Technical Note

Project: **Former Masonic Hall and Old Telephone Exchange Site, Elmsleigh Road, Staines**

Subject: **Response to Modelling and RSA Comments**

Client:	Inland Homes Ltd	**Version:**	A
Project No:	04550	**Author:**	LS
Date:	06/04/2021	**Approved:**	MF

1 Introduction

1.1.1 This Technical Note (TN) has been prepared by PJA on behalf of Inland Homes Ltd in response to comments received from Charlie Cruise, Senior Transport Development Planning Officer at Surrey County Council (SCC), in an email dated the 1st April 2021.

1.1.2 The email included comments in relation to the LinSig modelling, as well as comments related to the Road Safety Audit (RSA) Designer's Response, prepared by PJA following a RSA by SCC. A copy of the email is provided as **Appendix A**.

2 Comments from SCC Traffic Signals Team

SCC Comment

"While looking at the proposed drawing 04550-TR014-P8 by PJA I noticed there needs to be an adjustment to the layout at the entrance / exit. We will need to accommodate a drivers side primary and secondary signal head. The new island next to the proposed stop line will need to be extended to the stud line of the crossing and a new island built on the other side of the crossing. Vehicle tracking will need to be checked on this."

PJA Response

2.1.1 The highway layout drawing has been updated to extend the proposed island on Elmsleigh Road to the pedestrian crossing, increasing the island width to 1.5m. Additionally, a new island has now been shown beyond the crossing. This can be seen on the plan included as **Appendix B**.

2.1.2 To facilitate the new island, the swept paths of vehicles exiting Elmsleigh Road were updated. The new swept paths are included as **Appendix C**.

2.1.3 Changes to the proposed LinSig model were made to reflect the layout changes. The intergreen for the pedestrian stage was increase to 13 seconds (from 12 seconds) to reflect the increase in crossing distance on Elmsleigh Road, and the width of the Elmsleigh Road arm was increased to 4.75m (from 4.02m). These changes are reflected in the modelling results set out below.

3 Comments from SCC Modelling Team

3.1.1 Comments from the SCC Modelling Team were provided in audit spreadsheets. These are included as **Appendix D** for reference. The main comments for which action is required (i.e. all those not listed as "for information") are detailed below.

3.2 Existing Model Comments

Comment Number 3:

"Apart from the short lane Arm 2:1, lane lengths have all been left at the default of 60 PCU. This should be edited where the next significant junction lies within this. Therefore, it is recommended to change the lane length of Arm 3 Thames Street (S), perhaps also Elmsleigh Road and Riverside since they do not extend that far.

Recommendation: Consider changing the lane length of Arm 3 Thames Street (S)."

PJA Response:

3.2.1 The lane length of Arm 3 Thames Street (S) has been reduced to 75m, which is the distance to the next junction (between A308 Thames Street, A308 South Street and B376 Thames Street).

3.2.2 The length of the Riverside arm has been reduced to 45m, reflecting the distance to the entrance to the Staines Riverside Underground Car Park.

Comment Number 12:

"One controller has been set up for testing (C1). The controller type has been set as 'Generic', but it should be Siemens. Please edit this.

Recommendation: Please change the controller type to Siemens."

PJA Response:

3.2.3 The controller type has now been changed to Siemens.

Comment Number 21:

"A single day of Classified Turning Counts were carried out at this junction per day type (Friday 30th Jan. 2020 & Saturday 1st Feb. 2020). It is thought that Tuesday - Thursday should be used for weekday AM/PM data, similarly January is not a "neutral" month. Therefore, AM/PM surveys should be viewed with caution.

Note that these dates would not have been affected by coronavirus restrictions.

It is preferred to have at least three days worth of survey data.

Recommendation: AM/PM data should be treated with caution since Tues-Thurs is preferred to Friday and January is not a "neutral" month."

PJA Response:

3.2.4 Data was obtained for a Friday as this is market day in Staines, and therefore is expected to be the day on which traffic flows in the town are highest, providing a robust assessment.

Comment Number 23:

"A single day of Queue surveys were carried out at this junction per day type (Friday 30th Jan. 2020 & Saturday 1st Feb. 2020). Due to queue variability, it is preferred to have at least 3 days worth of surveys. It is thought that Tuesday - Thursday should be used for AM/PM data, similarly January is not a "neutral" month. Therefore, AM/PM surveys should be viewed with caution.

Recommendation: AM/PM data should be treated with caution since Tues-Thurs is preferred to Friday and January is not a "neutral" month.

At least three days worth of queue length survey data would be advised if this modelling is ever updated."

PJA Response:

3.2.5 Data was obtained for a Friday as this is market day in Staines, and therefore is expected to be the day on which traffic flows in the town are highest, providing a robust assessment.

Comment Number 25:

"Five scenarios have been set up in the model, representing:

- *2020 AM Base 0745 - 0845;*

- *2020 PM Base 1700 - 1800;*
- *2020 Saturday Peak Base 11.45 - 1245;*
- *2025 AM Future year 0745 - 0845; and*
- *2025 PM Future year 1700 - 1800.*

The TA states that "Given that of the three peak periods the junction performs best on a Saturday, and the proposed development would have the lowest trip generation on a Saturday, it was not considered necessary to include this time period in future scenarios." (6.4.6). Whilst this is true for the PRC, the DoS, Delay and MMQ are worse (or on occasion the same) on Saturday than the AM. Also the demand will have a different pattern on the weekend, particularly the retail car park accessed by Elmsleigh Road. Additionally, given that the base Saturday model is already built it would not be too difficult model the future year.

Therefore, it is thought that 2025 Saturday Peak Future year should be modelled.

Recommendation: Please also model 2025 Saturday Peak Future year."

PJA Response:

3.2.6 An additional scenario has been included for the 2025 Saturday peak. To forecast the future flows, growth factors were applied to the 2020 baseline flows, derived from TEMPro. Middle Super Output Area (MSOA) Spelthorne 004 was set as the area of assessment, for all road types. The Riverside approach was set to run every cycle, as for the PM peak.

Table 1: 2020-2025 Growth Factor

Time Period	Growth Factor
Saturday peak	1.050085

3.3 Proposed Model Comments

Comment Number 3:

"Lane lengths have all been left at the default of 60 PCU. This should be edited where the next significant junction lies within this. Therefore, it is recommended to change the lane length of Arm 3 Thames Street (S), perhaps also Elmsleigh Road and Riverside since they do not extend that far.

Consider changing the lane length of Arm 3 Thames Street (S)."

PJA Response:

3.3.1 Lane lengths changed as for existing model.

Comment Number 12:

"One controller has been set up for testing (C1). The controller type has been set as 'Generic', but it should be Siemens. Please edit this.

Recommendation: Please change the controller type to Siemens."

PJA Response:

3.3.2 The controller type has now been changed to Siemens.

Comment Number 24:

"Two scenarios have been set up in the model, representing:

- *2025 AM Future year with Development 0745 - 0845; and*
- *2025 PM Future year with development 1700 - 1800.*

The TA states that "Given that of the three peak periods the junction performs best on a Saturday, and the proposed development would have the lowest trip generation on a Saturday, it was not considered necessary to include this time period in future scenarios." (6.4.6). Whilst this is true for the PRC, the DoS, Delay and MMQ are worse (or on occasion the same) on Saturday than the AM. Also the demand will have a different pattern on the weekend, particularly the retail car park accessed by Elmsleigh Road. Additionally, given that the base Saturday model is already built it would not be too difficult model the future year.

Therefore, it is thought that 2025 Saturday Peak Future year with development should be modelled."

Recommendation: Please also model 2025 Saturday Future year with development."

PJA Response:

3.3.3 A 2025 Saturday with development scenario has been added to the model.

3.3.4 Only one suitable site was identified in TRICS (v 7.8.1) to use to determine the likely Saturday trip generation for the proposed development. This site is located in Woking and comprises privately owned flats only, with 45 car parking spaces for the 52 dwellings. The trip rate was

used for both the privately owned and affordable flats proposed (no Saturday surveys were identified for affordable flats), and is therefore likely to overestimate the trip generation for the proposed development providing a worst case robust assessment.

3.3.5 A time period of 11:00-12:00 was used for the trip generation, as this was found to be the hour with the highest trip rate from the TRICS survey.

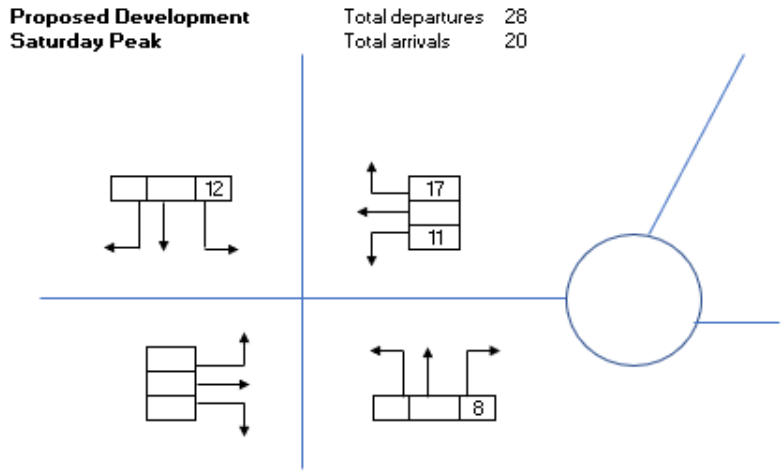
3.3.6 The full TRICS output is provided as **Appendix E**, with a summary in Table 2.

Table 2: Saturday Trip Generation

		Arrivals	Departures	Two Way
Saturday, 11:00-12:00	Trip rate	0.096	0.135	0.231
	Total trips	20	28	48

3.3.7 The Saturday development trips were assigned to the network as for the weekday peak trips, based on the 2020 classified turning proportions at the Elmsleigh Road / A308 Thames Street junction, assuming that no vehicles would travel to / from the site to / from Riverside.

Figure 1: Proposed Development Saturday Route Assignment



3.4 Updated Model Results

3.4.1 A summary of the modelling results is provided below, whilst the full model output is included as **Appendix F**.

Existing Junction – 2020 Base

3.4.2 The results of the 2020 base scenarios are set out in Table 3. The results are almost the same as those set out in the Transport Assessment, with minor changes in the degree of saturation (DoS).

Table 3: LinSig Modelling Results – 2020 Base

Arm	LINSIG Cycle Time	DoS	Delay (s/pcu)	MMQ (pcu)	% PRC
AM Peak					
Thames Street (N) – Left, ahead	120s	42.7%	17	4	19.9%
Thames Street (N) – Ahead, right		43.2%	17	5	
Elmsleigh Road		3.8%	29	0	
Thames Street (S) – Ahead, left		75.0%	24	10	
Thames Street (N) – Ahead, right		74.9%	24	10	
Riverside		17.4%	73	1	
PM Peak					
Thames Street (N) – Left, ahead	120s	89.5%	51	13	0.6%
Thames Street (N) – Ahead, right		89.4%	50	13	
Elmsleigh Road		39.9%	33	2	
Thames Street (S) – Ahead, left		75.0%	34	9	
Thames Street (N) – Ahead, right		74.8%	35	9	
Riverside		27.9%	35	1	
Saturday Peak					
Thames Street (N) – Left, ahead	120s	72.0%	33	8	20.3%
Thames Street (N) – Ahead, right		72.3%	33	8	
Elmsleigh Road		36.3%	33	1	
Thames Street (S) – Ahead, left		74.8%	34	9	
Thames Street (N) – Ahead, right		74.8%	35	9	
Riverside		27.1%	35	1	

Existing Junction – 2025 Base

3.4.3 The results of the 2025 base scenarios are set out in Table 4. The results are almost the same as those set out in the Transport Assessment for the AM and PM peak periods, with minor changes in the degree of saturation (DoS).

Table 4: LinSig Modelling Results – 2025 Base

Arm	Cycle Time	DoS	Delay (s/pcu)	MMQ (pcu)	% PRC
AM Peak					
Thames Street (N) – Left, ahead	120s	44.7%	17	5	14.7%
Thames Street (N) – Ahead, right		45.2%	18	5	
Elmsleigh Road		3.8%	29	0	
Thames Street (S) – Ahead, left		78.5%	26	11	
Thames Street (N) – Ahead, right		78.4%	26	11	
Riverside		18.4%	73	1	
PM Peak					
Thames Street (N) – Left, ahead	120s	93.5%	62	15	-3.9%
Thames Street (N) – Ahead, right		93.5%	62	15	
Elmsleigh Road		42.1%	33	2	
Thames Street (S) – Ahead, left		78.4%	36	10	
Thames Street (N) – Ahead, right		78.4%	37	9	
Riverside		29.3%	35	1	
Saturday Peak					
Thames Street (N) – Left, ahead	120s	75.5%	35	9	14.5%
Thames Street (N) – Ahead, right		75.9%	35	9	
Elmsleigh Road		37.9%	33	2	
Thames Street (S) – Ahead, left		78.6%	37	9	
Thames Street (N) – Ahead, right		78.6%	38	9	
Riverside		28.5%	35	1	

Proposed Junction – 2025 Base + Development

3.4.4 The results of the modelling undertake for the proposed junction are set out in Table 5. Whilst these results show slightly less capacity than those in the Transport Assessment (for the AM and PM peak periods), this still demonstrates that the proposed amendments will result in an overall betterment compared to the existing situation, with the junction forecast to operate within capacity for all peaks.

Table 5: LinSig Modelling Results – 2025 Base + Development

Arm	Cycle Time	DoS	Delay (s/pcu)	MMQ (pcu)	% PRC
AM Peak					
Thames Street (N) – Left, ahead	120s	43.4%	16	5	18.8%
Thames Street (N) – Ahead, right		43.9%	17	5	
Elmsleigh Road		15.0%	32	1	
Thames Street (S) – Ahead, left		75.8%	24	11	
Thames Street (N) – Ahead, right		75.6%	24	11	
Riverside		18.4%	73	1	
PM Peak					
Thames Street (N) – Left, ahead	120s	84.4%	39	12	6.2%
Thames Street (N) – Ahead, right		84.7%	40	12	
Elmsleigh Road		62.5%	44	4	
Thames Street (S) – Ahead, left		71.0%	30	9	
Thames Street (N) – Ahead, right		70.9%	31	9	
Riverside		29.3%	36	1	
Saturday Peak					
Thames Street (N) – Left, ahead	120s	68.7%	29	8	26.8%
Thames Street (N) – Ahead, right		69.3%	29	9	
Elmsleigh Road		59.0%	42	3	
Thames Street (S) – Ahead, left		71.0%	30	9	
Thames Street (N) – Ahead, right		70.7%	31	9	
Riverside		28.5%	35	1	

4 Road Safety Audit

4.1.1 The highway design undertaken by PJA was reviewed as part of a Stage 1 RSA, undertaken by SCC. A Designer's Response was prepared by PJA, dated the 15th February 2021. Follow-up comments were received from SCC in relation to several of the items raised in the RSA.

4.2 Item 1.5

RSA Item

"A1.5. Summary: risk of pedestrian conflict.

Pedestrians approaching or waiting at the proposed uncontrolled crossing on the western Elmsleigh Road footway, are at risk of conflict with vehicles turning left to enter the existing vehicular access. The existing vehicular access is directly to the north of the proposed uncontrolled crossing and hence there is a risk that vehicles, especially long-wheel based vehicles,

may traverse the kerbs of the proposed kerb build-out, placing pedestrians in the vicinity at risk of conflict.

Recommendation: Confirm turning circles of all expected vehicles are able to enter the existing vehicular access without conflicting with the proposed uncontrolled crossing. Provide physical measures to deter vehicles traversing the western footway in the vicinity of the proposed uncontrolled crossing / kerb build-out."

Previous PJA Response

4.2.1 As part of the previous revisions to the plan the build-out and pedestrian crossing have been relocated slightly further south, so that they do not conflict with the service access or the disabled parking bay.

4.2.2 Additionally, bollards will be provided on the splitter islands and pedestrian refuges as appropriate. The locations of these will be determined as part of the detailed design.

Follow-up SCC Comment

"It would be useful to see the turning circles requested under Item 1.5 to ensure the access to the Debenhams site is not affected."

Follow-up PJA Response

4.2.3 There are existing bollards on this section of Elmsleigh Road which already limit the size of vehicle that can access the Debenhams servicing yard. Larger vehicles are required to drive on the right hand side of the lane to be able to swing in. In relation to Item 1.5 of the RSA, swept path analysis has been undertaken at the Debenhams access utilising the 11.2m refuse vehicle, to demonstrate that vehicles would not overrun the proposed pedestrian built out when turning in / out. Notwithstanding this, the swept path has been improved slightly by reducing the width of the tactile paving from 2.8m to 2.4m, and slightly realigning the central island.

4.2.4 The swept path analysis is provided as **Appendix G**.

4.3 Items 1.12 and 1.13

RSA Items

Item 1.12

"A1.12. Summary: risk of vehicular conflict with parked / loading vehicles.

Due to the alignment on the approach and the tapered north-eastern extent of the proposed loading bay, Elmsleigh Road drivers are at risk of conflicting with the rear of vehicles within the proposed loading bay. This is of particular concern if vehicles within the loading bay overhang the rear of the loading bay.

Recommendation: Provide a kerb build-out at the north-eastern extent to create a loading bay which is separated from the main Elmsleigh Road running lane. NB. This will create a protected parking lay-by / loading bay. Adjust proposed carriageway markings to suit."

Item 1.13

"A1.13. Summary: risk of conflict with kerb build-out at south-eastern extent of parking bay.

On occasions when no vehicles are present within either the proposed loading bay or proposed parking bays, there is concern that south-westbound Elmsleigh Road drivers may proceed within the extents (either partly or wholly) of the proposed parking bays. Conflict with the proposed kerb build-out at the south-western extent may result. This is of particular concern in dark conditions.

Recommendation: Provide a kerb build-out at the north-eastern extent to create a loading bay which is separated from the main Elmsleigh Road running lane. NB. This will create a protected parking lay-by / loading bay. Adjust proposed carriageway markings to suit."

Previous PJA Response

Item 1.12

4.3.1 Based on the swept path analysis, there would not be sufficient space to provide a kerb build-out at the north-eastern extent of the loading bay.

4.3.2 Instead, it is proposed that the loading bay and Car Club bays will be provided with a different surfacing material, to differentiate them from the carriageway. Additionally, a small kerb upstand will be provided between the carriageway and loading bay / Car Club bays.

4.3.3 Furthermore, the bend on Elmsleigh Road before the loading bay will ensure that the vehicle approach speed is low.

4.3.4 Notwithstanding the above, it is also worth noting that it is expected that usage levels for this loading bay would be low, limited to refuse collection vehicles and deliveries to the site, as it is not in the immediate vicinity of other commercial land uses.

Item 1.13

4.3.5 As set out above, different surfacing will be used for the loading bay and Car Club bays. This will differentiate them from the carriageway and ensure that drivers do not travel within them.

Follow-up SCC Comment

"Items 1.12 and 1.13 remain a concern. I am not confident that the issue has been adequately addressed as the alignment is still likely to guide motorists to infringe the loading bay. I have concerns that the proposed kerb upstand may cause issues of its own, particularly for motorcyclists if they come into contact with it. In terms of the mitigation measures you have put forward, can you confirm) what sort of alternative material would you suggest for the loading bay b) whether the existing street lighting would be retained? C) provide the tracking drawings to demonstrate why the audit recommendation cannot be facilitated. My concern here is that if this issue is raised again at Stage 2 RSA, there is nothing we can do at that point. The only way the Auditor's recommendation could be facilitated appears to be an alteration to the internal site layout."

Follow-up PJA Response

4.3.6 To further mitigate the concerns in this location, the plans have been reviewed and the kerb line has been built out as far as possible at the north-eastern extent of the loading bay within the limits of the tracking. This will help to guide motorists along the main carriageway.

4.3.7 The extent to which the build out can be provided is limited by the turning space required for a max legal length articulated vehicle to enter the existing service yard to the south, shown on the plan in **Appendix C**.

4.3.8 To address the concerns related to the kerb upstand, it would instead be possible to provide flush set cobbles for the loading bay and Car Club bays, in line with that used on other sections of Elmsleigh Road. This would provide additional demarcation over white lining, but would not pose a risk to motorcyclists. Within the loading bay and Car Club bays, it is proposed to provide a paved surface; details of this will be confirmed at detailed design. It is anticipated that the street lights will be retained. This will again be confirmed at detailed design.

4.3.9 A plan to show a refuse vehicle using the loading bay and Car Club vehicles entering and exiting each of the Car Club bays is provided as **Appendix H**. This plan also shows a maximum length articulated vehicle passing a refuse vehicle and cars stopped in the bays.

Appendix A SCC Comments

Lucy Smith

From: Charlie Cruise <charlie.cruise@surreycc.gov.uk>
Sent: 01 April 2021 14:00
To: Lucy Smith; Patrick Thomas
Cc: Matthew Franklin; Tara Johnston
Subject: RE: Response To Application Number SP/20/1199 at The Old Telephone Exchange, Masonic Hall And Adjoining Land, Elmsleigh Road, Staines-upon-Thames, TW18 4PN [NLP-DMS.FID340221]
Attachments: Audit_001_LinSig_ThamesSt_ElmsleighRd_Existing.xlsx; Audit_001 _LinSig_ThamesSt_ElmsleighRd_Proposed.xlsx

Hi Lucy,

Many apologies for the delay in responding on this.

Modelling
I attached the modelling audits that SCC have carried out on the LinSig files provided. Generally these have come back positively and our Modelling team haven't identified any real issues with the model itself. They have requested that the Saturday future year be modelled as they believe this part of the network is fairly heavily trafficked on weekends with a different traffic profile. They have also requested that the controller type is changed to Siemens.

I sought feedback from our Traffic Signals team on the intergreens, which they were okay with. However they raised the following:
While looking at the proposed drawing 04550-TR014-P8 by PJA I noticed there needs to be an adjustment to the layout at the entrance / exit. We will need to accommodate a drivers side primary and secondary signal head. The new island next to the proposed stop line will need to be extended to the stud line of the crossing and a new island built on the other side of the crossing. Vehicle tracking will need to be checked on this.

Safety Audit
I've been through the Designers Response to the RSA with our Auditor and generally I am content that most issues have been adequately addressed for Planning purposes. It would be useful to see the turning circles requested under Item 1.5 to ensure the access to the Debenhams site is not affected.

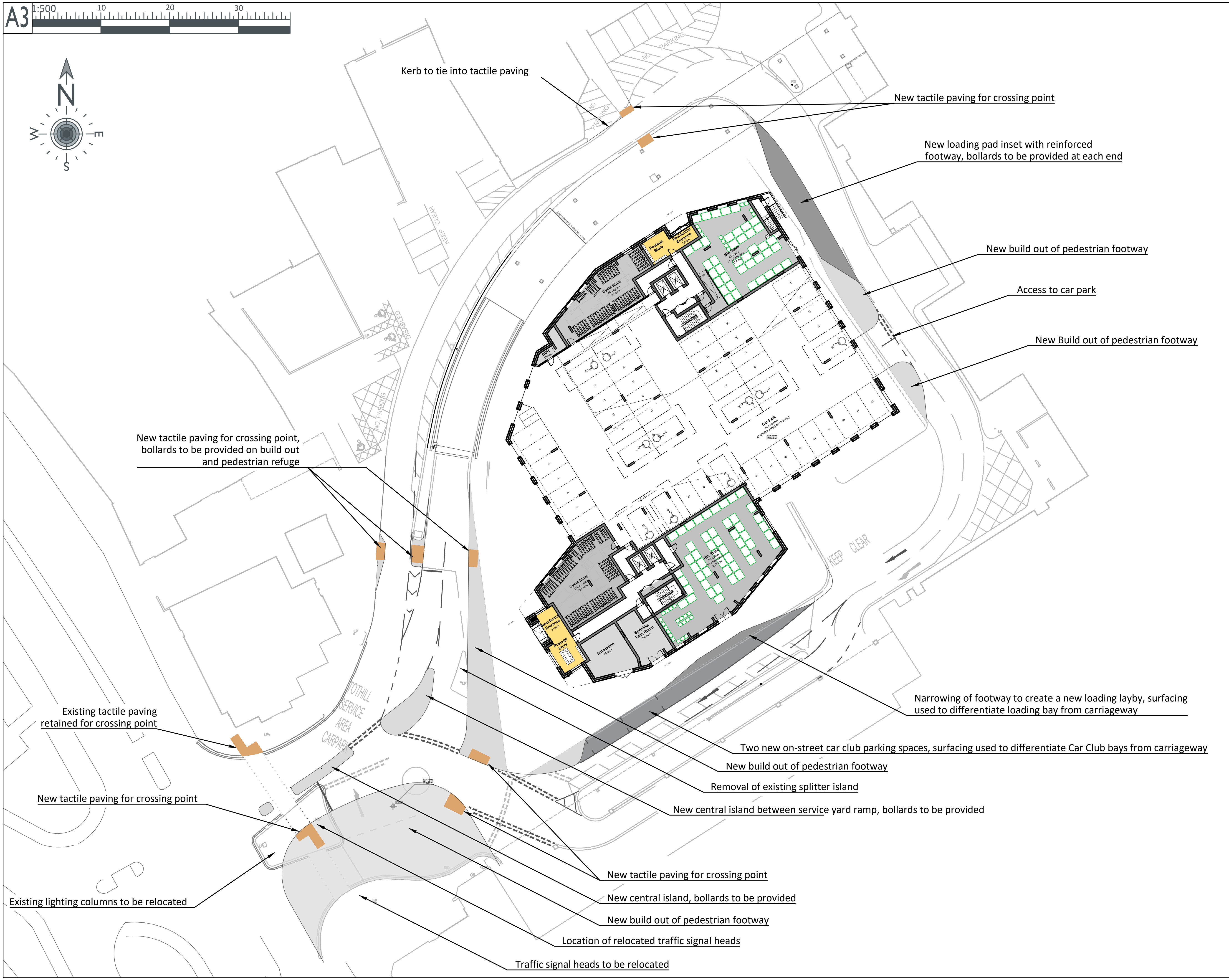
Items 1.12 and 1.13 remain a concern. I am not confident that the issue has been adequately addressed as the alignment is still likely to guide motorists to infringe the loading bay. I have concerns that the proposed kerb upstand may cause issues of its own, particularly for motorcyclists if they come into contact with it. In terms of the mitigation measures you have put forward, can you confirm) what sort of alternative material would you suggest for the loading bay b) whether the existing street lighting would be retained? C) provide the tracking drawings to demonstrate why the audit recommendation cannot be facilitated. My concern here is that if this issue is raised again at Stage 2 RSA, there is nothing we can do at that point. The only way the Auditor's recommendation could be facilitated appears to be an alteration to the internal site layout.

I have a meeting with my Head of Service to discuss a potential exception report on Wednesday. It may be useful if I can get any additional clarification on the above before then.

Apologies again for the delay in responding on these points.

Charlie Cruise
Senior Transport Development Planning Officer
www.surreycc.gov.uk/tdp
Tel: 02082132861

Appendix B Highway Layout Plan



A3 1:500
10
20
30
N
Kerb to tie into tactile paving
New tactile paving for crossing point
New loading pad inset with reinforced footway, bollards to be provided at each end
New build out of pedestrian footway
Access to car park
New Build out of pedestrian footway
New tactile paving for crossing point, bollards to be provided on build out and pedestrian refuge
KEEP CLEAR
NO PARKING
Existing tactile paving retained for crossing point
Narrowing of footway to create a new loading layby, surfacing used to differentiate loading bay from carriageway
Two new on-street car club parking spaces, surfacing used to differentiate Car Club bays from carriageway
New build out of pedestrian footway
Removal of existing splitter island
New tactile paving for crossing point
New central island between service yard ramp, bollards to be provided
Existing lighting columns to be relocated
New tactile paving for crossing point
New central island, bollards to be provided
New build out of pedestrian footway
Location of relocated traffic signal heads
Traffic signal heads to be relocated

NOTES

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9

REV	DATE	REVISION NOTE	BY
P11	06.04.2021	Updated based on SCC Comments	LS
P9	12.02.2021	Updated based on SCC Comments	LS
P8	21.12.2020	Updated based on Road Safety Audit	LS
P7	17.12.2020	Updated based on comments	LS
P6	08.12.2020	Updated based on internal comments	TR
P4	24.09.2020	Updated based on internal comments	LS
P3	22.09.2020	Updated site layout	LS
P1	14.08.2020	Updated based on comments	LS

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CLIENT

Inland Ltd

PROJECT

Elmsleigh Road
Staines-upon-Thames

DRAWING TITLE

Proposed Highway Works

DRAWING ISSUE STATUS

PLANNING

PJA JOB No. SUB-CODE

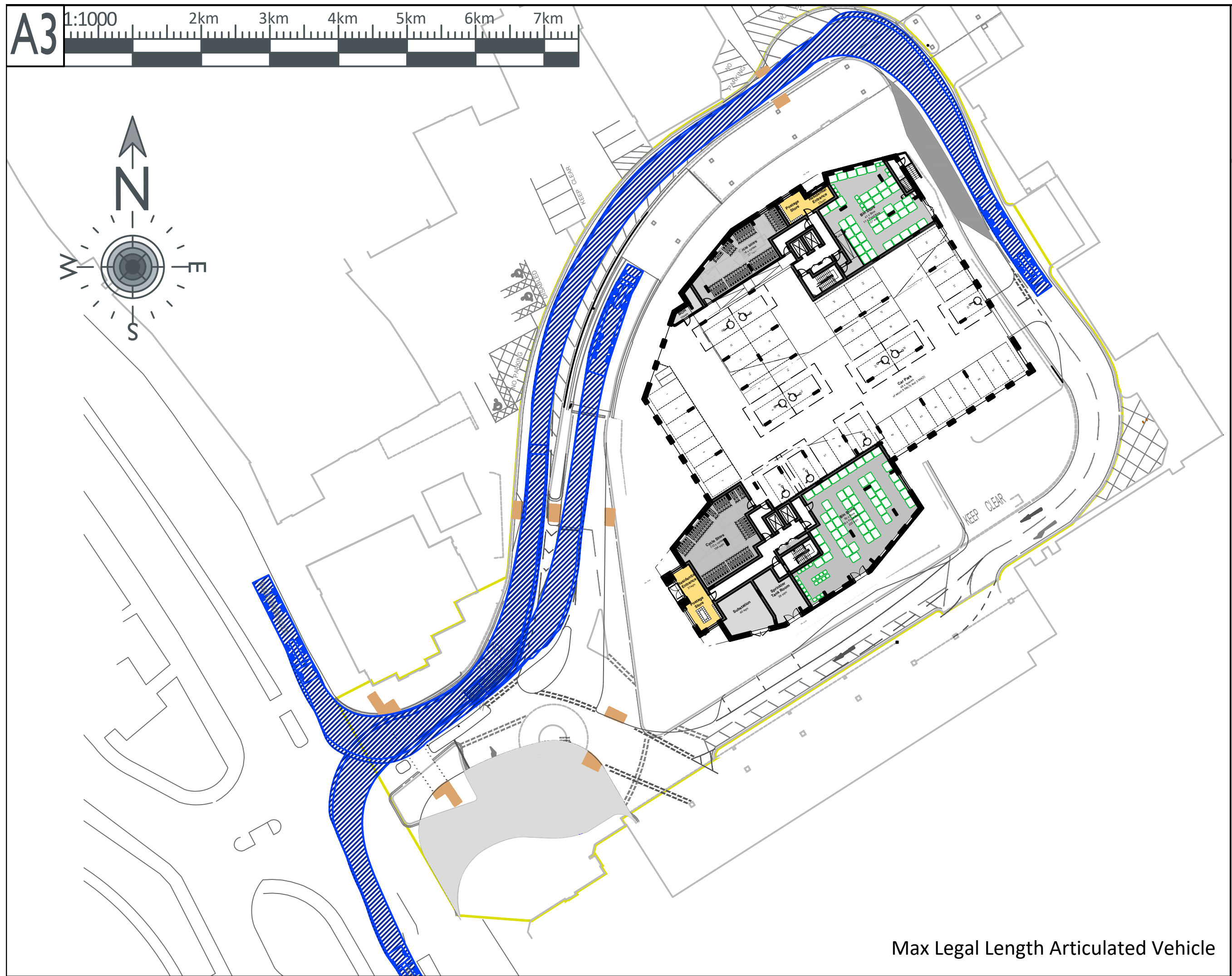
04550 - TR- 0014 - P11

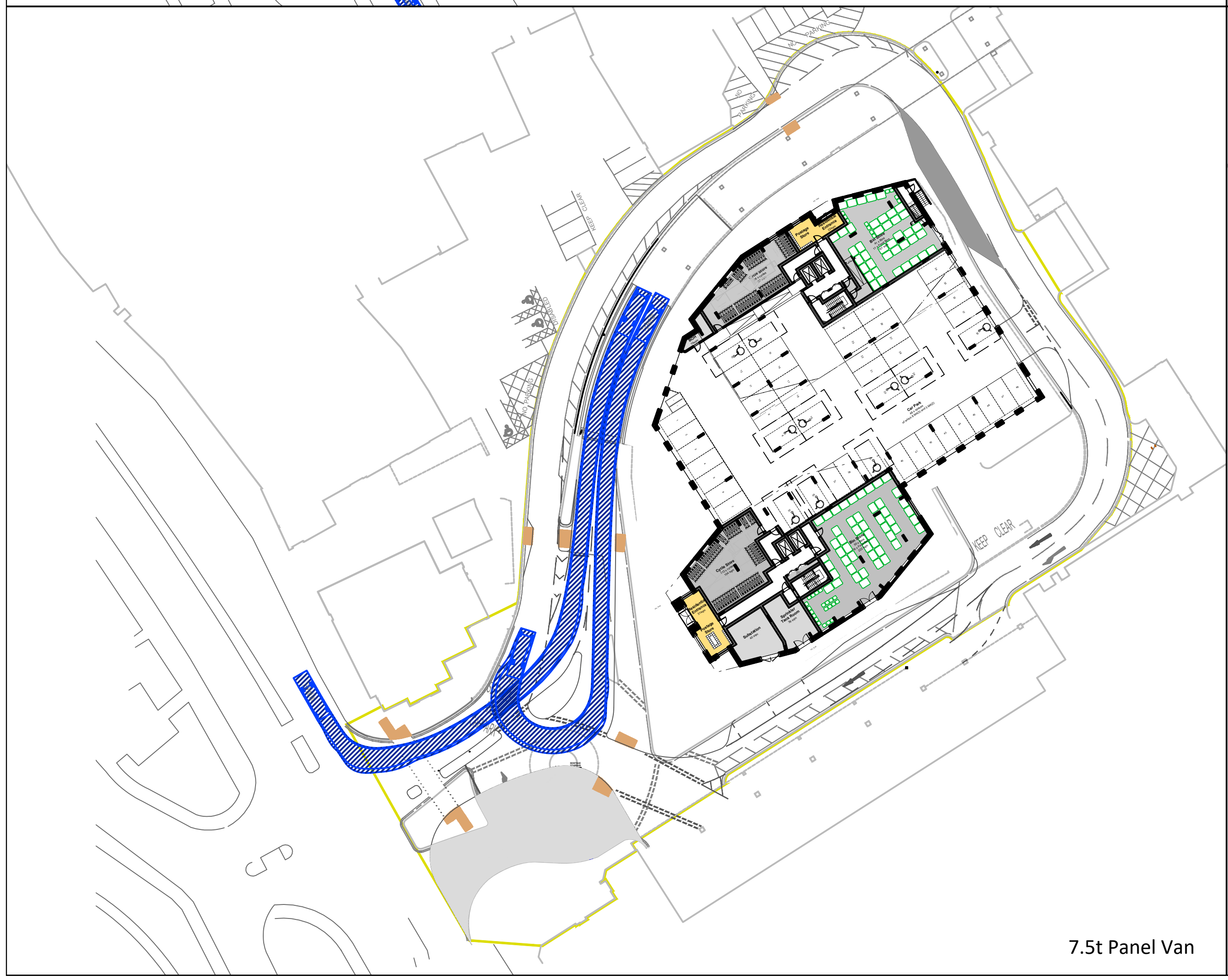
Revision Letter : P - Prelim / A - Approval / T - Tender / C - Construction

BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A3 @ 1:500	GS	MF	08/12/2020

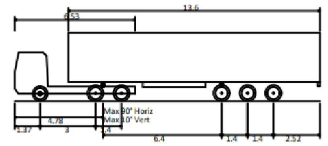
Appendix C Swept Path Analysis



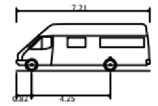


NOTES

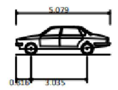
These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m



7.5t Panel Van	
Overall Length	7.210m
Overall Width	2.192m
Overall Body Height	2.544m
Min Body Ground Clearance	0.316m
Track Width	1.865m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.400m



Large Car (2006)	
Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.900m

REV	DATE	REVISION NOTE	BY
P6	06/04/2021	Updated highway layout	LS
P5	12/02/2021	Updated highway layout	LS
P4	17/12/2020	Updated highway layout	LS
P2	08/12/2020	Updated based on comments	TR
P1	24/09/2020	Updated based on comments	LS

PJA
The Aquarium - King Street
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Exeter - London - Reading
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CLIENT
Inland Ltd

PROJECT
Elmsleigh Road
Staines-upon-Thames

DRAWING TITLE
Proposed Highway Works
Swept Path Analysis

DRAWING ISSUE STATUS
PLANNING

PJA JOB No. SUB-CODE
04550 - TR- 0017 - P6

Revision Letter : P - Prelim / A - Approval / T - Tender / C - Construction

BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A3 @ 1:1000	TR	MF	08/12/2020

Appendix D SCC Model Audit Spreadsheets

Comment Number	Category	Sub-Category	Location	Comment	Recommendation	Grade
1	LinSig_Network_Coding	Arms		The layout mainly looks appropriate. It is thought that perhaps one could consider including the Elmsleigh Road roundabout, but due to the lack of flow using it as a roundabout, it is OK not to include it in the model. Perhaps if flow patterns were to change this should be reviewed.	Consider including Elmsleigh Road if flow patterns were to change.	Info Only
2	LinSig_Network_Coding	Lanes		The application of long and short lanes is considered appropriate. The flare (Arm 2:1) is informal and unmarked but driver behaviour uses it as it is modelled.		Info Only
3	LinSig_Network_Coding	Lane length		Apart from the short lane Arm 2:1, lane lengths have all been left at the default of 60 PCU. This should be edited where the next significant junction lies within this. Therefore, it is recommended to change the lane length of Arm 3 Thames Street (S), perhaps also Elmsleigh Road and Riverside since they do not extend that far.	Consider changing the lane length of Arm 3 Thames Street (S).	1
4	LinSig_Network_Coding	Saturation flows		All saturation flows have been geometrically calculated. This approach is considered acceptable.		Info Only
5	LinSig_Network_Coding	Saturation flows	Widths, radii and blocking	Lane widths and radii are considered appropriate. Some radii are thought to be a little tight but this will only slightly negatively impact the results giving a slightly worse case scenario. Arm 1:2 and Arm 3:2 each have non-blocking storage for 2 PCUs for right turners, this is suitable.		Info Only
6	LinSig_Network_Coding	Saturation flows	Nearside treatment	Nearside treatment within the model is considered appropriate.		Info Only
7	LinSig_Network_Coding	Queue de-sliver		There are no De Sliver queues in the model.		Info Only
8	LinSig_Network_Coding	Give-way movements		Arm 1:2 and Arm 3:2 right turns have been modelled with a giveway. This is correct along with their coefficients and the use of Lane Saturation flow.		Info Only
9	LinSig_Network_Coding	Connectors	Including cruise time/speed in networks	All present and correct.		Info Only
10	LinSig_Network_Coding	Zones		Zone allocation and connectors present and correct.		Info Only
11	LinSig_Network_Coding	Routes		There is one overall zoning system for the model. Vehicles do not have the option of alternative routes.		Info Only
12	LinSig_Network_Coding	Controllers		One controller has been set up for testing (C1). The controller type has been set as 'Generic', but it should be Siemens. Please edit this.	Please change the controller type to Siemens.	3
13	LinSig_Network_Coding	Pedestrian links, zones, connectors and flows		Formal pedestrian crossings exist on each arm of the junction. These operate as an all-red. They have been input into the model as one Phase (E) which matches the controller specification. No pedestrian flow has been entered which is fine, but the level of service for pedestrians cannot be derived whilst this is the case.	Add a pedestrian flow of 1 if you wish to get an idea of pedestrian level of service.	Info Only
14	LinSig_Network_Coding	Phase labelling		The phase labelling matches the controller specification.		Info Only
15	LinSig_Network_Coding	Minimum greens		Minimum greens are 7 seconds for each phase.		Info Only
16	LinSig_Network_Coding	Intergreens		Modelled intergreens match the controller specification.		Info Only
17	LinSig_Network_Coding	Stage Sequence		The AM (1,3,4,1,2,3) and PM (1,3,4,1,2,3,4) Stage Sequences match the description in the TA "The model was run with the pedestrian stage called every second cycle. In the AM peak, the Riverside approach was run every other cycle, whilst in the PM peak this approach was run every cycle. This reflects the traffic flows, with just 19 vehicles exiting Riverside in the AM peak and 61 exiting in the PM peak." There is no specific Saturday Stage Sequence, instead PM has been used. This is thought to be appropriate since the traffic flow patterns are similar.		Info Only
18	LinSig_Network_Coding	Phase delays	Phase delays	No phase delays have been modelled.		Info Only
19	LinSig_Network_Coding	Underutilised Green Time	Bonus greens	Bonus greens have not been modelled.		Info Only
20	LinSig_Network_Coding	Prohibited moves		There are no prohibited moves in the model.		Info Only
21	LinSig_Network_Coding	Surveys - amount, time period, peak hour		A single day of Classified Turning Counts were carried out at this junction per day type (Friday 30th Jan. 2020 & Saturday 1st Feb. 2020). It is thought that Tuesday - Thursday should be used for weekday AM/PM data, similarly January is not a "neutral" month. Therefore, AM/PM surveys should be viewed with caution. Note that these dates would not have been affected by coronavirus restrictions. It is preferred to have at least three days worth of survey data.	AM/PM data should be treated with caution since Tues-Thurs is preferred to Friday and January is not a "neutral" month.	2
22	LinSig_Network_Coding	Flow matrices		Flow matrices match those provided in S-04-B-NetworkDiagram.		Info Only
23	LinSig_Network_Coding	Queue surveys		A single day of Queue surveys were carried out at this junction per day type (Friday 30th Jan. 2020 & Saturday 1st Feb. 2020). Due to queue variability, it is preferred to have at least 3 days worth of surveys. It is thought that Tuesday - Thursday should be used for AM/PM data, similarly January is not a "neutral" month. Therefore, AM/PM surveys should be viewed with caution.	AM/PM data should be treated with caution since Tues-Thurs is preferred to Friday and January is not a "neutral" month. At least three days worth of queue length survey data would be advised if this modelling is ever updated.	2
24	LinSig_Network_Coding	Is the model fit for purpose?		LinSig is appropriate for this junction.		Info Only
25	LinSig_Network_Coding	Scenarios		Five scenarios have been set up in the model, representing: - 2020 AM Base 0745 - 0845; - 2020 PM Base 1700 - 1800; - 2020 Saturday Peak Base 11.45 - 1245; - 2025 AM Future year 0745 - 0845; and - 2025 PM Future year 1700 - 1800. The TA states that "Given that of the three peak periods the junction performs best on a Saturday, and the proposed development would have the lowest trip generation on a Saturday, it was not considered necessary to include this time period in future scenarios." (6.4.6). Whilst this is true for the PRC, the DoS, Delay and MMQ are worse (or on occasion the same) on Saturday than the AM. Also the demand will have a different pattern on the weekend, particularly the retail car park accessed by Elmsleigh Road. Additionally, given that the base Saturday model is already built it would not be too difficult model the future year. Therefore, it is thought that 2025 Saturday Peak Future year should be modelled.	Please also model 2025 Saturday Peak Future year.	4
26	LinSig_Network_Coding	Optimisation		Cycle time has been optimised with a maximum time of 120s due to "The junction operates under MOVA, and this method therefore provides a best representation of the cycle time optimisation that occurs as the junction operates" (TA 6.4.5). This is accepted.		Info Only
27	LinSig_Output	Cycle time		The cycle time is 120 seconds, which is appropriate.		Info Only
28	LinSig_Output	Signal timings		The signal timings look sensible with all falling between their minimums and maximums.		Info Only
2020 Base						
29	LinSig_Output	PRC	AM Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
30	LinSig_Output	Degree of Saturation				Info Only
31	LinSig_Output	Mean max queues				Info Only
32	LinSig_Output	Delay				Info Only
33	LinSig_Output	PRC	PM Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
34	LinSig_Output	Degree of Saturation				Info Only
35	LinSig_Output	Mean max queues				Info Only
36	LinSig_Output	Delay				Info Only
37	LinSig_Output	PRC	Saturday Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
38	LinSig_Output	Degree of Saturation				Info Only
39	LinSig_Output	Mean max queues				Info Only
40	LinSig_Output	Delay				Info Only
2025 Future year						
41	LinSig_Output	PRC	AM Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
42	LinSig_Output	Degree of Saturation				Info Only
43	LinSig_Output	Mean max queues				Info Only
44	LinSig_Output	Delay				Info Only
45	LinSig_Output	PRC	PM Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
46	LinSig_Output	Degree of Saturation				Info Only
47	LinSig_Output	Mean max queues				Info Only
48	LinSig_Output	Delay				Info Only
49	LinSig_Output	PRC	Saturday Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
50	LinSig_Output	Degree of Saturation				Info Only
51	LinSig_Output	Mean max queues				Info Only
52	LinSig_Output	Delay				Info Only

Comment Number	Category	Sub-Category	Location	Comment	Recommendation	Grade
1	LinSig_Network_Coding	Arms		The layout is appropriate for the proposed drawing.		Info Only
2	LinSig_Network_Coding	Lanes		The application of long and short lanes is considered appropriate.		Info Only
3	LinSig_Network_Coding	Lane length		Lane lengths have all been left at the default of 60 PCU. This should be edited where the next significant junction lies within this. Therefore, it is recommended to change the lane length of Arm 3 Thames Street (S), perhaps also Elmsleigh Road and Riverside since they do not extend that far.	Consider changing the lane length of Arm 3 Thames Street (S).	1
4	LinSig_Network_Coding	Saturation flows		All saturation flows have been geometrically calculated. This approach is considered acceptable.		Info Only
5	LinSig_Network_Coding	Saturation flows	Widths, radii and blocking	Lane widths and radii are considered appropriate. Arm 1:2 and Arm 3:2 each have non-blocking storage for 2 PCUs for right turners, this is suitable.		Info Only
6	LinSig_Network_Coding	Saturation flows	Nearside treatment	Nearside treatment within the model is considered appropriate.		Info Only
7	LinSig_Network_Coding	Queue de-sliver		There are no De Sliver queues in the model.		Info Only
8	LinSig_Network_Coding	Give-way movements		Arm 1:2 and Arm 3:2 right turns have been modelled with a giveway. This is correct along with their coefficients and the use of Lane Saturation flow.		Info Only
9	LinSig_Network_Coding	Connectors	Including cruise time/speed in networks	All present and correct.		Info Only
10	LinSig_Network_Coding	Zones		Zone allocation and connectors present and correct.		Info Only
11	LinSig_Network_Coding	Routes		There is one overall zoning system for the model. Vehicles do not have the option of alternative routes.		Info Only
12	LinSig_Network_Coding	Controllers		One controller has been set up for testing (C1). The controller type has been set as 'Generic', but it should be Siemens. Please edit this.	Please change the controller type to Siemens.	3
13	LinSig_Network_Coding	Pedestrian links, zones, connectors and flows		Formal pedestrian crossings exist on each arm of the junction. These operate as an all-red. They have been input into the model as one Phase (E) which matches the controller specification. No pedestrian flow has been entered which is fine, but the level of service for pedestrians cannot be derived whilst this is the case.	Add a pedestrian flow of 1 if you wish to get an idea of pedestrian level of service.	Info Only
14	LinSig_Network_Coding	Phase labelling		The phase labelling is appropriate.		Info Only
15	LinSig_Network_Coding	Minimum greens		Minimum greens are 7 seconds for each phase.		Info Only
16	LinSig_Network_Coding	Intergreens		Modelled intergreens have been updated according to the new layout, these differ from the model specification going to Phase C (Elmsleigh Road) and from Phases D and E to Phase C. Ed Smith (SCC Signals team) has checked these and deemed them appropriate.		Info Only
17	LinSig_Network_Coding	Stage Sequence		The Stage sequence is unchanged from the Base model, this is suitable.		Info Only
18	LinSig_Network_Coding	Phase delays	Phase delays	No phase delays have been modelled.		Info Only
19	LinSig_Network_Coding	Underutilised Green Time	Bonus greens	Bonus greens have not been modelled.		Info Only
20	LinSig_Network_Coding	Prohibited moves		There are no prohibited moves in the model.		Info Only
22	LinSig_Network_Coding	Flow matrices		Flow matrices match those provided in S-04-B-NetworkDiagram.		Info Only
23	LinSig_Network_Coding	Is the model fit for purpose?		LinSig is appropriate for this junction.		Info Only
24	LinSig_Network_Coding	Scenarios		Two scenarios have been set up in the model, representing: - 2025 AM Future year with Development 0745 - 0845; and - 2025 PM Future year with development 1700 - 1800. The TA states that "Given that of the three peak periods the junction performs best on a Saturday, and the proposed development would have the lowest trip generation on a Saturday, it was not considered necessary to include this time period in future scenarios." (6.4.6). Whilst this is true for the PRC, the DoS, Delay and MMQ are worse (or on occasion the same) on Saturday than the AM. Also the demand will have a different pattern on the weekend, particularly the retail car park accessed by Elmsleigh Road. Additionally, given that the base Saturday model is already built it would not be too difficult model the future year. Therefore, it is thought that 2025 Saturday Peak Future year with development should be modelled.	Please also model 2025 Saturday Future year with development.	3
25	LinSig_Network_Coding	Optimisation		Cycle time has been optimised with a maximum time of 120s due to "The junction operates under MOVA, and this method therefore provides a best representation of the cycle time optimisation that occurs as the junction operates" (TA 6.4.5). This is accepted.		Info Only
26	LinSig_Output	Cycle time		The cycle time is 120 seconds, which is appropriate.		Info Only
27	LinSig_Output	Signal timings		The signal timings look sensible.		Info Only
				2025 Future year with development		
28	LinSig_Output	PRC	AM Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
29	LinSig_Output	Degree of Saturation				Info Only
30	LinSig_Output	Mean max queues				Info Only
31	LinSig_Output	Delay				Info Only
32	LinSig_Output	PRC	PM Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
33	LinSig_Output	Degree of Saturation				Info Only
34	LinSig_Output	Mean max queues				Info Only
35	LinSig_Output	Delay				Info Only
36	LinSig_Output	PRC	Saturday Peak	To prevent redundant work, this is yet to be reviewed.		Info Only
37	LinSig_Output	Degree of Saturation				Info Only
38	LinSig_Output	Mean max queues				Info Only
39	LinSig_Output	Delay				Info Only

Appendix E TRICS Saturday Outputs

Calculation Reference: AUDIT-231601-210407-0440

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED

TOTAL VEHICLES

Selected regions and areas:

02 SOUTH EAST
SC SURREY 1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
Actual Range: 52 to 52 (units:)
Range Selected by User: 6 to 215 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 16/10/20

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Saturday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 1 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Suburban Area (PPS6 Out of Centre) 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Residential Zone 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
C3 1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:
1,001 to 5,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
100,001 to 125,000 1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:
1.1 to 1.5 1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:
No 1 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
No PTAL Present 1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 SC-03-C-03 FLATS SURREY
KINGS ROAD
WOKING

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 52
Survey date: SATURDAY 19/07/08 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DS-03-C-02	Not within 1km of a railway station

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	52	0.019	1	52	0.077	1	52	0.096
08:00 - 09:00	1	52	0.058	1	52	0.058	1	52	0.116
09:00 - 10:00	1	52	0.058	**1**	**52**	**0.135**	1	52	0.193
10:00 - 11:00	1	52	0.077	1	52	0.135	1	52	0.212
11:00 - 12:00	1	52	0.096	1	52	0.135	**1**	**52**	**0.231**
12:00 - 13:00	1	52	0.058	1	52	0.058	1	52	0.116
13:00 - 14:00	1	52	0.115	1	52	0.096	1	52	0.211
14:00 - 15:00	1	52	0.077	1	52	0.019	1	52	0.096
15:00 - 16:00	1	52	0.058	1	52	0.038	1	52	0.096
16:00 - 17:00	**1**	**52**	**0.135**	1	52	0.096	1	52	0.231
17:00 - 18:00	1	52	0.096	1	52	0.077	1	52	0.173
18:00 - 19:00	1	52	0.058	1	52	0.058	1	52	0.116
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.905			0.982			1.887

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	52 - 52 (units:)
Survey date date range:	01/01/00 - 16/10/20
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	1
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	1

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

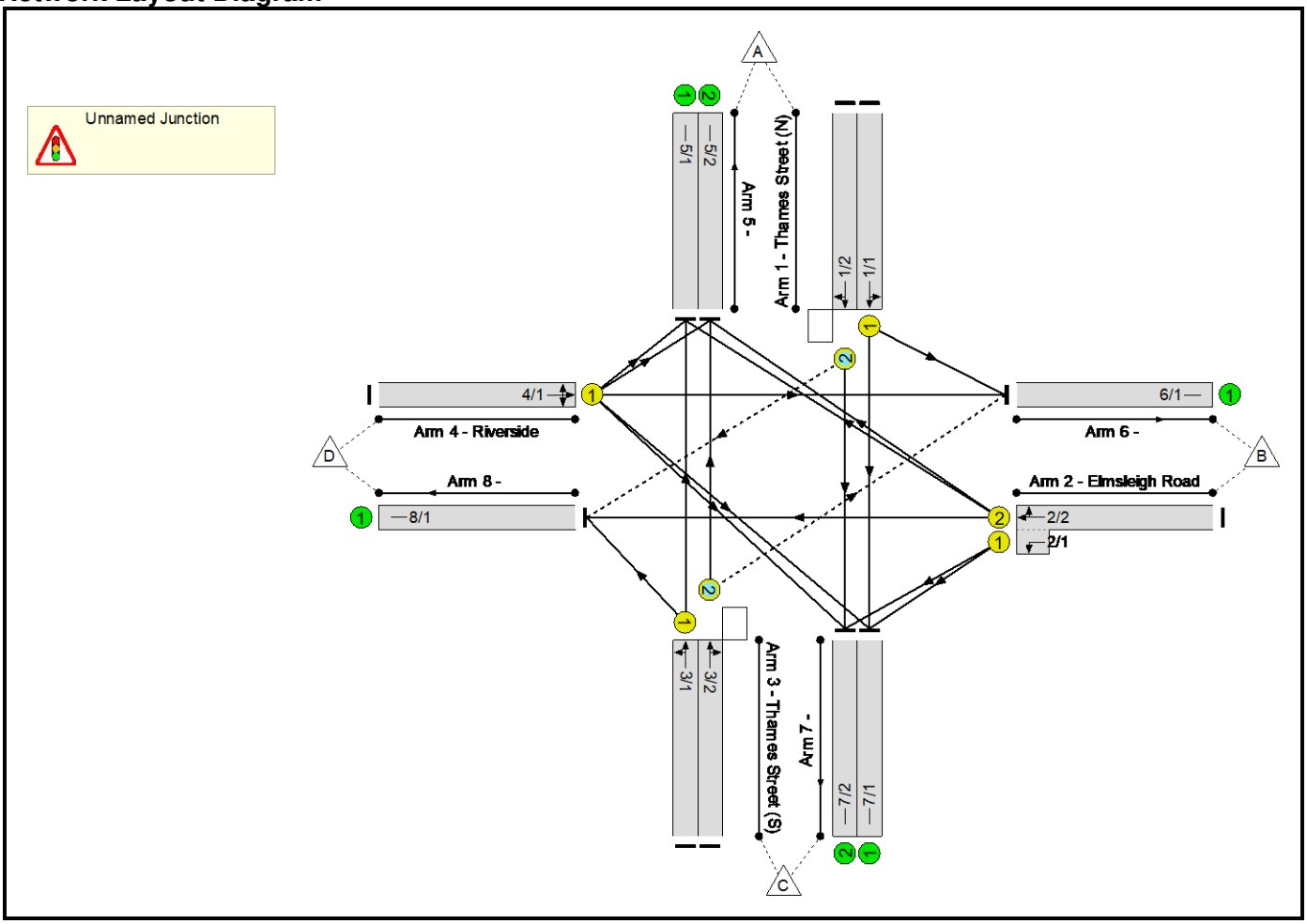
Appendix F LinSig Model Ouputs

Full Input Data And Results

User and Project Details

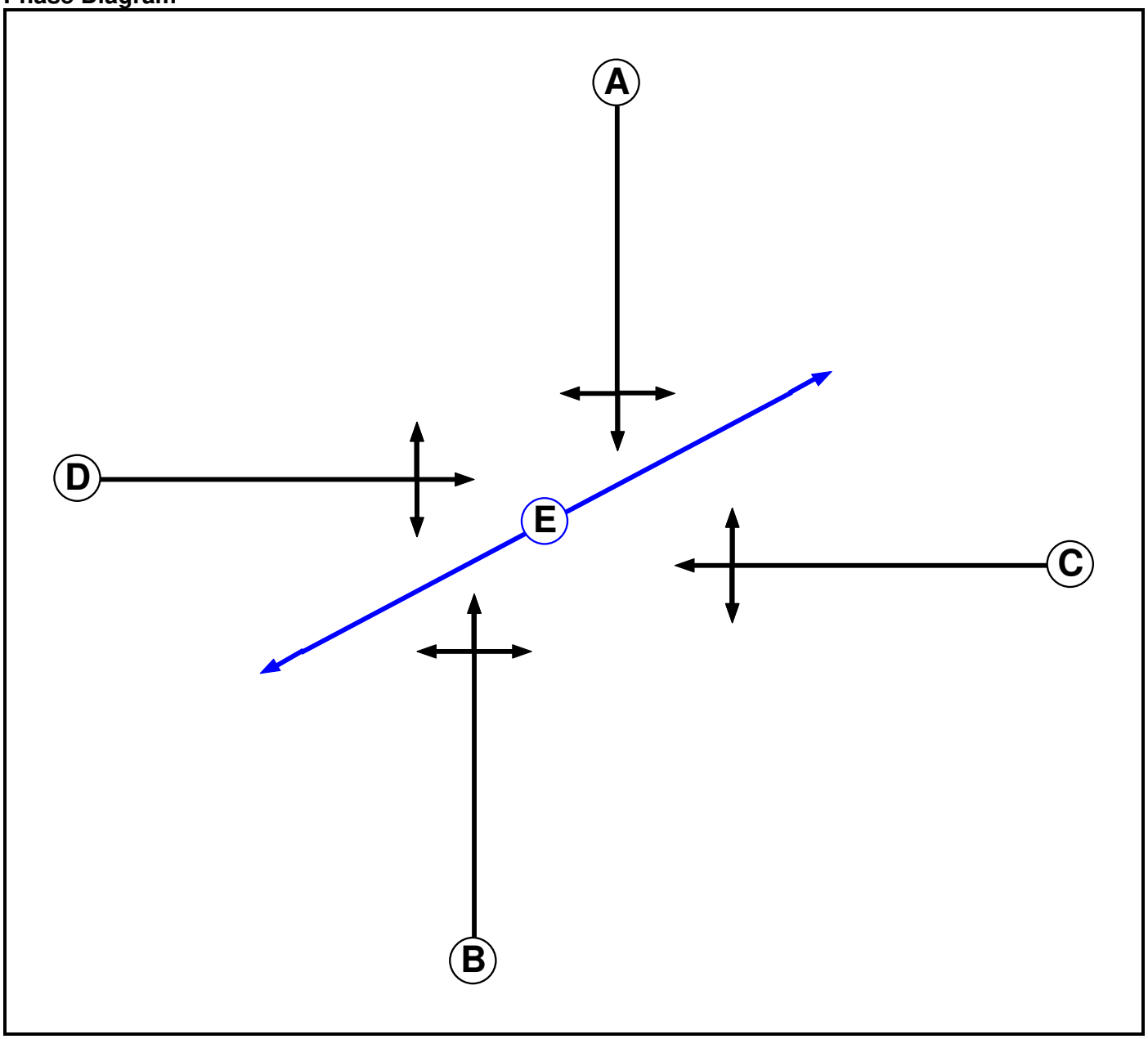
	Elmsleigh Road
	Thames Street / Elmsleigh Road (Existing)
	Staines
	Inland Homes 10/12/2019
File name:	04550-M-01-D-ThamesSt_ElmsleighRd_Existing.lsg3x
Author:	Lucy Smith
Company:	PJA
Address:	Unit 1, The Aquarium, 1-7 King Street, Reading, RG1 2AN

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7

Full Input Data And Results

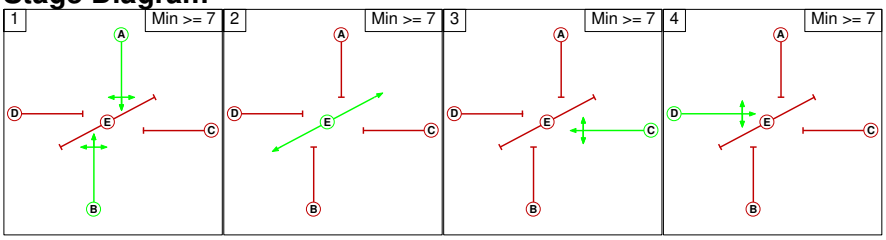
Phase Intergreens Matrix

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

Phases in Stage

1	A B
2	E
3	C
4	D

Stage Diagram



Phase Delays

There are no Phase Delays defined

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		7	7	7
	2	12		12	12
	3	5	12		9
	4	5	12	9	

Full Input Data And Results

Give-Way Lane Input Data

1/2 (Thames Street (N))	8/1 (Right)	1440	0	3/1	1.09	All	2.00	2.00	0.50	2	2.00
				3/2	1.09	To 5/2 (Ahead)					
3/2 (Thames Street (S))	6/1 (Right)	1440	0	1/2	1.09	To 7/2 (Ahead)	2.00	2.00	0.50	2	2.00
				1/1	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Thames Street (N))	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 6 Left	10.00
											Arm 7 Ahead	Inf
1/2 (Thames Street (N))	O	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
											Arm 8 Right	10.00
2/1 (Elmsleigh Road)	U	C	2	3	2.0	Geom	-	3.25	0.00	Y	Arm 7 Left	10.00
2/2 (Elmsleigh Road)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Right	20.00
											Arm 8 Ahead	Inf
3/1 (Thames Street (S))	U	B	2	3	13.0	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	7.50
3/2 (Thames Street (S))	O	B	2	3	13.0	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	10.00
4/1 (Riverside)	U	D	2	3	7.8	Geom	-	3.25	0.00	Y	Arm 5 Left	8.00
											Arm 6 Ahead	Inf
											Arm 7 Right	8.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/2	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

1: '2020 AM Peak'	07:45	08:45	01:00	
2: '2020 PM Peak'	17:00	18:00	01:00	
3: '2020 Saturday Peak'	11:45	12:45	01:00	
4: '2025 AM Peak'	07:45	08:45	01:00	
5: '2025 PM Peak'	17:00	18:00	01:00	
6: '2025 Saturday Peak'	11:45	12:45	01:00	

Scenario 1: '2020 AM Peak' (FG1: '2020 AM Peak', Plan 1: 'AM Peak')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	46	611	14	671
	B	6	0	7	0	13
	C	1105	43	0	28	1176
	D	7	0	12	0	19
	Tot.	1118	89	630	42	1879

Traffic Lane Flows

Lane	Scenario 1: 2020 AM Peak
Junction: Unnamed Junction	
1/1	331
1/2	340
2/1 (short)	7
2/2 (with short)	13(In) 6(Out)
3/1	589
3/2	587
4/1	19
5/1	567
5/2	551
6/1	89
7/1	294
7/2	336
8/1	42

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	10.00	13.9 %	1900	1900
				Arm 7 Ahead	Inf	86.1 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	95.9 %	1928	1928
				Arm 8 Right	10.00	4.1 %		
2/1 (Elmsleigh Road)	3.25	0.00	Y	Arm 7 Left	10.00	100.0 %	1687	1687
2/2 (Elmsleigh Road)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	95.2 %	1922	1922
				Arm 8 Left	7.50	4.8 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	92.7 %	1919	1919
				Arm 6 Right	10.00	7.3 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	36.8 %	1634	1634
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	8.00	63.2 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2020 PM Peak' (FG2: '2020 PM Peak', Plan 2: 'PM Peak')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	36	891	19	946
	B	57	0	74	0	131
	C	741	34	0	16	791
	D	27	1	33	0	61
	Tot.	825	71	998	35	1929

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2020 PM Peak
Junction: Unnamed Junction	
1/1	472
1/2	474
2/1 (short)	74
2/2 (with short)	131(In) 57(Out)
3/1	397
3/2	394
4/1	61
5/1	422
5/2	403
6/1	71
7/1	489
7/2	509
8/1	35

Full Input Data And Results

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	10.00	7.6 %	1918	1918
				Arm 7 Ahead	Inf	92.4 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	96.0 %	1928	1928
				Arm 8 Right	10.00	4.0 %		
2/1 (Elmsleigh Road)	3.25	0.00	Y	Arm 7 Left	10.00	100.0 %	1687	1687
2/2 (Elmsleigh Road)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	96.0 %	1924	1924
				Arm 8 Left	7.50	4.0 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	91.4 %	1915	1915
				Arm 6 Right	10.00	8.6 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	44.3 %	1638	1638
				Arm 6 Ahead	Inf	1.6 %		
				Arm 7 Right	8.00	54.1 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2020 Saturday Peak' (FG3: '2020 Saturday Peak', Plan 2: 'PM Peak')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	75	653	27	755
	B	67	0	43	3	113
	C	703	46	0	35	784
	D	31	0	28	0	59
	Tot.	801	121	724	65	1711

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2020 Saturday Peak
Junction: Unnamed Junction	
1/1	373
1/2	382
2/1 (short)	43
2/2 (with short)	113(In) 70(Out)
3/1	392
3/2	392
4/1	59
5/1	405
5/2	396
6/1	121
7/1	333
7/2	391
8/1	65

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	10.00	20.1 %	1883	1883
				Arm 7 Ahead	Inf	79.9 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	92.9 %	1920	1920
				Arm 8 Right	10.00	7.1 %		
2/1 (Elmsleigh Road)	3.25	0.00	Y	Arm 7 Left	10.00	100.0 %	1687	1687
2/2 (Elmsleigh Road)	3.25	0.00	Y	Arm 5 Right	20.00	95.7 %	1810	1810
				Arm 8 Ahead	Inf	4.3 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	91.1 %	1906	1906
				Arm 8 Left	7.50	8.9 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	88.3 %	1906	1906
				Arm 6 Right	10.00	11.7 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	52.5 %	1634	1634
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	8.00	47.5 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2025 AM Peak' (FG4: '2025 AM Peak', Plan 1: 'AM Peak')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	48	640	15	703
	B	6	0	7	0	13
	C	1156	45	0	29	1230
	D	7	0	13	0	20
	Tot.	1169	93	660	44	1966

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2025 AM Peak
Junction: Unnamed Junction	
1/1	347
1/2	356
2/1 (short)	7
2/2 (with short)	13(In) 6(Out)
3/1	616
3/2	614
4/1	20
5/1	593
5/2	576
6/1	93
7/1	308
7/2	352
8/1	44

Full Input Data And Results

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	10.00	13.8 %	1901	1901
				Arm 7 Ahead	Inf	86.2 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	95.8 %	1928	1928
				Arm 8 Right	10.00	4.2 %		
2/1 (Elmsleigh Road)	3.25	0.00	Y	Arm 7 Left	10.00	100.0 %	1687	1687
2/2 (Elmsleigh Road)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	95.3 %	1922	1922
				Arm 8 Left	7.50	4.7 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	92.7 %	1919	1919
				Arm 6 Right	10.00	7.3 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	35.0 %	1634	1634
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	8.00	65.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2025 PM Peak' (FG5: '2025 PM Peak', Plan 2: 'PM Peak')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	38	931	20	989
	B	60	0	78	0	138
	C	775	36	0	17	828
	D	29	1	34	0	64
	Tot.	864	75	1043	37	2019

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2025 PM Peak
Junction: Unnamed Junction	
1/1	493
1/2	496
2/1 (short)	78
2/2 (with short)	138(In) 60(Out)
3/1	415
3/2	413
4/1	64
5/1	442
5/2	422
6/1	75
7/1	511
7/2	532
8/1	37

Full Input Data And Results

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	10.00	7.7 %	1918	1918
				Arm 7 Ahead	Inf	92.3 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	96.0 %	1928	1928
				Arm 8 Right	10.00	4.0 %		
2/1 (Elmsleigh Road)	3.25	0.00	Y	Arm 7 Left	10.00	100.0 %	1687	1687
2/2 (Elmsleigh Road)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	95.9 %	1924	1924
				Arm 8 Left	7.50	4.1 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	91.3 %	1915	1915
				Arm 6 Right	10.00	8.7 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	45.3 %	1638	1638
				Arm 6 Ahead	Inf	1.6 %		
				Arm 7 Right	8.00	53.1 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2025 Saturday Peak' (FG6: '2025 Saturday Peak', Plan 2: 'PM Peak')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	79	685	28	792
	B	70	0	45	3	118
	C	738	49	0	37	824
	D	33	0	29	0	62
	Tot.	841	128	759	68	1796

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2025 Saturday Peak
Junction: Unnamed Junction	
1/1	391
1/2	401
2/1 (short)	45
2/2 (with short)	118(In) 73(Out)
3/1	412
3/2	412
4/1	62
5/1	426
5/2	415
6/1	128
7/1	348
7/2	411
8/1	68

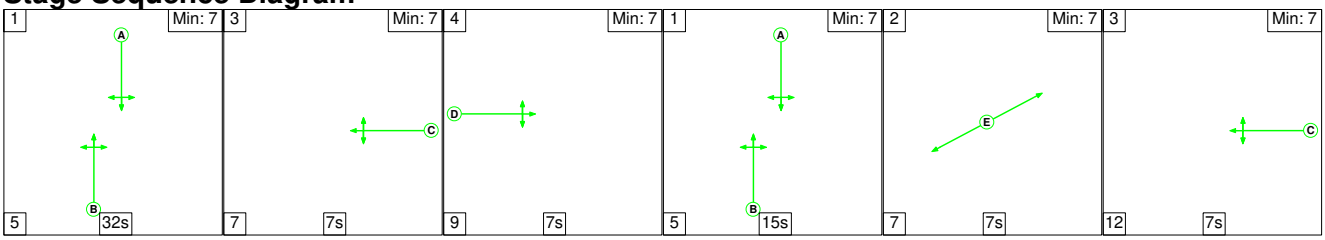
Full Input Data And Results

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	10.00	20.2 %	1883	1883
				Arm 7 Ahead	Inf	79.8 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	93.0 %	1920	1920
				Arm 8 Right	10.00	7.0 %		
2/1 (Elmsleigh Road)	3.25	0.00	Y	Arm 7 Left	10.00	100.0 %	1687	1687
2/2 (Elmsleigh Road)	3.25	0.00	Y	Arm 5 Right	20.00	95.9 %	1810	1810
				Arm 8 Ahead	Inf	4.1 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	91.0 %	1906	1906
				Arm 8 Left	7.50	9.0 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	88.1 %	1906	1906
				Arm 6 Right	10.00	11.9 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	53.2 %	1634	1634
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	8.00	46.8 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2020 AM Peak' (FG1: '2020 AM Peak', Plan 1: 'AM Peak')

Stage Sequence Diagram

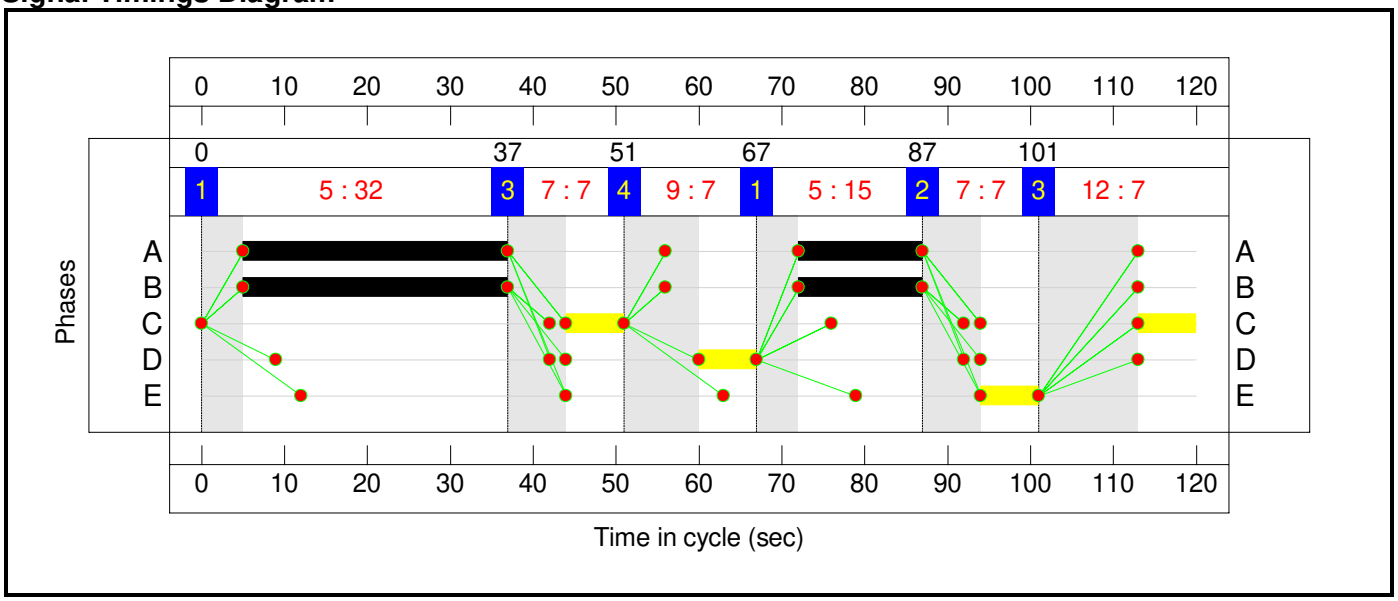


Stage Timings

Stage	1	3	4	1	2	3
Duration	32	7	7	15	7	7
Change Point	0	37	51	67	87	101

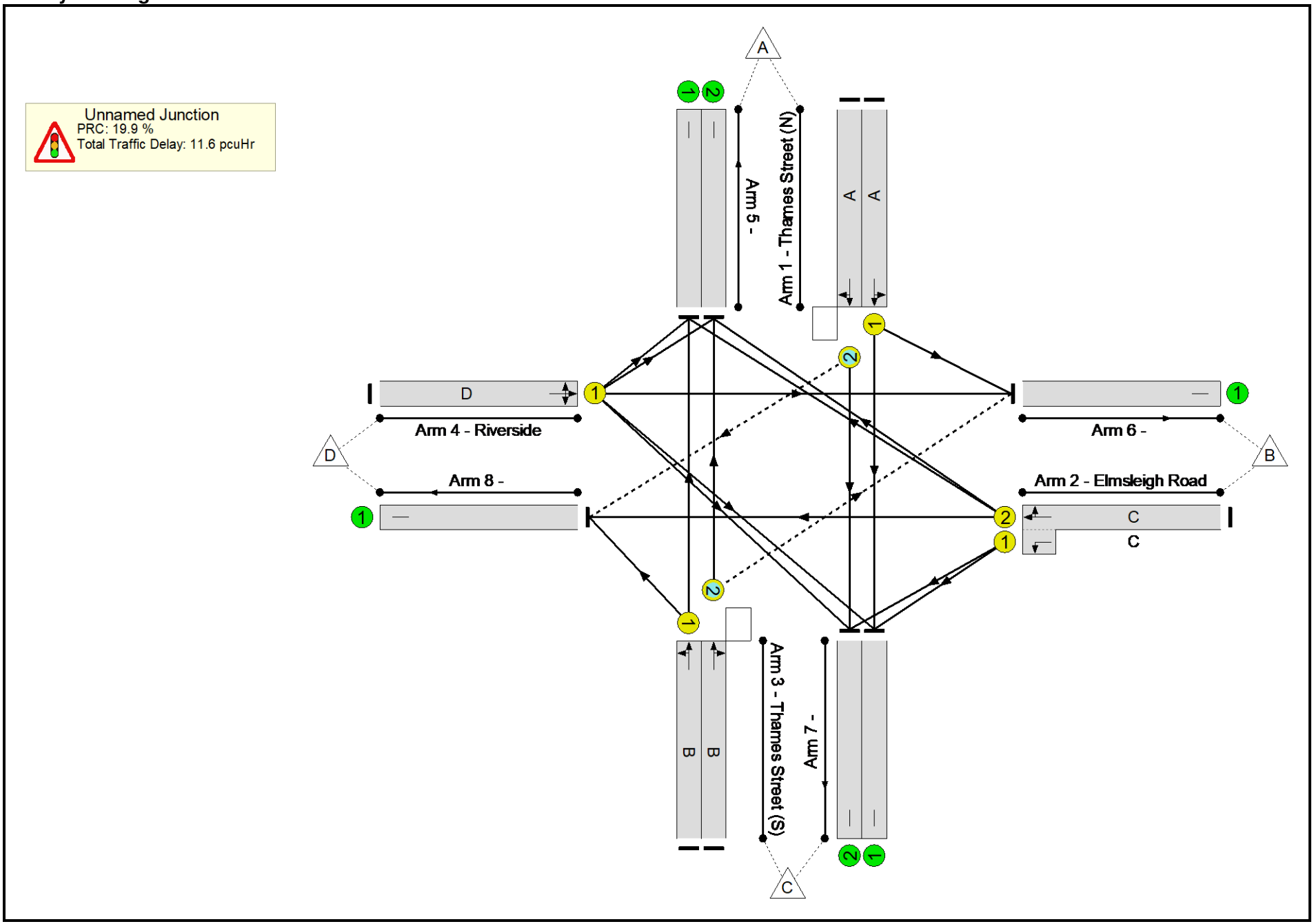
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Thames Street / Elmsleigh Road (Existing)	-	-	**N/A**	-	-		-	-	-	-	-	-	**75.0%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**75.0%**
1/1	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	47	-	331	1900	776	42.7%
1/2	Thames Street (N) Ahead Right	O	N/A	N/A	A		2	47	-	340	1928	787	43.2%
2/2+2/1	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	13	1805:1687	156+182	3.8 : 3.8%
3/1	Thames Street (S) Ahead Left	U	N/A	N/A	B		2	47	-	589	1922	785	75.0%
3/2	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	47	-	587	1919	784	74.9%
4/1	Riverside Left Ahead Right	U	N/A	N/A	D		1	7	-	19	1634	109	17.4%
5/1		U	N/A	N/A	-		-	-	-	567	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	551	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	89	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	294	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	336	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	42	Inf	Inf	0.0%

Full Input Data And Results

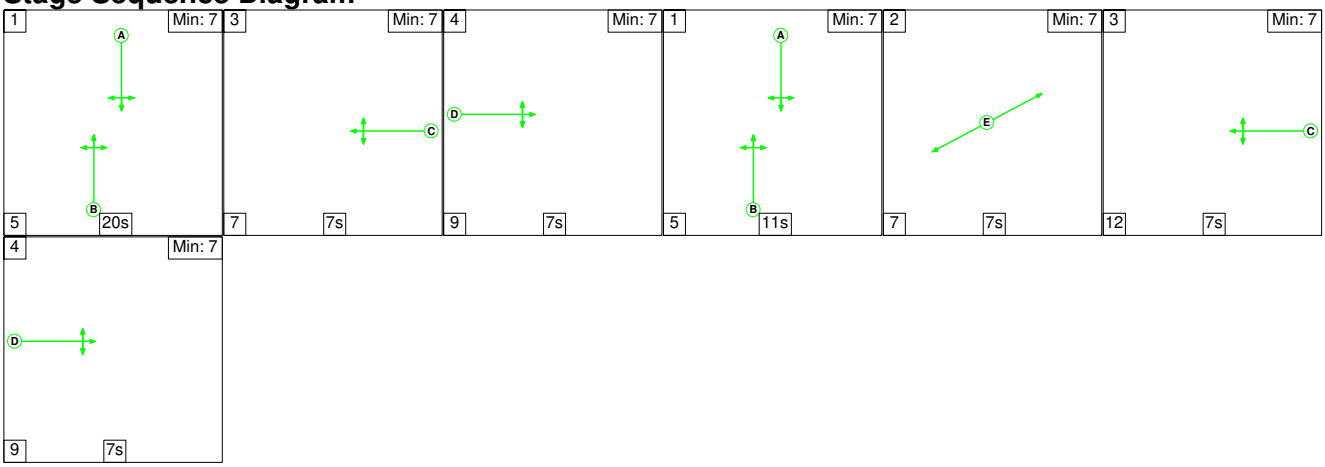
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Existing)	**-**	**-**	**53**	**0**	**4**	**7.7**	**3.8**	**0.1**	**11.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**53**	**0**	**4**	**7.7**	**3.8**	**0.1**	**11.6**	**-**	**-**	**-**	**-**
1/1	331	331	-	-	-	1.2	0.4	-	1.5	16.8	4.0	0.4	4.4
1/2	340	340	10	0	4	1.2	0.4	0.0	1.6	17.2	4.2	0.4	4.5
2/2+2/1	13	13	-	-	-	0.1	0.0	-	0.1	29.2	0.1	0.0	0.1
3/1	589	589	-	-	-	2.5	1.5	-	4.0	24.2	8.7	1.5	10.2
3/2	587	587	43	0	0	2.5	1.5	0.0	4.0	24.3	8.6	1.5	10.1
4/1	19	19	-	-	-	0.3	0.1	-	0.4	72.9	0.6	0.1	0.7
5/1	567	567	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	551	551	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	89	89	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	294	294	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	336	336	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	42	42	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 19.9 Total Delay for Signalled Lanes (pcuHr): 11.59 Cycle Time (s): 120
PRC Over All Lanes (%): 19.9 Total Delay Over All Lanes(pcuHr): 11.59

Full Input Data And Results

Scenario 2: '2020 PM Peak' (FG2: '2020 PM Peak', Plan 2: 'PM Peak')

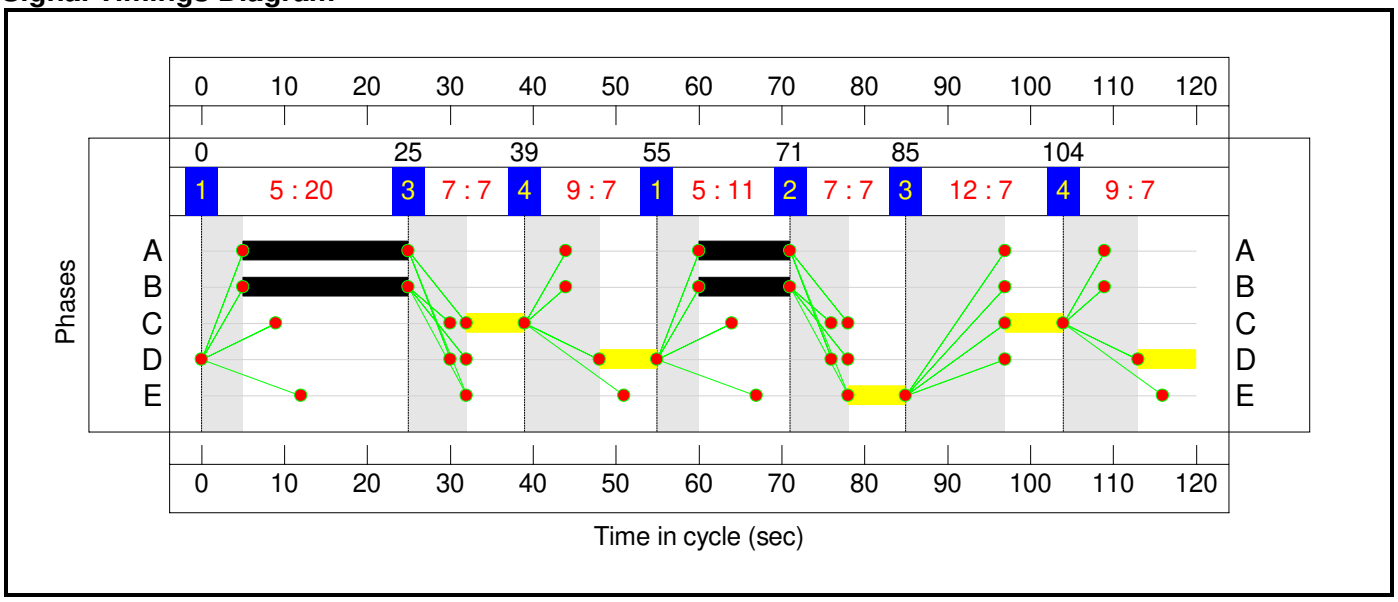
Stage Sequence Diagram



Stage Timings

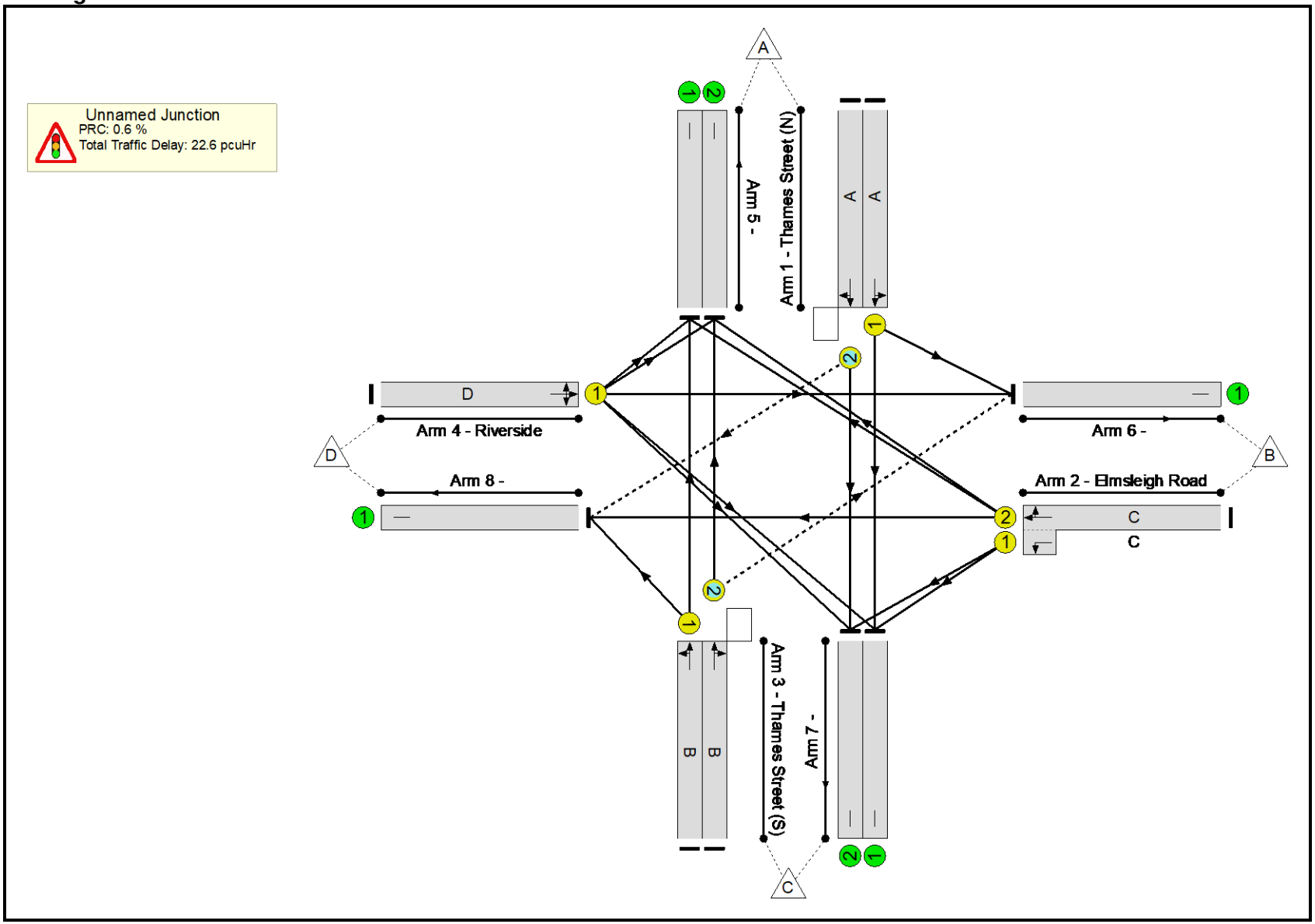
Stage	1	3	4	1	2	3	4
Duration	20	7	7	11	7	7	7
Change Point	0	25	39	55	71	85	104

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Thames Street / Elmsleigh Road (Existing)	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.5%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.5%**
1/1	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	31	-	472	1918	527	89.5%
1/2	Thames Street (N) Ahead Right	O	N/A	N/A	A		2	31	-	474	1928	530	89.4%
2/2+2/1	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	131	1805:1687	143+185	39.9 : 39.9%
3/1	Thames Street (S) Ahead Left	U	N/A	N/A	B		2	31	-	397	1924	529	75.0%
3/2	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	31	-	394	1915	527	74.8%
4/1	Riverside Left Ahead Right	U	N/A	N/A	D		2	14	-	61	1638	218	27.9%
5/1		U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	403	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	71	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	489	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	509	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	35	Inf	Inf	0.0%

Full Input Data And Results

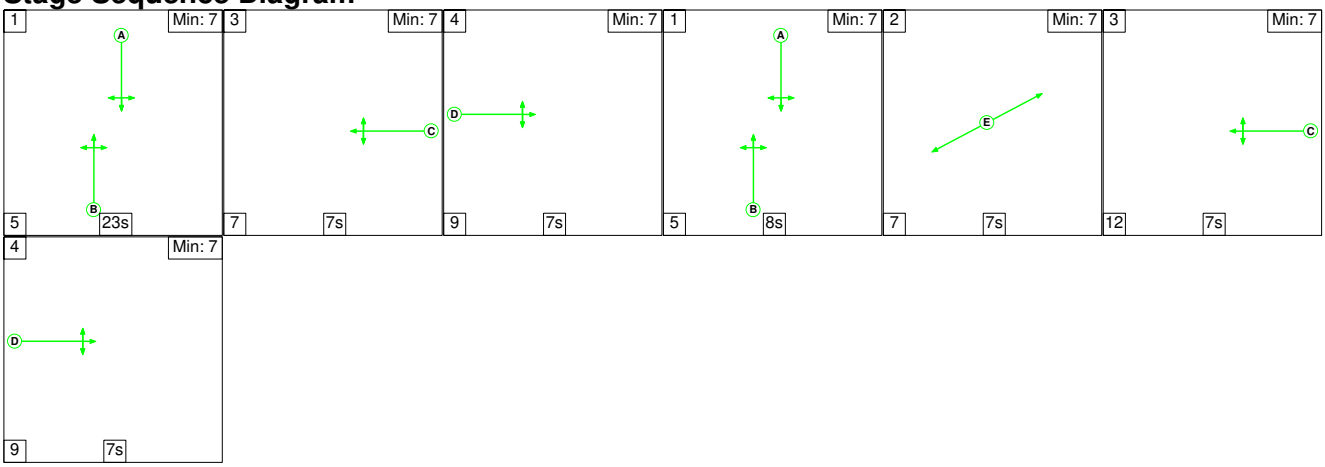
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Existing)	**-**	**-**	**31**	**0**	**22**	**11.6**	**10.9**	**0.1**	**22.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**31**	**0**	**22**	**11.6**	**10.9**	**0.1**	**22.6**	**-**	**-**	**-**	**-**
1/1	472	472	-	-	-	2.9	3.7	-	6.6	50.5	9.2	3.7	12.9
1/2	474	474	19	0	0	2.9	3.7	0.0	6.6	50.4	9.2	3.7	12.9
2/2+2/1	131	131	-	-	-	0.9	0.3	-	1.2	32.8	1.2	0.3	1.5
3/1	397	397	-	-	-	2.3	1.5	-	3.8	34.2	7.3	1.5	8.7
3/2	394	394	12	0	22	2.3	1.5	0.1	3.8	35.0	7.2	1.5	8.7
4/1	61	61	-	-	-	0.4	0.2	-	0.6	35.1	1.0	0.2	1.2
5/1	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	403	403	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	71	71	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	489	489	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	509	509	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	35	35	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 0.6 Total Delay for Signalled Lanes (pcuHr): 22.64 Cycle Time (s): 120
PRC Over All Lanes (%): 0.6 Total Delay Over All Lanes(pcuHr): 22.64

Full Input Data And Results

Scenario 3: '2020 Saturday Peak' (FG3: '2020 Saturday Peak', Plan 2: 'PM Peak')

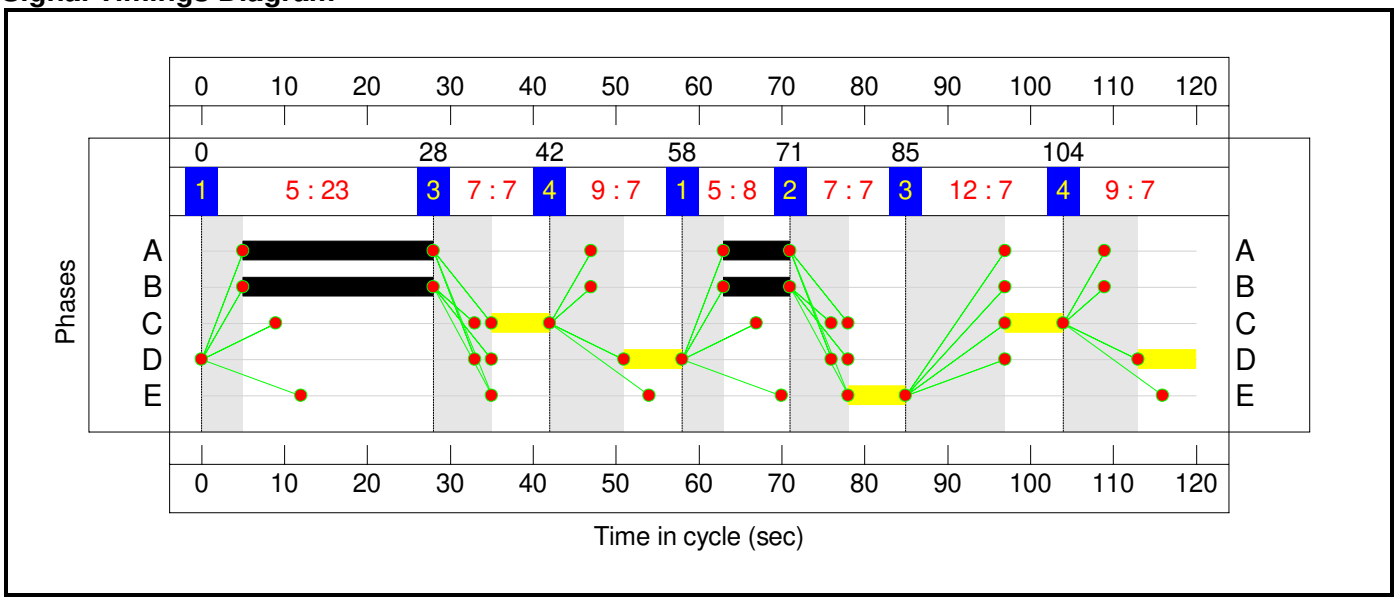
Stage Sequence Diagram



Stage Timings

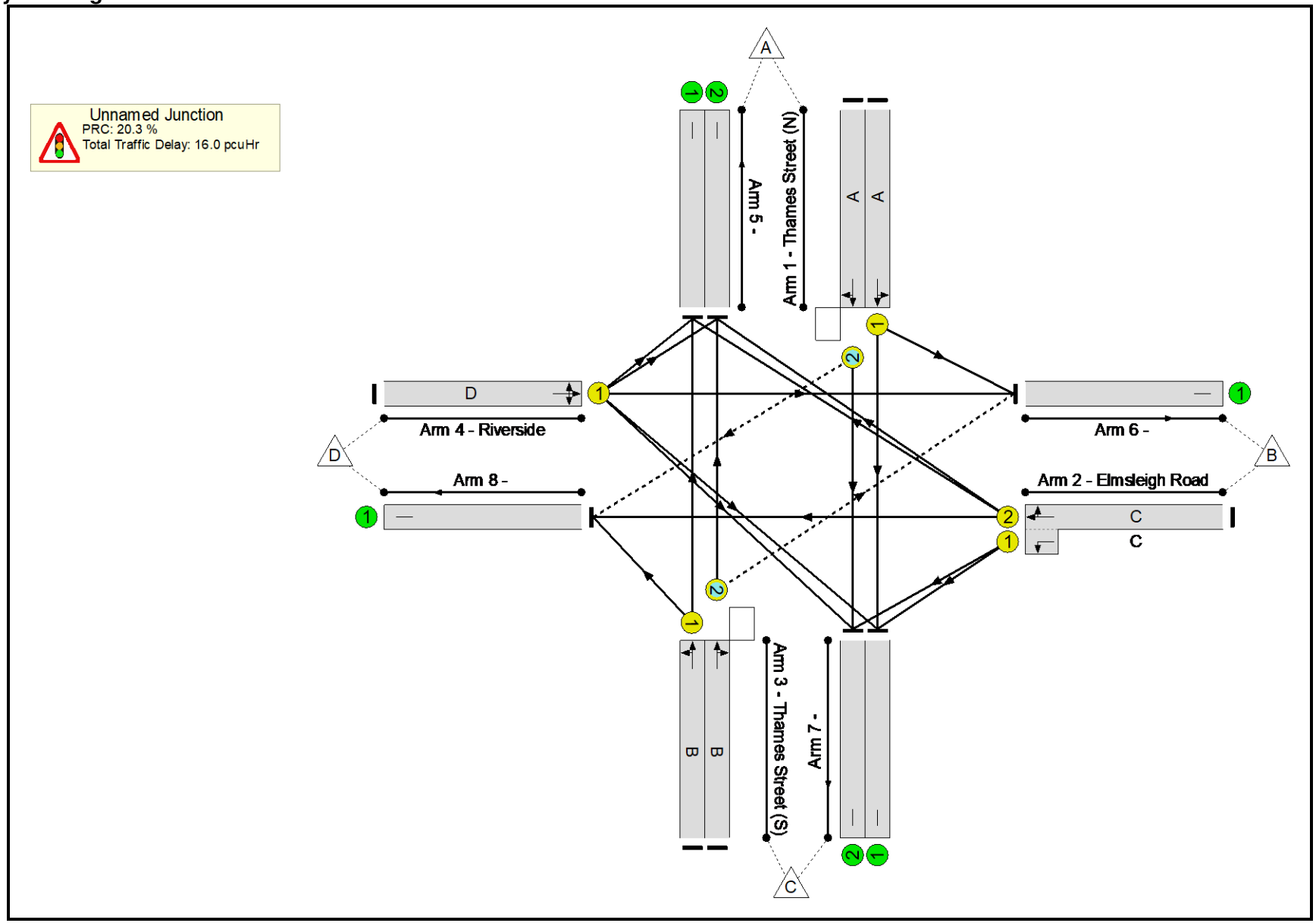
Stage	1	3	4	1	2	3	4
Duration	23	7	7	8	7	7	7
Change Point	0	28	42	58	71	85	104

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Thames Street / Elmsleigh Road (Existing)	-	-	**N/A**	-	-		-	-	-	-	-	-	**74.8%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**74.8%**
1/1	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	31	-	373	1883	518	72.0%
1/2	Thames Street (N) Ahead Right	O	N/A	N/A	A		2	31	-	382	1920	528	72.3%
2/2+2/1	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	113	1810:1687	193+118	36.3 : 36.3%
3/1	Thames Street (S) Ahead Left	U	N/A	N/A	B		2	31	-	392	1906	524	74.8%
3/2	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	31	-	392	1906	524	74.8%
4/1	Riverside Left Ahead Right	U	N/A	N/A	D		2	14	-	59	1634	218	27.1%
5/1		U	N/A	N/A	-		-	-	-	405	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	396	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	121	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	333	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	391	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	65	Inf	Inf	0.0%

Full Input Data And Results

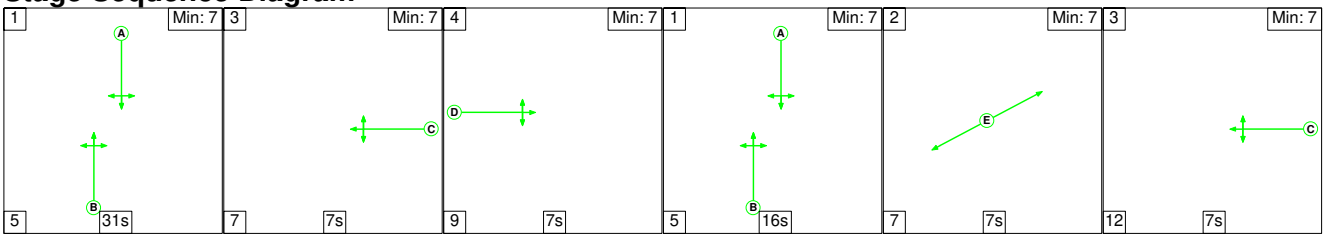
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Existing)	**-**	**-**	**47**	**0**	**26**	**10.0**	**5.9**	**0.1**	**16.0**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**47**	**0**	**26**	**10.0**	**5.9**	**0.1**	**16.0**	**-**	**-**	**-**	**-**
1/1	373	373	-	-	-	2.1	1.3	-	3.4	32.8	6.8	1.3	8.1
1/2	382	382	17	0	10	2.2	1.3	0.1	3.5	33.2	7.0	1.3	8.3
2/2+2/1	113	113	-	-	-	0.7	0.3	-	1.0	32.5	1.1	0.3	1.4
3/1	392	392	-	-	-	2.3	1.5	-	3.7	34.1	7.2	1.5	8.6
3/2	392	392	30	0	16	2.3	1.5	0.1	3.8	35.0	7.2	1.5	8.6
4/1	59	59	-	-	-	0.4	0.2	-	0.6	34.7	0.9	0.2	1.1
5/1	405	405	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	396	396	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	121	121	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	333	333	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	391	391	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	65	65	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 20.3 Total Delay for Signalled Lanes (pcuHr): 16.04 Cycle Time (s): 120
PRC Over All Lanes (%): 20.3 Total Delay Over All Lanes(pcuHr): 16.04

Full Input Data And Results

Scenario 4: '2025 AM Peak' (FG4: '2025 AM Peak', Plan 1: 'AM Peak')

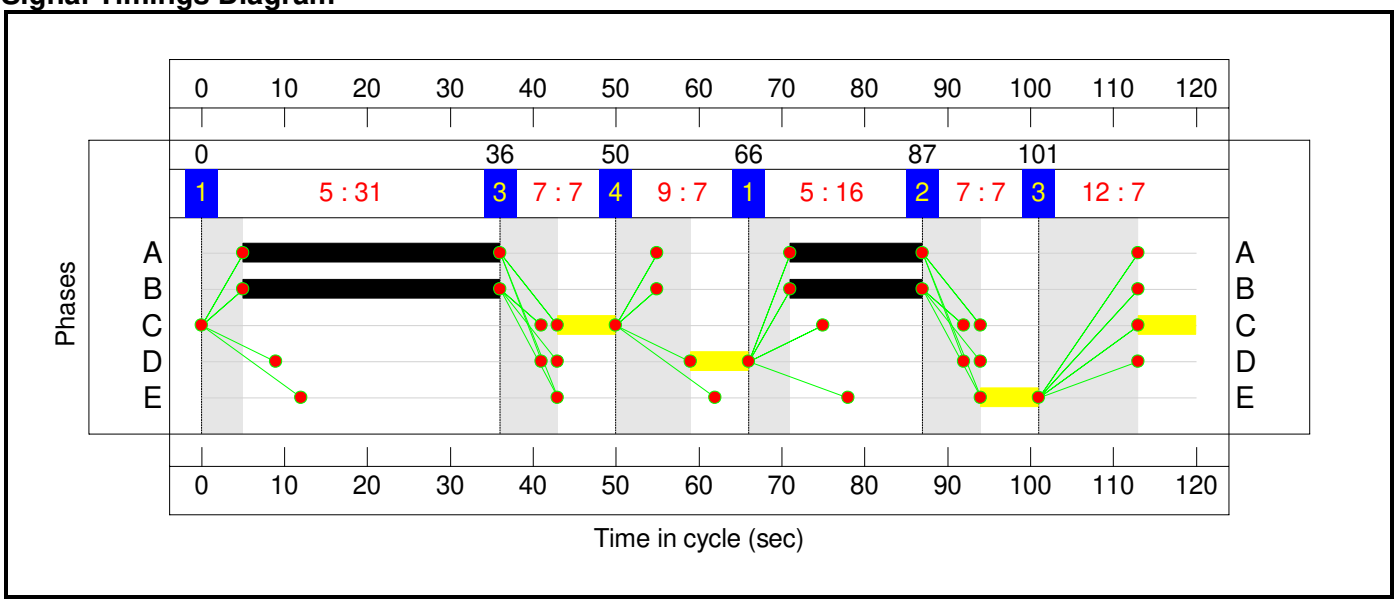
Stage Sequence Diagram



Stage Timings

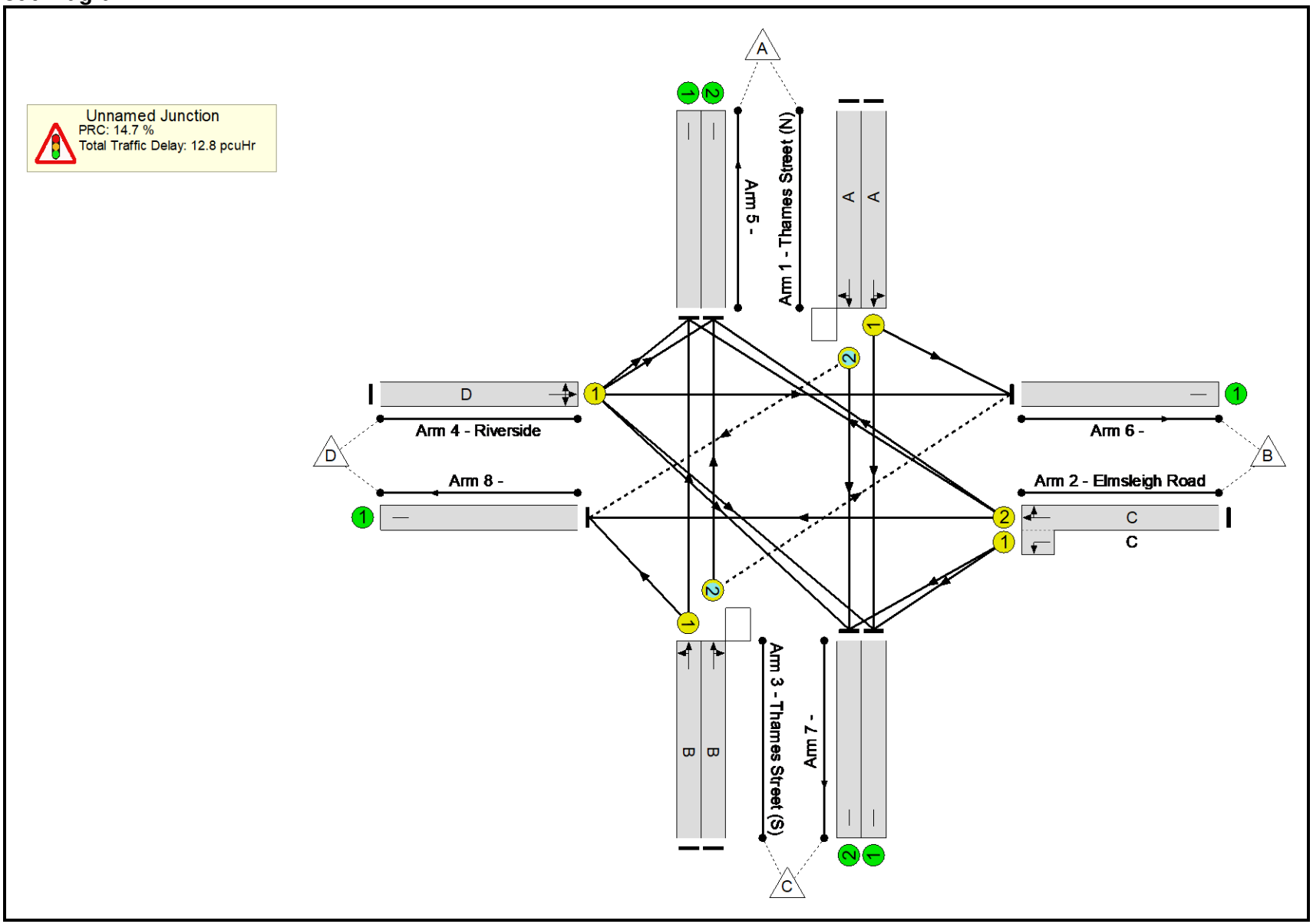
Stage	1	3	4	1	2	3
Duration	31	7	7	16	7	7
Change Point	0	36	50	66	87	101

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Thames Street / Elmsleigh Road (Existing)	-	-	**N/A**	-	-		-	-	-	-	-	-	**78.5%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**78.5%**
1/1	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	47	-	347	1901	776	44.7%
1/2	Thames Street (N) Ahead Right	O	N/A	N/A	A		2	47	-	356	1928	787	45.2%
2/2+2/1	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	13	1805:1687	156+182	3.8 : 3.8%
3/1	Thames Street (S) Ahead Left	U	N/A	N/A	B		2	47	-	616	1922	785	78.5%
3/2	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	47	-	614	1919	784	78.4%
4/1	Riverside Left Ahead Right	U	N/A	N/A	D		1	7	-	20	1634	109	18.4%
5/1		U	N/A	N/A	-		-	-	-	593	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	576	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	93	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	308	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	352	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	44	Inf	Inf	0.0%

Full Input Data And Results

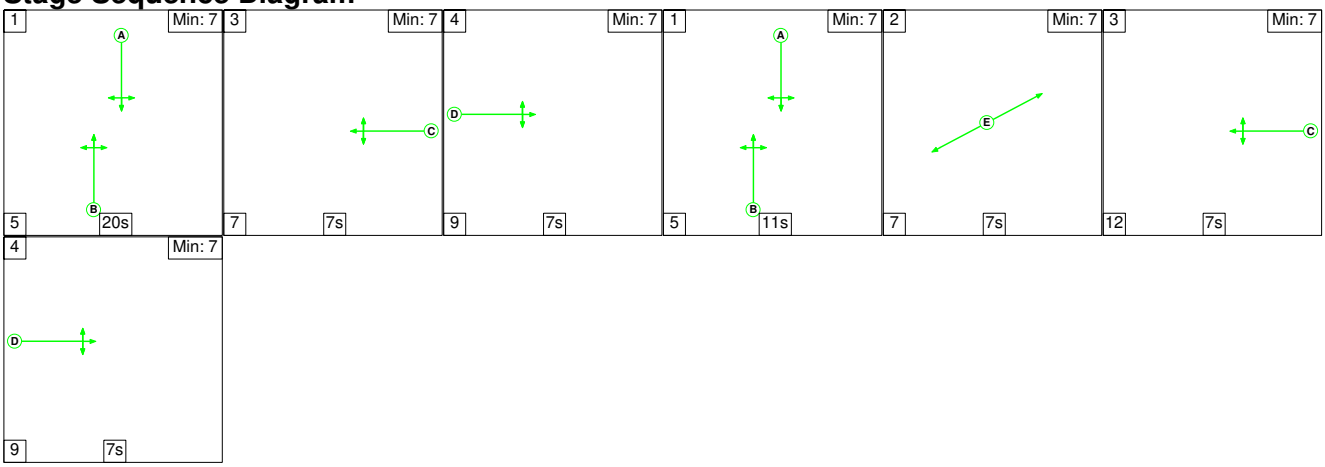
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Existing)	**-**	**-**	**54**	**0**	**6**	**8.2**	**4.5**	**0.1**	**12.8**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**54**	**0**	**6**	**8.2**	**4.5**	**0.1**	**12.8**	**-**	**-**	**-**	**-**
1/1	347	347	-	-	-	1.2	0.4	-	1.6	17.1	4.3	0.4	4.7
1/2	356	356	9	0	6	1.3	0.4	0.1	1.7	17.6	4.5	0.4	4.9
2/2+2/1	13	13	-	-	-	0.1	0.0	-	0.1	29.3	0.1	0.0	0.1
3/1	616	616	-	-	-	2.6	1.8	-	4.4	25.9	9.2	1.8	11.0
3/2	614	614	45	0	0	2.6	1.8	0.0	4.4	26.0	9.2	1.8	11.0
4/1	20	20	-	-	-	0.3	0.1	-	0.4	73.2	0.6	0.1	0.7
5/1	593	593	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	576	576	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	93	93	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	352	352	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	44	44	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 14.7 Total Delay for Signalled Lanes (pcuHr): 12.77 Cycle Time (s): 120
PRC Over All Lanes (%): 14.7 Total Delay Over All Lanes(pcuHr): 12.77

Full Input Data And Results

Scenario 5: '2025 PM Peak' (FG5: '2025 PM Peak', Plan 2: 'PM Peak')

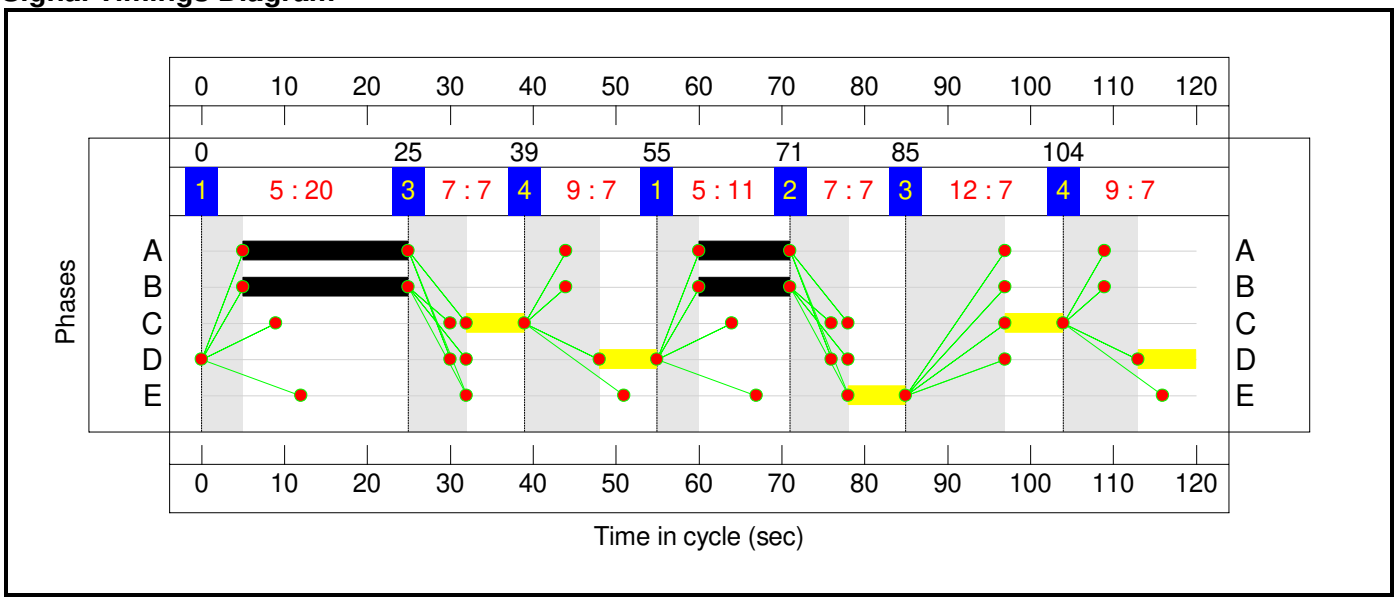
Stage Sequence Diagram



Stage Timings

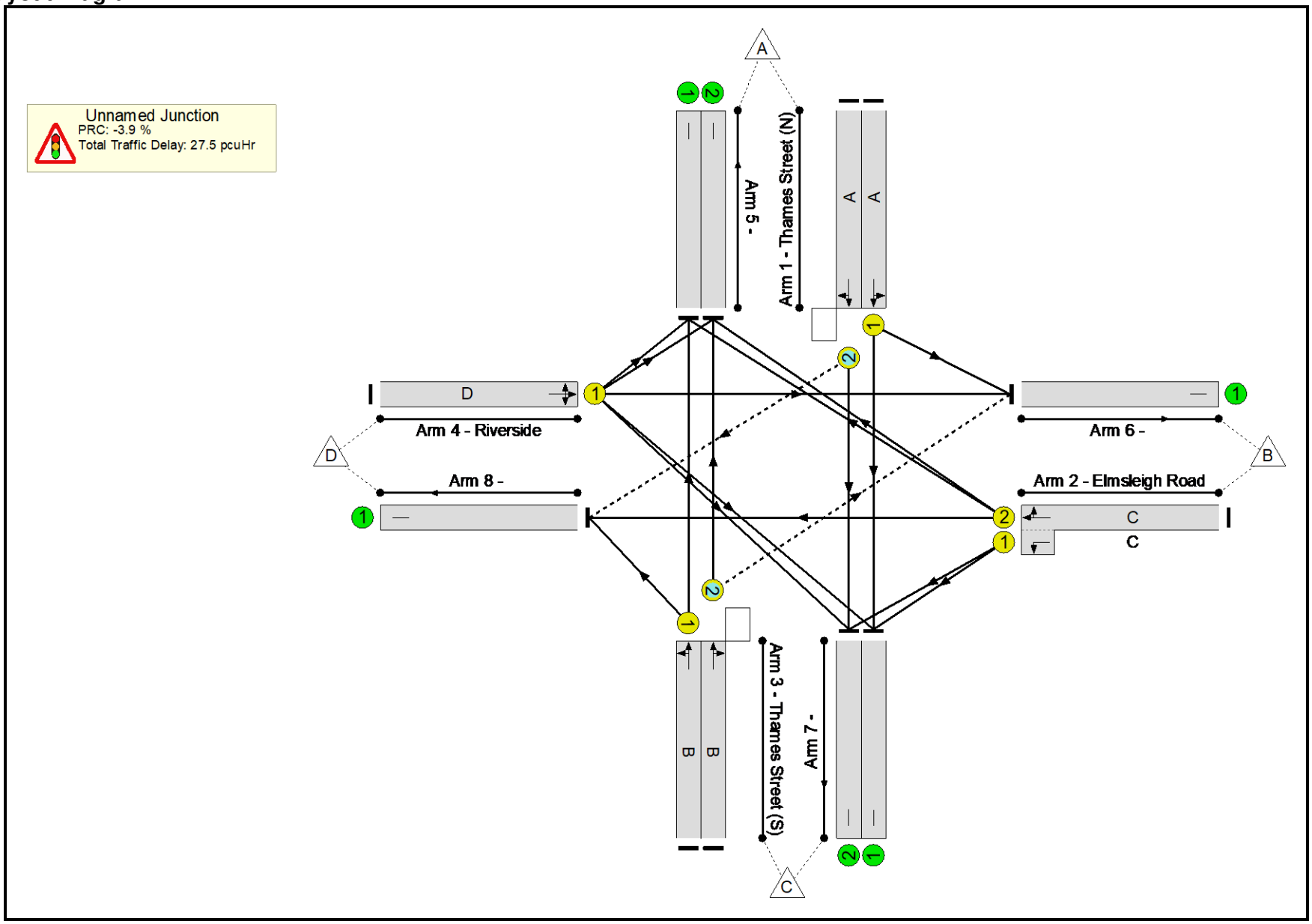
Stage	1	3	4	1	2	3	4
Duration	20	7	7	11	7	7	7
Change Point	0	25	39	55	71	85	104

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Thames Street / Elmsleigh Road (Existing)	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.5%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.5%**
1/1	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	31	-	493	1918	527	93.5%
1/2	Thames Street (N) Ahead Right	O	N/A	N/A	A		2	31	-	496	1928	530	93.5%
2/2+2/1	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	138	1805:1687	143+185	42.1 : 42.1%
3/1	Thames Street (S) Ahead Left	U	N/A	N/A	B		2	31	-	415	1924	529	78.4%
3/2	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	31	-	413	1915	527	78.4%
4/1	Riverside Left Ahead Right	U	N/A	N/A	D		2	14	-	64	1638	218	29.3%
5/1		U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	75	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	511	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	532	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	37	Inf	Inf	0.0%

Full Input Data And Results

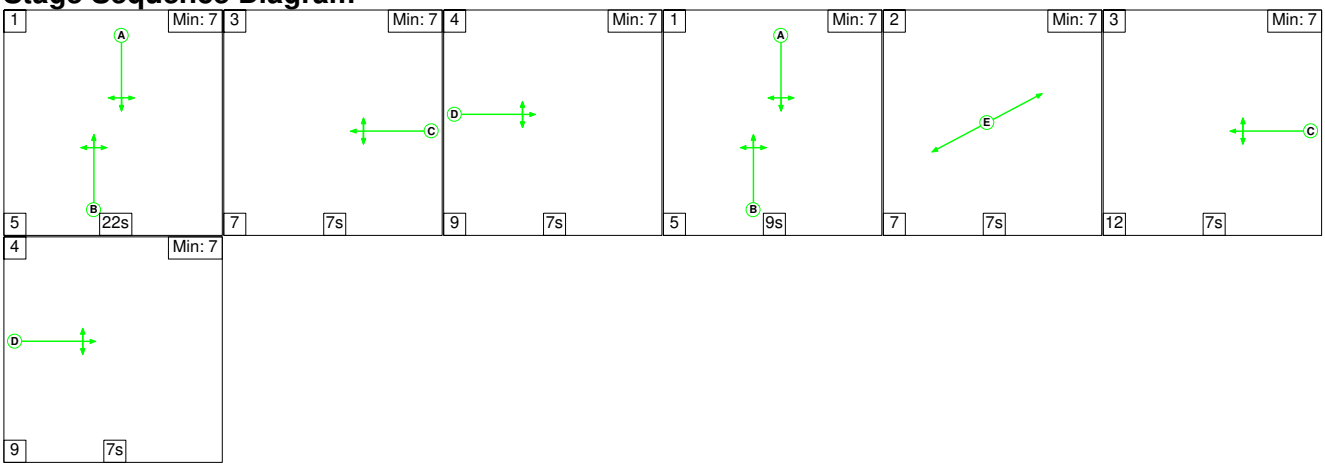
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Existing)	**-**	**-**	**26**	**0**	**30**	**12.3**	**15.0**	**0.1**	**27.5**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**26**	**0**	**30**	**12.3**	**15.0**	**0.1**	**27.5**	**-**	**-**	**-**	**-**
1/1	493	493	-	-	-	3.0	5.4	-	8.5	62.0	9.7	5.4	15.2
1/2	496	496	20	0	0	3.1	5.5	0.0	8.6	62.3	9.8	5.5	15.3
2/2+2/1	138	138	-	-	-	0.9	0.4	-	1.3	33.2	1.3	0.4	1.6
3/1	415	415	-	-	-	2.4	1.8	-	4.2	36.4	7.7	1.8	9.5
3/2	413	413	6	0	30	2.4	1.8	0.1	4.3	37.4	7.7	1.8	9.4
4/1	64	64	-	-	-	0.4	0.2	-	0.6	35.3	1.0	0.2	1.3
5/1	442	442	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	75	75	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	511	511	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	532	532	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	37	37	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -3.9 Total Delay for Signalled Lanes (pcuHr): 27.45 Cycle Time (s): 120
PRC Over All Lanes (%): -3.9 Total Delay Over All Lanes(pcuHr): 27.45

Full Input Data And Results

Scenario 6: '2025 Saturday Peak' (FG6: '2025 Saturday Peak', Plan 2: 'PM Peak')

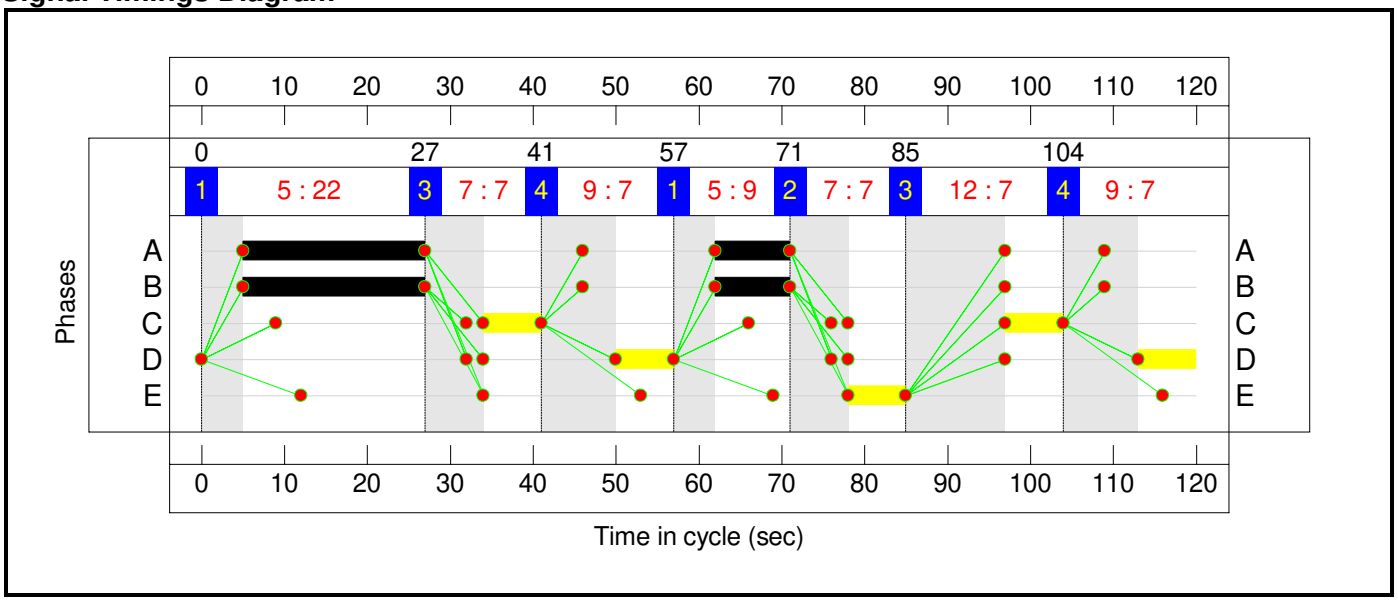
Stage Sequence Diagram



Stage Timings

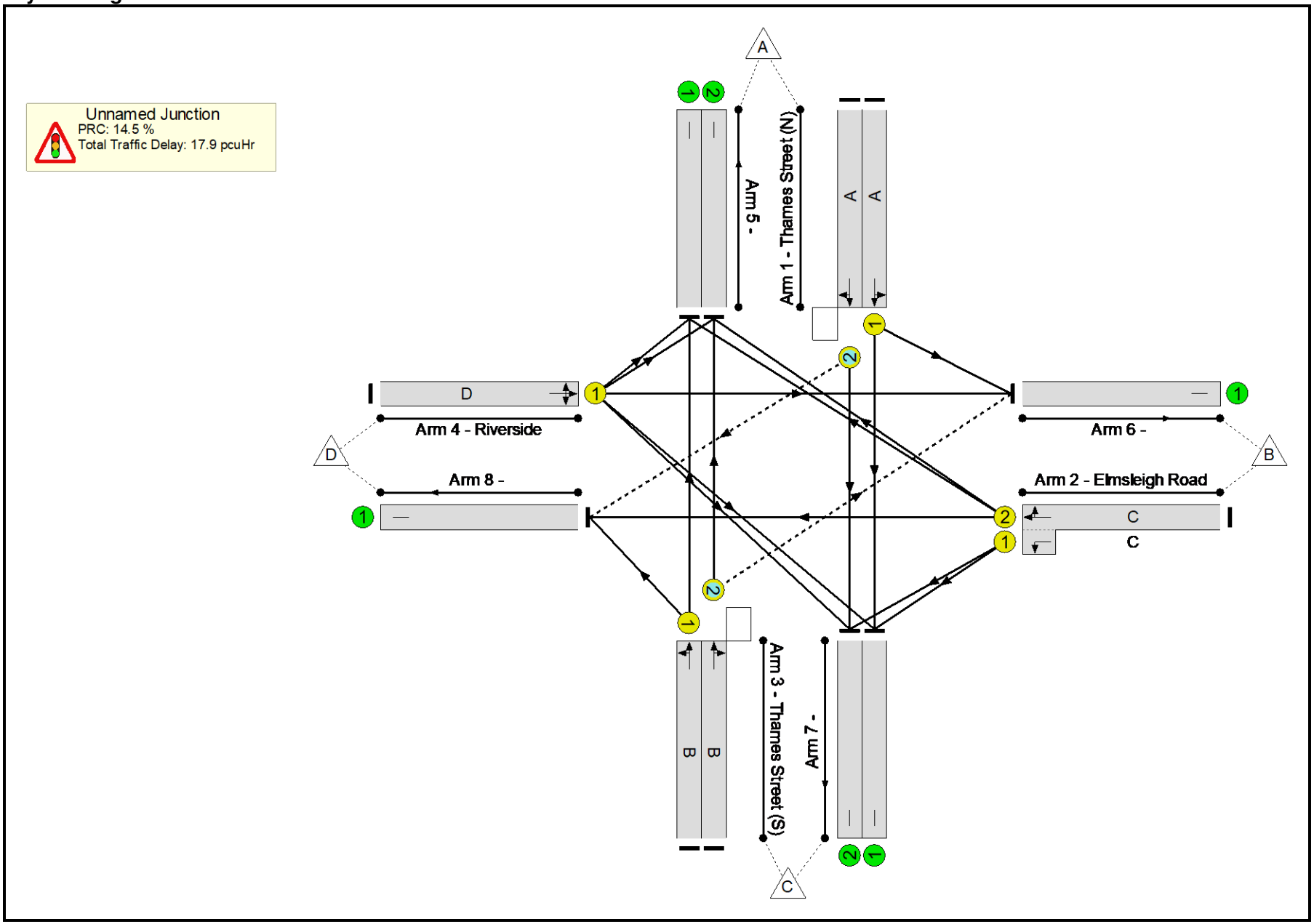
Stage	1	3	4	1	2	3	4
Duration	22	7	7	9	7	7	7
Change Point	0	27	41	57	71	85	104

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Thames Street / Elmsleigh Road (Existing)	-	-	**N/A**	-	-		-	-	-	-	-	-	**78.6%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**78.6%**
1/1	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	31	-	391	1883	518	75.5%
1/2	Thames Street (N) Ahead Right	O	N/A	N/A	A		2	31	-	401	1920	528	75.9%
2/2+2/1	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	118	1810:1687	193+119	37.9 : 37.9%
3/1	Thames Street (S) Ahead Left	U	N/A	N/A	B		2	31	-	412	1906	524	78.6%
3/2	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	31	-	412	1906	524	78.6%
4/1	Riverside Left Ahead Right	U	N/A	N/A	D		2	14	-	62	1634	218	28.5%
5/1		U	N/A	N/A	-		-	-	-	426	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	415	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	128	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	411	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	68	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (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 PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Existing)	**-**	**-**	**54**	**0**	**23**	**10.6**	**7.1**	**0.2**	**17.9**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**54**	**0**	**23**	**10.6**	**7.1**	**0.2**	**17.9**	**-**	**-**	**-**	**-**
1/1	391	391	-	-	-	2.3	1.5	-	3.8	34.7	7.2	1.5	8.7
1/2	401	401	18	0	10	2.3	1.5	0.1	3.9	35.3	7.4	1.5	8.9
2/2+2/1	118	118	-	-	-	0.8	0.3	-	1.1	32.8	1.2	0.3	1.5
3/1	412	412	-	-	-	2.4	1.8	-	4.2	36.6	7.7	1.8	9.4
3/2	412	412	36	0	13	2.4	1.8	0.1	4.3	37.5	7.7	1.8	9.4
4/1	62	62	-	-	-	0.4	0.2	-	0.6	35.0	1.0	0.2	1.2
5/1	426	426	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	415	415	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	128	128	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	348	348	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	411	411	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	68	68	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

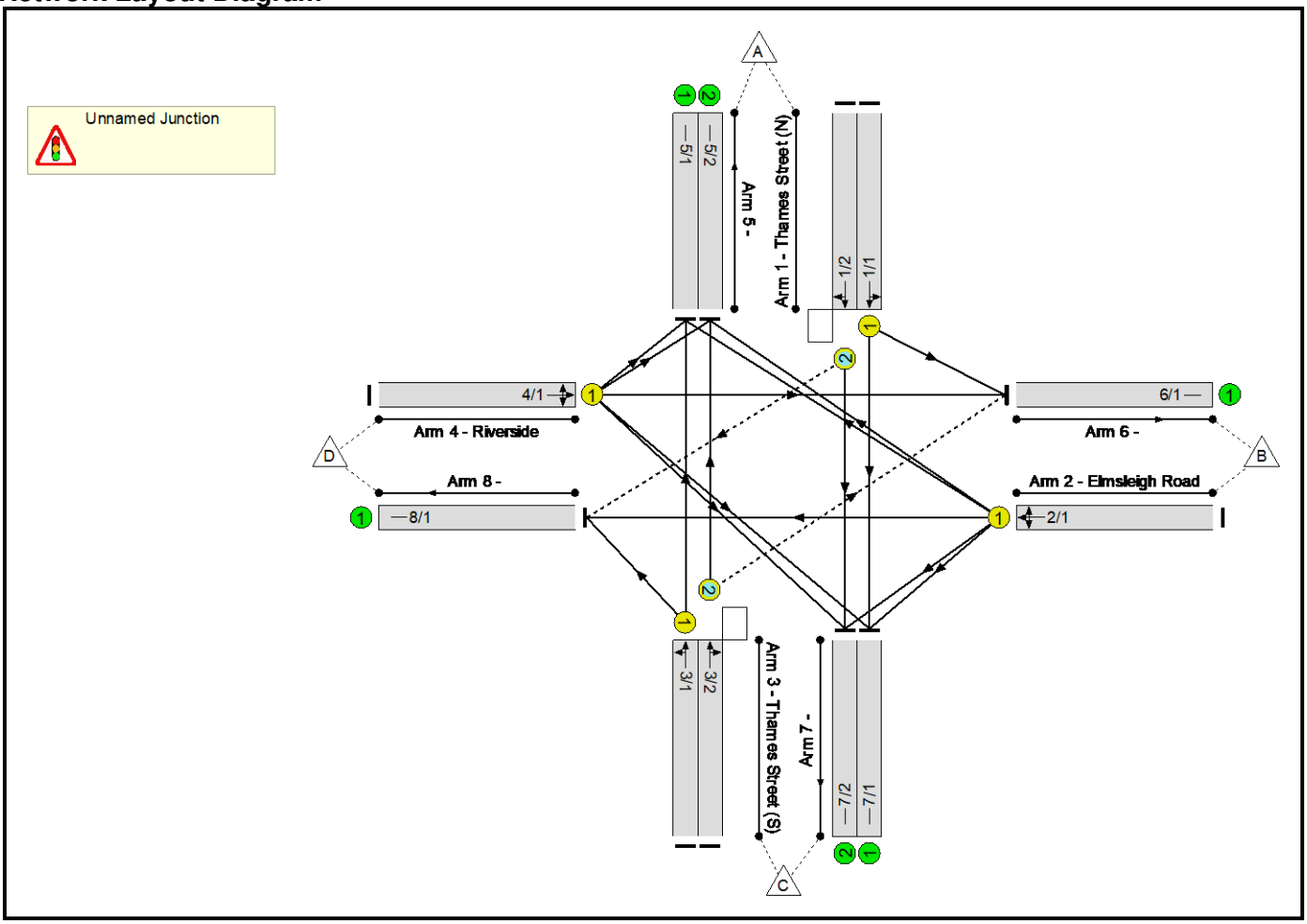
C1 PRC for Signalled Lanes (%): 14.5 Total Delay for Signalled Lanes (pcuHr): 17.86 Cycle Time (s): 120
PRC Over All Lanes (%): 14.5 Total Delay Over All Lanes(pcuHr): 17.86

Full Input Data And Results

User and Project Details

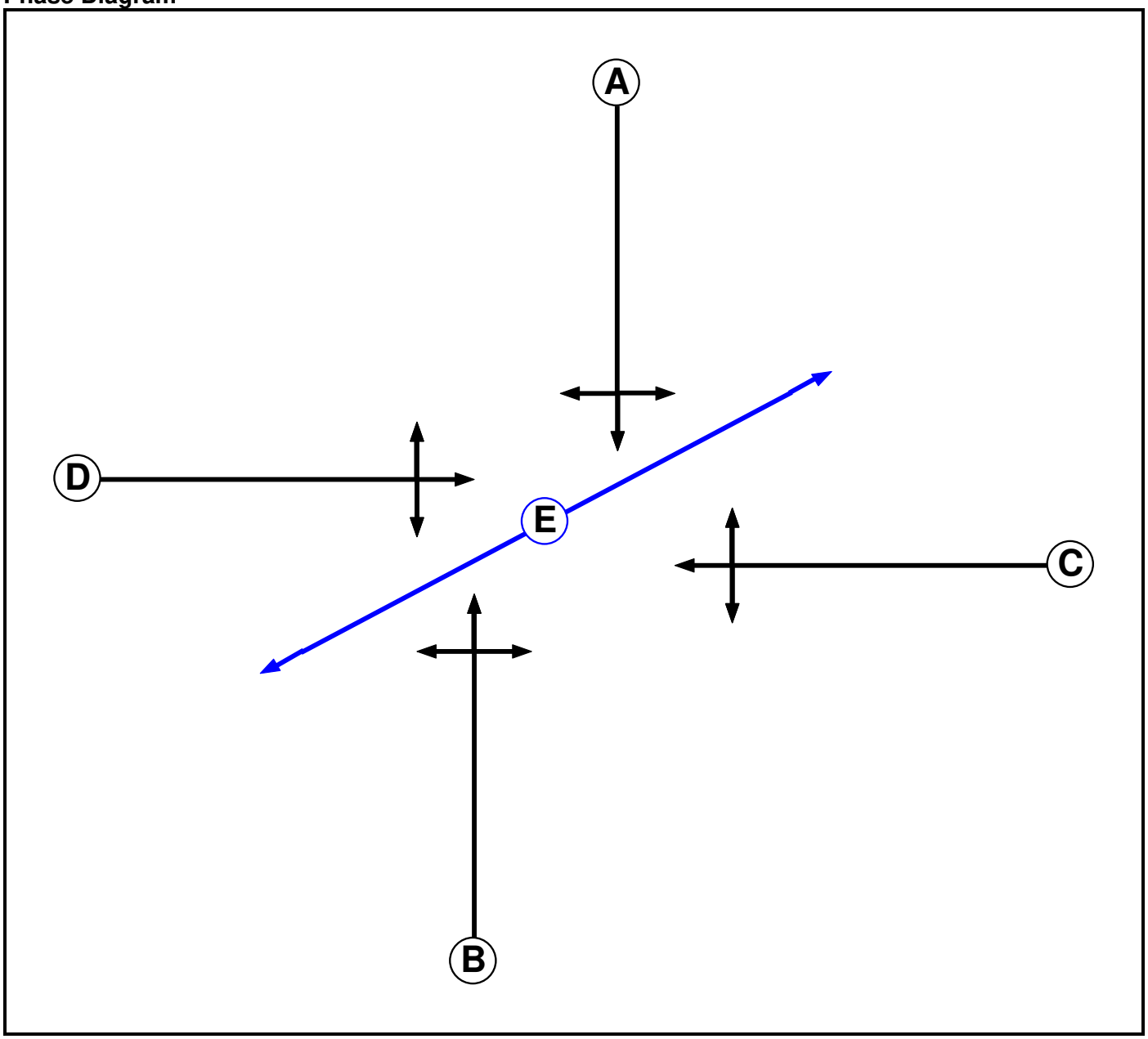
	Elmsleigh Road
	Thames Street / Elmsleigh Road (Proposed)
	Staines
	Inland Homes 10/12/2019
File name:	04550-M-02-D-ThamesSt_ElmsleighRd_Proposed.lsg3x
Author:	Lucy Smith
Company:	PJA
Address:	Unit 1, The Aquarium, 1-7 King Street, Reading, RG1 2AN

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7

Full Input Data And Results

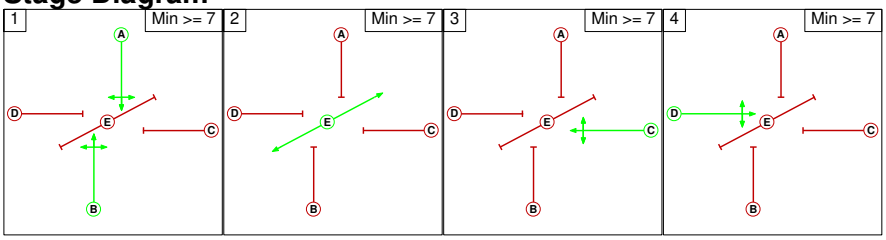
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
			B	C	D	E
	A			6	5	7
	B			6	7	7
	C	5	5		7	10
	D	5	5	6		
	E	13	13	13	13	

Phases in Stage

1	A B
2	E
3	C
4	D

Stage Diagram



Phase Delays

There are no Phase Delays defined

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		7	6	7
	2	13		13	13
	3	5	10		7
	4	5	12	6	

Full Input Data And Results

Give-Way Lane Input Data

1/2 (Thames Street (N))	8/1 (Right)	1440	0	3/1	1.09	All	2.00	2.00	0.50	2	2.00
				3/2	1.09	To 5/2 (Ahead)					
3/2 (Thames Street (S))	6/1 (Right)	1440	0	1/2	1.09	To 7/2 (Ahead)	2.00	2.00	0.50	2	2.00
				1/1	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Thames Street (N))	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 6 Left	8.00
											Arm 7 Ahead	Inf
1/2 (Thames Street (N))	O	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
											Arm 8 Right	10.00
2/1 (Elmsleigh Road)	U	C	2	3	60.0	Geom	-	4.75	0.00	Y	Arm 5 Right	12.00
											Arm 7 Left	11.00
											Arm 8 Ahead	Inf
3/1 (Thames Street (S))	U	B	2	3	13.0	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	7.50
3/2 (Thames Street (S))	O	B	2	3	13.0	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	10.00
4/1 (Riverside)	U	D	2	3	7.8	Geom	-	3.25	0.00	Y	Arm 5 Left	8.00
											Arm 6 Ahead	Inf
											Arm 7 Right	8.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/2	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

1: '2025 AM with dev'	07:45	08:45	01:00	
2: '2025 PM with dev'	17:00	18:00	01:00	
3: '2025 Saturday with dev'	11:45	12:45	01:00	

Scenario 1: '2025 AM Peak with dev' (FG1: '2025 AM with dev', Plan 1: 'AM Peak')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	53	640	15	708
	B	17	0	20	0	37
	C	1156	50	0	29	1235
	D	7	0	13	0	20
	Tot.	1180	103	673	44	2000

Traffic Lane Flows

Lane	Scenario 1: 2025 AM Peak with dev
Junction: Unnamed Junction	
1/1	348
1/2	360
2/1	37
3/1	619
3/2	616
4/1	20
5/1	601
5/2	579
6/1	103
7/1	311
7/2	362
8/1	44

Full Input Data And Results

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	8.00	15.2 %	1886	1886
				Arm 7 Ahead	Inf	84.8 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	95.8 %	1928	1928
				Arm 8 Right	10.00	4.2 %		
2/1 (Elmsleigh Road)	4.75	0.00	Y	Arm 5 Right	12.00	45.9 %	1848	1848
				Arm 7 Left	11.00	54.1 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	95.3 %	1922	1922
				Arm 8 Left	7.50	4.7 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	91.9 %	1917	1917
				Arm 6 Right	10.00	8.1 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	35.0 %	1634	1634
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	8.00	65.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2025 PM Peak with dev' (FG2: '2025 PM with dev', Plan 2: 'PM Peak')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	49	931	20	1000
	B	67	0	87	0	154
	C	775	46	0	17	838
	D	29	1	34	0	64
	Tot.	871	96	1052	37	2056

Full Input Data And Results

Traffic Lane Flows

1/1	496
1/2	504
2/1	154
3/1	421
3/2	417
4/1	64
5/1	451
5/2	420
6/1	96
7/1	507
7/2	545
8/1	37

Lane Saturation Flows

1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	8.00	9.9 %	1905	1905
				Arm 7 Ahead	Inf	90.1 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	96.0 %	1929	1929
				Arm 8 Right	10.00	4.0 %		
2/1 (Elmsleigh Road)	4.75	0.00	Y	Arm 5 Right	12.00	43.5 %	1847	1847
				Arm 7 Left	11.00	56.5 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	96.0 %	1924	1924
				Arm 8 Left	7.50	4.0 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	89.0 %	1908	1908
				Arm 6 Right	10.00	11.0 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	45.3 %	1638	1638
				Arm 6 Ahead	Inf	1.6 %		
				Arm 7 Right	8.00	53.1 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2025 Saturday Peak with dev' (FG3: '2025 Saturday with dev', Plan 2: 'PM Peak')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	91	685	28	804
	B	87	0	56	3	146
	C	738	56	0	37	831
	D	33	0	29	0	62
	Tot.	858	147	770	68	1843

Traffic Lane Flows

Lane	Scenario 3: 2025 Saturday Peak with dev
Junction: Unnamed Junction	
1/1	394
1/2	410
2/1	146
3/1	417
3/2	414
4/1	62
5/1	439
5/2	419
6/1	147
7/1	345
7/2	425
8/1	68

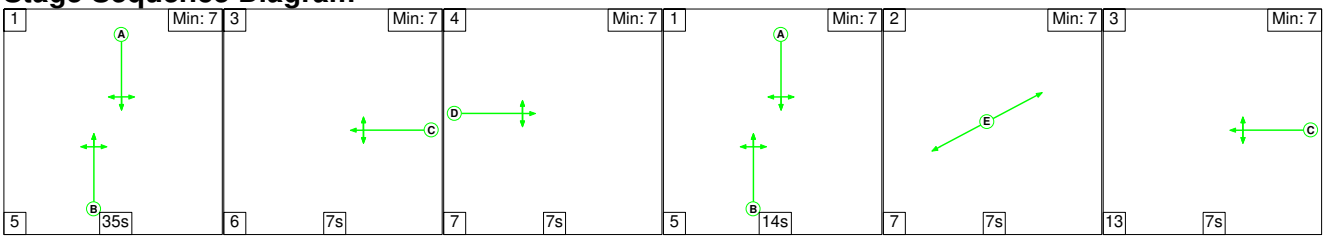
Full Input Data And Results

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Thames Street (N))	3.25	0.00	Y	Arm 6 Left	8.00	23.1 %	1859	1859
				Arm 7 Ahead	Inf	76.9 %		
1/2 (Thames Street (N))	3.25	0.00	Y	Arm 7 Ahead	Inf	93.2 %	1920	1920
				Arm 8 Right	10.00	6.8 %		
2/1 (Elmsleigh Road)	4.75	0.00	Y	Arm 5 Right	12.00	59.6 %	1855	1855
				Arm 7 Left	11.00	38.4 %		
				Arm 8 Ahead	Inf	2.1 %		
3/1 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	91.1 %	1906	1906
				Arm 8 Left	7.50	8.9 %		
3/2 (Thames Street (S))	3.25	0.00	Y	Arm 5 Ahead	Inf	86.5 %	1901	1901
				Arm 6 Right	10.00	13.5 %		
4/1 (Riverside)	3.25	0.00	Y	Arm 5 Left	8.00	53.2 %	1634	1634
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	8.00	46.8 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2025 AM Peak with dev' (FG1: '2025 AM with dev', Plan 1: 'AM Peak')

Stage Sequence Diagram

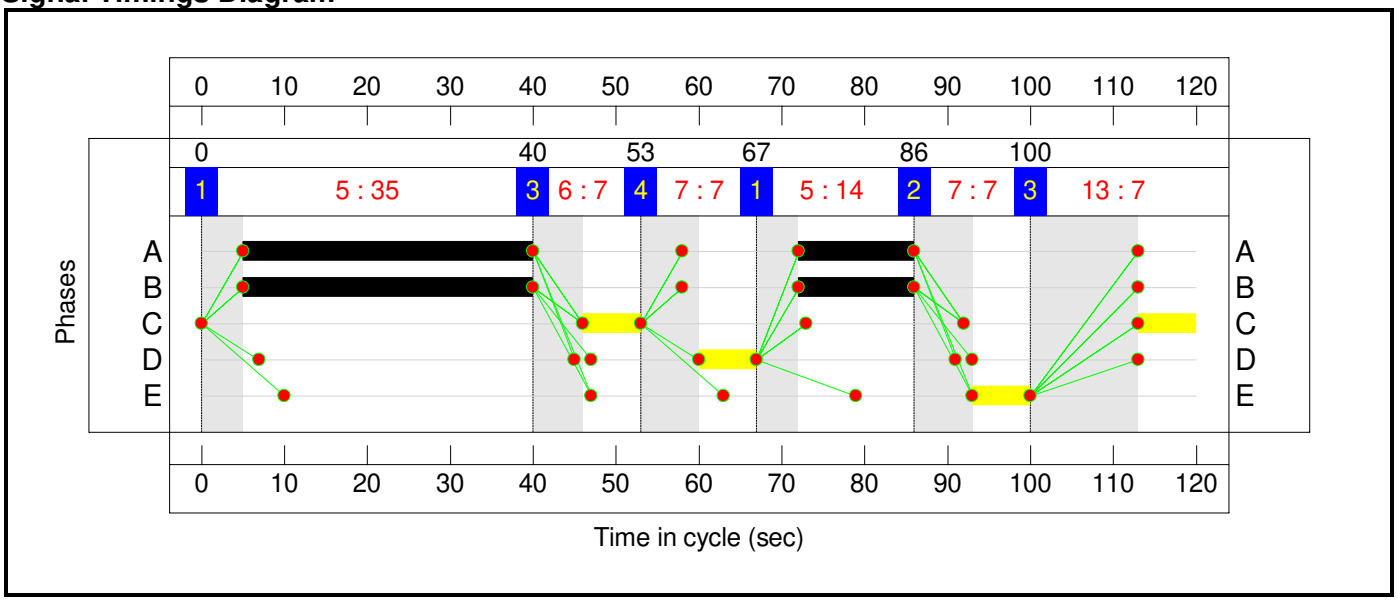


Stage Timings

Stage	1	3	4	1	2	3
Duration	35	7	7	14	7	7
Change Point	0	40	53	67	86	100

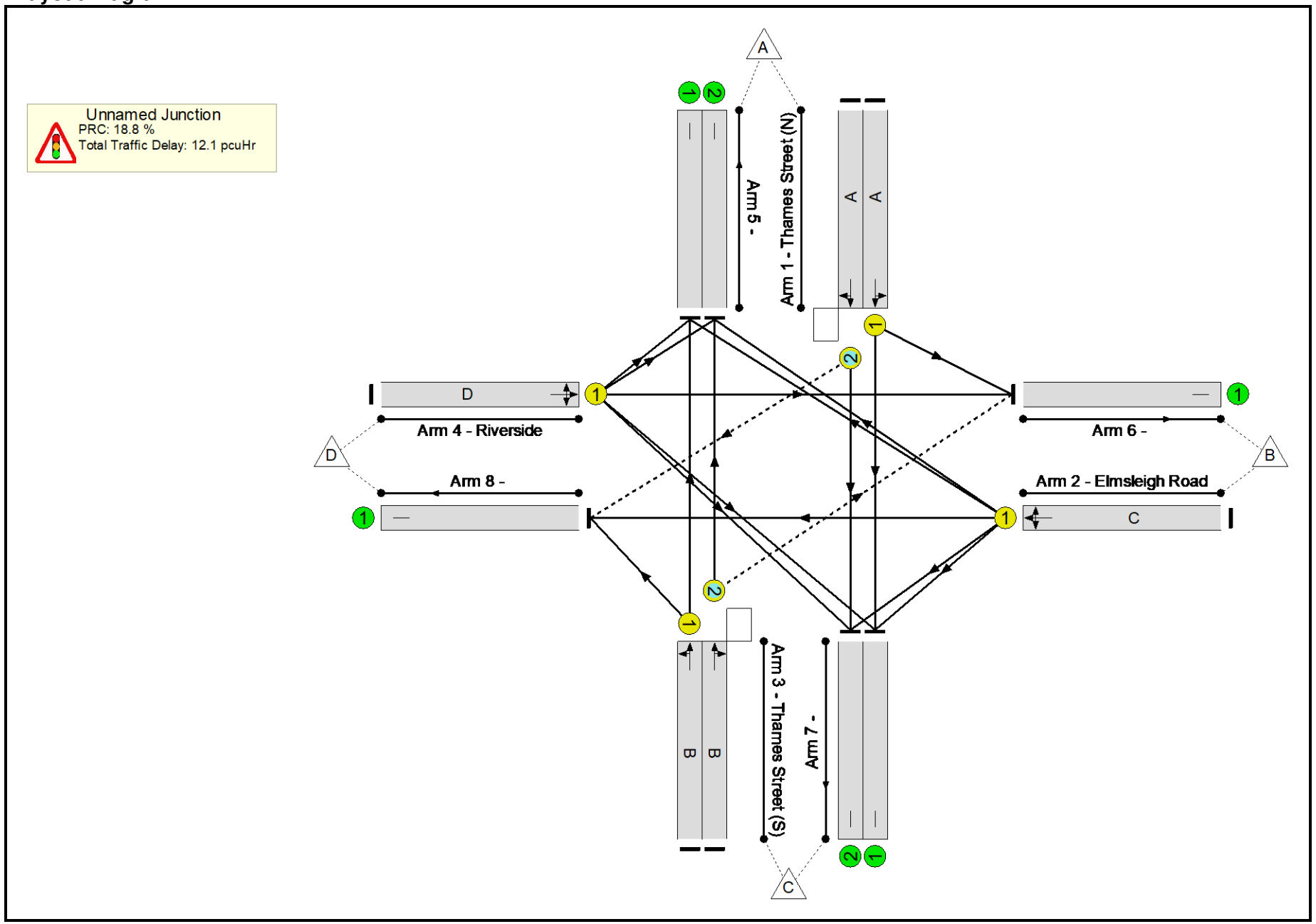
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

	-	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.8%**
	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	49	-	348	1886	802	43.4%
	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	37	1848	246	15.0%
	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	49	-	616	1917	815	75.6%
		U	N/A	N/A	-		-	-	-	601	Inf	Inf	0.0%
		U	N/A	N/A	-		-	-	-	103	Inf	Inf	0.0%
		U	N/A	N/A	-		-	-	-	311	Inf	Inf	0.0%
		U	N/A	N/A	-		-	-	-	362	Inf	Inf	0.0%
		U	N/A	N/A	-		-	-	-	44	Inf	Inf	0.0%

Full Input Data And Results

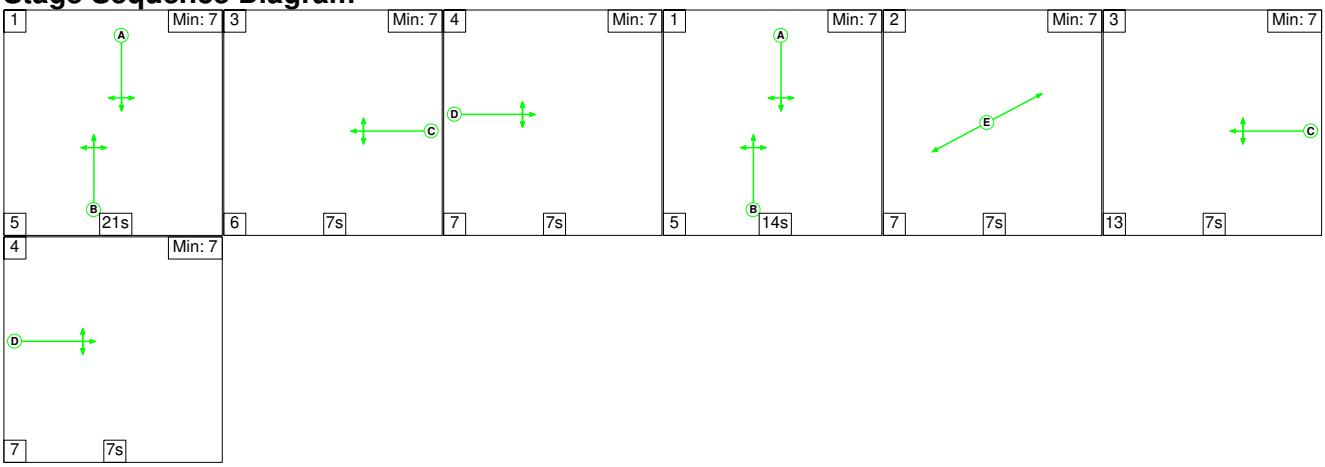
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Proposed)	**-**	**-**	**59**	**0**	**6**	**8.0**	**4.0**	**0.1**	**12.1**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**59**	**0**	**6**	**8.0**	**4.0**	**0.1**	**12.1**	**-**	**-**	**-**	**-**
1/1	348	348	-	-	-	1.2	0.4	-	1.6	16.3	4.4	0.4	4.8
1/2	360	360	9	0	6	1.2	0.4	0.0	1.7	16.7	4.6	0.4	5.0
2/1	37	37	-	-	-	0.2	0.1	-	0.3	32.0	0.6	0.1	0.7
3/1	619	619	-	-	-	2.5	1.5	-	4.1	23.7	9.6	1.5	11.2
3/2	616	616	50	0	0	2.5	1.5	0.0	4.1	23.9	9.4	1.5	10.9
4/1	20	20	-	-	-	0.3	0.1	-	0.4	73.2	0.6	0.1	0.7
5/1	601	601	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	579	579	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	103	103	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	311	311	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	362	362	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	44	44	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 18.8 Total Delay for Signalled Lanes (pcuHr): 12.15 Cycle Time (s): 120
PRC Over All Lanes (%): 18.8 Total Delay Over All Lanes(pcuHr): 12.15

Full Input Data And Results

Scenario 2: '2025 PM Peak with dev' (FG2: '2025 PM with dev', Plan 2: 'PM Peak')

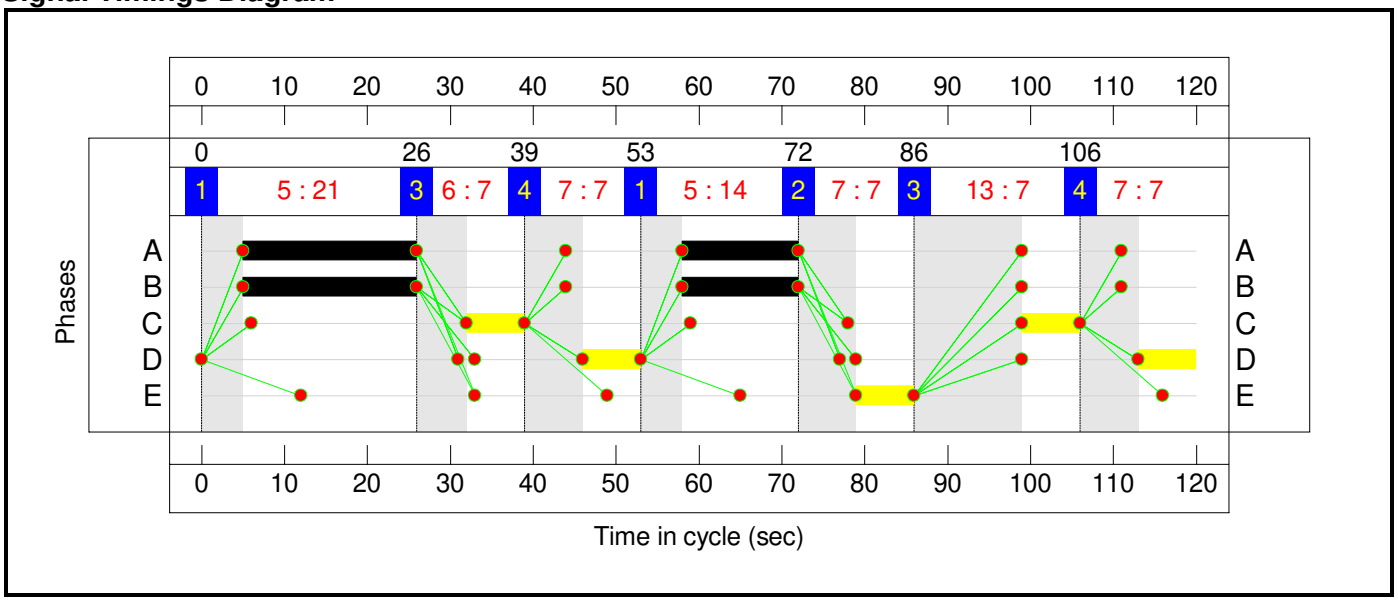
Stage Sequence Diagram



Stage Timings

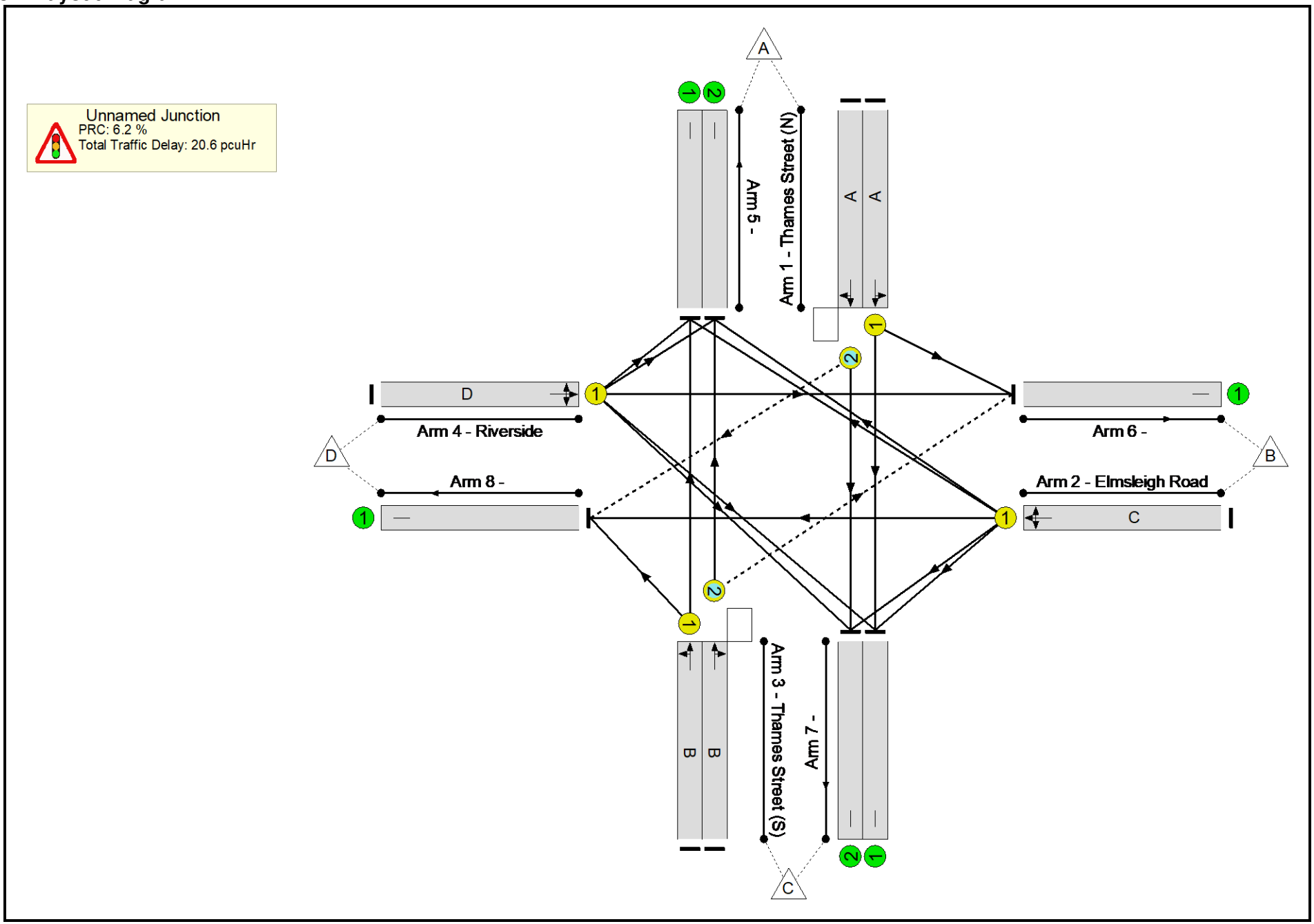
Stage	1	3	4	1	2	3	4
Duration	21	7	7	14	7	7	7
Change Point	0	26	39	53	72	86	106

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Thames Street / Elmsleigh Road (Proposed)	-	-	**N/A**	-	-		-	-	-	-	-	-	**84.7%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**84.7%**
1/1	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	35	-	496	1905	587	84.4%
1/2	Thames Street (N) Ahead Right	O	N/A	N/A	A		2	35	-	504	1929	595	84.7%
2/1	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	154	1847	246	62.5%
3/1	Thames Street (S) Ahead Left	U	N/A	N/A	B		2	35	-	421	1924	593	71.0%
3/2	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	35	-	417	1908	588	70.9%
4/1	Riverside Left Ahead Right	U	N/A	N/A	D		2	14	-	64	1638	218	29.3%
5/1		U	N/A	N/A	-		-	-	-	451	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	420	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	96	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	507	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	545	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	37	Inf	Inf	0.0%

Full Input Data And Results

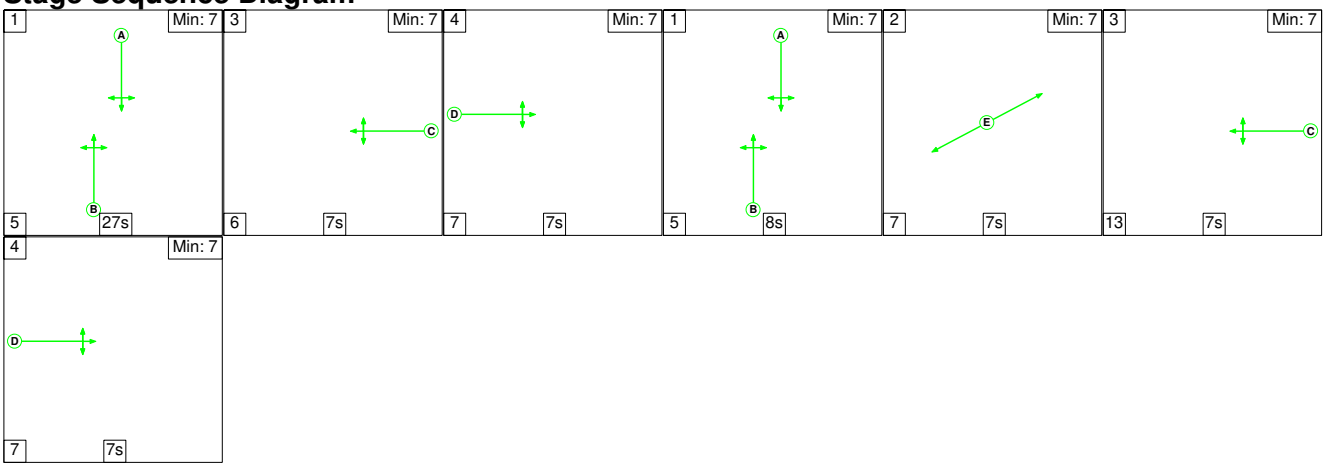
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Proposed)	**-**	**-**	**42**	**0**	**24**	**11.8**	**8.6**	**0.2**	**20.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**42**	**0**	**24**	**11.8**	**8.6**	**0.2**	**20.6**	**-**	**-**	**-**	**-**
1/1	496	496	-	-	-	2.8	2.6	-	5.4	39.3	9.6	2.6	12.2
1/2	504	504	20	0	0	2.9	2.6	0.0	5.6	39.6	9.8	2.6	12.4
2/1	154	154	-	-	-	1.1	0.8	-	1.9	44.2	2.7	0.8	3.6
3/1	421	421	-	-	-	2.3	1.2	-	3.5	29.9	7.7	1.2	8.9
3/2	417	417	22	0	24	2.3	1.2	0.1	3.6	31.2	7.6	1.2	8.8
4/1	64	64	-	-	-	0.4	0.2	-	0.6	35.5	1.1	0.2	1.3
5/1	451	451	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	420	420	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	96	96	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	507	507	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	545	545	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	37	37	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 6.2 Total Delay for Signalled Lanes (pcuHr): 20.59 Cycle Time (s): 120
PRC Over All Lanes (%): 6.2 Total Delay Over All Lanes(pcuHr): 20.59

Full Input Data And Results

Scenario 3: '2025 Saturday Peak with dev' (FG3: '2025 Saturday with dev', Plan 2: 'PM Peak')

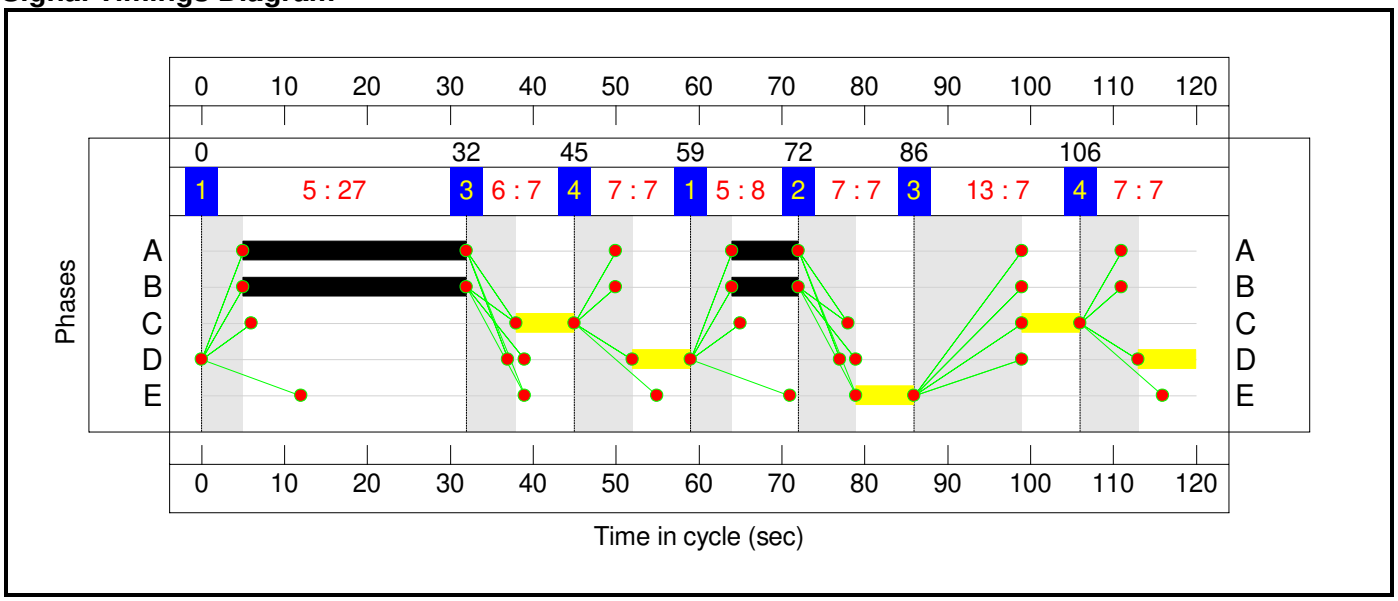
Stage Sequence Diagram



Stage Timings

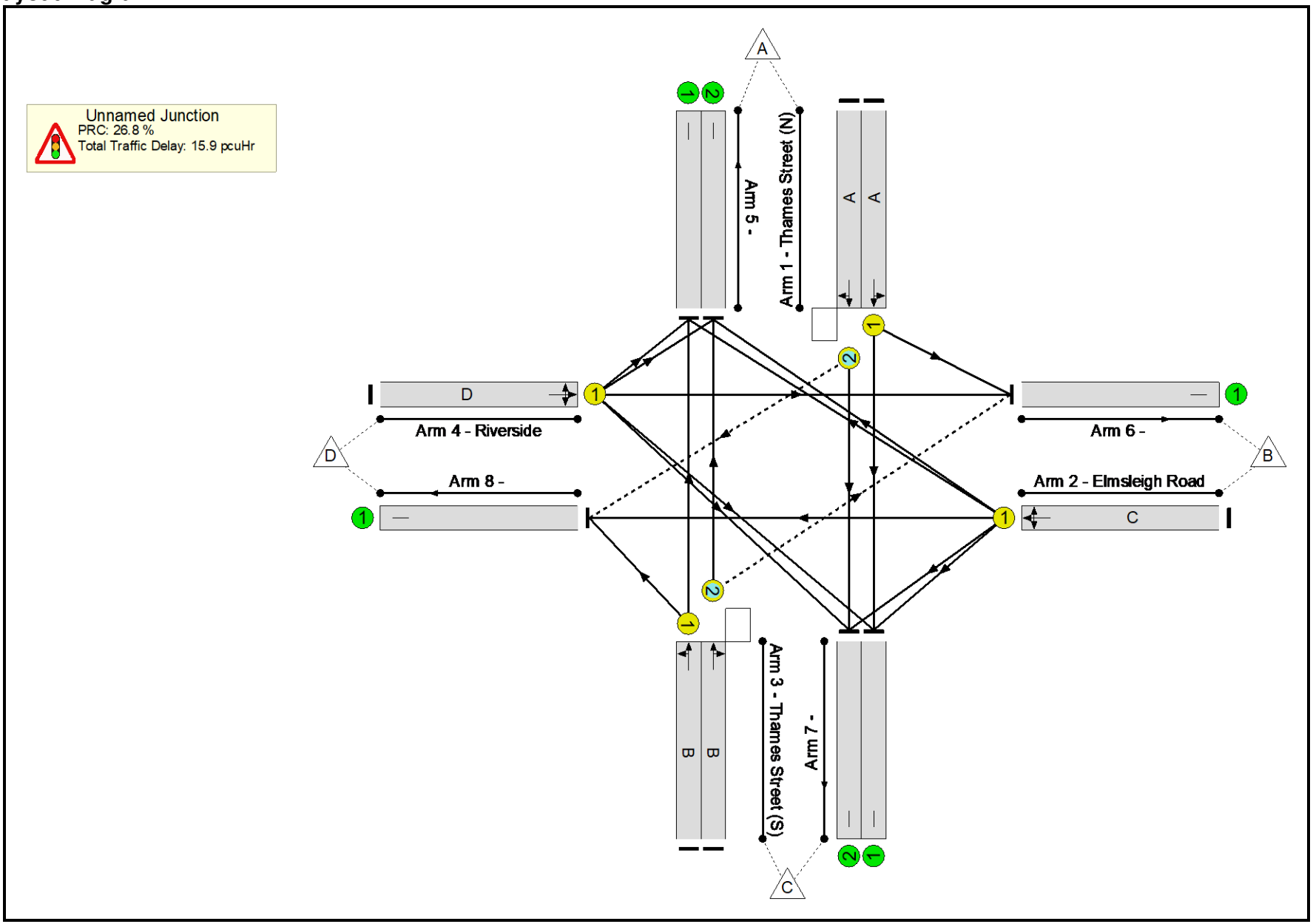
Stage	1	3	4	1	2	3	4
Duration	27	7	7	8	7	7	7
Change Point	0	32	45	59	72	86	106

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

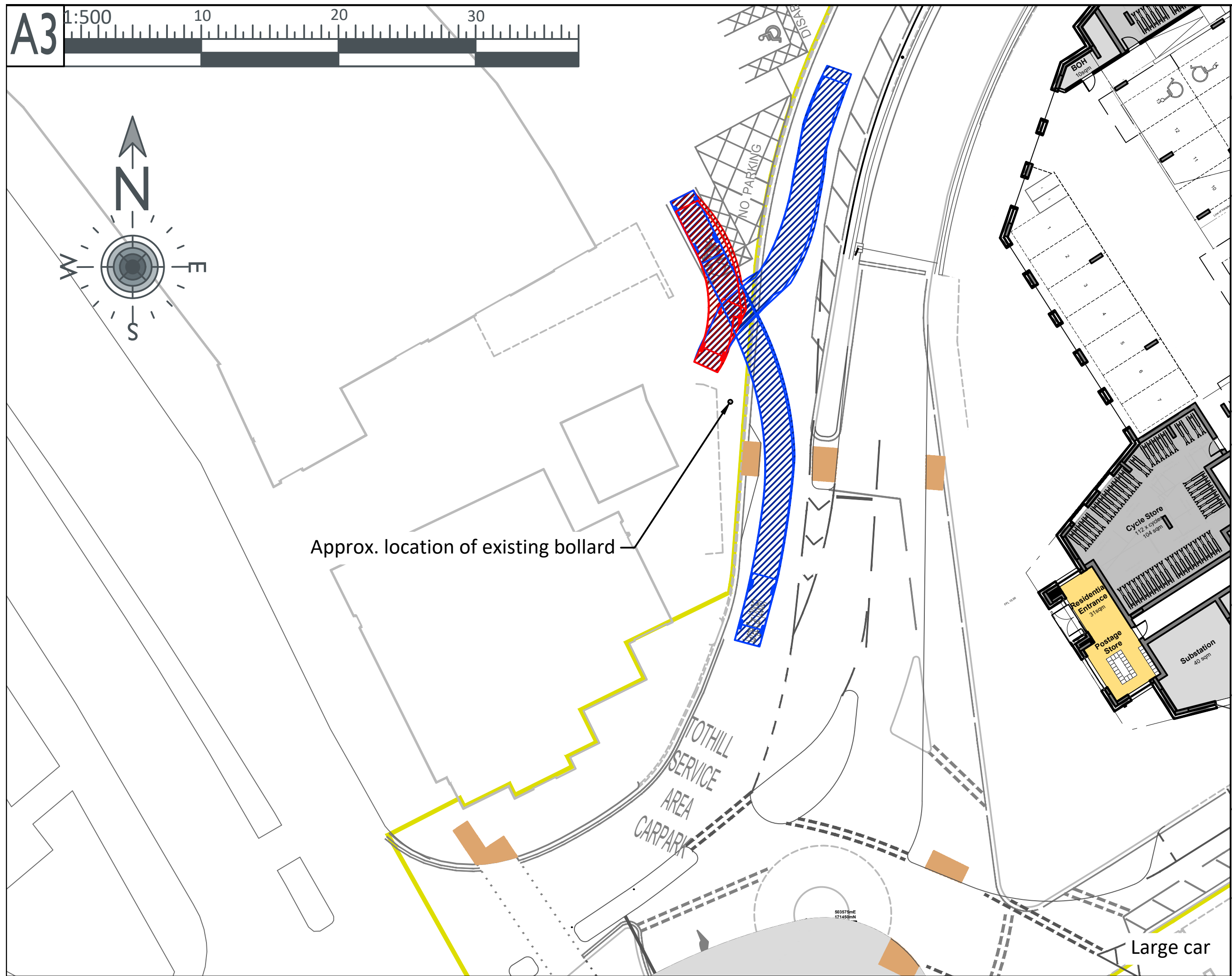
	-	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.0%**
	Thames Street (N) Left Ahead	U	N/A	N/A	A		2	35	-	394	1859	573	68.7%
	Elmsleigh Road Right Left Ahead	U	N/A	N/A	C		2	14	-	146	1855	247	59.0%
	Thames Street (S) Ahead Right	O	N/A	N/A	B		2	35	-	414	1901	585	70.7%
		U	N/A	N/A	-		-	-	-	439	Inf	Inf	0.0%
		U	N/A	N/A	-		-	-	-	147	Inf	Inf	0.0%
		U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
		U	N/A	N/A	-		-	-	-	425	Inf	Inf	0.0%
		U	N/A	N/A	-		-	-	-	68	Inf	Inf	0.0%

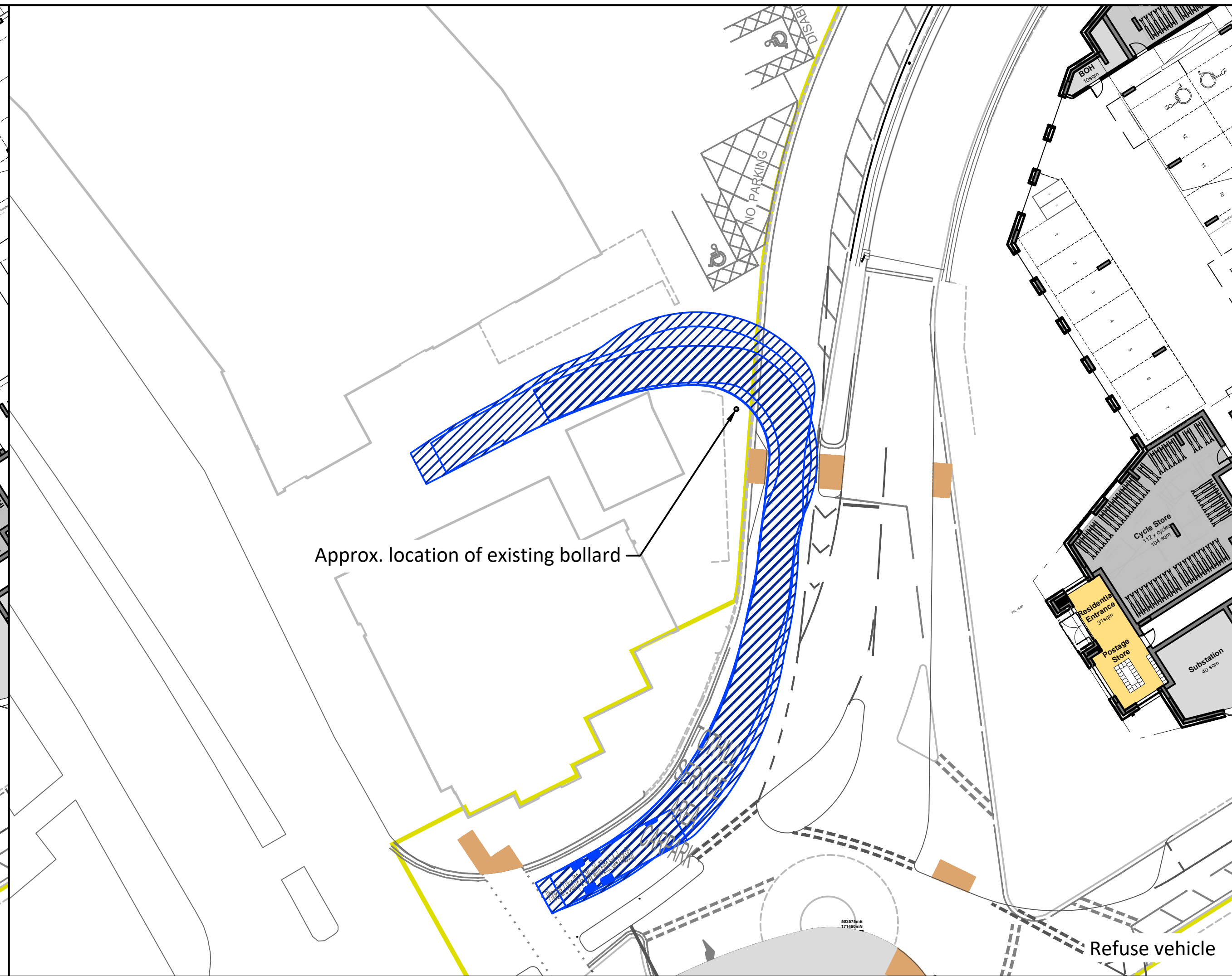
Full Input Data And Results

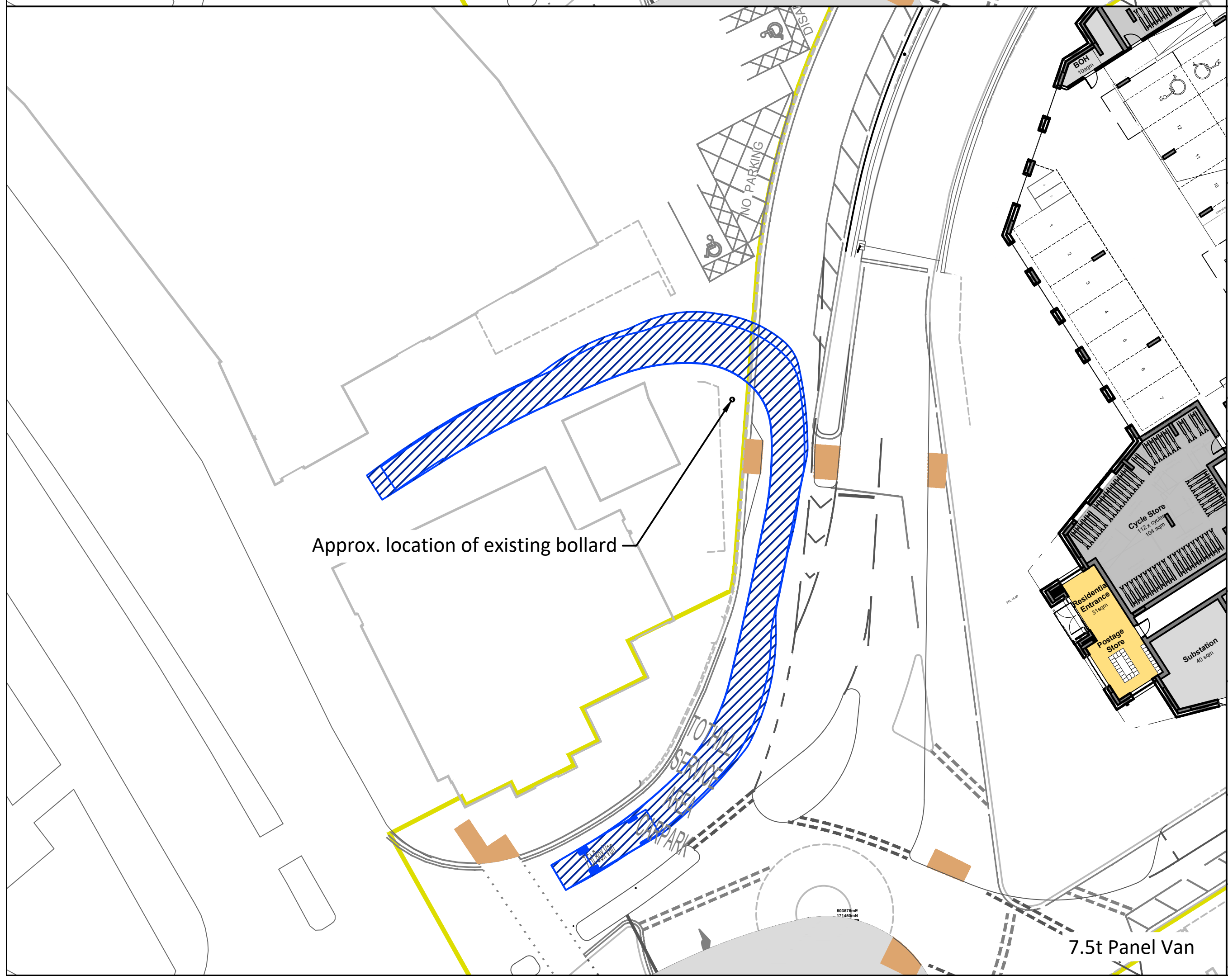
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Thames Street / Elmsleigh Road (Proposed)	**-**	**-**	**56**	**0**	**28**	**10.2**	**5.5**	**0.2**	**15.9**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**56**	**0**	**28**	**10.2**	**5.5**	**0.2**	**15.9**	**-**	**-**	**-**	**-**
1/1	394	394	-	-	-	2.1	1.1	-	3.2	29.3	7.1	1.1	8.2
1/2	410	410	19	0	9	2.2	1.1	0.1	3.4	29.7	7.5	1.1	8.6
2/1	146	146	-	-	-	1.0	0.7	-	1.7	42.0	2.3	0.7	3.0
3/1	417	417	-	-	-	2.3	1.2	-	3.5	30.0	7.6	1.2	8.8
3/2	414	414	37	0	19	2.2	1.2	0.1	3.6	30.9	7.6	1.2	8.8
4/1	62	62	-	-	-	0.4	0.2	-	0.6	35.0	0.9	0.2	1.1
5/1	439	439	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	419	419	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	147	147	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	425	425	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	68	68	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

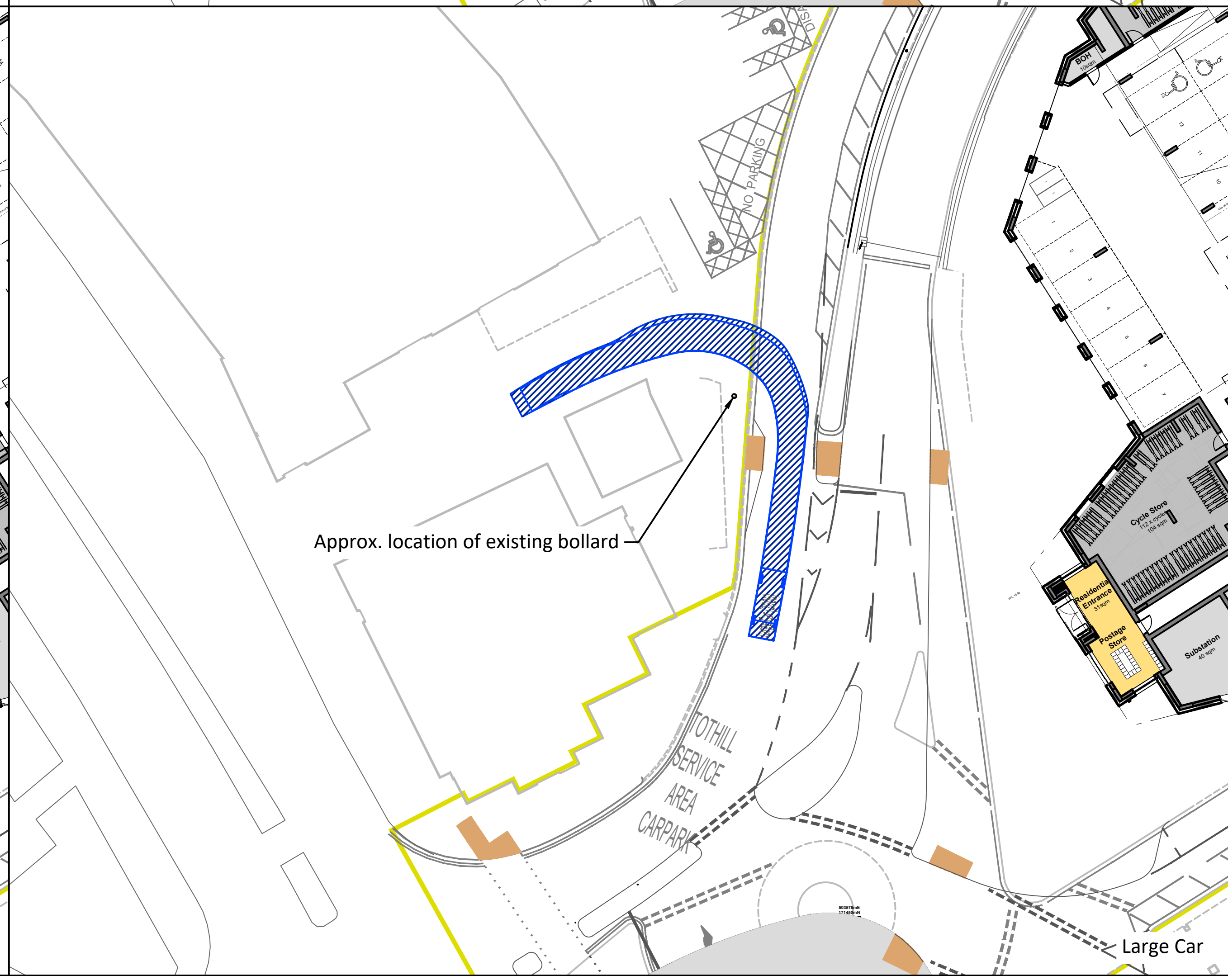
C1 PRC for Signalled Lanes (%): 26.8 Total Delay for Signalled Lanes (pcuHr): 15.92 Cycle Time (s): 120
PRC Over All Lanes (%): 26.8 Total Delay Over All Lanes(pcuHr): 15.92

Appendix G Debenhams Access Swept Path Analysis



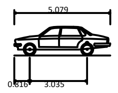




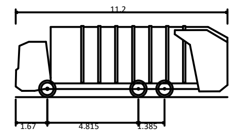


NOTES

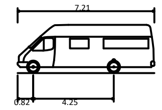
These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9



Large Car (2006)	
Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.900m



Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)	
Overall Length	11.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m



7.5t Panel Van	
Overall Length	7.210m
Overall Width	2.192m
Overall Body Height	2.544m
Min Body Ground Clearance	0.316m
Track Width	1.865m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.400m

REV	DATE	REVISION NOTE	BY

PJA
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Exeter ▫ London ▫ Reading
pja.co.uk

CLIENT
Inland Ltd

PROJECT
Elmsleigh Road
Staines-upon-Thames

DRAWING TITLE
Proposed Highway Works
Swept Path Analysis
Debenhams Service Access

DRAWING ISSUE STATUS
PLANNING

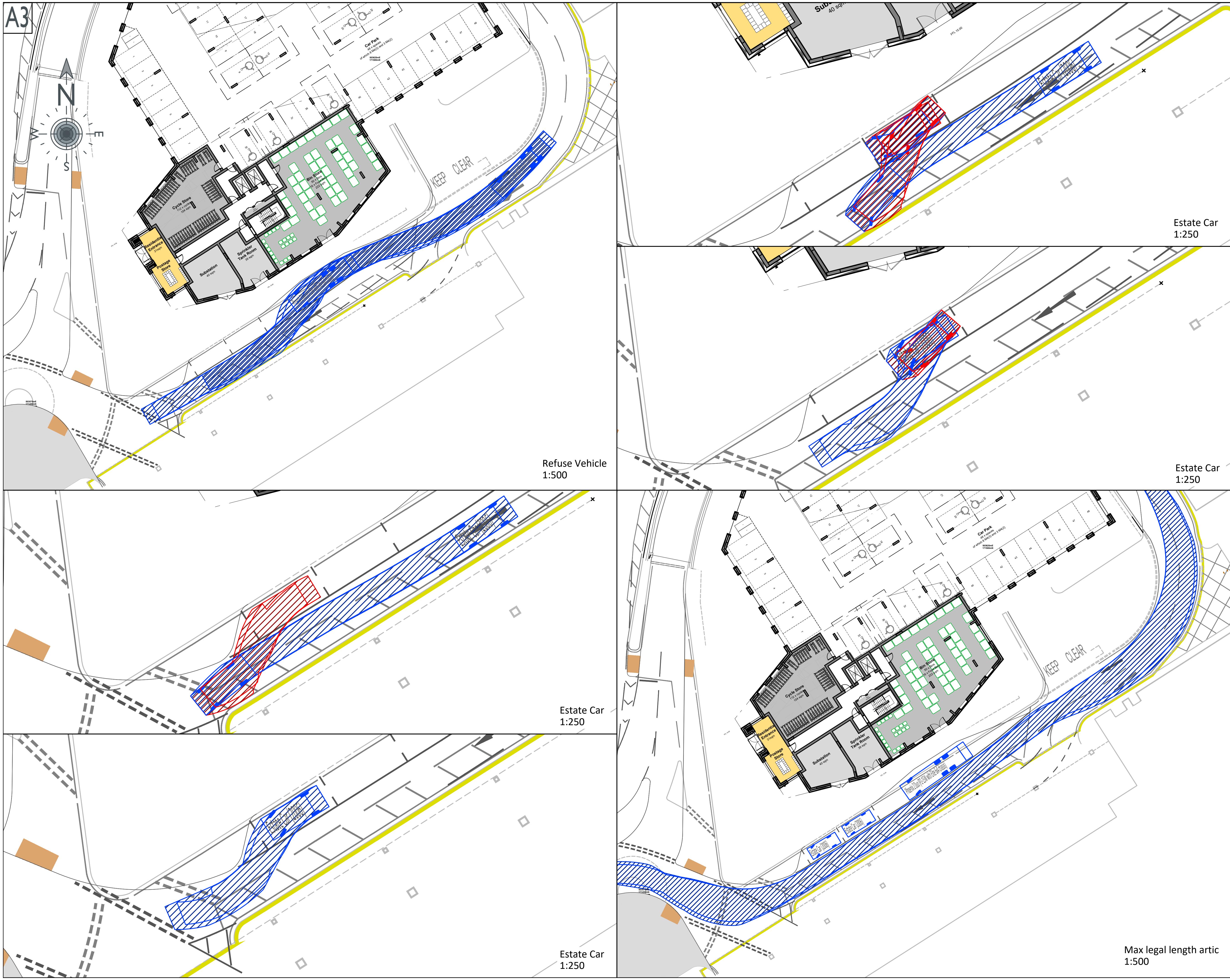
PJA JOB No. SUB-CODE
04550 - TR- 0024 - P0

Revision Letter : P - Prelim / A - Approval / T - Tender / C - Construction

BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A3 @ 1:500	LS	MF	06/04/2020

Appendix H Loading Bays Swept Path Analysis



NOTES

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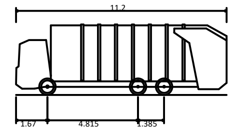
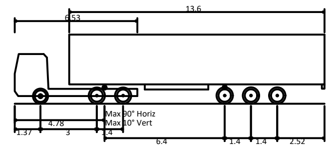


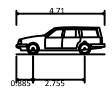
Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)

Overall Length	11.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m



Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m



Estate Car (2006)

Overall Length	4.710m
Overall Width	1.804m
Overall Body Height	1.442m
Min Body Ground Clearance	0.207m
Max Track Width	1.756m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.950m

REV	DATE	REVISION NOTE	BY

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Inland Ltd

PROJECT
Elmsleigh Road
Staines-upon-Thames

DRAWING TITLE
Proposed Highway Works
Swept Path Analysis
Loading Bay and Car Club

DRAWING ISSUE STATUS
PLANNING

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BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A3 @As shown	LS	MF	07/04/2020