uses a directly entered Saturation Flow						1800
3/1 (Church Lane Lane 1)	This lane uses a directly entered Saturation Flow						1800
3/2 (Church Lane Lane 2)	This lane uses a directly entered Saturation Flow						1800
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf

Scenario 3: 'Morning Drop Off Plan 2'
Staging Plan 2: 'Staging Plan No. 2'
Flow Group 1: 'Flow Group 1'

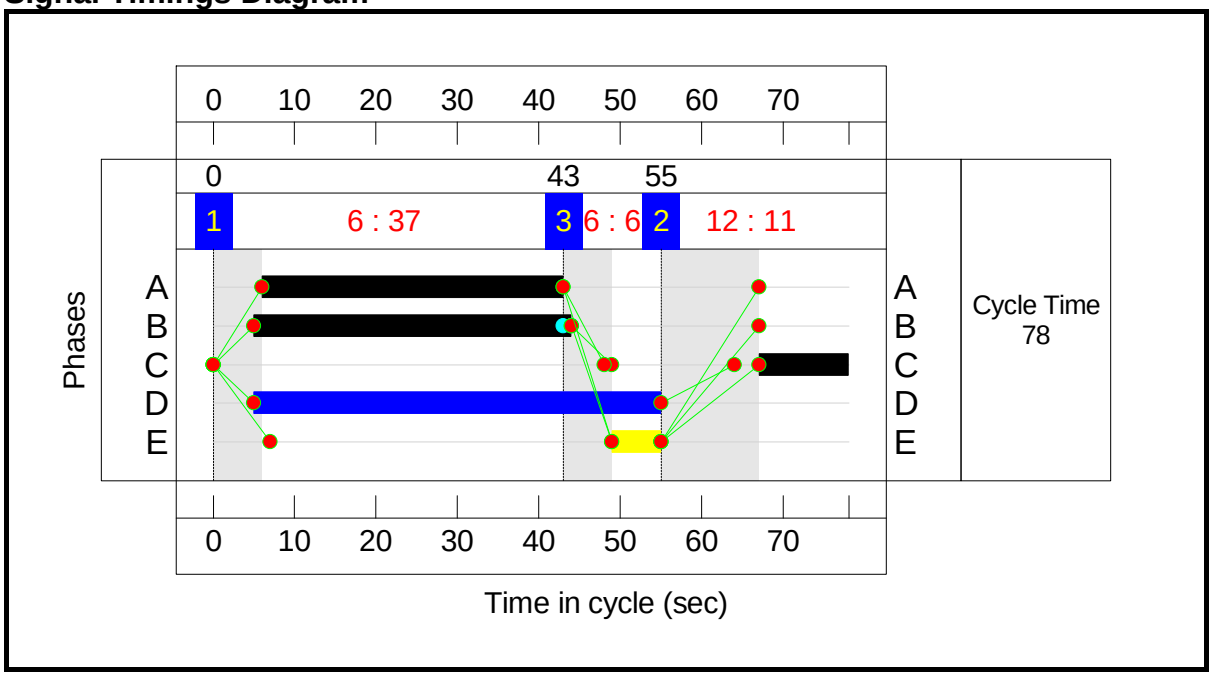
Staging Plan Diagram



Stage Timings

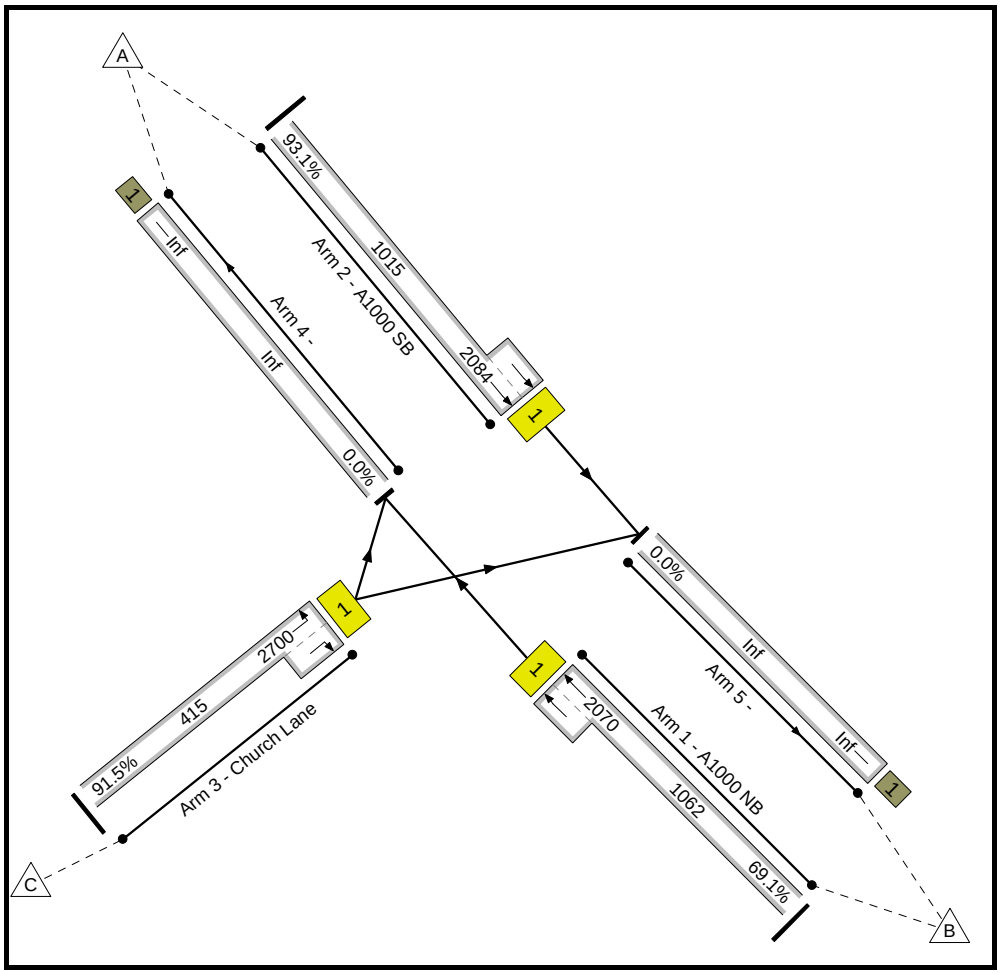
Stage	1	3	2
Duration	37	6	11
Change Point	0	43	55

Signal Timings Diagram



Full Input Data And Results

Junction Layout Diagram



Link Results

Link Num	Link Desc	Link Type	Stage Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Ave Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/1	A1000 NB Ahead	U	N/A	N/A	B		1	39	-	734	3600	2070	1062	69.1
2/1	A1000 SB Ahead	U	N/A	N/A	A		1	37	-	945	3600	2084	1015	93.1
3/1	Church Lane Left Right	U	N/A	N/A	C		1	11	-	380	3600	2700	415	91.5
4/1		U	N/A	N/A	-		-	-	-	906	Inf	Inf	Inf	0.0
5/1		U	N/A	N/A	-		-	-	-	1153	Inf	Inf	Inf	0.0

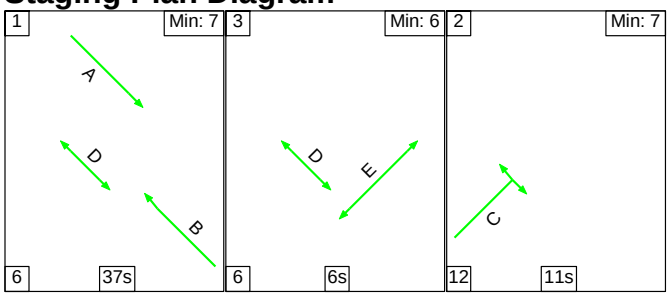
Link Num	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
1/1	734	734	-	-	-	2.5	1.1	-	3.6	17.7	11.0	1.1	12.1	
2/1	945	945	-	-	-	4.3	5.8	-	10.1	38.5	18.6	5.8	24.4	
3/1	380	380	-	-	-	3.3	4.3	-	7.6	72.3	8.0	4.3	12.3	
4/1	906	906	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
5/1	1153	1153	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	

PRC for Signalled Links (%): -3.4 Total Delay for Signalled Links (pcuHr): 21.33

PRC Over All Links (%): -3.4 Total Delay Over All Links(pcuHr): 21.33 Cycle Time (s): 78

Scenario 4: 'Afternoon Pick Up Plan 2'
Staging Plan 2: 'Staging Plan No. 2'
Flow Group 2: 'Flow Group 2'

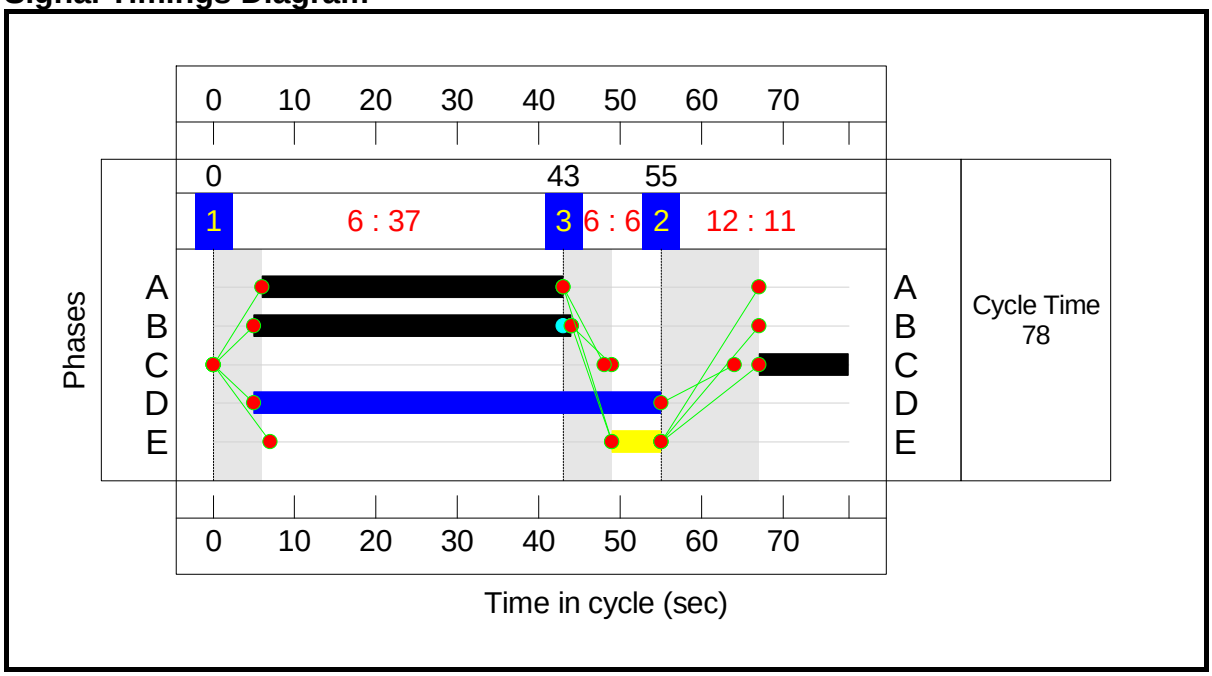
Staging Plan Diagram



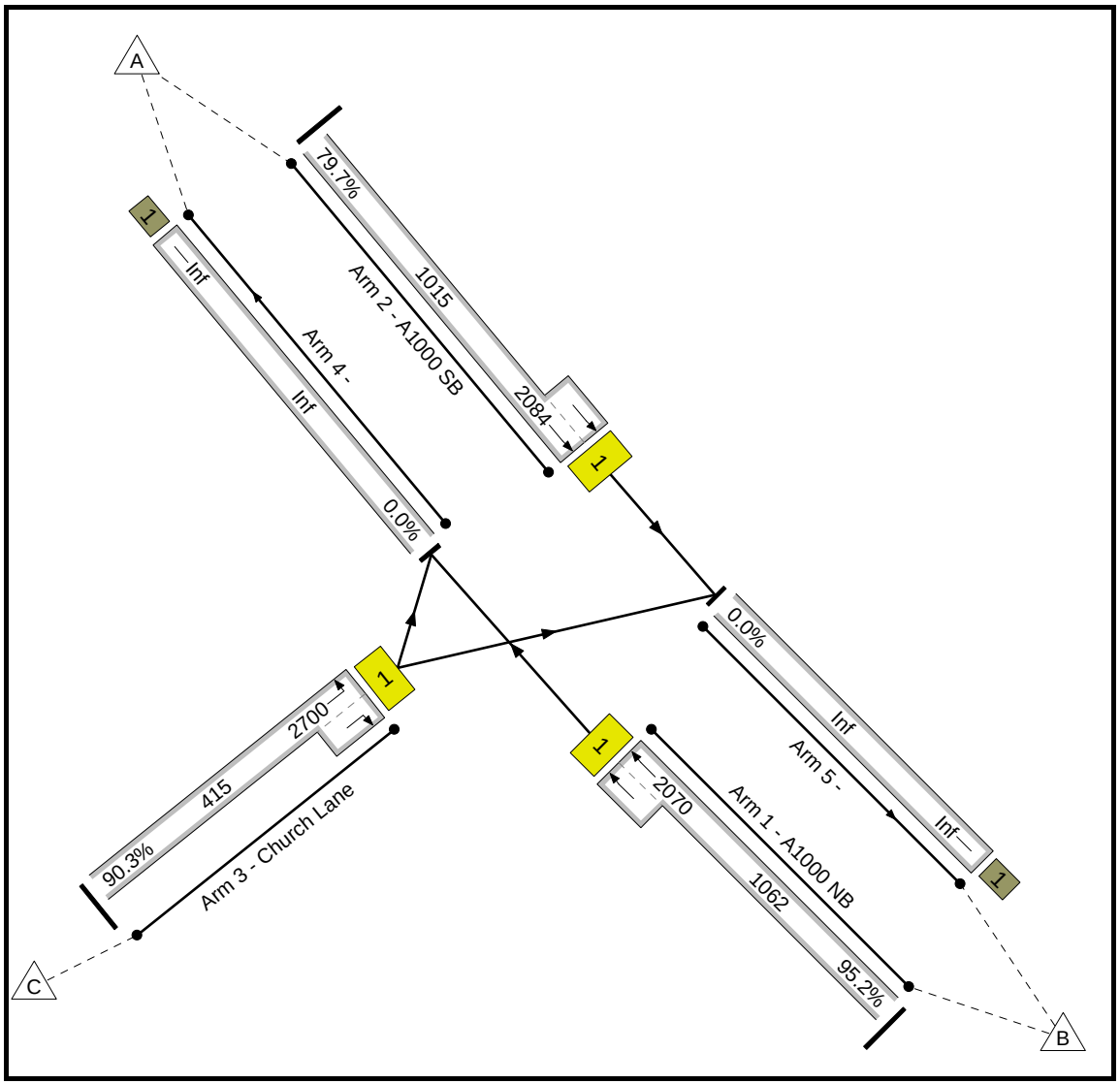
Stage Timings

Stage	1	3	2
Duration	37	6	11
Change Point	0	43	55

Signal Timings Diagram



Junction Layout Diagram



Link Results

Link Num	Link Desc	Link Type	Stage Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Ave Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/1	A1000 NB Ahead	U	N/A	N/A	B		1	39	-	1011	3600	2070	1062	95.2
2/1	A1000 SB Ahead	U	N/A	N/A	A		1	37	-	809	3600	2084	1015	79.7
3/1	Church Lane Left Right	U	N/A	N/A	C		1	11	-	375	3600	2700	415	90.3
4/1		U	N/A	N/A	-		-	-	-	1214	Inf	Inf	Inf	0.0
5/1		U	N/A	N/A	-		-	-	-	981	Inf	Inf	Inf	0.0

Link Num	Entering (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
1/1	1011	1011	-	-	-	4.4	7.7	-	12.1	43.1	20.5	7.7	28.2	
2/1	809	809	-	-	-	3.3	1.9	-	5.2	23.0	13.7	1.9	15.6	
3/1	375	375	-	-	-	3.3	3.9	-	7.2	68.7	7.8	3.9	11.7	
4/1	1214	1214	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	
5/1	981	981	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	

PRC for Signalled Links (%): -5.8 Total Delay for Signalled Links (pcuHr): 24.45
PRC Over All Links (%): -5.8 Total Delay Over All Links(pcuHr): 24.45 Cycle Time (s): 78