Proposed Residential Development at Broomfield West, Midleton, Co. Cork.

Traffic & Transport Assessment.

Document Control Sheet

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1.0 Introduction

Martin Hanley Traffic and Transportation Consulting Engineers have been engaged by Cork County Council to prepare a Traffic and Transport Assessment (TTA) for a proposed housing development of 45 housing units. This report has been prepared as part of the planning application. The site is located at Broomfield West, Midleton, Co. Cork. Access to the development will be via a new entrance from the existing Broomfield West L7360 County Road. The traffic assessment also includes 2No adjacent housing development at Broomfield West.

Traffic counts were conducted by Traffinomics Ltd, on Tuesday, 10th December 2024, during the morning peak hours of 07:30 - 09:30 and the evening peak hours of 16:30 - 18:30. The counts were performed at the major junctions accessing the proposed Development and included the following junctions,

- Junction Avoncore Place L7360 / Broomfield Close L9425
- Junction Midleton Northern Relief Road / Avoncore Place L7360

The expected year of completion for the development is taken to be 2026. In accordance with the "Traffic and Transport Assessment Guidelines, TII 2014", a traffic analysis was carried out for the AM & PM peak hours for the following time periods.

Base Year 2024

Opening Year 2026

Opening Year + 5 Year Forecast 2031.

Opening Year + 15 Year Forecast 2041.

This report has been prepared in accordance with the TII's 2014 publication "Traffic and Transport Assessment Guidelines" and the "Guidelines for Traffic Impact Assessments" as published by the Institution of Highways & Transportation U.K. in 1994. The purpose of a TTA is to assess the traffic impact of a development on the existing road network and propose any necessary mitigation measures to best accommodate the expected traffic volumes generated by the proposed development.

1.1 Conclusion Non- Technical Summary

The following are the main conclusions of the LinSig traffic analysis.

Junction 1 – Broomfield West L7360 / Access to Development

- The proposed new access junction to the housing development is shown to be operating well within capacity for all future design years. The maximum degree of saturation for traffic exiting the proposed development is 3.6% for the morning peak hour and 6.0% for traffic entering the development in the design year 2041.

- Junction sight distance of 49m to the east and west is provided at 2.4m back from the road edge measured for design speed of 50km/hr in accordance with DMURS. Appropriate STOP road marking and signage will be provided.

Junction 2 – Avoncore Place L7360 / Broomfield Close L9425

- The existing junction to Avoncore Place L7360 / Broomfield Close is shown to be operating within capacity for all future design years. The maximum degree of saturation for is 57.6 in 2024 on Arm 15 increasing to 74.% for the morning peak hour the design year 2041.

- Junction sight distance of 49m to the east and west is available at 2.4m back from the road edge measured for design speed of 50km/hr in accordance with DMURS. The junction has appropriate STOP road marking and signage provided.

- It is recommended that this junction would be signalised by the design year 2031 to improve pedestrian crossing facilities and safety.

Junction 3 - Midleton Northern Relief Road / Mill Road R626

- The existing Signalised junction of the Midleton Northern Relief Road and Mill Road is shown to be operating within capacity for all future design years. The maximum degree of saturation for traffic is 64.6% on Arm 2 Mill Road for the morning peak hour in 2024 increasing to 86.6% on Arm 8 Avoncore Place in the design year 2041.

- This junction is controlled by a MOVA controller which optimises both cycle times and stage timing to improve the operational efficiency of the junction.

2.0 Policy Context

2.1 Introduction

In order to demonstrate that the development of the site complies with current national and local transport planning policy, a review was undertaken of the following documents:

- Cork County Council Development Plan 2022-2028
- Urban Design Manual: A Best Practice Guide 2009
- Smarter Travel - A Sustainable Transport Future 2009-2020
- Spatial Planning & National Roads – Guidelines for Planning Authorities 2012

2.2 Urban Design Manual: A Best Practice Guide 2009

This guide “focuses on creating well-designed, sustainable neighbourhoods that will stand the test of time”. This can also extend to industrial developments and provides a strong foundation for the design of such sites in relation to their accessibility – in particular walking and cycling. The manual follows a set of criteria of which the following are directly linked to this Transport Assessment.

- There are attractive routes in and out for pedestrians and cyclists
- The development is located in or close to a mixed-use centre
- The development’s layout makes it easy for a bus to serve the scheme
- The layout links to existing movement routes and the places people will want to get to
- Appropriate density, dependant on location, helps support efficient public transport

The manual recognises the need for planners to facilitate connections between new and existing developments, as well as key locations around the sites. These connections should be of high quality, direct, safe, and secure and facilitate existing movement and desired routes. Furthermore, public transport and sustainable transport is prioritised over private cars. Quality interchanges are highly desirable in promoting the uptake of public transport, including integration with sustainable transport modes, such as cycle parking/storage.

2.3 Smarter Travel – A Sustainable Transport Future 2009-2020

Smarter Travel is “designed to show how Ireland can reverse current unsustainable transport and travel patterns and reduce the health and environmental impacts of current trends and improve our quality of life”. The plan outlines the current transport trends and statistics in Ireland and focuses on policies which aim to increase transport sustainability by 2020.

Key goals of the policy include.

- Improving quality of life and accessibility to transport for all and, in particular, people with reduced mobility and those who may experience isolation due to lack of transport.
- Improving economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructure bottlenecks.
- Minimising the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions.
- Reducing overall travel demand and commuting distances travelled by the private car.

In Chapter 3 of the Smarter Travel Document the Government reaffirms its vision for sustainability in transport and sets out five key goals:

(i) to reduce overall travel demand,
(ii) to maximise the efficiency of the transport network,
(iii) to reduce reliance on fossil fuels,
(iv) to reduce transport emissions and
(v) to improve accessibility to transport.

To achieve these goals and to ensure that we have sustainable travel and transport by 2020, the Government sets the following key targets:

- Future population and employment growth will predominantly take place in sustainable compact forms, which reduce the need to travel for employment and services.
- 500,000 more people will take alternative means to commute to work to the extent that the total share of car commuting will drop from 65% to 45%
- Alternatives such as walking, cycling and public transport will be supported and provided to the extent that these will rise to 55% of total commuter journeys to work.
- The total kilometres travelled by the car fleet in 2020 will not increase significantly from current levels.
- A reduction will be achieved on the 2005 figure for greenhouse gas emissions from the transport sector.

2.4 Cork County Council Development Plan 2022-2028

Data indicates that a significant majority of trips (76.69%) originating in Midleton Electoral Area of Cork County are by private transport and are mainly car-based. Walking accounts for a significant proportion of journeys at 9.9 % while cycling comprises 1.3% of trips. Approximately 9.77% of trips are taken by public transport. See Table 2.1 below which is an extract from Cork County Council Development Plan 2022-2028 Chapter 12 Transport and Mobility.

Commuting to or within Midleton Electroal Area	% Travelling to work by private Car	% Travelling to work by walking	% Travelling to work by cycling	% Travelling to work by public transport
Midleton Baseline 2016	76.69	9.90	1.30	9.77
Midleton Targets for 2028	60.00	14.00	4.00	20.00

Table 2.1: Cork County Development Plan - Midleton existing baseline mode share for commuting compared to target mode for commuting.

Table 12.2 Relevant Existing Modal Shift Targets

Smarter Travel National Sustainable Transport Policy	Cork Metropolitan Area Strategic Plan AM Peak Mode Share Targets 2011-2040			Cork Metropolitan Area Cycle Network Plan Cycling Mode Share
45% of work related commuting by private car by 2020	Car:	66% 2011	49.3% 2040	-
55% of work related commuting by sustainable transport by 2020	Walking:	21% 2011	21% 2040	-
	Bus:	10% 2011	25.7% 2040	-
	Cycling:	1% 2011	4% 2040	Cycling: 5% - 9% 2025

Table 2.2: Cork County Development Plan Relevant Modal Shift Targets.

3.0 Existing Conditions

3.1 Local Road Network

The site is located at Broomfield West, Midleton, Co. Cork. Access to the development will be via a new entrance from the existing Broomfield West L7360 County Road. The proposed development is located approx. 1.3km to the town centre of Midleton.
The Midleton Northern Relief Road and Mill Road junction is a controlled signalised junction using a MOVA controller which optimises both cycle times and stage timing to improve the operational efficiency of the junction. The development has access to the L9425 through Broomfield Village. This road connect the Mill Road R626 to the R726 to the east.

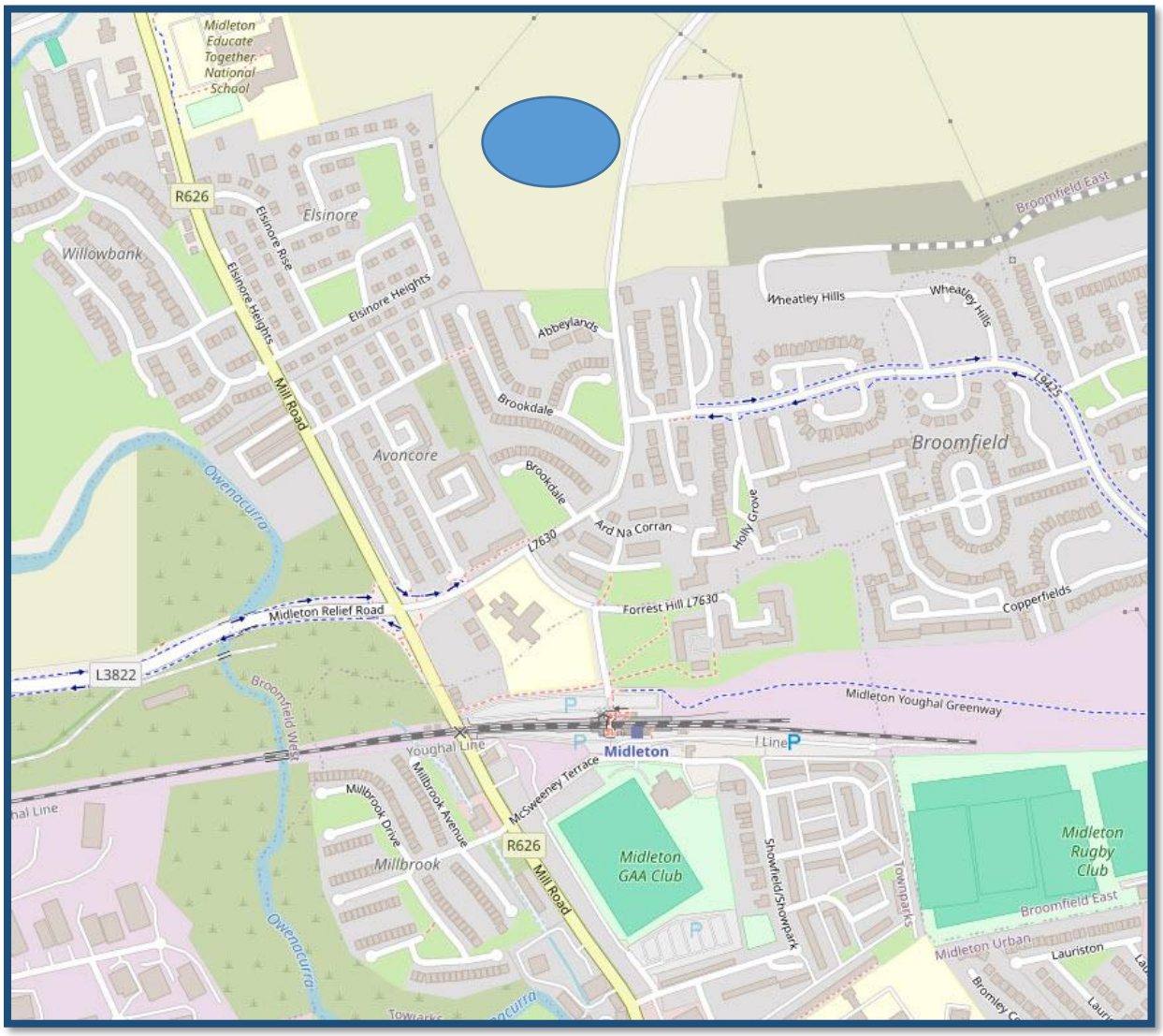


Fig 3.1: Local Road Network & Site Location.

Fig 3.2: Junction Analysis Locations.

3.2 Existing Traffic Conditions

Traffic counts were undertaken for the busiest traffic hours. As this is a residential development, the peak hours for traffic generation are weekdays for the morning and evening peak hours. Traffic counts were carried out by Traffinomics Ltd. on Tuesday 10th December 2024 for the morning peak hours of 07:30 - 09:30 and the evening peak hours of 16:30-18:30. Full traffic count data can be found in appendix A of this report.

The existing junction was analysed using LinSig traffic modelling software. The outputs from LinSig show Degree of Saturation and Queue lengths as indicators of the operational efficiency of the junction. A Degree of Saturation of 100% indicates that the junction is operating at its theoretical maximum capacity, however, a value of 90% is considered to be the maximum optimum Degree of Saturation for an uncontrolled junction, allowing a 10% reserve capacity for unusual events.

A base model was developed in LinSig using the recorded traffic counts. LinSig software requires that all traffic modes collected from the counts be converted to Passenger Carrying Units (PCU's or car-equivalents). This is done to standardise the size disparity of different vehicle types, preventing an overestimation of smaller vehicle categories and underestimation of HGV's and other large vehicle categories. The traffic counts converted in PCU format allow for all modelled traffic flows to be equally represented in comparison to other categories, thereby removing any discrepancies in the input data.

Output from LinSig can be seen in Fig 3.3 for the AM peak hour 2024 and Fig 3.4 for the PM peak hour 2024.

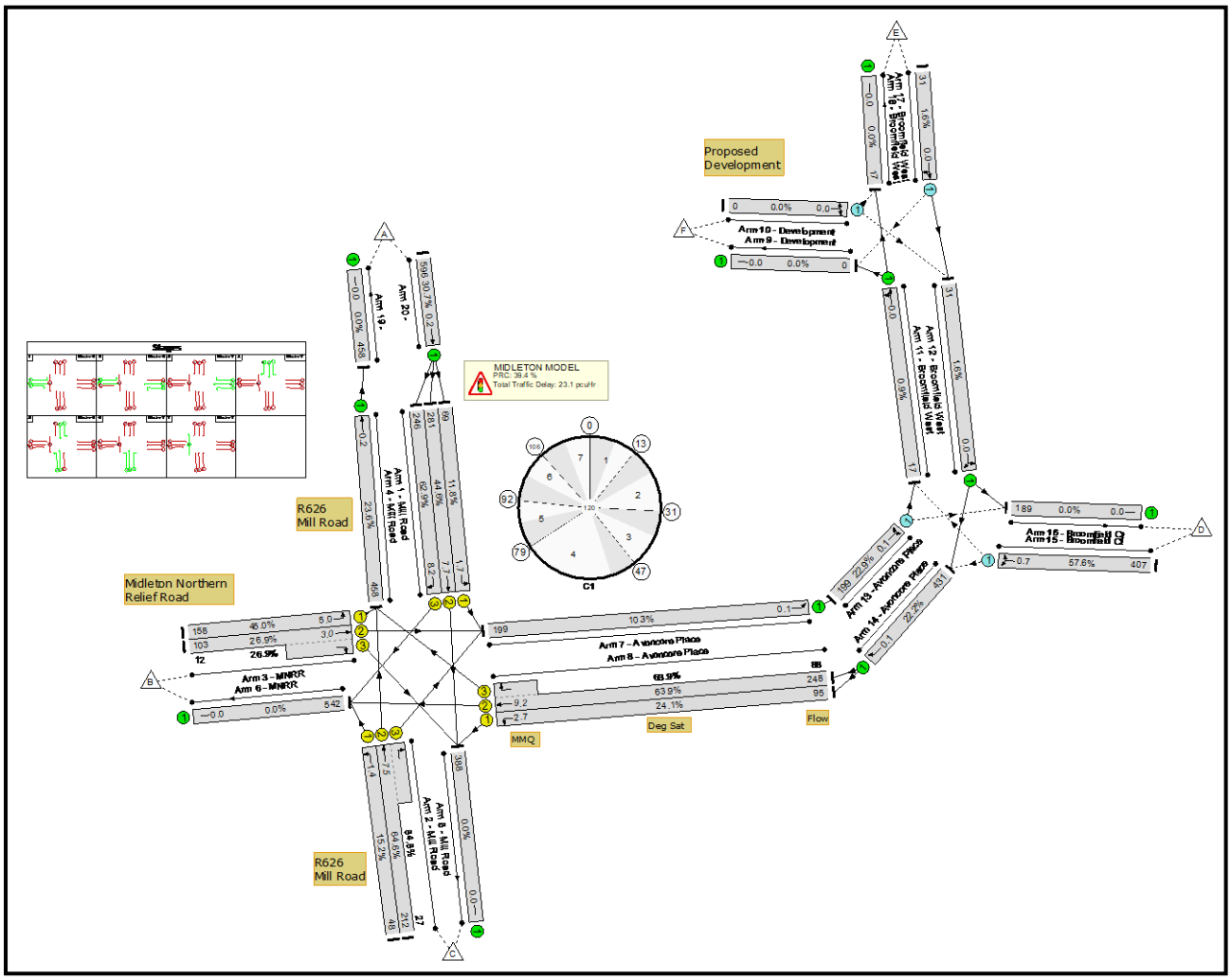


Fig 3.3: Scenario 1 AM 2024 Current Year

For the existing AM scenario, the LinSig traffic analysis shows that the maximum degree of saturation occurs on Arm 2 Mill Road as can be seen in Fig 3.3 above. The degree of saturation is measured at 64.6% with a mean maximum car queue length of 9.4 vehicles for the morning peak hours 08:00-09:00. The maximum degree of saturation at the Broomfield Close / Avonmore Road Junction is 57.6% on Arm 15.

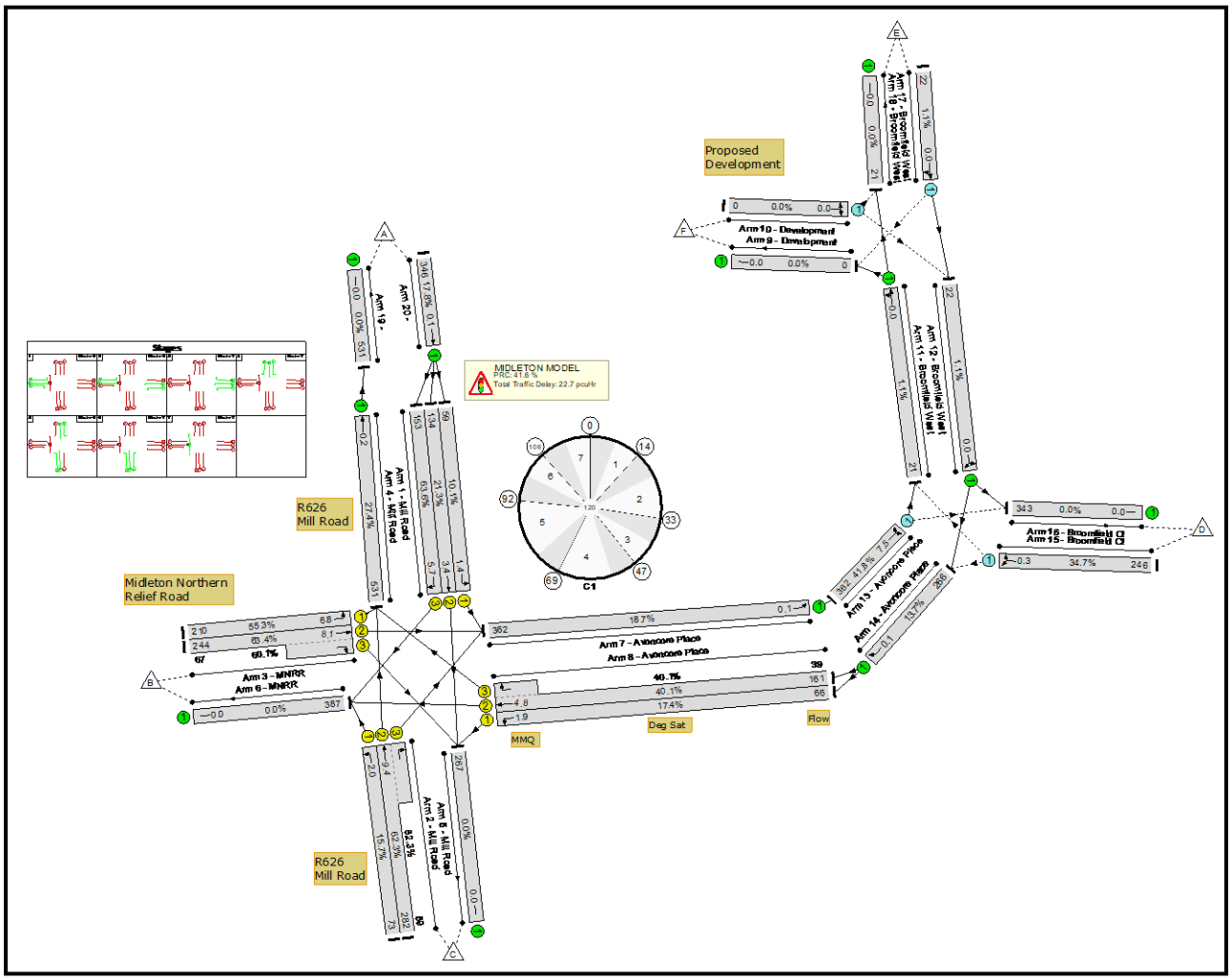


Fig 3.4: Scenario 5 PM 2024 Current Year

For the existing PM scenario, the LinSig traffic analysis shows that the maximum degree of saturation occurs on Arm 1 Mill Road as can be seen in Fig 3.4 above. The degree of saturation is measured at 63.6% with a mean maximum car queue length of 3.4 vehicles for the evening peak hours 16:45-17:45. The maximum degree of saturation at the Broomfield Close / Avonmore Road Junction is 41.8% on Arm 13. See Appendix C for LinSig output data.

4.0 Development

The proposed development includes 45 housing units, consisting of houses and duplex apartments. The proposed residential development consists of the construction of 45 no. residential units comprising of 27 no. two, three and four bedroom 2-storey houses and 18 no. one and two-bedroom duplex apartments. The development will include allocated on and off plot parking, new roads and pedestrian and cycle routes within the site, vehicular access to Broomfield West, public lighting, connection to utilities, landscaping, bin and bike storage, drainage and other ancillary works.

See drawings in Appendix D for the roads layout plan. This proposed development layout in figure 4.1 has been provided by Geraldine Coughlan Architects.

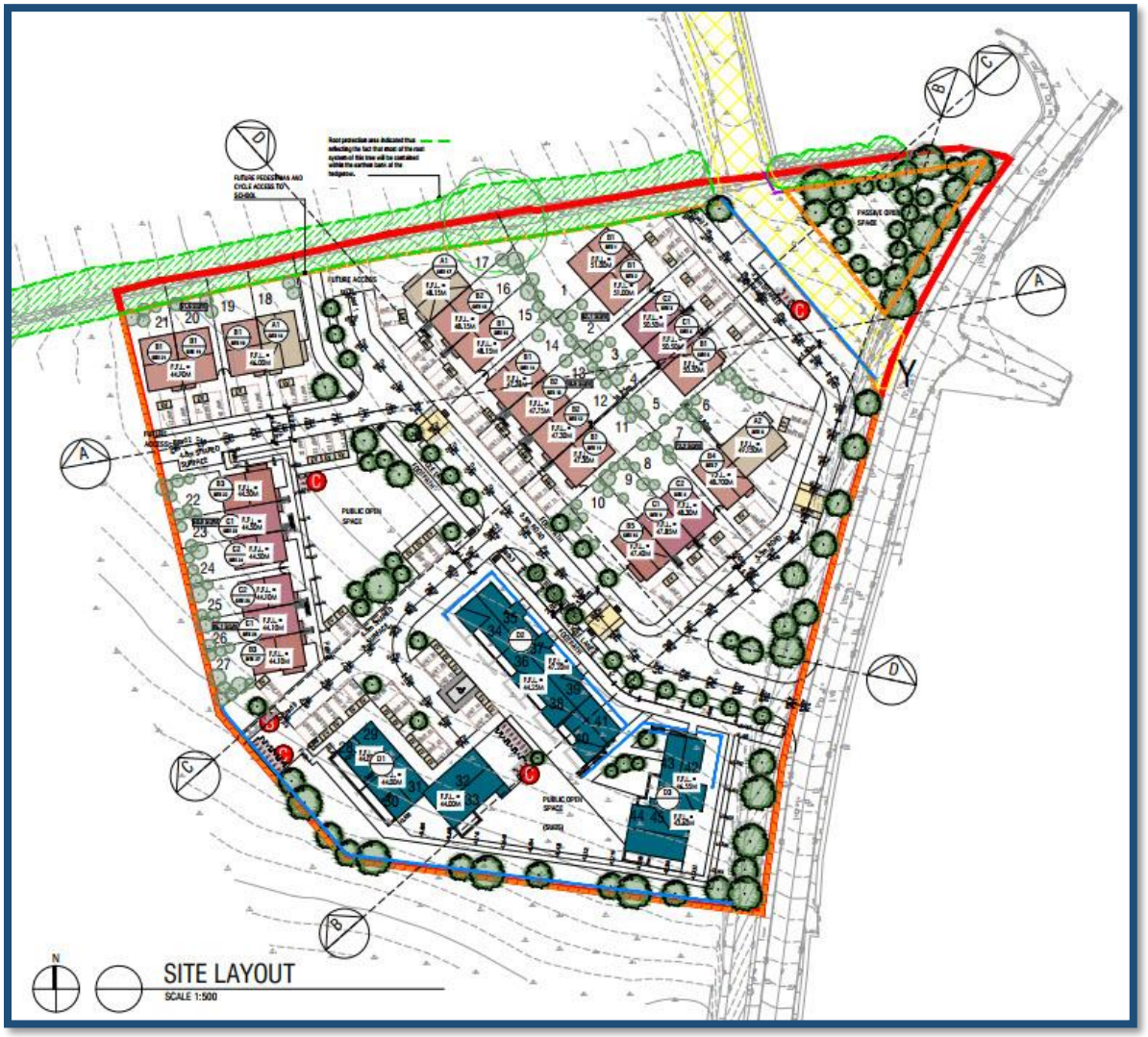


Fig 4.1 Proposed Development Layout.

4.1 Adjacent Potential Developments

In addition to this housing Development of 45 units two additional adjacent residential Developments have been including in the traffic assessment. These include the development of 268 residential units to the east of this Development and 106 units on lands located to the south of this development.

See Fig 4.2 below which shows the two recently developments on land to the east known as the Castlerock Residential Development and lands to the south of this proposed development. highlighted in blue. The development lands in blue are subject to planning permission with the appointment of consultants imminent.

Fig 4.2 Adjacent Potential Residential Developments.

5.0 Trip Generation, Modal Split and Trip Distribution.

5.1 Trip Generation

TII's 2014 publication "Traffic and Transport Assessment Guidelines" states that for new developments a traffic analysis should be carried out during the busiest hours which have been identified from traffic counts as 08:00-09:00 and 16.45-17.45. As this is a residential development the morning and evening peak hours are considered as the peak hour for traffic generation. The TRICS database can be used to calculate the trip generation for this development. TRICS is a well-established UK and Irish national database which holds in excess of 2,100 site locations and 4,700 survey counts with over 98 separate land use sub-categories.

Table 5.1 below shows the total number of trips generated by the development.
See Appendix B for trics data.

Residential Deverlopment Midleton		AM ARRIVAL 08:00-09:00	AM DEPARTURES 08:00-09:00	PM ARRIVAL 16:45-17:45	PM DEPARTURES 17:15-18:15
45 Residential Units	per unit	0.18	0.46	0.45	0.25
	No.	45	45	45	45
	Trips	8	21	20	11
		AM ARRIVAL	AM DEPARTURES	PM ARRIVAL	PM DEPARTURES
TOTAL TRIPS PEAK HOURS		8	21	20	11

Table 5.1: Trip Generation from proposed Development for Phase 1 design year 2026.

In addition to this housing Development of 45 units two additional adjacent residential Developments have recently been granted permission. These include the development of 268 residential units to the east of this Development and 106 units on lands located to the south of this development. Table 5.2 below shows the total number of trips generated by these two developments.

Residential Deverlopment Midleton		AM ARRIVAL 08:00-09:00	AM DEPARTURES 08:00-09:00	PM ARRIVAL 16:45-17:45	PM DEPARTURES 17:15-18:15
Castlerock Residential Development	per unit	0.18	0.46	0.45	0.25
268 Residential Units	No.	268	268	268	268
	Trips	48	123	121	67
Lands In Blue Residential Development	per unit	0.18	0.46	0.45	0.25
106 Residential Units	No.	106	106	106	106
	Trips	19	49	48	27
		AM ARRIVAL	AM DEPARTURES	PM ARRIVAL	PM DEPARTURES
TOTAL TRIPS PEAK HOURS		67	172	168	94

Fig 5.2 Trip Generation for Adjacent Permitted Developments.

The proposed development of 45 housing units only represents 10% of the additional traffic generated. The remaining 90% of additional traffic is generated by the two adjacent developments

5.2 Modal Split

In order to predict the level of traffic that will be generated by the proposed development, the means of transport (modal split) and quantity of traffic generated (trip attraction) must be considered. Given the location of the proposed development, the peak hour trips generated will primarily be by public transport and private car. In terms of modal split and national policies for the promotion of sustainable transport solutions, a reduction in car trips would be expected, with improvement in pedestrian / cycle facilities as well as improvement in public transport. In order to provide a robust traffic analysis, no reduction in car traffic volumes has been assumed in this report.

National policies, strategies, and guidelines for improvements to public transport systems and reductions in car usage are outlined in the Department of Transport Tourism and Sport's Planning Guidelines for Spatial Planning and National Roads 2012 and the Department of Transport, Tourism and Sport's Smarter Travel: A Sustainable Transport Future. In addition, the document a New Policy for Ireland 2009-2020 states that the key aims of any development plan must be to secure more sustainable residential development that reduces overall demand for transport by car and encourages modal shift towards sustainable travel modes (e.g., walking, cycling and public transport), whilst also ensuring the strategic traffic function of national roads is maintained."

5.3 Trip Distribution

The current distribution of traffic along the Mill Road and Midleton Northern Relief Road will be used to determine directional split to and from the proposed development for both morning and evening peak hours. This peak hour directional split pattern is assumed to remain constant with the passage of time.

6.0 Traffic Growth

In order to predict likely future traffic conditions so that the impact of a development proposal on the road and transport network can be predicted and assessed, traffic forecasting considers the possible traffic flows generated by a development proposal as well as the existing background network traffic which is factored up.

The assessment years considered in this report are the Base Year (2024), which is the year the baseline traffic surveys were undertaken, the proposed Opening Year, which is the year of expected completion for the proposed development (2026) and the Design Years, taken as the opening year plus 5 years (2031) & the opening year plus 15 years (2041).

Transport Infrastructure Irelands publication "Project Appraisal Guidelines for National Roads Unit 5.3" 2019 was used to calculate growth factors for the background road network traffic. These Guidelines state that for the years 2016-2030 within Co. Cork, a growth rate of 1.73% per annum can be assumed up to 2030. This changes to 0.67% beyond 2030. The traffic counts from 2024 were factored up using these projected growth rates. The effects of traffic growth on the existing network plus the additional traffic generated by the proposed development have been compiled to provide a robust set of data for the traffic analysis.

Table 6.1 below shows the calculated growth factors based on a growth rate measured from the current year 2024.

Location		2026	2031	2041
Cork County	Growth Rate From 2024	3.49%	12.76%	18.46%

Table 6.1: TII Traffic Growth Rates County Cork.

7.0 Assignment of Development Trips

The proposed development will generate trips as outlined in section 5 of this report. As outlined in section 5.2 and 5.3, the expected modal split has been assumed to remain as it is at present with no increase in modal shift towards more sustainable transport patterns. This will provide a worst-case scenario from a traffic modelling perspective.

7.1 Traffic Assignment

Traffic models were produced for the scenarios outlined below. These models incorporate the measured traffic flows outlined in section 3.0, factored up as per section 6.0, along with predicted development traffic as described in section 5.1.

The list of traffic models built for the proposed development traffic assessment are:

- Base Year 2024
- Opening Year 2026
- Opening Year + 5 Year Forecast 2031
- Opening Year + 15 Year Forecast 2041

Six zones were used to construct the LinSig network labelled A to F. Access to the development will be through Zone F.

		Destination						
		A	B	C	D	E	F	Tot
	A	0	246	281	62	7	0	596
	B	158	0	12	97	6	0	273
Origin	C	212	48	0	26	1	0	287
	D	81	232	91	0	3	0	407
	E	7	16	4	4	0	0	31
	F	0	0	0	0	0	0	0
	Tot	458	542	388	189	17	0	1594

Table 7.1: Traffic Assignment for AM Peak 2024

		Destination						
		A	B	C	D	E	F	Tot
	A	0	153	134	55	4	0	346
	B	210	0	67	230	14	0	521
Origin	C	282	73	0	57	2	0	414
	D	35	148	62	0	1	0	246
	E	4	13	4	1	0	0	22
	F	0	0	0	0	0	0	0
	Tot	531	387	267	343	21	0	1549

Table 7.2: Traffic Assignment for PM Peak 2024

		Destination						
		A	B	C	D	E	F-Dev	Tot
	A	0	255	291	64	34	0	644
	B	164	0	12	100	29	8	313
Origin	C	219	50	0	27	4	0	300
	D	84	240	94	0	14	0	432
	E	45	104	26	26	0	0	201
	F-Dev	0	11	10	0	0	0	21
	Tot	512	659	433	217	81	8	1911

Table 7.3: Traffic Assignment for AM Peak 2026

		Destination						
		A	B	C	D	E	F-Dev	Tot
	A	0	158	139	57	36	0	390
	B	217	0	69	238	125	10	660
Origin	C	292	76	0	59	19	10	455
	D	36	153	64	0	9	0	263
	E	21	68	21	6	0	0	116
	F-Dev	0	8	0	0	0	0	8
	Tot	566	463	293	360	189	20	1892

Table 7.4: Traffic Assignment for PM Peak 2026

		Destination						
		A	B	C	D	E	F-Dev	Tot
	A	0	277	317	70	34	0	698
	B	178	0	14	109	29	8	338
Origin	C	239	54	0	29	4	0	326
	D	91	262	103	0	14	0	470
	E	45	104	26	26	0	0	201
	F-Dev	0	11	10	0	0	0	21
	Tot	554	708	469	235	81	8	2054

Table 7.5: Traffic Assignment for AM Peak 2031

		Destination						
		A	B	C	D	E	F-Dev	Tot
	A	0	173	151	62	36	0	422
	B	237	0	76	259	125	10	707
Origin	C	318	82	0	64	19	10	494
	D	39	167	70	0	9	0	285
	E	21	68	21	6	0	0	116
	F-Dev	0	8	0	0	0	0	8
	Tot	615	498	318	392	189	20	2031

Table 7.6: Traffic Assignment for PM Peak 2031

		Destination						
		A	B	C	D	E	F-Dev	Tot
	A	0	291	333	73	34	0	732
	B	187	0	14	115	29	8	353
Origin	C	251	57	0	31	4	0	343
	D	96	275	108	0	14	0	493
	E	45	104	26	26	0	0	201
	F-Dev	0	11	10	0	0	0	21
	Tot	579	738	491	245	81	8	2142

Table 7.7: Traffic Assignment for AM Peak 2041

		Destination						
		A	B	C	D	E	F-Dev	Tot
	A	0	181	159	65	36	0	441
	B	249	0	79	272	125	10	736
Origin	C	334	86	0	68	19	10	517
	D	41	175	73	0	9	0	299
	E	21	68	21	6	0	0	116
	F-Dev	0	8	0	0	0	0	8
	Tot	645	519	333	411	189	20	2117

Table 7.8: Traffic Assignment for PM Peak 2041

8.0 Road Impact

8.1 LinSig Analysis

During the preparation of this report discussions have taken place with Cork County Council Roads Department.

In order to assess the capacity of the existing road network and access junction to the proposed development, traffic models were constructed using LinSig. LinSig is a computer software program dealing with capacities, mean max queue lengths (pcu) and delays at uncontrolled and signalised junctions.

The output results sheets from LinSig consist of tables of demand flow, capacities, queues and delays for the morning and evening peak hour analysis, for each arm of the junction. These tables contain start and finish times for each arm, traffic demand, Degree of Saturated Flow (DOS %), start queue length and queuing delay.

The DOS provides the basis for judging the acceptability of junction design and the capacity of existing junctions. In general, a DOS of 90% or less for controlled junctions is considered acceptable during the peak periods. A DOS of this value would indicate that at peak times the junction is at 90% of its operational capacity and therefore has a practical reserve capacity of 10%. This reserve capacity of 10% is considered by traffic engineers to be the level of reserve capacity at a junction required to cater for periods of unusually high traffic flow, such as bank holiday weekends, public entertainment, and sporting events etc.

The results from the LinSig analysis are shown in the pages which follow for the following traffic scenarios.

Scenario 1 AM 2024 Current Year
Scenario 2 AM 2026 Design Year
Scenario 3 AM 2031 Design Year
Scenario 4 AM 2041 Design Year
Scenario 5 PM 2024 Current Year
Scenario 6 PM 2026 Design Year
Scenario 7 PM 2031 Design Year
Scenario 8 PM 2041 Design Year

The full output from Linsig traffic analysis is available in Appendix C

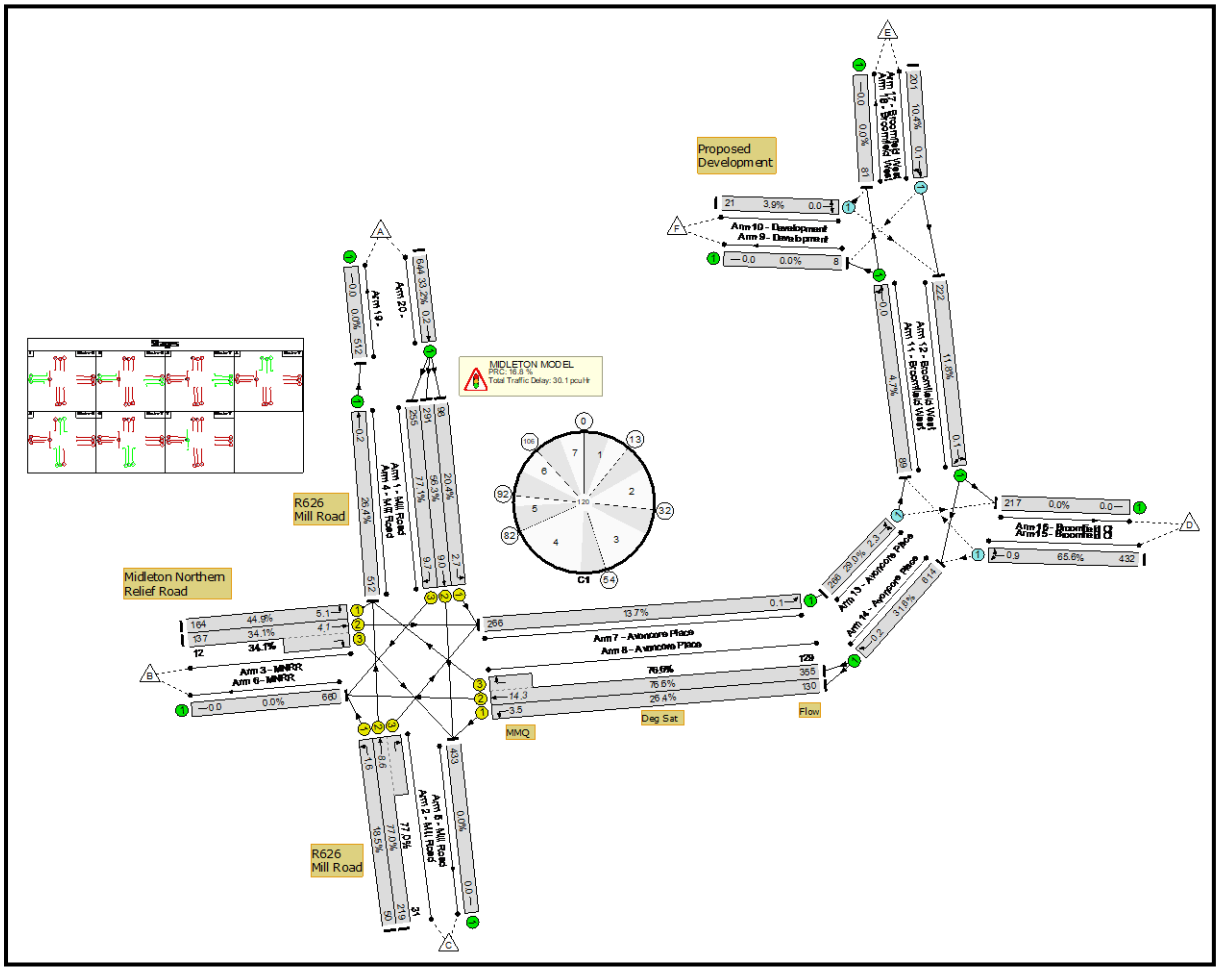


Fig 8.1: 'Scenario 2 AM 2026' Network Layout Diagram

For the AM 2026 scenario, the LinSig traffic analysis shows that the maximum degree of saturation occurs on Arm 1 Mill Road as can be seen in Fig 8.1 above. The degree of saturation is measured at 77.1% with a mean maximum car queue length of 9.7 vehicles for the morning peak hours 08:00-09:00. The maximum degree of saturation at the Broomfield Close / Avonmore Road Junction is 65.5% on Arm 15. The maximum degree of saturation at the proposed new entrance to the residential Development is only 3.9%.

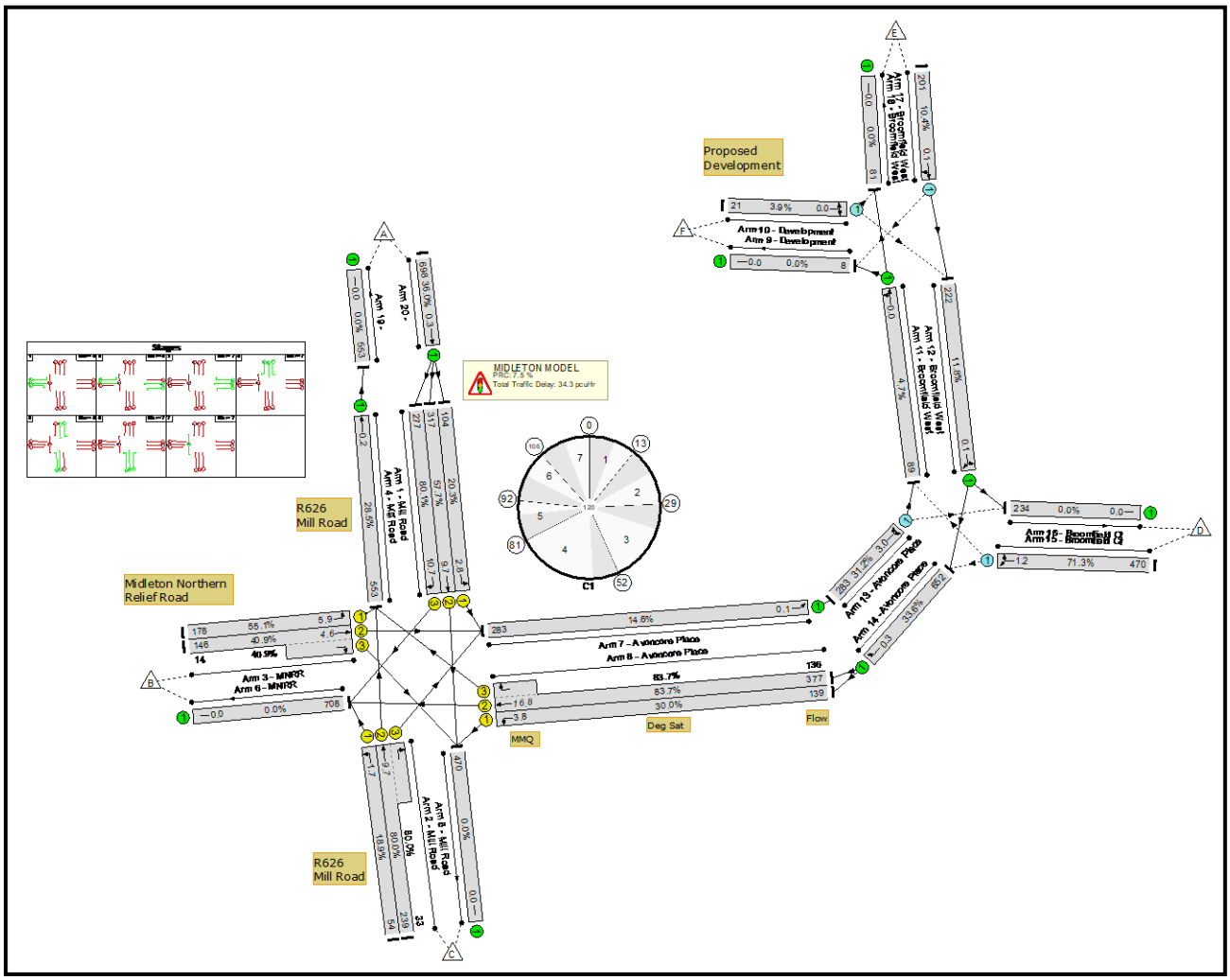


Fig 8.2: 'Scenario 3 AM 2031' Network Layout Diagram

For the AM 2031 scenario, the LinSig traffic analysis shows that the maximum degree of saturation occurs on Arm 8 Avoncore Place as can be seen in Fig 8.2 above. The degree of saturation is measured at 83.7% with a mean maximum car queue length of 16.8 vehicles for the morning peak hours 08:00-09:00. The maximum degree of saturation at the Broomfield Close / Avonmore Road Junction is 71.3% on Arm 15. The maximum degree of saturation at the proposed new entrance to the residential Development is only 3.9%.

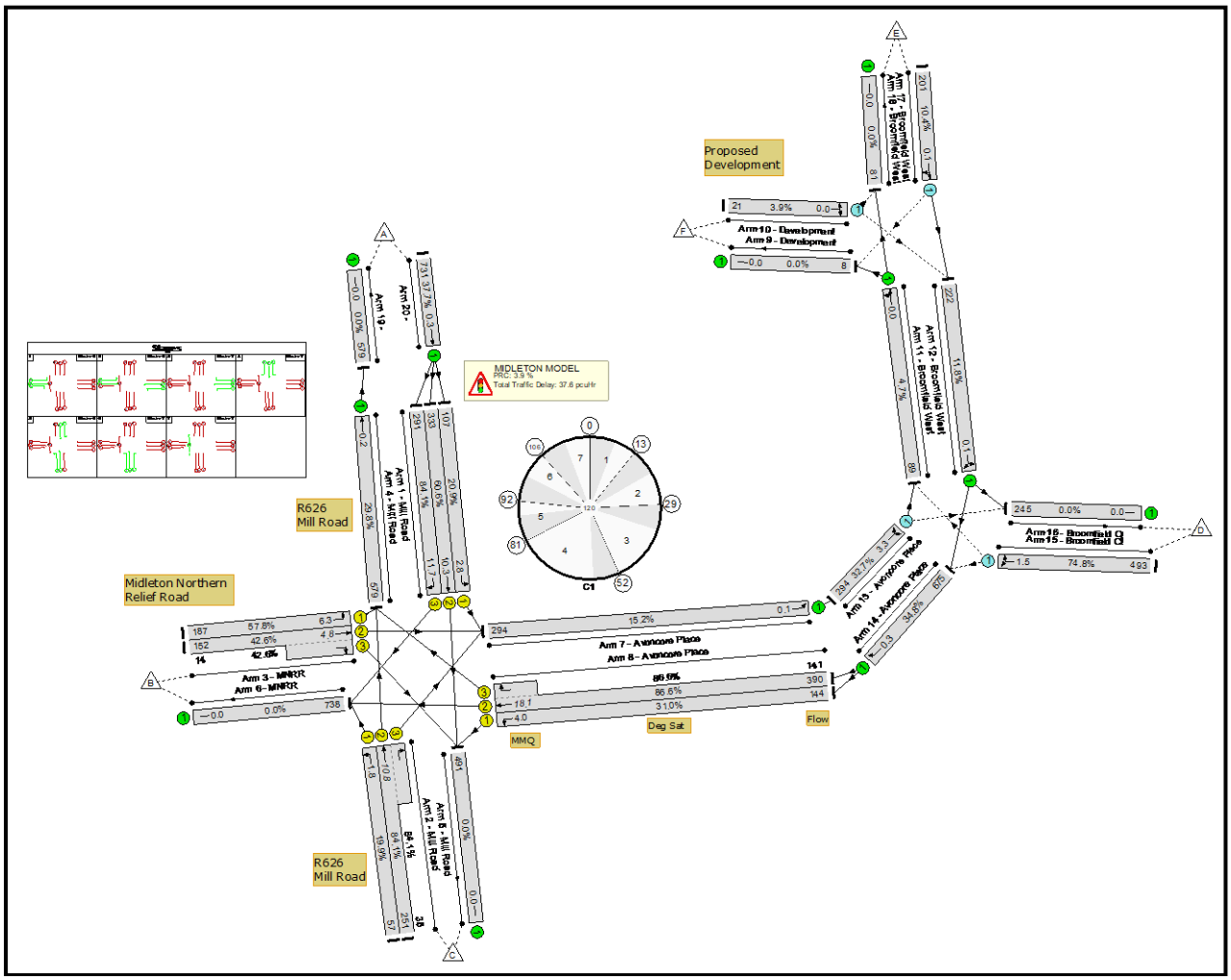


Fig 8.3: 'Scenario 4 AM 2041 Network Layout Diagram

For the AM 2041 scenario, the LinSig traffic analysis shows that the maximum degree of saturation occurs on Arm 8 Avoncore Place as can be seen in Fig 8.3 above. The degree of saturation is measured at 86.6% with a mean maximum car queue length of 18.1 vehicles for the morning peak hours 08:00-09:00. The maximum degree of saturation at the Broomfield Close / Avonmore Road Junction is 74.8% on Arm 15. The maximum degree of saturation at the proposed new entrance to the residential Development is only 3.9%.

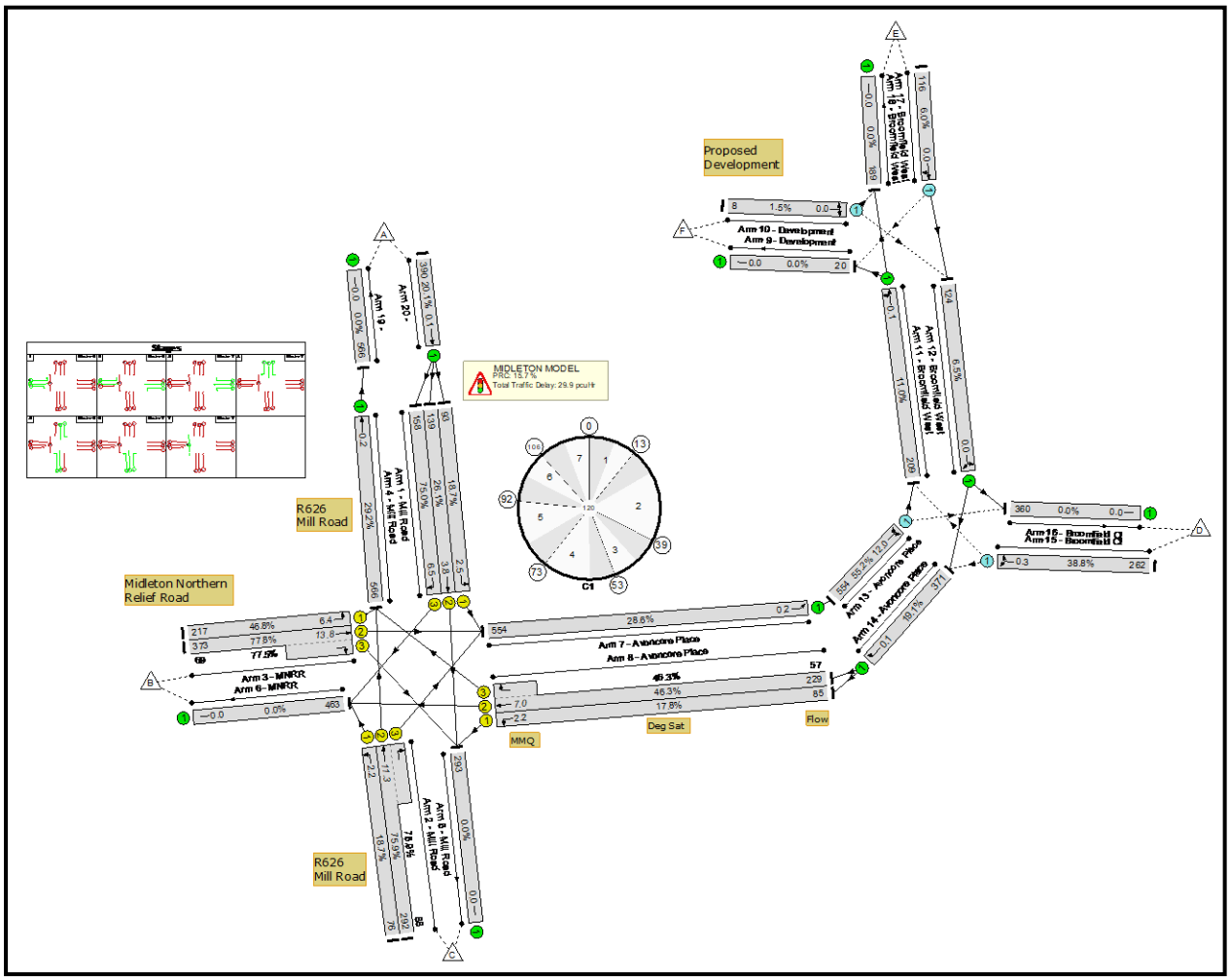


Fig 8.4: 'Scenario 6 PM 2026' Network Layout Diagram

For the PM 2026 scenario, the LinSig traffic analysis shows that the maximum degree of saturation occurs on Arm 3 MNRR as can be seen in Fig 8.4 above. The degree of saturation is measured at 77.8% with a mean maximum car queue length of 13.8 vehicles for the evening peak hours 16:45-17:45. The maximum degree of saturation at the Broomfield Close / Avonmore Road Junction is 55.2% on Arm 13. The maximum degree of saturation at the proposed new entrance to the residential Development is only 6.0%. See Appendix C for LinSig output data.

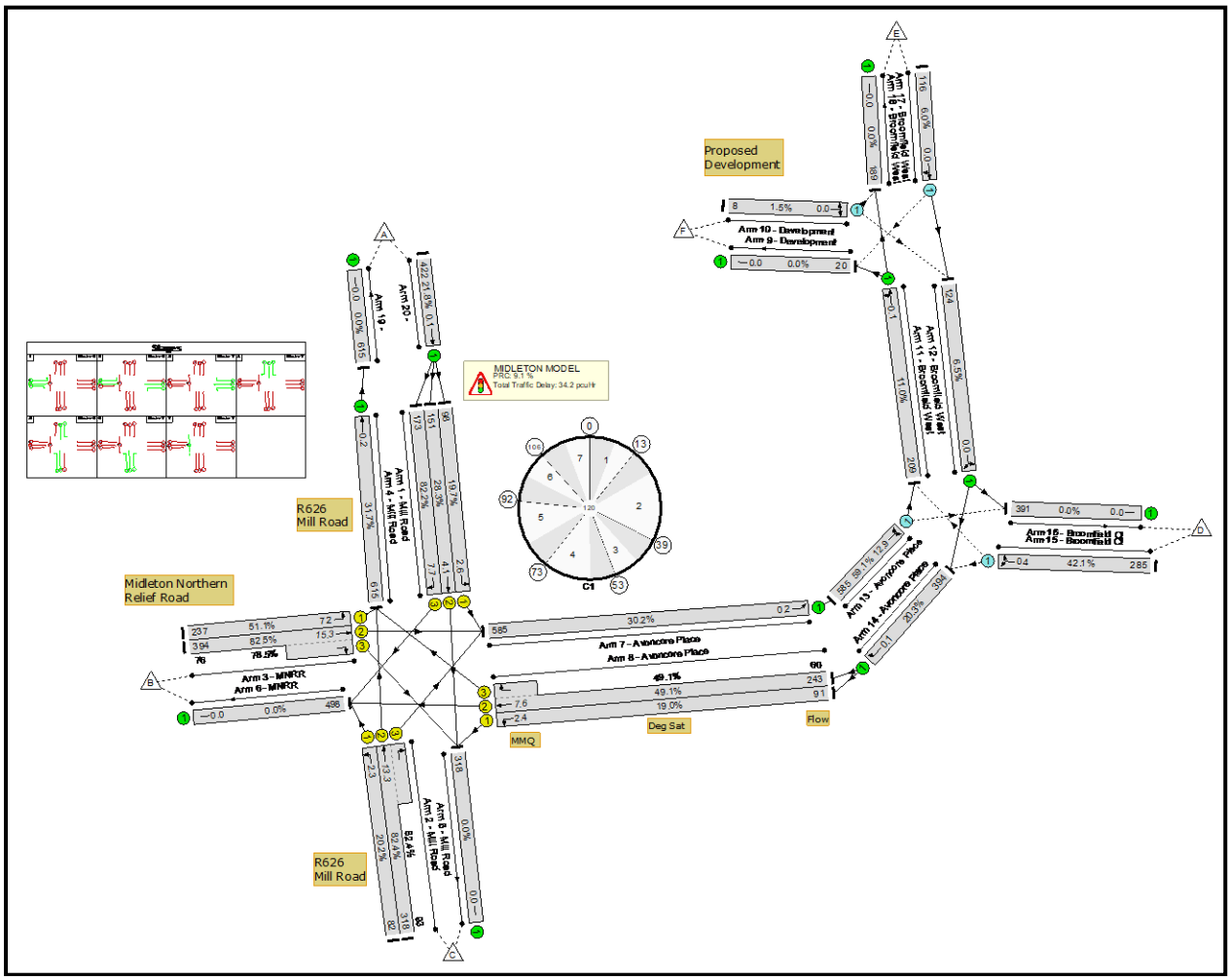


Fig 8.5: 'Scenario 7 PM 2031' Network Layout Diagram

For the PM 2031 scenario, the LinSig traffic analysis shows that the maximum degree of saturation occurs on Arm 3 MNRR as can be seen in Fig 8.5 above. The degree of saturation is measured at 82.5% with a mean maximum car queue length of 15.3 vehicles for the evening peak hours 16:45-17:45. The maximum degree of saturation at the Broomfield Close / Avonmore Road Junction is 59.1% on Arm 13. The maximum degree of saturation at the proposed new entrance to the residential Development is only 6.0%. See Appendix C for LinSig output data.

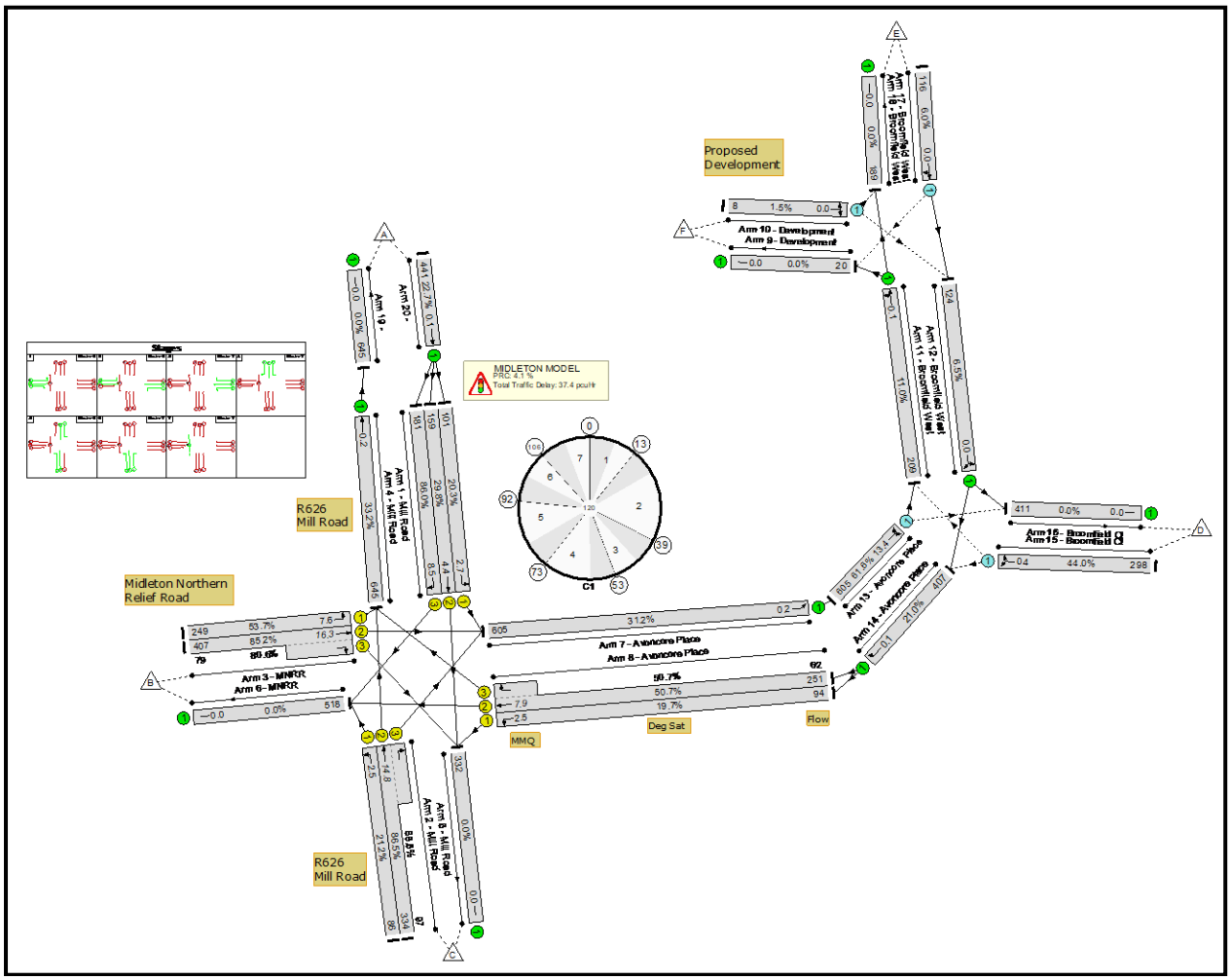


Fig 8.6: 'Scenario 8 PM 2041' Network Layout Diagram

For the PM 2041 scenario, the LinSig traffic analysis shows that the maximum degree of saturation occurs on Arm 2 Mill Road as can be seen in Fig 8.6 above. The degree of saturation is measured at 86.5% with a mean maximum car queue length of 14.3 vehicles for the evening peak hours 16:45-17:45. The maximum degree of saturation at the Broomfield Close / Avonmore Road Junction is 61.6% on Arm 13. The maximum degree of saturation at the proposed new entrance to the residential Development is only 6.0%. See Appendix C for LinSig output data.

The LinSig analysis shows how the saturation of the junctions increases over time, however, all junctions are also shown to be operating well within capacity for all future design years. The detailed LinSig output sheets are contained in Appendix C of the report.

The following are the main conclusions of the LinSig traffic analysis.

Junction 1 – Broomfield West L7360 / Access to Development

- The proposed new access junction to the housing development is shown to be operating well within capacity for all future design years. The maximum degree of saturation for traffic exiting the proposed development is 3.6% for the morning peak hour and 6.0% for traffic entering the development in the design year 2041.

- Junction sight distance of 49m to the east and west is provided at 2.4m back from the road edge measured for design speed of 50km/hr in accordance with DMURS. Appropriate STOP road marking and signage will be provided.

Junction 2 – Avoncore Place L7360 / Broomfield Close L9425

- The existing junction to Avoncore Place L7360 / Broomfield Close is shown to be operating within capacity for all future design years. The maximum degree of saturation for is 57.6 in 2024 on Arm 15 increasing to 74.% for the morning peak hour the design year 2041.

- Junction sight distance of 49m to the east and west is available at 2.4m back from the road edge measured for design speed of 50km/hr in accordance with DMURS. The junction has appropriate STOP road marking and signage provided.

- It is recommended that this junction would be signalised by the design year 2031 to improve pedestrian crossing facilities and safety.

Junction 3 - Midleton Northern Relief Road / Mill Road R626

- The existing Signalised junction of the Midleton Northern Relief Road and Mill Road is shown to be operating within capacity for all future design years. The maximum degree of saturation for traffic is 64.6% on Arm 2 Mill Road for the morning peak hour in 2024 increasing to 86.6% on Arm 8 Avoncore Place in the design year 2041.

- This junction is controlled by a MOVA controller which optimises both cycle times and stage timing to improve the operational efficiency of the junction.

9.0 Internal layout & Parking

Parking inevitably remains an integral element of overall land use and transportation policy. The purpose of parking standards is to ensure that a considered and appropriate level of parking is provided to serve the new residential development.

Cork County Council Development Plan 2022 gives guidance on car parking standards for new developments. Table 12.6 of the Plan sets the car space allocation for various types of development including residential developments. Table 9.1 below shows a schedule of car parking spaces as set out by the Cork County Development Plan.

Land Use Category	Cork County Council Development Plan 2022-2028 - Car Parking Standards	Total Spaces Per Unit	Total Units	Parking spaces required
RESIDENTIAL				
19 House	2 spaces per uint	2	19	38
8 Two Bed end of Terrace	1 spaces per uint	1	8	8
18 Apartments	1 spaces per uint	1	18	18
Total			45	65

Table 9.1: Car parking allocation

It is intended that most of the parking for the residential development will be facilitated within the site curtilage of each housing unit. The total number of parking spaces provided will be 65 spaces for the proposed residential development. Parking for the duplex apartments will be located in a convenient location close to the apartment block. All car parking spaces are required to be a minimum of 2.4m x 4.8m in size.

10.0 Pedestrians / Cyclists / Access for People with Disabilities

Cork County Council Development Plan 2022 gives guidance on cycle parking standards for new developments. Table 12.8 of the Plan sets the cycle space allocation for various types of development including residential developments.

Cork County Council Development Plan 2022-2028 - Cycle Parking Standards	Total Spaces Per Unit	Total Units	Min Cycle spaces required
Apartments 1 space per bedroom	1	26	26
Apartment 1 visitor space per 2 units	0.5	18	9
1 per housing unit	1	27	27
Houisng 1 visitor space per 5 units	0.2	27	5
Total			68

Table 10.1: Bicycle parking Standards.

Dropped kerbs, dished footpaths, raised pedestrian crossings and tactile paving will be provided at appropriate locations such as at the crossing points within the development. A total of 68 bicycle spaces will be provided as part of the development. Cycle spaces can generally be accommodated within the curtilage of the housing units with the visitor and duplex apartment parking provided in a convenient location within the development.

11.0 References

Cork County Council Development Plan (2022-2028)

Transport Infrastructure Ireland (2014) Traffic and Transport Assessment Guidelines TII, Dublin

Institution of Highways & Transportation (1994) Guidelines for Traffic Impact Assessment IHT, London

Transport Infrastructure Ireland (revised 2015) Design Manual for Roads and Bridges TII, Dublin

TRICS – A Trip Generation Database for Development Control, JMP, London

Transport Infrastructure Ireland (November 2004) Draft Traffic and Transport Assessment Guidelines TII, Dublin

Transport Infrastructure Ireland Project Appraisal Guidelines TII, Dublin 2010

Department of Tourism Transport and Sport "Design Manual for Urban Roads and Streets" (DMURS - 2013) DTTaS, Dublin

National Transport Authority "National Cycle Manual" (NCM - 2011) NTA, Dublin

Mr Martin Hanley, BE CEng MIEI

Signed: .....

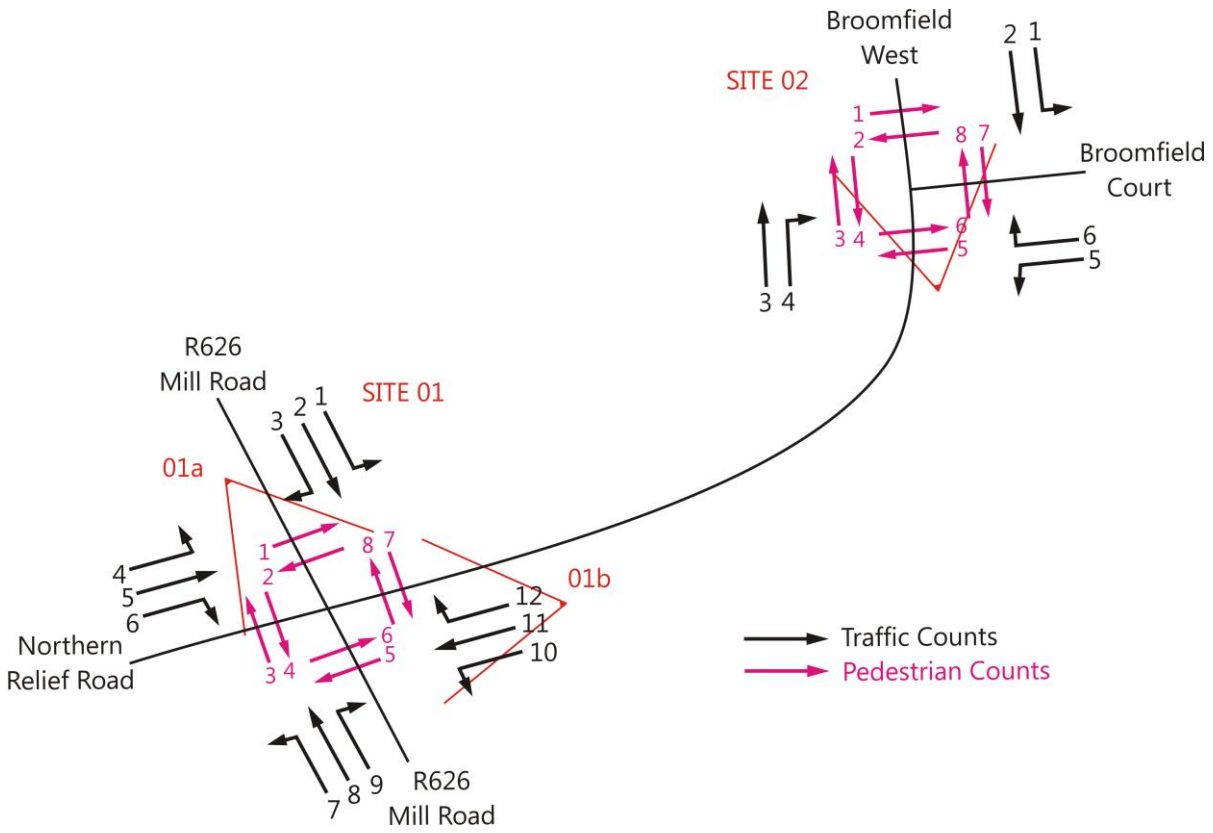
Senior Transportation Engineer.
Date: 13/02/2025

12.0 Appendices

13.0 Appendix A – Traffic Count Data

Site Locations

Movement Numbering



Job number: TRA/24/205	Job Date: 10th December 2024	Drawing No: TRA/24/205-01	traffinomics.ie
Client: Martin Hanley	Job Day: Tuesday	Author: JW	

TRAFFINOMICS LIMITED

BROOMFIELD WEST TRAFFIC COUNTS **DECEMBER 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/205**

SITE: 01 DATE: 10th December 2024

LOCATION: R626 Mill Road/Northern Relief Road/Broomfield West DAY: Tuesday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	9	0	2	0	11	13	0	0	16	3	1	1	21	23	0	0	23	6	1	0	30	31
07:45	0	0	10	4	2	0	16	18	0	0	38	5	1	2	46	49	0	0	30	4	2	0	36	38
08:00	0	0	11	1	1	0	13	14	0	0	49	4	0	0	53	53	0	0	23	4	0	1	28	29
08:15	0	0	8	0	1	1	10	12	0	0	67	7	0	1	75	76	0	0	48	8	3	1	60	64
H/TOT	0	0	38	5	6	1	50	57	0	0	170	19	2	4	195	201	0	0	124	22	6	2	154	162
08:30	0	0	15	1	0	0	16	16	0	0	51	7	0	0	58	58	0	0	45	7	2	2	56	60
08:45	0	0	22	2	0	0	24	24	0	0	77	3	1	2	83	86	0	0	66	11	1	1	79	81
09:00	0	0	3	1	1	0	5	6	0	0	21	3	0	0	24	24	0	0	29	3	3	0	35	38
09:15	0	0	3	1	0	0	4	4	0	0	37	4	2	0	43	45	0	0	28	4	2	2	36	40
H/TOT	0	0	43	5	1	0	49	50	0	0	186	17	3	2	208	213	0	0	168	25	8	5	206	219
P/TOT	0	0	81	10	7	1	99	107	0	0	356	36	5	6	403	414	0	0	292	47	14	7	360	381
								66								273								234

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
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16:45	0	0	13	1	1	0	15	16	0	0	20	3	0	0	23	23	0	0	26	7	2	0	35	37
17:00	0	0	9	1	0	0	10	10	0	0	24	6	1	0	31	32	0	0	25	4	1	2	32	35
17:15	0	0	7	0	0	0	7	7	0	0	41	6	2	0	49	51	0	0	33	5	0	0	38	38
H/TOT	0	0	35	2	2	0	39	41	0	0	117	21	3	0	141	144	0	0	109	19	3	3	134	140
17:30	0	0	12	1	0	0	13	13	0	0	27	4	1	0	32	33	0	0	31	1	1	0	33	34
17:45	0	0	8	1	0	0	9	9	0	0	25	5	0	0	30	30	0	0	27	5	1	0	33	34
18:00	0	0	8	1	0	0	9	9	0	0	25	3	0	0	28	28	0	0	29	1	1	0	31	32
18:15	0	0	8	1	0	0	9	9	0	1	25	4	1	1	32	33	0	0	19	2	0	0	21	21
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P/TOT	0	0	71	6	2	0	79	81	0	1	219	37	5	1	263	268	0	0	215	28	6	3	252	261
								52								130								146

TRAFFINOMICS LIMITED

BROOMFIELD WEST TRAFFIC COUNTS **DECEMBER 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/205**

SITE: 01 DATE: 10th December 2024

LOCATION: R626 Mill Road/Northern Relief Road/Broomfield West DAY: Tuesday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
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07:45	0	0	18	3	2	0	23	25	0	0	13	3	2	0	18	20	0	0	1	0	0	0	1	1
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08:15	0	0	24	4	1	0	29	30	0	0	17	0	2	1	20	23	0	0	1	0	0	0	1	1
H/TOT	0	0	73	14	6	0	93	99	0	0	56	8	7	4	75	86	0	0	3	0	0	0	3	3
08:30	0	0	38	10	5	0	53	58	0	0	18	4	1	1	24	26	0	0	1	0	0	0	1	1
08:45	0	0	21	3	3	1	28	32	0	0	18	2	3	0	23	26	0	0	8	0	1	0	9	10
09:00	0	0	24	6	5	2	37	44	0	0	13	1	3	1	18	22	0	0	10	0	0	0	10	10
09:15	0	0	20	0	3	0	23	26	0	0	13	2	1	1	17	19	0	0	2	1	0	0	3	3
H/TOT	0	0	103	19	16	3	141	160	0	0	62	9	8	3	82	93	0	0	21	1	1	0	23	24
P/TOT	0	0	176	33	22	3	234	259	0	0	118	17	15	7	157	179	0	0	24	1	1	0	26	27
								154								97								12

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
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16:45	0	0	44	14	3	0	61	64	0	0	53	2	1	0	56	57	0	0	15	1	1	0	17	18
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17:15	0	0	33	4	0	0	37	37	0	0	38	8	1	0	47	48	0	0	10	0	1	0	11	12
H/TOT	0	0	154	37	13	0	204	217	1	0	186	23	7	0	217	223	0	0	48	6	2	0	56	58
17:30	0	0	33	10	2	0	45	47	0	0	50	4	0	0	54	54	0	0	15	2	0	0	17	17
17:45	0	0	43	8	1	0	52	53	0	0	50	3	0	0	53	53	0	0	3	1	0	0	4	4
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H/TOT	0	0	147	23	6	1	177	184	0	0	186	14	1	0	201	202	0	0	26	4	0	0	30	30
P/TOT	0	0	301	60	19	1	381	401	1	0	372	37	8	0	418	425	0	0	74	10	2	0	86	88
								212								216								65

BROOMFIELD WEST TRAFFIC COUNTS **DECEMBER 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/205**

SITE: 01 DATE: 10th December 2024

LOCATION: R626 Mill Road/Northern Relief Road/Broomfield West DAY: Tuesday

	MOVEMENT 7								MOVEMENT 8								MOVEMENT 9							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
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07:45	0	0	8	2	1	1	12	14	0	0	27	10	0	0	37	37	0	0	9	1	0	0	10	10
08:00	0	0	12	0	0	0	12	12	0	0	31	5	0	0	36	36	0	0	6	0	0	0	6	6
08:15	0	0	8	2	0	0	10	10	0	0	60	5	0	1	66	67	0	0	6	0	0	0	6	6
H/TOT	0	0	31	4	1	1	37	39	0	0	145	23	1	1	170	172	0	0	30	3	0	0	33	33
08:30	0	0	8	1	0	0	9	9	0	0	42	5	0	2	49	51	0	0	2	1	0	0	3	3
08:45	0	0	14	0	0	0	14	14	0	0	44	4	0	2	50	52	0	0	7	3	0	0	10	10
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09:15	0	0	6	0	0	0	6	6	0	0	20	4	0	0	24	24	0	0	7	1	0	0	8	8
H/TOT	0	0	42	1	0	0	43	43	0	0	136	17	0	4	157	161	0	0	26	8	0	0	34	34
P/TOT	0	0	73	5	1	1	80	82	0	0	281	40	1	5	327	333	0	0	56	11	0	0	67	67
								45								206								25

	MOVEMENT 7								MOVEMENT 8								MOVEMENT 9							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
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16:45	0	0	12	1	0	0	13	13	0	0	63	10	0	0	73	73	0	0	11	0	1	0	12	13
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17:15	0	0	14	1	0	0	15	15	1	0	55	5	0	0	61	60	0	0	10	2	0	0	12	12
H/TOT	0	0	63	5	0	0	68	68	1	1	207	21	1	1	232	233	0	0	42	4	1	0	47	48
17:30	0	0	25	1	0	0	26	26	0	0	60	6	1	0	67	68	0	0	11	1	0	0	12	12
17:45	0	0	36	1	0	0	37	37	0	0	55	6	0	0	61	61	0	0	12	1	0	0	13	13
18:00	0	0	18	1	1	0	20	21	1	0	47	3	0	1	52	52	0	0	4	0	0	0	4	4
18:15	0	0	15	1	0	0	16	16	0	0	51	5	0	0	56	56	0	0	8	1	0	0	9	9
H/TOT	0	0	94	4	1	0	99	100	1	0	213	20	1	1	236	237	0	0	35	3	0	0	38	38
P/TOT	0	0	157	9	1	0	167	168	2	1	420	41	2	2	468	470	0	0	77	7	1	0	85	86
								67								274								50

TRAFFINOMICS LIMITED

BROOMFIELD WEST TRAFFIC COUNTS **DECEMBER 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/205**

SITE: 01 DATE: 10th December 2024

LOCATION: R626 Mill Road/Northern Relief Road/Broomfield West DAY: Tuesday

	MOVEMENT 10								MOVEMENT 11								MOVEMENT 12							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	13	2	1	1	17	19	0	1	59	6	0	0	66	65	0	0	9	2	0	1	12	13
07:45	0	0	8	2	0	0	10	10	0	0	38	5	0	0	43	43	0	0	8	3	0	0	11	11
08:00	0	0	27	3	0	1	31	32	0	0	73	5	1	0	79	80	0	0	13	2	0	3	18	21
08:15	0	0	32	2	0	0	34	34	1	0	53	7	1	0	62	62	1	0	20	4	0	1	26	26
H/TOT	0	0	80	9	1	2	92	95	1	1	223	23	2	0	250	251	1	0	50	11	0	5	67	71
08:30	0	0	26	1	1	0	28	29	0	0	63	3	4	1	71	76	0	0	33	2	0	1	36	37
08:45	0	0	7	1	0	0	8	8	0	0	38	5	2	2	47	51	0	0	13	1	0	0	14	14
09:00	0	0	11	0	0	0	11	11	0	0	42	2	3	2	49	54	0	0	8	2	0	0	10	10
09:15	0	0	8	2	0	0	10	10	0	0	20	4	3	0	27	30	0	0	1	0	0	0	1	1
H/TOT	0	0	52	4	1	0	57	58	0	0	163	14	12	5	194	211	0	0	55	5	0	1	61	62
P/TOT	0	0	132	13	2	2	149	153	1	1	386	37	14	5	444	462	1	0	105	16	0	6	128	133
								103								269								98

	MOVEMENT 10								MOVEMENT 11								MOVEMENT 12							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	0	0	8	0	0	0	8	8	0	0	24	9	0	1	34	35	0	0	11	2	2	0	15	17
16:45	0	0	18	1	0	0	19	19	0	0	41	5	3	0	49	52	0	0	11	2	0	0	13	13
17:00	0	0	18	1	0	0	19	19	0	0	39	4	1	1	45	47	0	0	15	6	0	0	21	21
17:15	0	0	15	0	1	0	16	17	0	0	23	3	1	0	27	28	0	0	7	0	2	0	9	11
H/TOT	0	0	59	2	1	0	62	63	0	0	127	21	5	2	155	162	0	0	44	10	4	0	58	62
17:30	0	0	15	2	0	0	17	17	0	0	34	7	1	0	42	43	0	0	5	1	1	0	7	8
17:45	0	0	21	1	0	0	22	22	0	0	37	1	1	0	39	40	0	0	9	2	1	0	12	13
18:00	0	0	10	2	0	0	12	12	0	0	29	3	0	0	32	32	0	0	12	2	0	0	14	14
18:15	0	0	5	0	0	0	5	5	0	0	31	2	0	0	33	33	0	0	8	1	0	0	9	9
H/TOT	0	0	51	5	0	0	56	56	0	0	131	13	2	0	146	148	0	0	34	6	2	0	42	44
P/TOT	0	0	110	7	1	0	118	119	0	0	258	34	7	2	301	310	0	0	78	16	6	0	100	106
								72								175								45

TRAFFINOMICS LIMITED

BROOMFIELD WEST TRAFFIC COUNTS **DECEMBER 2024**

PEDESTRIAN COUNTS **TRA/24/205**

SITE: 01 DATE: 10th December 2024

LOCATION: R626 Mill Road/Northern Relief Road/Broomfield West DAY: Tuesday

PCU's Through Junction			PEDESTRIAN CROSSING COUNTS								
			P1	P2	P3	P4	P5	P6	P7	P8	TOTAL
242		07:30	0	0	0	0	1	0	5	0	6
276		07:45	0	0	0	2	0	0	2	1	5
339		08:00	1	0	0	6	0	0	5	2	14
411	1269	08:15	0	0	0	2	2	2	4	6	16
1269		**H/TOT**	1	0	0	10	3	2	16	9	41
424	1450	08:30	2	0	0	5	1	1	6	7	22
408	1582	08:45	0	0	1	1	1	0	11	0	14
280	1523	09:00	0	0	0	0	2	1	3	1	7
216	1328	09:15	0	0	0	0	1	1	1	0	3
1328		**H/TOT**	2	0	1	6	5	3	21	8	46
2597		**P/TOT**	3	0	1	16	8	5	37	17	87

PCU's Through Junction			PEDESTRIAN CROSSING COUNTS								
			P1	P2	P3	P4	P5	P6	P7	P8	TOTAL
361		16:30	0	2	3	0	3	1	4	7	20
398		16:45	1	1	1	0	0	0	5	8	16
364		17:00	0	0	0	1	0	0	4	7	12
336	1459	17:15	0	0	0	0	0	1	1	9	11
1459		**H/TOT**	1	3	4	1	3	2	14	31	59
372	1470	17:30	1	0	0	0	1	0	2	6	10
369	1441	17:45	0	0	2	0	4	3	1	12	22
317	1394	18:00	0	6	0	0	1	1	6	1	15
266	1325	18:15	0	1	2	0	6	1	7	4	21
1325		**H/TOT**	1	7	4	0	12	5	16	23	68
2783		**P/TOT**	2	10	8	1	15	7	30	54	127

TRAFFINOMICS LIMITED

BROOMFIELD WEST TRAFFIC COUNTS **DECEMBER 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/205**

SITE: 02 DATE: 10th December 2024

LOCATION: Broomfield West/Broomfield Court DAY: Tuesday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	4	3	0	0	7	7
07:45	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	0	3	1	0	0	4	4
08:00	0	0	1	0	0	0	1	1	0	0	4	0	0	0	4	4	0	0	5	0	0	0	5	5
08:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	1	0	5	1	0	0	7	6
H/TOT	0	0	1	0	0	0	1	1	0	0	10	0	0	0	10	10	1	0	17	5	0	0	23	22
08:30	0	0	1	0	0	0	1	1	1	0	16	0	0	0	17	16	0	0	1	0	0	0	1	1
08:45	0	0	0	0	1	0	1	2	0	0	3	0	0	0	3	3	0	0	1	1	0	0	2	2
09:00	0	0	0	0	0	0	0	0	1	0	7	1	1	0	10	10	0	0	6	0	0	0	6	6
09:15	0	0	0	0	0	0	0	0	0	0	11	0	0	0	11	11	0	0	3	0	0	0	3	3
H/TOT	0	0	1	0	1	0	2	3	2	0	37	1	1	0	41	40	0	0	11	1	0	0	12	12
P/TOT	0	0	2	0	1	0	3	4	2	0	47	1	1	0	51	50	1	0	28	6	0	0	35	34
								4								25								14

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	0	4	1	0	0	5	5
16:45	0	0	0	0	0	0	0	0	0	0	5	3	0	0	8	8	0	0	6	0	0	0	6	6
17:00	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	0	1	1	0	0	2	2
17:15	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	0	1	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	0	0	0	14	3	0	0	17	17	0	0	12	2	0	0	14	14
17:30	0	0	0	1	0	0	1	1	0	0	0	1	0	0	1	1	0	0	5	1	0	0	6	6
17:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	3	1	0	0	5	4
18:00	0	0	0	0	1	0	1	2	0	0	4	0	0	0	4	4	0	0	5	1	1	0	7	8
18:15	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	3	0	0	4	0	0	0	4	4
H/TOT	0	0	0	1	1	0	2	3	0	0	6	3	0	0	9	9	1	0	17	3	1	0	22	22
P/TOT	0	0	0	1	1	0	2	3	0	0	20	6	0	0	26	26	1	0	29	5	1	0	36	36
								1								20								19

TRAFFINOMICS LIMITED

BROOMFIELD WEST TRAFFIC COUNTS **DECEMBER 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/205**

SITE: 02 DATE: 10th December 2024

LOCATION: Broomfield West/Broomfield Court DAY: Tuesday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	21	1	2	1	25	28	0	0	58	3	1	2	64	67	0	0	0	0	0	0	0	0
07:45	0	0	11	7	5	2	25	32	0	0	42	7	0	1	50	51	0	0	0	0	0	0	0	0
08:00	0	0	31	6	1	1	39	41	0	0	62	7	1	2	72	75	0	0	0	0	0	0	0	0
08:15	0	0	30	3	4	1	38	43	1	1	54	8	0	1	65	65	0	0	0	0	0	0	0	0
H/TOT	0	0	93	17	12	5	127	144	1	1	216	25	2	6	251	258	0	0	0	0	0	0	0	0
08:30	0	0	33	2	1	0	36	37	0	0	107	7	1	2	117	120	0	0	3	0	0	0	3	3
08:45	0	0	51	3	4	1	59	64	1	0	109	13	2	1	126	128	0	0	0	0	0	0	0	0
09:00	0	0	25	2	4	0	31	35	0	0	89	2	3	0	94	97	0	0	0	0	0	0	0	0
09:15	0	0	14	2	1	1	18	20	0	0	51	6	2	1	60	63	0	0	0	0	0	0	0	0
H/TOT	0	0	123	9	10	2	144	156	1	0	356	28	8	4	397	408	0	0	3	0	0	0	3	3
P/TOT	0	0	216	26	22	7	271	300	2	1	572	53	10	10	648	666	0	0	3	0	0	0	3	3
								185								388								3

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	0	0	49	6	2	1	58	61	0	0	50	8	2	1	61	64	0	0	0	0	0	0	0	0
16:45	0	0	82	4	2	0	88	90	0	0	53	6	2	0	61	63	0	0	0	0	0	0	0	0
17:00	1	0	73	10	2	0	86	87	0	0	52	10	0	1	63	64	0	0	0	0	0	0	0	0
17:15	0	0	59	12	1	0	72	73	0	0	37	2	3	0	42	45	0	0	0	0	0	0	0	0
H/TOT	1	0	263	32	7	1	304	311	0	0	192	26	7	2	227	236	0	0	0	0	0	0	0	0
17:30	2	0	78	11	0	0	91	89	0	0	47	8	2	1	58	61	0	0	0	0	0	0	0	0
17:45	0	0	83	9	0	0	92	92	0	0	49	8	4	2	63	69	0	0	0	0	0	0	0	0
18:00	0	0	72	7	1	0	80	81	0	0	41	3	0	0	44	44	0	0	1	0	0	0	1	1
18:15	0	0	55	6	0	0	61	61	0	0	38	3	0	0	41	41	0	0	0	0	0	0	0	0
H/TOT	2	0	288	33	1	0	324	323	0	0	175	22	6	3	206	215	0	0	1	0	0	0	1	1
P/TOT	3	0	551	65	8	1	628	635	0	0	367	48	13	5	433	451	0	0	1	0	0	0	1	1
								342								232								0

TRAFFINOMICS LIMITED

BROOMFIELD WEST TRAFFIC COUNTS **DECEMBER 2024**

PEDESTRIAN COUNTS **TRA/24/205**

SITE: 02 DATE: 10th December 2024

LOCATION: Broomfield West/Broomfield Court DAY: Tuesday

PCU's Through Junction		PEDESTRIAN CROSSING COUNTS								
		P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**TOTAL**
103	07:30	0	1	1	0	0	0	0	0	2
90	07:45	0	0	0	0	0	0	1	0	1
126	08:00	0	0	0	2	0	0	0	0	2
116	08:15	1	10	1	6	0	0	0	0	18
435	**H/TOT**	1	11	2	8	0	0	1	0	23
178	08:30	1	6	3	5	0	1	0	0	16
199	08:45	2	0	4	0	0	0	0	0	6
148	09:00	2	0	0	2	0	0	0	0	4
97	09:15	0	0	0	1	0	0	0	0	1
623	**H/TOT**	5	6	7	8	0	1	0	0	27
1057	**P/TOT**	6	17	9	16	0	1	1	0	50

PCU's Through Junction		PEDESTRIAN CROSSING COUNTS								
		P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**TOTAL**
133	16:30	3	1	2	2	0	1	1	0	10
167	16:45	4	1	4	1	2	0	0	1	13
156	17:00	1	2	1	2	0	0	0	0	6
122	17:15	1	4	1	4	0	0	0	0	10
578	**H/TOT**	9	8	8	9	2	1	1	1	39
158	17:30	4	0	4	0	0	0	0	0	8
166	17:45	0	0	2	0	0	0	0	0	2
140	18:00	0	0	1	0	0	0	1	0	2
109	18:15	0	2	0	2	0	0	1	0	5
574	**H/TOT**	4	2	7	2	0	0	2	0	17
1152	**P/TOT**	13	10	15	11	2	1	3	1	56

14.0 Appendix B – Trics Data

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

VEHICLES

Calculation factor: 1 HHOLDS

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate
00:00 - 01:00	41	63	0.02	41	63	0.01	41	63	0.03
01:00 - 02:00	41	63	0.01	41	63	0.01	41	63	0.02
02:00 - 03:00	41	63	0.01	41	63	0.00	41	63	0.01
03:00 - 04:00	41	63	0.00	41	63	0.01	41	63	0.01
04:00 - 05:00	41	63	0.01	41	63	0.02	41	63	0.03
05:00 - 06:00	41	63	0.02	41	63	0.06	41	63	0.08
06:00 - 07:00	41	63	0.05	41	63	0.16	41	63	0.21
07:00 - 08:00	59	70	0.11	59	70	0.41	59	70	0.52
08:00 - 09:00	59	70	0.18	**59**	**70**	**0.46**	59	70	0.64
09:00 - 10:00	59	70	0.17	59	70	0.23	59	70	0.40
10:00 - 11:00	59	70	0.17	59	70	0.20	59	70	0.37
11:00 - 12:00	59	70	0.19	59	70	0.19	59	70	0.38
12:00 - 13:00	59	70	0.23	59	70	0.21	59	70	0.44
13:00 - 14:00	59	70	0.22	59	70	0.24	59	70	0.46
14:00 - 15:00	59	70	0.24	59	70	0.21	59	70	0.45
15:00 - 16:00	59	70	0.33	59	70	0.23	59	70	0.56
16:00 - 17:00	59	70	0.39	59	70	0.23	59	70	0.62
17:00 - 18:00	**59**	**70**	**0.45**	59	70	0.25	**59**	**70**	**0.70**
18:00 - 19:00	59	70	0.38	59	70	0.30	59	70	0.68
19:00 - 20:00	41	63	0.33	41	63	0.28	41	63	0.61
20:00 - 21:00	41	63	0.25	41	63	0.18	41	63	0.43
21:00 - 22:00	41	63	0.19	41	63	0.12	41	63	0.31
22:00 - 23:00	41	63	0.12	41	63	0.07	41	63	0.19
23:00 - 24:00	41	63	0.06	41	63	0.04	41	63	0.10
Daily Trip Rates:			4.12			4.14			8.25

Parameter summary

Trip rate parameter range selected:	5 - 425 (units:)
Survey date date range:	01/01/97 - 30/06/05
Number of weekdays (Monday-Friday):	59
Number of Saturdays:	0
Number of Sundays:	0
Optional parameters used in selection:	YES
Surveys manually removed from selection:	0

15.0 Appendix C – LinSig Traffic Analysis Output Data

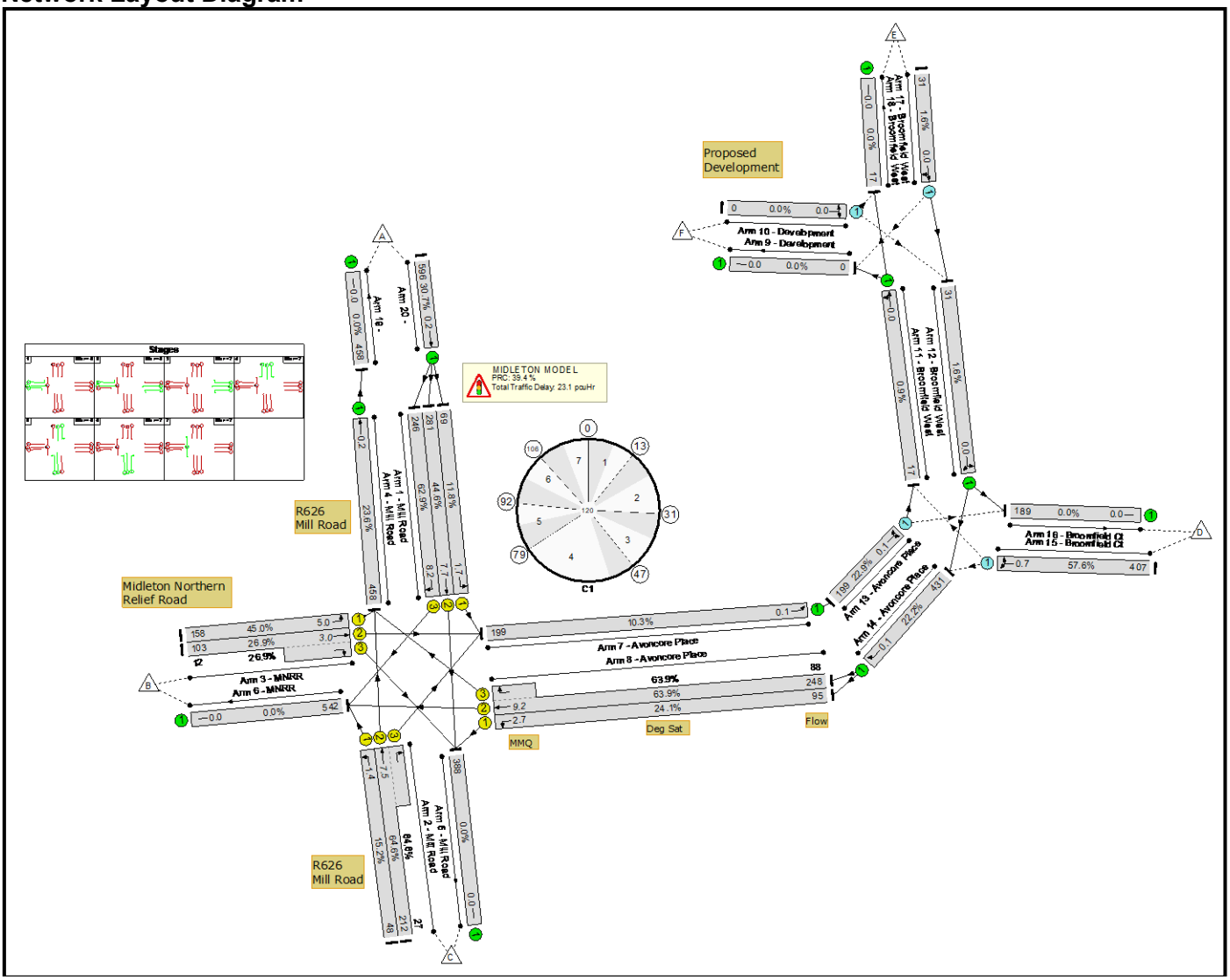
Basic Results Summary

User and Project Details

Project:	**Midleton Traffic Model**
Title:	**Midleton Housing Development**
Location:	
Client:	Cork County Council
Additional detail:	
File name:	Midleton Model Plus Adjacent Developments.lsg3x
Author:	Martin Hanley Consulting Engineers
Company:	
Address:	

Scenario 1: 'Scenario 1 AM 2024' (FG1: 'AM 2024', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Midleton Housing Development	-	-	-		-	-	-	-	-	-	**64.6%**	**592**	**0**	**0**	**23.1**	-	-
MIDLETON MODEL	-	-	-		-	-	-	-	-	-	**64.6%**	**592**	**0**	**0**	**23.1**	-	-
1/1	Mill Road Left	U	F		1	38	-	69	1805	587	11.8%	-	-	-	0.6	31.9	1.7
1/2	Mill Road Ahead	U	E		1	38	-	281	1940	631	44.6%	-	-	-	2.9	37.1	7.7
1/3	Mill Road Right	U	D		1	25	-	246	1805	391	62.9%	-	-	-	3.8	54.9	8.2
2/1	Mill Road Left	U	J		1	20	-	48	1805	316	15.2%	-	-	-	0.6	48.7	1.4
2/2+2/3	Mill Road Ahead Right	U	K L		1	20:7	-	239	1940:1935	328+42	64.6 : 64.6%	-	-	-	4.0	60.2	7.5
3/1	MNRR Left	U	B		1	24	-	158	1687	351	45.0%	-	-	-	2.2	50.8	5.0
3/2+3/3	MNRR Right Ahead	U	A C		1	24:6	-	115	1940:1805	382+45	26.9 : 26.9%	-	-	-	1.5	46.9	3.0
4/1	Mill Road Ahead	U	-		-	-	-	458	1940	1940	23.6%	-	-	-	0.2	1.2	0.2
7/1	Avoncore Place Ahead	U	-		-	-	-	199	1940	1940	10.3%	-	-	-	0.1	1.0	0.1
8/1	Avoncore Place Left	U	I		1	27	-	95	1687	394	24.1%	-	-	-	1.1	43.4	2.7
8/2+8/3	Avoncore Place Right Ahead	U	H G		1	27:9	-	336	2080:1848	388+138	63.9 : 63.9%	-	-	-	4.9	53.0	9.2
10/1	Development Right Left	O	-		-	-	-	0	1915	611	0.0%	0	0	0	0.0	0.0	0.0
11/1	Broomfield West Left Ahead	U	-		-	-	-	17	1940	1940	0.9%	-	-	-	0.0	0.9	0.0
12/1	Broomfield West Right Left	U	-		-	-	-	31	1879	1879	1.6%	-	-	-	0.0	1.0	0.0

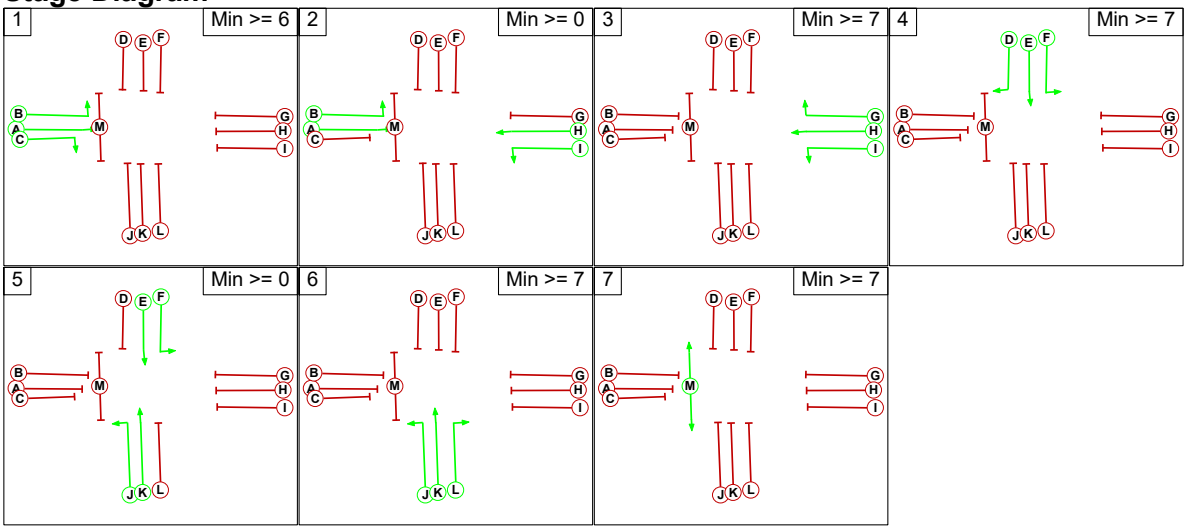
Basic Results Summary

13/1	Avoncore Place Left Right	O	-		-	-	-	199	1703	870	22.9%	185	0	0	0.1	2.7	0.1
14/1	Avoncore Place Ahead	U	-		-	-	-	431	1940	1940	22.2%	-	-	-	0.1	1.2	0.1
15/1	Broomfield Ct Right Left	O	-		-	-	-	407	1553	707	57.6%	407	0	0	0.7	6.0	0.7
17/1	Broomfield West Right Ahead	O	-		-	-	-	31	1940	1940	1.6%	0	0	0	0.0	0.9	0.0
20/1	Ahead	U	-		-	-	-	596	1940	1940	30.7%	-	-	-	0.2	1.3	0.2

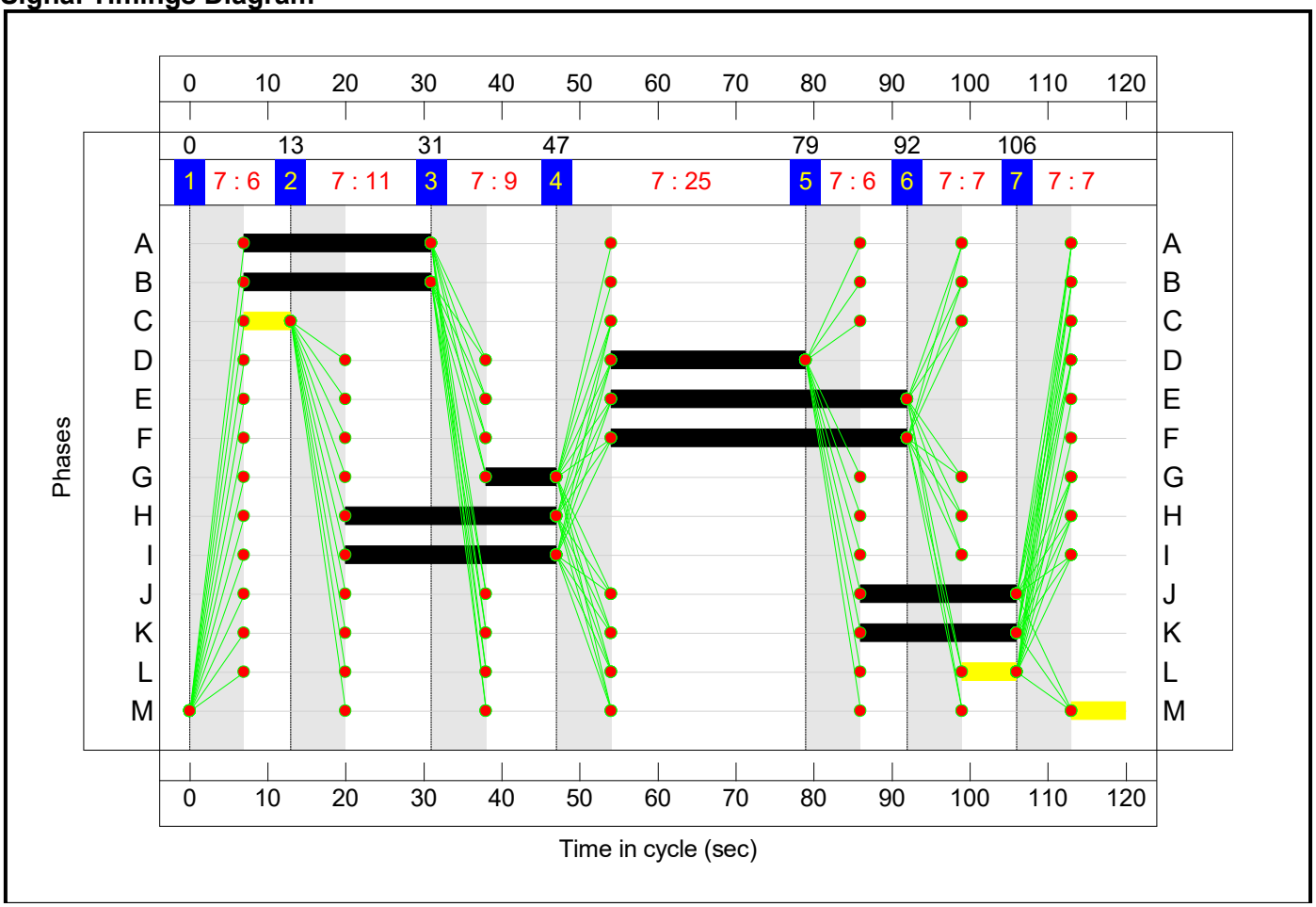
C1 PRC for Signalled Lanes (%): 39.4 Total Delay for Signalled Lanes (pcuHr): 21.72 Cycle Time (s): 120
PRC Over All Lanes (%): 39.4 Total Delay Over All Lanes(pcuHr): 23.14

Basic Results Summary

Stage Diagram



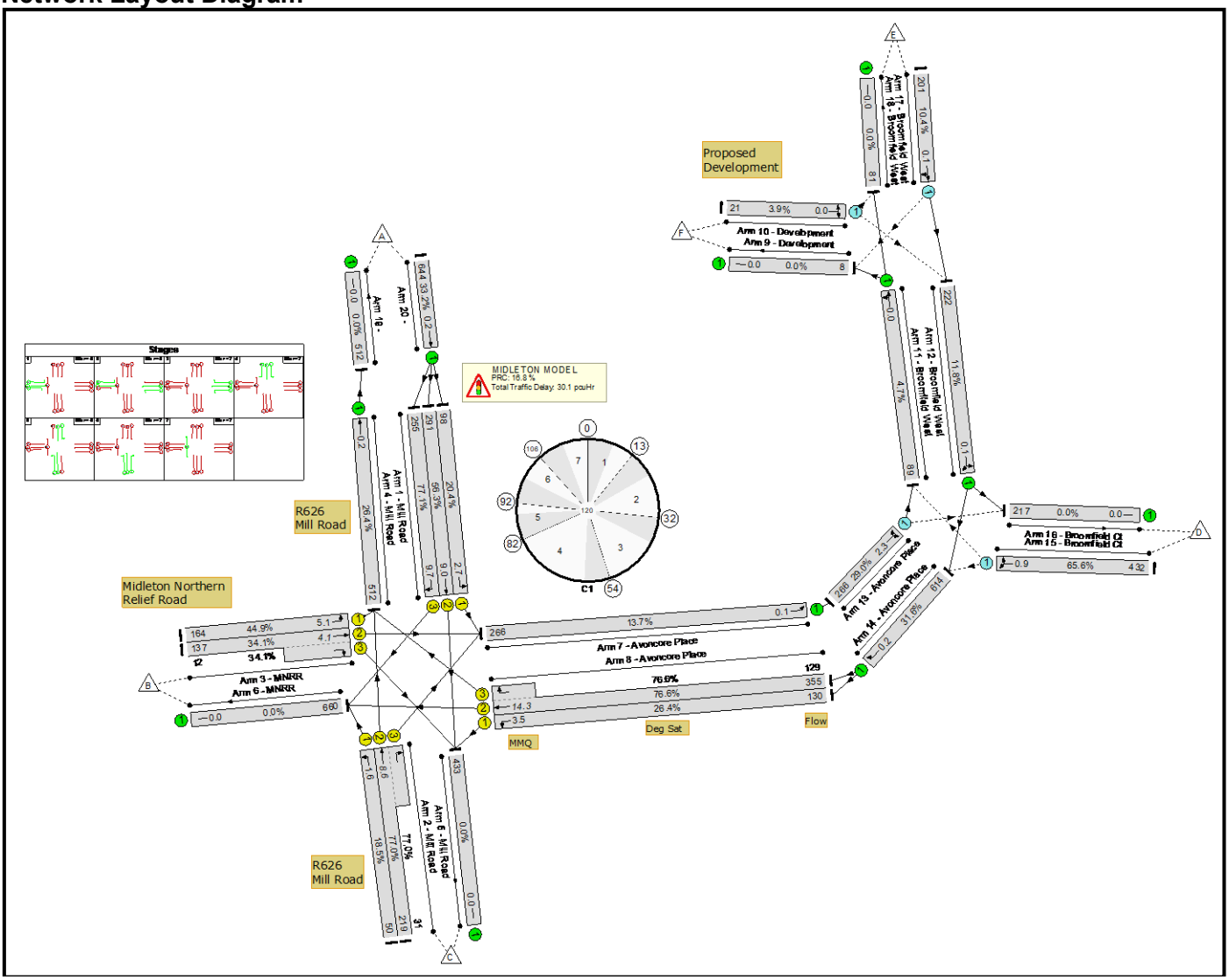
Signal Timings Diagram



Basic Results Summary

Scenario 2: 'Scenario 2 AM 2026' (FG2: 'AM 2026', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

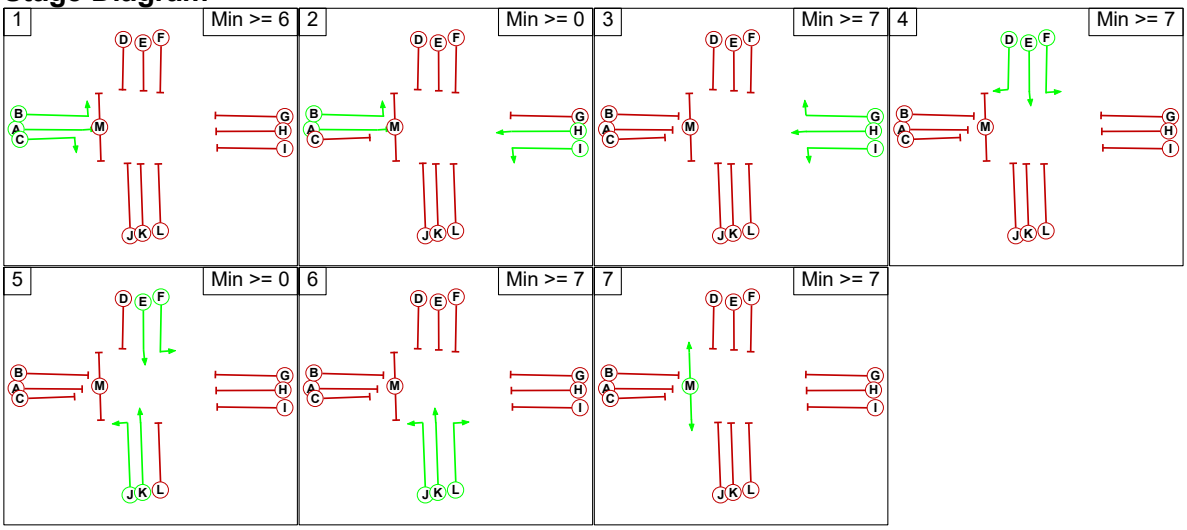
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Midleton Housing Development	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.1%**	**644**	**0**	**0**	**30.1**	**-**	**-**
MIDLETON MODEL	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.1%**	**644**	**0**	**0**	**30.1**	**-**	**-**
1/1	Mill Road Left	U	F		1	31	-	98	1805	481	20.4%	-	-	-	1.1	38.8	2.7
1/2	Mill Road Ahead	U	E		1	31	-	291	1940	517	56.3%	-	-	-	3.7	45.9	9.0
1/3	Mill Road Right	U	D		1	21	-	255	1805	331	77.1%	-	-	-	4.9	69.3	9.7
2/1	Mill Road Left	U	J		1	17	-	50	1805	271	18.5%	-	-	-	0.7	52.7	1.6
2/2+2/3	Mill Road Ahead Right	U	K L		1	17:7	-	250	1940:1935	284+40	77.0 : 77.0%	-	-	-	5.0	72.6	8.6
3/1	MNRR Left	U	B		1	25	-	164	1687	366	44.9%	-	-	-	2.3	49.7	5.1
3/2+3/3	MNRR Right Ahead	U	A C		1	25:6	-	149	1940:1805	402+35	34.1 : 34.1%	-	-	-	1.9	47.0	4.1
4/1	Mill Road Ahead	U	-		-	-	-	512	1940	1940	26.4%	-	-	-	0.2	1.3	0.2
7/1	Avoncore Place Ahead	U	-		-	-	-	266	1940	1940	13.7%	-	-	-	0.1	1.1	0.1
8/1	Avoncore Place Left	U	I		1	34	-	130	1687	492	26.4%	-	-	-	1.4	37.6	3.5
8/2+8/3	Avoncore Place Right Ahead	U	H G		1	34:15	-	484	2080:1848	464+168	76.6 : 76.6%	-	-	-	7.0	52.1	14.3
10/1	Development Right Left	O	-		-	-	-	21	1665	542	3.9%	21	0	0	0.0	3.5	0.0
11/1	Broomfield West Left Ahead	U	-		-	-	-	89	1897	1897	4.7%	-	-	-	0.0	1.0	0.0
12/1	Broomfield West Right Left	U	-		-	-	-	222	1885	1885	11.8%	-	-	-	0.1	1.1	0.1

Basic Results Summary

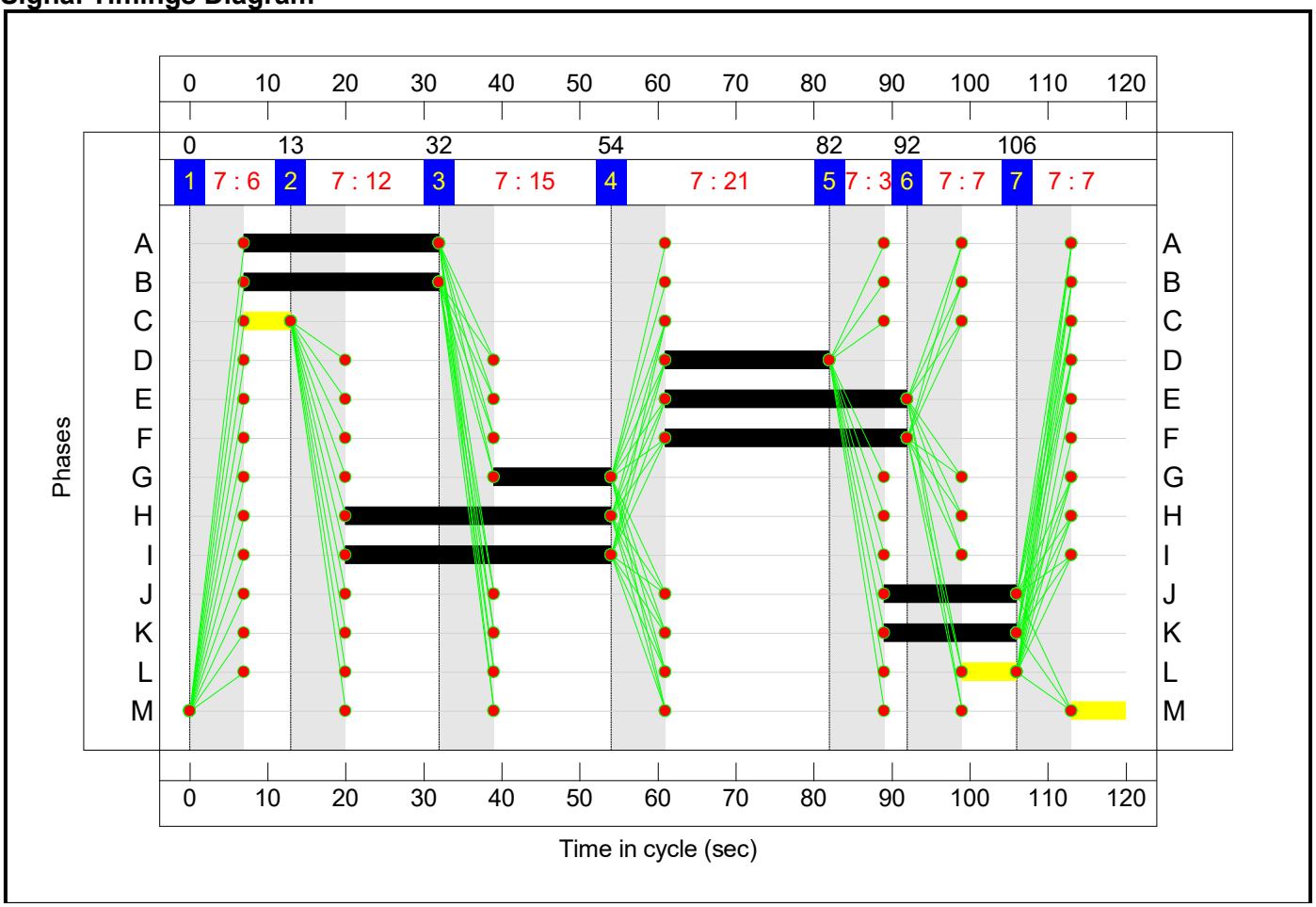
13/1	Avoncore Place Left Right	O	-		-	-	-	266	1751	917	29.0%	191	0	0	0.2	2.8	2.3
14/1	Avoncore Place Ahead	U	-		-	-	-	614	1940	1940	31.6%	-	-	-	0.2	1.4	0.2
15/1	Broomfield Ct Right Left	O	-		-	-	-	432	1556	659	65.6%	432	0	0	0.9	7.9	0.9
17/1	Broomfield West Right Ahead	O	-		-	-	-	201	1940	1940	10.4%	0	0	0	0.1	1.0	0.1
20/1	Ahead	U	-		-	-	-	644	1940	1940	33.2%	-	-	-	0.2	1.4	0.2
		C1		PRC for Signalled Lanes (%):		16.8		Total Delay for Signalled Lanes (pcuHr):				28.01	Cycle Time (s):	120			
				PRC Over All Lanes (%):		16.8		Total Delay Over All Lanes(pcuHr):				30.07					

Basic Results Summary

Stage Diagram



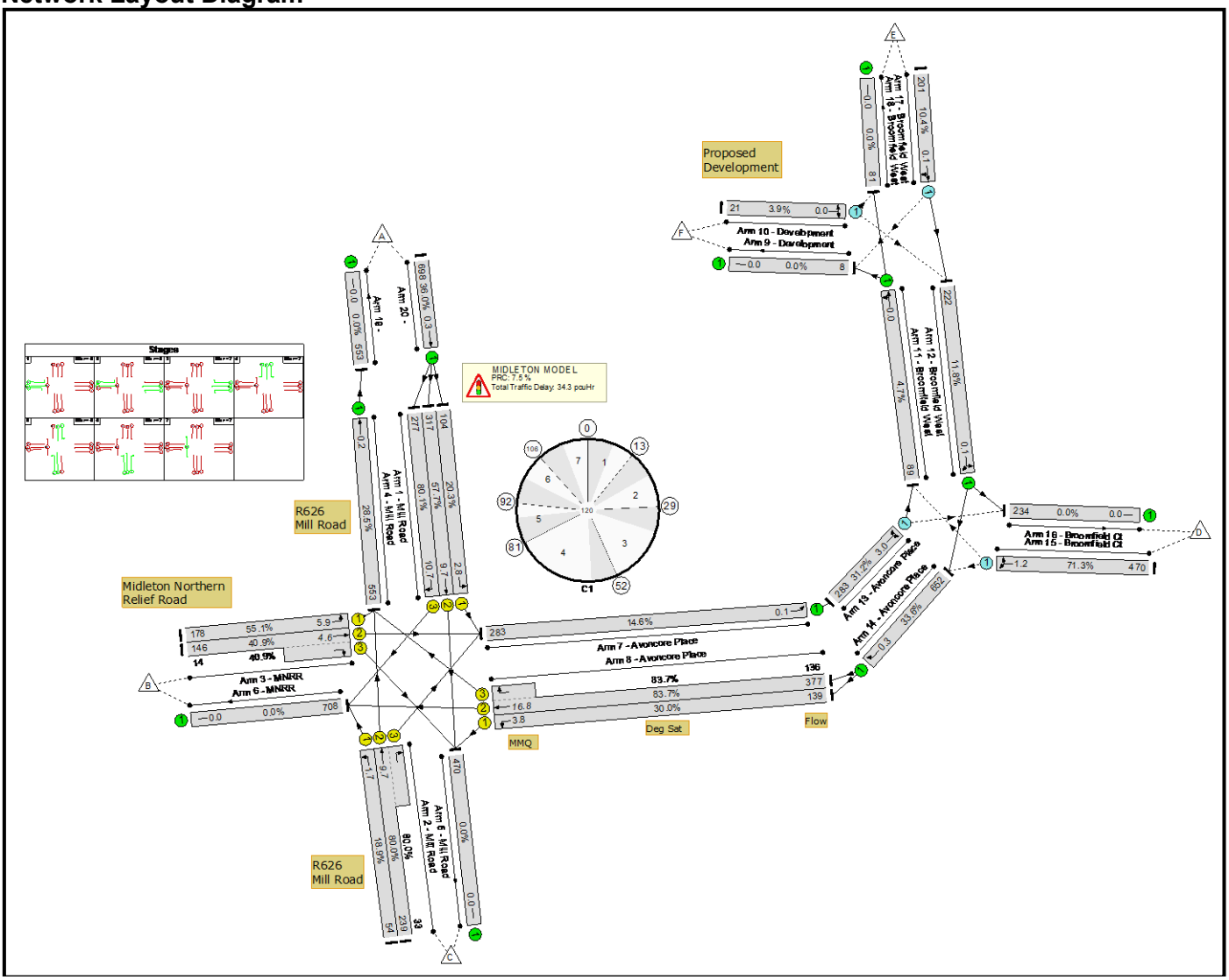
Signal Timings Diagram



Basic Results Summary

Scenario 3: 'Scenario 3 AM 2031' (FG3: 'AM 2031', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Midleton Housing Development	-	-	-		-	-	-	-	-	-	**83.7%**	**699**	**0**	**0**	**34.3**	-	-
MIDLETON MODEL	-	-	-		-	-	-	-	-	-	**83.7%**	**699**	**0**	**0**	**34.3**	-	-
1/1	Mill Road Left	U	F		1	33	-	104	1805	511	20.3%	-	-	-	1.1	37.1	2.8
1/2	Mill Road Ahead	U	E		1	33	-	317	1940	550	57.7%	-	-	-	3.9	44.5	9.7
1/3	Mill Road Right	U	D		1	22	-	277	1805	346	80.1%	-	-	-	5.5	71.1	10.7
2/1	Mill Road Left	U	J		1	18	-	54	1805	286	18.9%	-	-	-	0.8	51.6	1.7
2/2+2/3	Mill Road Ahead Right	U	K L		1	18:7	-	272	1940:1935	299+41	80.0 : 80.0%	-	-	-	5.6	74.1	9.7
3/1	MNRR Left	U	B		1	22	-	178	1687	323	55.1%	-	-	-	2.8	56.1	5.9
3/2+3/3	MNRR Right Ahead	U	A C		1	22:6	-	160	1940:1805	357+34	40.9 : 40.9%	-	-	-	2.3	51.2	4.6
4/1	Mill Road Ahead	U	-		-	-	-	553	1940	1940	28.5%	-	-	-	0.2	1.3	0.2
7/1	Avoncore Place Ahead	U	-		-	-	-	283	1940	1940	14.6%	-	-	-	0.1	1.1	0.1
8/1	Avoncore Place Left	U	I		1	32	-	139	1687	464	30.0%	-	-	-	1.5	39.9	3.8
8/2+8/3	Avoncore Place Right Ahead	U	H G		1	32:16	-	513	2080:1848	450+162	83.7 : 83.7%	-	-	-	8.4	59.0	16.8
10/1	Development Right Left	O	-		-	-	-	21	1665	542	3.9%	21	0	0	0.0	3.5	0.0
11/1	Broomfield West Left Ahead	U	-		-	-	-	89	1897	1897	4.7%	-	-	-	0.0	1.0	0.0
12/1	Broomfield West Right Left	U	-		-	-	-	222	1885	1885	11.8%	-	-	-	0.1	1.1	0.1

Basic Results Summary

13/1	Avoncore Place Left Right	O	-		-	-	-	283	1747	906	31.2%	208	0	0	0.2	3.1	3.0
14/1	Avoncore Place Ahead	U	-		-	-	-	652	1940	1940	33.6%	-	-	-	0.3	1.4	0.3
15/1	Broomfield Ct Right Left	O	-		-	-	-	470	1556	659	71.3%	470	0	0	1.2	9.4	1.2
17/1	Broomfield West Right Ahead	O	-		-	-	-	201	1940	1940	10.4%	0	0	0	0.1	1.0	0.1
20/1	Ahead	U	-		-	-	-	698	1940	1940	36.0%	-	-	-	0.3	1.4	0.3

C1

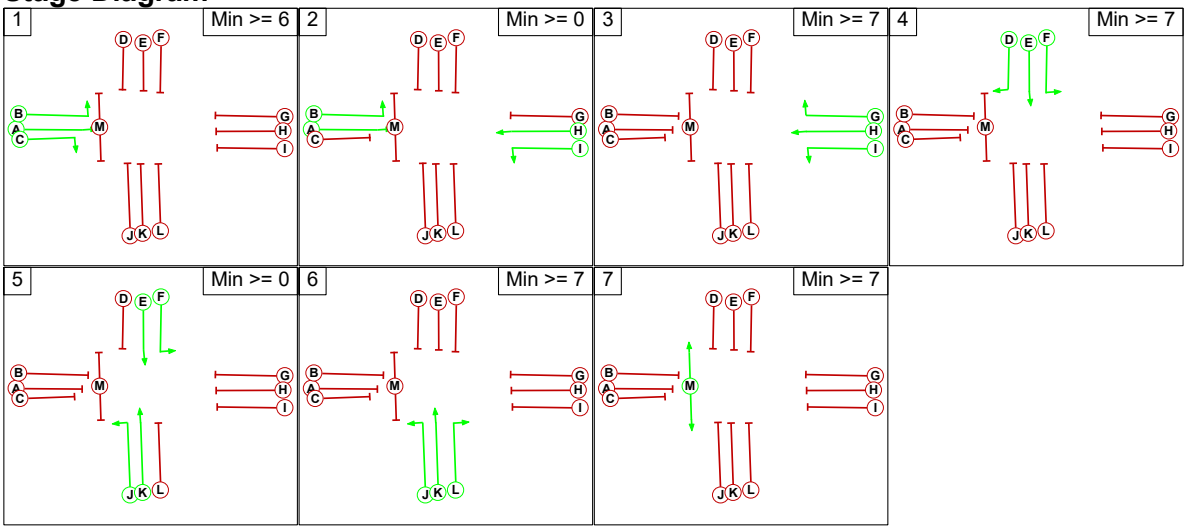
PRC for Signalled Lanes (%): 7.5
PRC Over All Lanes (%): 7.5

Total Delay for Signalled Lanes (pcuHr): 31.83
Total Delay Over All Lanes(pcuHr): 34.29

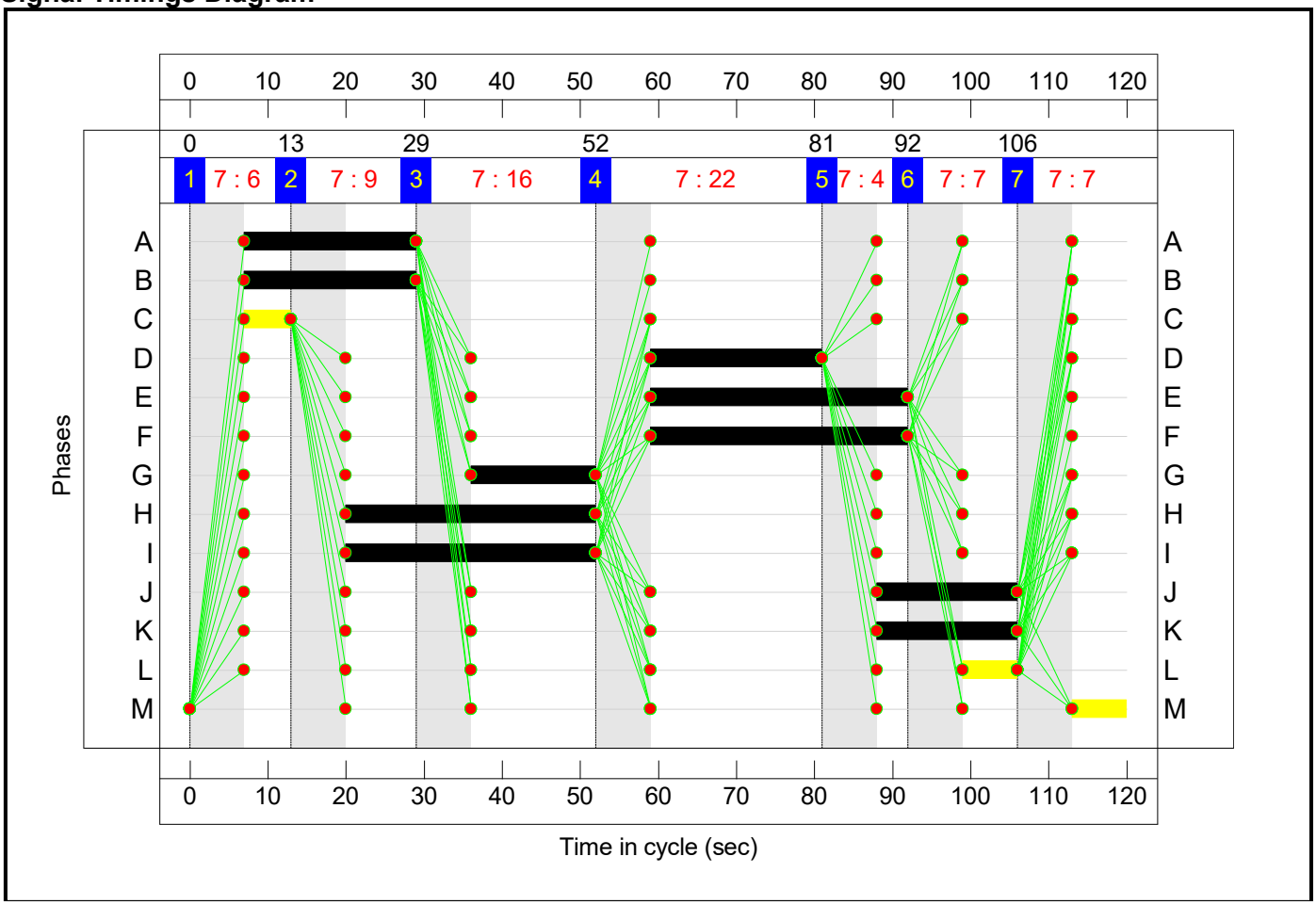
Cycle Time (s): 120

Basic Results Summary

Stage Diagram



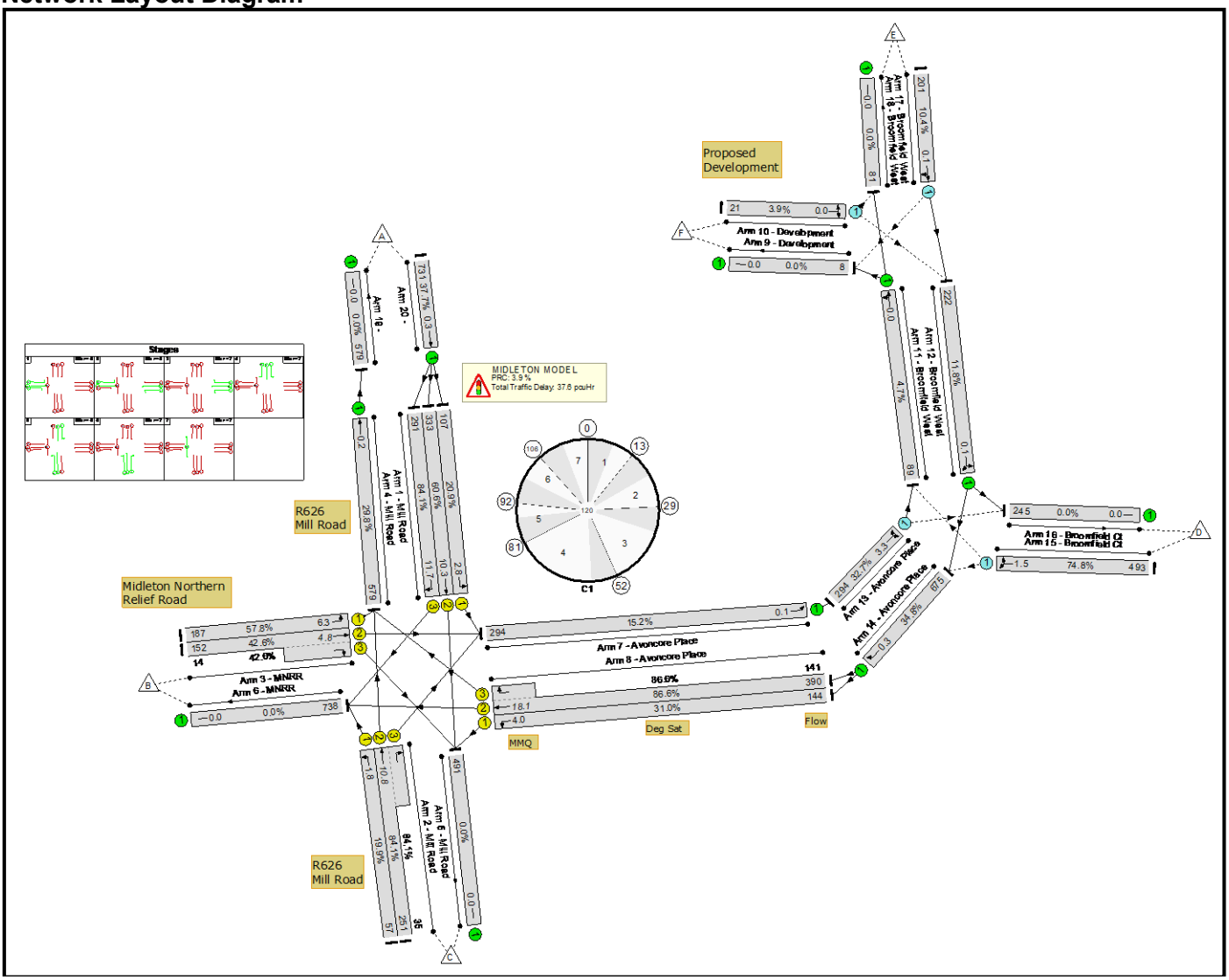
Signal Timings Diagram



Basic Results Summary

Scenario 4: 'Scenario 4 AM 2041' (FG4: 'AM 2041', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

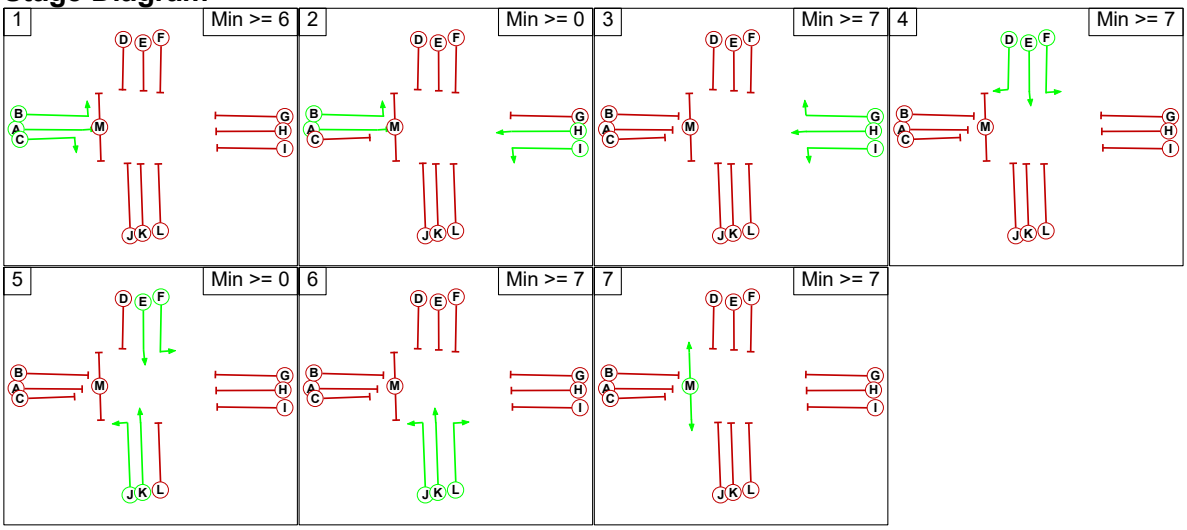
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Midleton Housing Development	-	-	-		-	-	-	-	-	-	**86.6%**	**733**	**0**	**0**	**37.6**	-	-
MIDLETON MODEL	-	-	-		-	-	-	-	-	-	**86.6%**	**733**	**0**	**0**	**37.6**	-	-
1/1	Mill Road Left	U	F		1	33	-	107	1805	511	20.9%	-	-	-	1.1	37.2	2.8
1/2	Mill Road Ahead	U	E		1	33	-	333	1940	550	60.6%	-	-	-	4.2	45.5	10.3
1/3	Mill Road Right	U	D		1	22	-	291	1805	346	84.1%	-	-	-	6.2	76.8	11.7
2/1	Mill Road Left	U	J		1	18	-	57	1805	286	19.9%	-	-	-	0.8	51.8	1.8
2/2+2/3	Mill Road Ahead Right	U	K L		1	18:7	-	286	1940:1935	299+42	84.1 : 84.1%	-	-	-	6.3	79.9	10.8
3/1	MNRR Left	U	B		1	22	-	187	1687	323	57.8%	-	-	-	3.0	57.2	6.3
3/2+3/3	MNRR Right Ahead	U	A C		1	22:6	-	166	1940:1805	357+33	42.6 : 42.6%	-	-	-	2.4	51.5	4.8
4/1	Mill Road Ahead	U	-		-	-	-	579	1940	1940	29.8%	-	-	-	0.2	1.3	0.2
7/1	Avoncore Place Ahead	U	-		-	-	-	294	1940	1940	15.2%	-	-	-	0.1	1.1	0.1
8/1	Avoncore Place Left	U	I		1	32	-	144	1687	464	31.0%	-	-	-	1.6	40.1	4.0
8/2+8/3	Avoncore Place Right Ahead	U	H G		1	32:16	-	531	2080:1848	450+163	86.6 : 86.6%	-	-	-	9.2	62.7	18.1
10/1	Development Right Left	O	-		-	-	-	21	1665	542	3.9%	21	0	0	0.0	3.5	0.0
11/1	Broomfield West Left Ahead	U	-		-	-	-	89	1897	1897	4.7%	-	-	-	0.0	1.0	0.0
12/1	Broomfield West Right Left	U	-		-	-	-	222	1885	1885	11.8%	-	-	-	0.1	1.1	0.1

Basic Results Summary

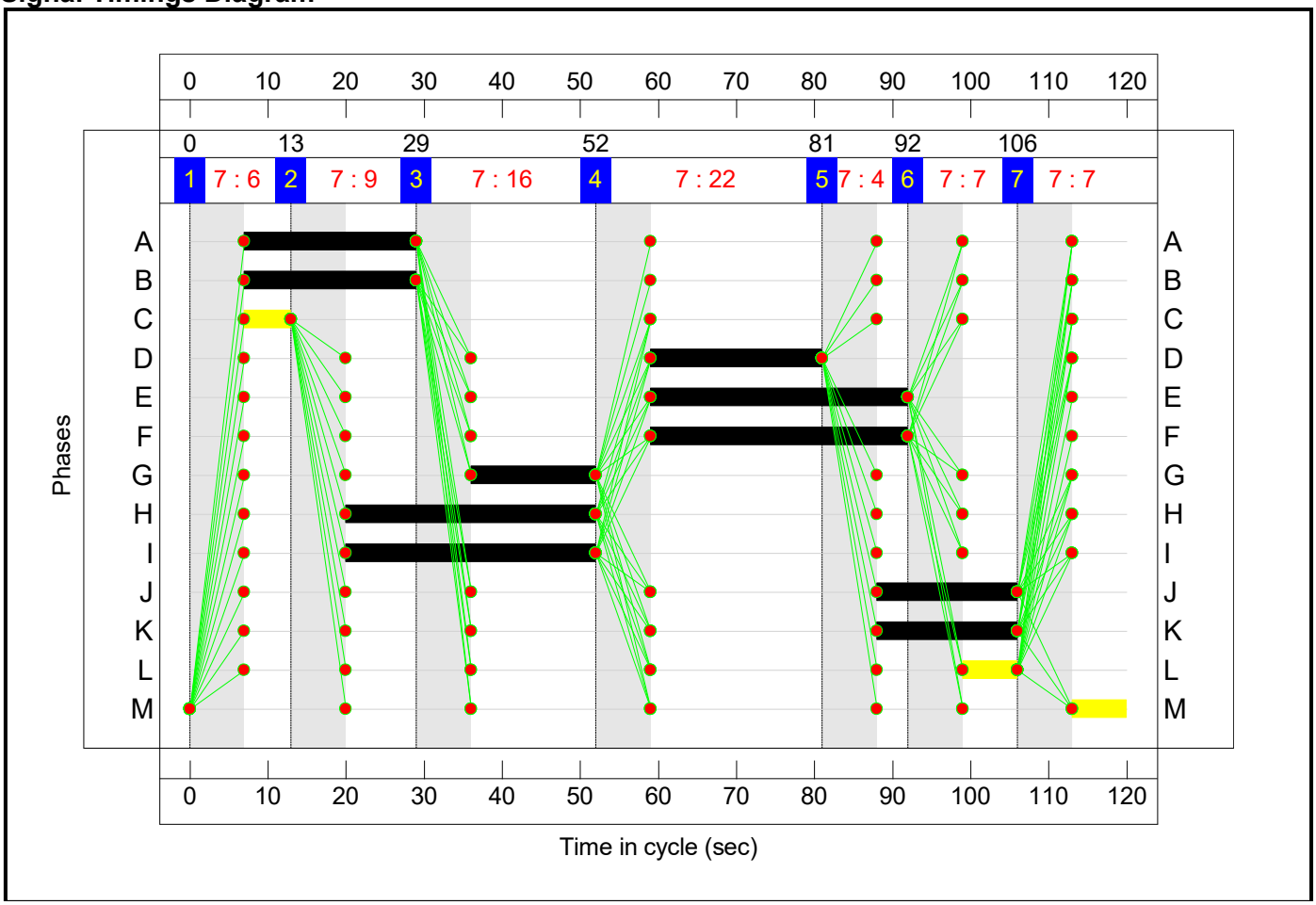
13/1	Avoncore Place Left Right	O	-		-	-	-	294	1745	900	32.7%	219	0	0	0.3	3.2	3.3
14/1	Avoncore Place Ahead	U	-		-	-	-	675	1940	1940	34.8%	-	-	-	0.3	1.4	0.3
15/1	Broomfield Ct Right Left	O	-		-	-	-	493	1556	659	74.8%	493	0	0	1.5	10.6	1.5
17/1	Broomfield West Right Ahead	O	-		-	-	-	201	1940	1940	10.4%	0	0	0	0.1	1.0	0.1
20/1	Ahead	U	-		-	-	-	731	1940	1940	37.7%	-	-	-	0.3	1.5	0.3
		C1		PRC for Signalled Lanes (%):		3.9		Total Delay for Signalled Lanes (pcuHr):				34.88	Cycle Time (s):	120			
				PRC Over All Lanes (%):		3.9		Total Delay Over All Lanes(pcuHr):				37.63					

Basic Results Summary

Stage Diagram



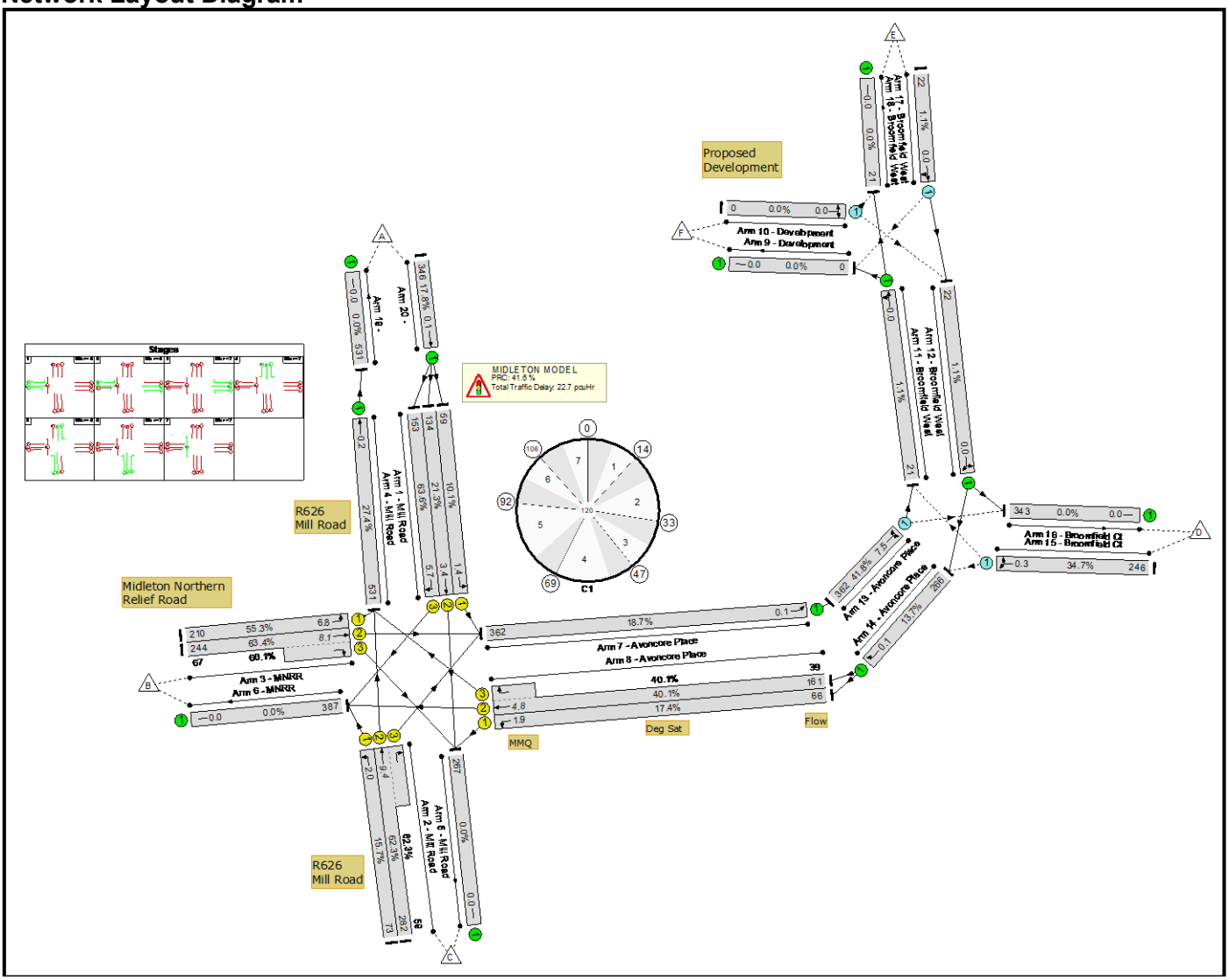
Signal Timings Diagram



Basic Results Summary

Scenario 5: 'Scenario 5 PM 2024' (FG5: 'PM 2024', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Midleton Housing Development	-	-	-		-	-	-	-	-	-	**63.6%**	**588**	**0**	**0**	**22.7**	-	-
MIDLETON MODEL	-	-	-		-	-	-	-	-	-	**63.6%**	**588**	**0**	**0**	**22.7**	-	-
1/1	Mill Road Left	U	F		1	38	-	59	1805	587	10.1%	-	-	-	0.5	31.7	1.4
1/2	Mill Road Ahead	U	E		1	38	-	134	1940	631	21.3%	-	-	-	1.2	33.0	3.4
1/3	Mill Road Right	U	D		1	15	-	153	1805	241	63.6%	-	-	-	2.9	69.4	5.7
2/1	Mill Road Left	U	J		1	30	-	73	1805	466	15.7%	-	-	-	0.8	39.0	2.0
2/2+2/3	Mill Road Ahead Right	U	K L		1	30:7	-	341	1940:1935	453+95	62.3 : 62.3%	-	-	-	4.7	49.9	9.4
3/1	MNRR Left	U	B		1	26	-	210	1687	380	55.3%	-	-	-	3.0	51.7	6.8
3/2+3/3	MNRR Right Ahead	U	A C		1	26:7	-	311	1940:1805	385+112	63.4 : 60.1%	-	-	-	4.6	53.7	8.1
4/1	Mill Road Ahead	U	-		-	-	-	531	1940	1940	27.4%	-	-	-	0.2	1.3	0.2
7/1	Avoncore Place Ahead	U	-		-	-	-	362	1940	1940	18.7%	-	-	-	0.1	1.1	0.1
8/1	Avoncore Place Left	U	I		1	26	-	66	1687	380	17.4%	-	-	-	0.8	43.3	1.9
8/2+8/3	Avoncore Place Right Ahead	U	H G		1	26:7	-	200	2080:1848	401+97	40.1 : 40.1%	-	-	-	2.7	47.9	4.8
10/1	Development Right Left	O	-		-	-	-	0	1915	690	0.0%	0	0	0	0.0	0.0	0.0
11/1	Broomfield West Left Ahead	U	-		-	-	-	21	1940	1940	1.1%	-	-	-	0.0	0.9	0.0
12/1	Broomfield West Right Left	U	-		-	-	-	22	1918	1918	1.1%	-	-	-	0.0	0.9	0.0

Basic Results Summary

13/1	Avoncore Place Left Right	O	-		-	-	-	362	1699	866	41.8%	342	0	0	0.6	5.9	7.5
14/1	Avoncore Place Ahead	U	-		-	-	-	266	1940	1940	13.7%	-	-	-	0.1	1.1	0.1
15/1	Broomfield Ct Right Left	O	-		-	-	-	246	1553	709	34.7%	246	0	0	0.3	3.9	0.3
17/1	Broomfield West Right Ahead	O	-		-	-	-	22	1940	1940	1.1%	0	0	0	0.0	0.9	0.0
20/1	Ahead	U	-		-	-	-	346	1940	1940	17.8%	-	-	-	0.1	1.1	0.1

C1

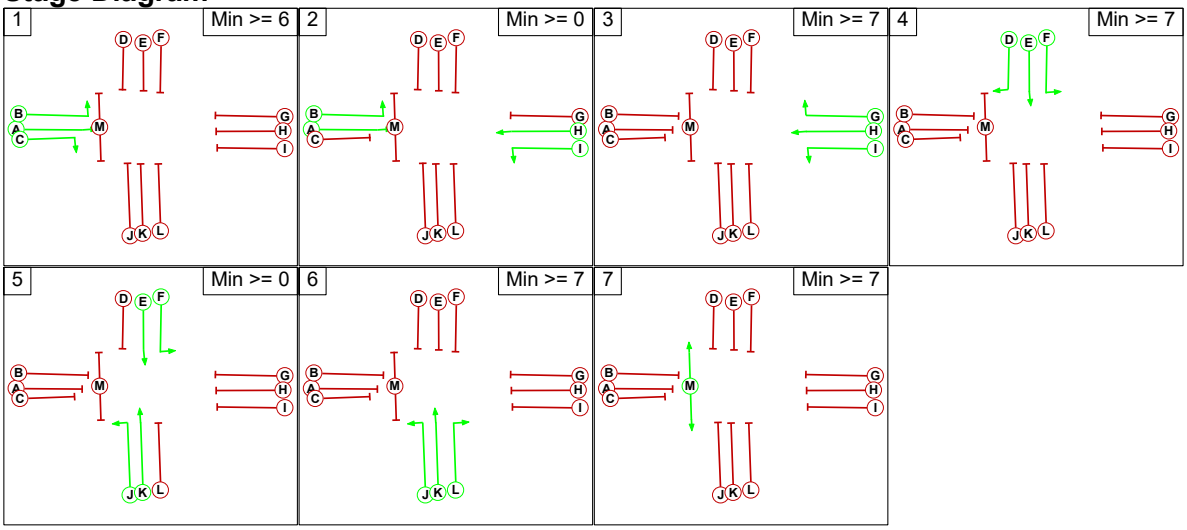
PRC for Signalled Lanes (%): 41.6
PRC Over All Lanes (%): 41.6

Total Delay for Signalled Lanes (pcuHr): 21.32
Total Delay Over All Lanes(pcuHr): 22.69

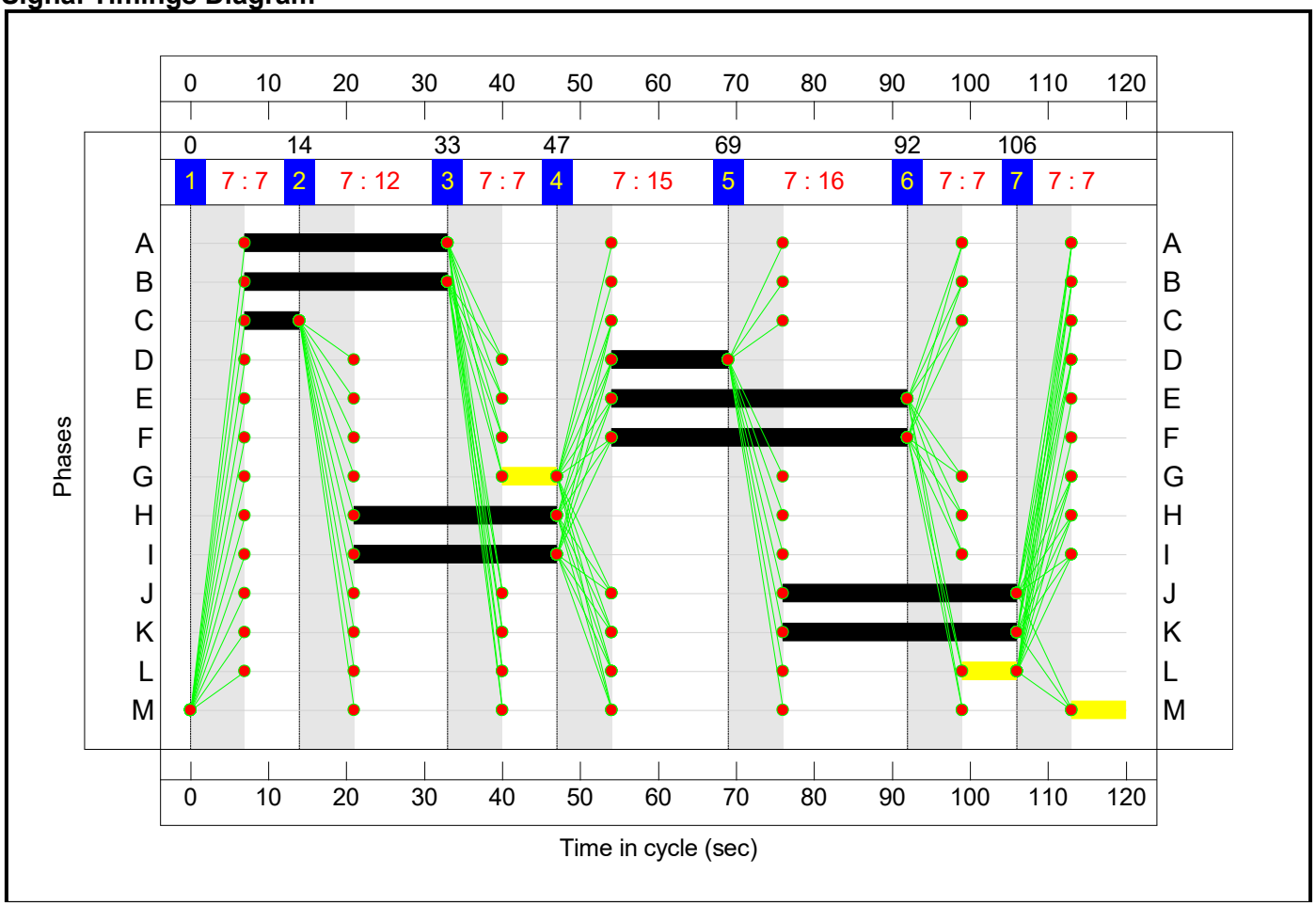
Cycle Time (s): 120

Basic Results Summary

Stage Diagram



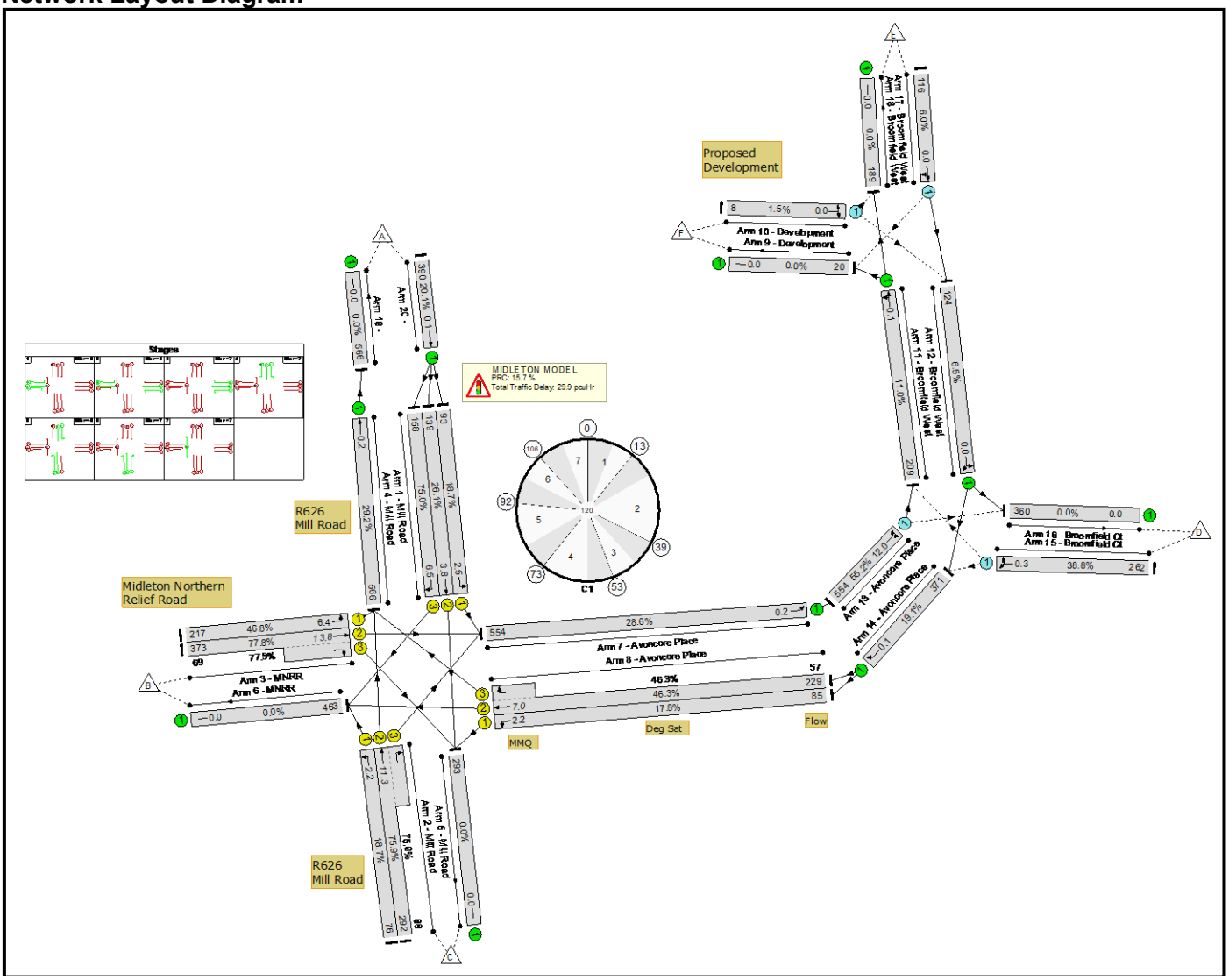
Signal Timings Diagram



Basic Results Summary

Scenario 6: 'Scenario 6 PM 2026' (FG6: 'PM 2026', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Midleton Housing Development	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.8%**	**624**	**0**	**0**	**29.9**	**-**	**-**
MIDLETON MODEL	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.8%**	**624**	**0**	**0**	**29.9**	**-**	**-**
1/1	Mill Road Left	U	F		1	32	-	93	1805	496	18.7%	-	-	-	1.0	37.7	2.5
1/2	Mill Road Ahead	U	E		1	32	-	139	1940	533	26.1%	-	-	-	1.5	38.5	3.8
1/3	Mill Road Right	U	D		1	13	-	158	1805	211	75.0%	-	-	-	3.7	83.8	6.5
2/1	Mill Road Left	U	J		1	26	-	76	1805	406	18.7%	-	-	-	0.9	43.1	2.2
2/2+2/3	Mill Road Ahead Right	U	K L		1	26:7	-	380	1940:1935	385+116	75.9 : 75.9%	-	-	-	6.3	59.9	11.3
3/1	MNRR Left	U	B		1	32	-	217	1687	464	46.8%	-	-	-	2.6	43.5	6.4
3/2+3/3	MNRR Right Ahead	U	A C		1	32:6	-	442	1940:1805	480+89	77.8 : 77.5%	-	-	-	7.3	59.6	13.8
4/1	Mill Road Ahead	U	-		-	-	-	566	1940	1940	29.2%	-	-	-	0.2	1.3	0.2
7/1	Avoncore Place Ahead	U	-		-	-	-	554	1940	1940	28.6%	-	-	-	0.2	1.3	0.2
8/1	Avoncore Place Left	U	I		1	33	-	85	1687	478	17.8%	-	-	-	0.9	37.0	2.2
8/2+8/3	Avoncore Place Right Ahead	U	H G		1	33:7	-	286	2080:1848	495+123	46.3 : 46.3%	-	-	-	3.5	43.9	7.0
10/1	Development Right Left	O	-		-	-	-	8	1665	532	1.5%	8	0	0	0.0	3.4	0.0
11/1	Broomfield West Left Ahead	U	-		-	-	-	209	1895	1895	11.0%	-	-	-	0.1	1.1	0.1
12/1	Broomfield West Right Left	U	-		-	-	-	124	1917	1917	6.5%	-	-	-	0.0	1.0	0.0

Basic Results Summary

13/1	Avoncore Place Left Right	O	-		-	-	-	554	1770	1004	55.2%	354	0	0	1.1	7.4	12.0
14/1	Avoncore Place Ahead	U	-		-	-	-	371	1940	1940	19.1%	-	-	-	0.1	1.1	0.1
15/1	Broomfield Ct Right Left	O	-		-	-	-	262	1556	676	38.8%	262	0	0	0.3	4.3	0.3
17/1	Broomfield West Right Ahead	O	-		-	-	-	116	1940	1940	6.0%	0	0	0	0.0	1.0	0.0
20/1	Ahead	U	-		-	-	-	390	1940	1940	20.1%	-	-	-	0.1	1.2	0.1

C1

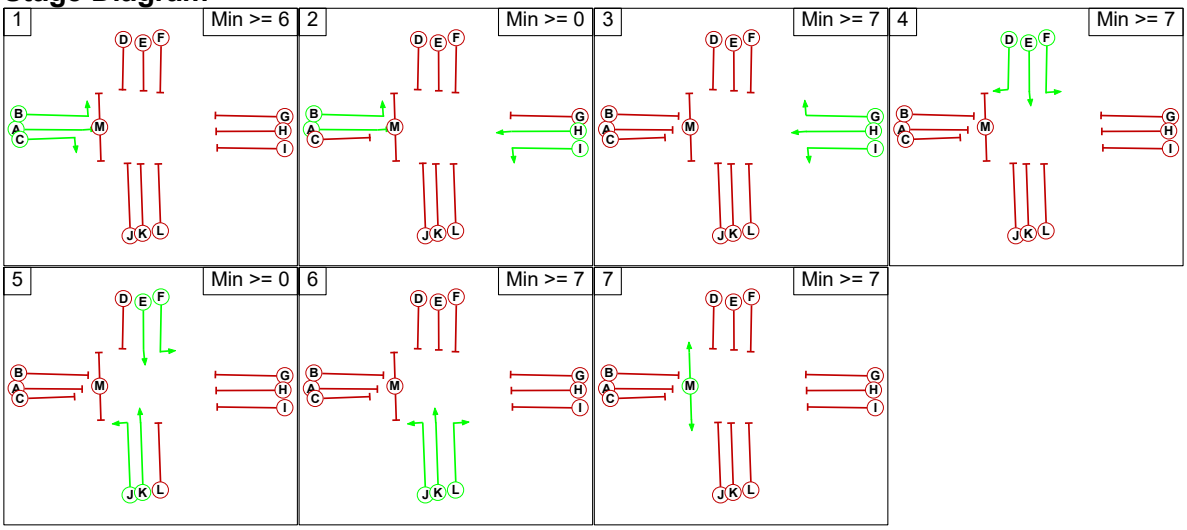
PRC for Signalled Lanes (%): 15.7
PRC Over All Lanes (%): 15.7

Total Delay for Signalled Lanes (pcuHr): 27.68
Total Delay Over All Lanes(pcuHr): 29.92

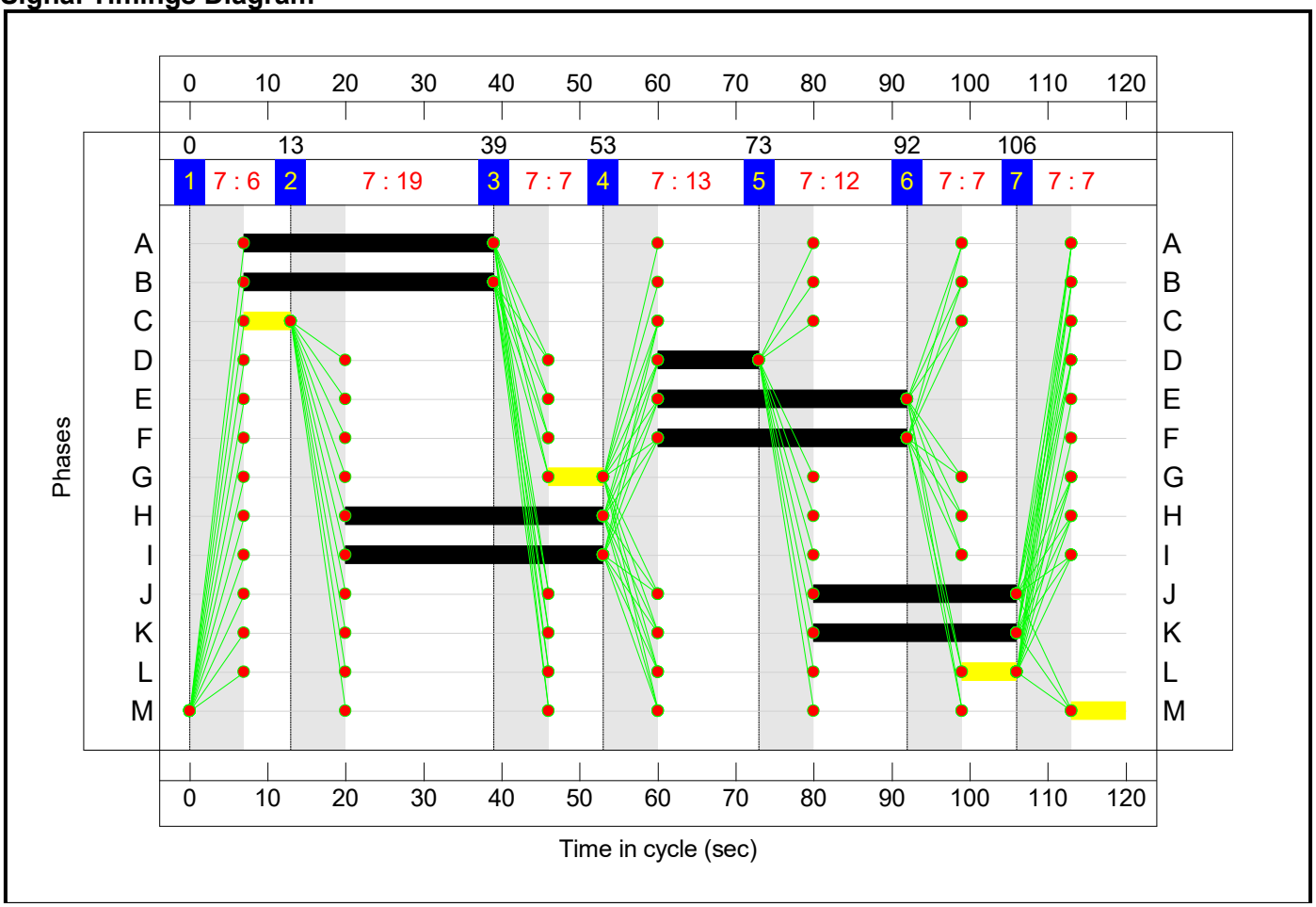
Cycle Time (s): 120

Basic Results Summary

Stage Diagram



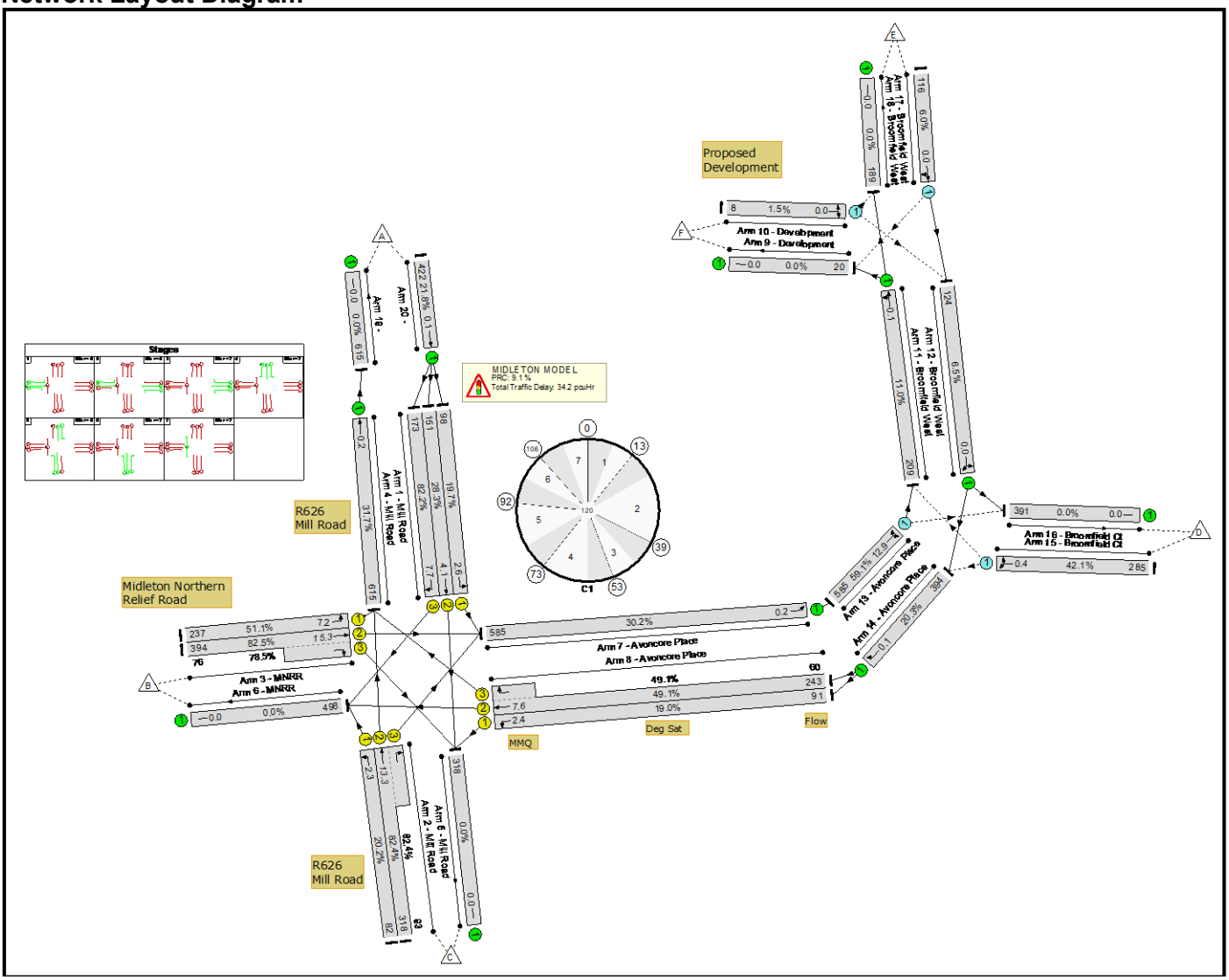
Signal Timings Diagram



Basic Results Summary

Scenario 7: 'Scenario 7 PM 2031' (FG7: 'PM 2031', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Midleton Housing Development	-	-	-		-	-	-	-	-	-	**82.5%**	**678**	**0**	**0**	**34.2**	-	-
MIDLETON MODEL	-	-	-		-	-	-	-	-	-	**82.5%**	**678**	**0**	**0**	**34.2**	-	-
1/1	Mill Road Left	U	F		1	32	-	98	1805	496	19.7%	-	-	-	1.0	37.9	2.6
1/2	Mill Road Ahead	U	E		1	32	-	151	1940	533	28.3%	-	-	-	1.6	38.9	4.1
1/3	Mill Road Right	U	D		1	13	-	173	1805	211	82.2%	-	-	-	4.6	94.9	7.7
2/1	Mill Road Left	U	J		1	26	-	82	1805	406	20.2%	-	-	-	1.0	43.3	2.3
2/2+2/3	Mill Road Ahead Right	U	K L		1	26:7	-	411	1940:1935	386+113	82.4 : 82.4%	-	-	-	7.5	65.5	13.3
3/1	MNRR Left	U	B		1	32	-	237	1687	464	51.1%	-	-	-	2.9	44.6	7.2
3/2+3/3	MNRR Right Ahead	U	A C		1	32:6	-	470	1940:1805	478+97	82.5 : 78.5%	-	-	-	8.3	63.7	15.3
4/1	Mill Road Ahead	U	-		-	-	-	615	1940	1940	31.7%	-	-	-	0.2	1.4	0.2
7/1	Avoncore Place Ahead	U	-		-	-	-	585	1940	1940	30.2%	-	-	-	0.2	1.3	0.2
8/1	Avoncore Place Left	U	I		1	33	-	91	1687	478	19.0%	-	-	-	0.9	37.2	2.4
8/2+8/3	Avoncore Place Right Ahead	U	H G		1	33:7	-	303	2080:1848	495+122	49.1 : 49.1%	-	-	-	3.7	44.4	7.6
10/1	Development Right Left	O	-		-	-	-	8	1665	532	1.5%	8	0	0	0.0	3.4	0.0
11/1	Broomfield West Left Ahead	U	-		-	-	-	209	1895	1895	11.0%	-	-	-	0.1	1.1	0.1
12/1	Broomfield West Right Left	U	-		-	-	-	124	1917	1917	6.5%	-	-	-	0.0	1.0	0.0

Basic Results Summary

13/1	Avoncore Place Left Right	O	-		-	-	-	585	1766	991	59.1%	385	0	0	1.4	8.4	12.9
14/1	Avoncore Place Ahead	U	-		-	-	-	394	1940	1940	20.3%	-	-	-	0.1	1.2	0.1
15/1	Broomfield Ct Right Left	O	-		-	-	-	285	1556	677	42.1%	285	0	0	0.4	4.6	0.4
17/1	Broomfield West Right Ahead	O	-		-	-	-	116	1940	1940	6.0%	0	0	0	0.0	1.0	0.0
20/1	Ahead	U	-		-	-	-	422	1940	1940	21.8%	-	-	-	0.1	1.2	0.1

C1

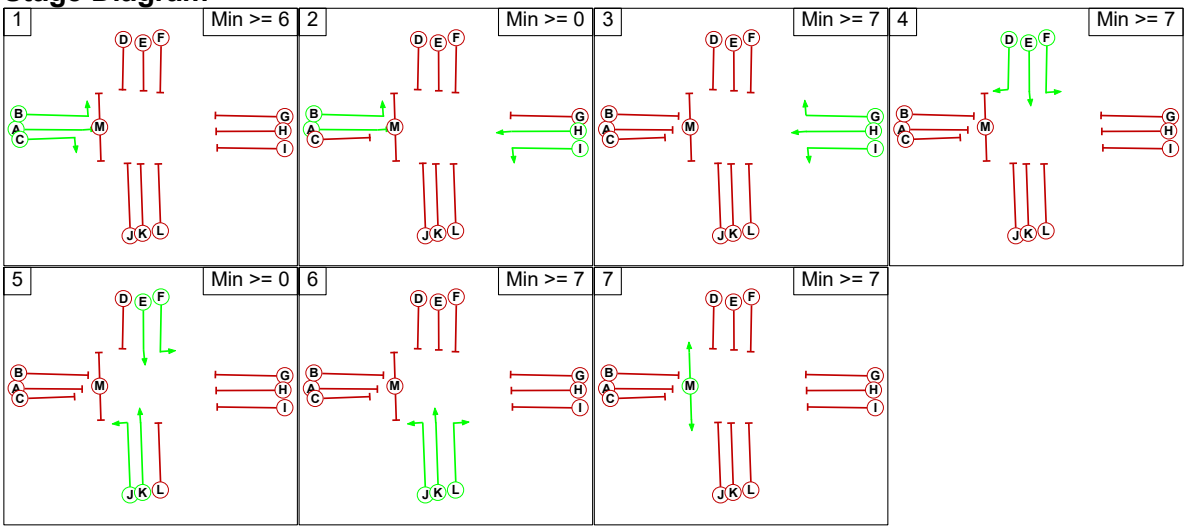
PRC for Signalled Lanes (%): 9.1
PRC Over All Lanes (%): 9.1

Total Delay for Signalled Lanes (pcuHr): 31.62
Total Delay Over All Lanes(pcuHr): 34.20

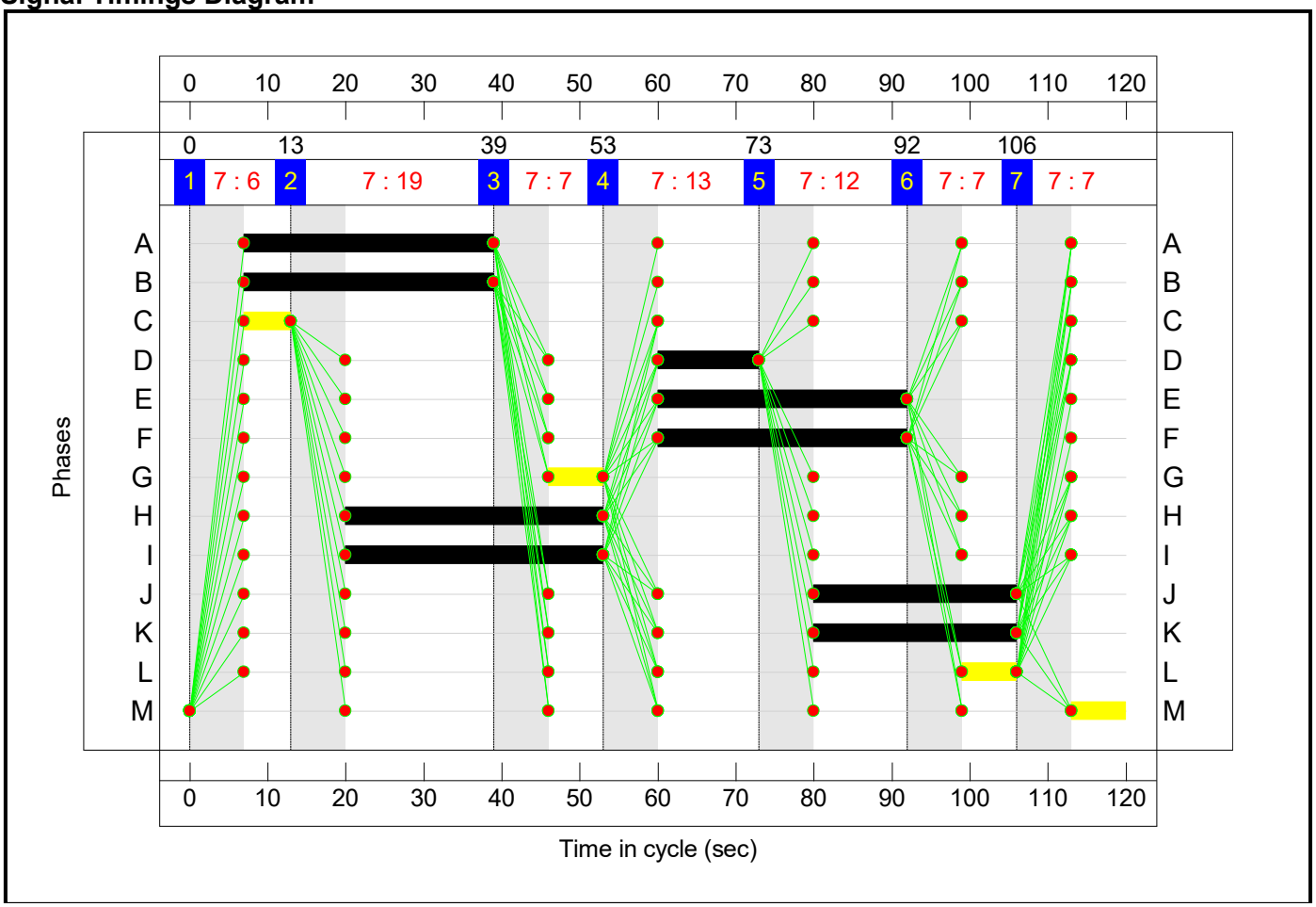
Cycle Time (s): 120

Basic Results Summary

Stage Diagram



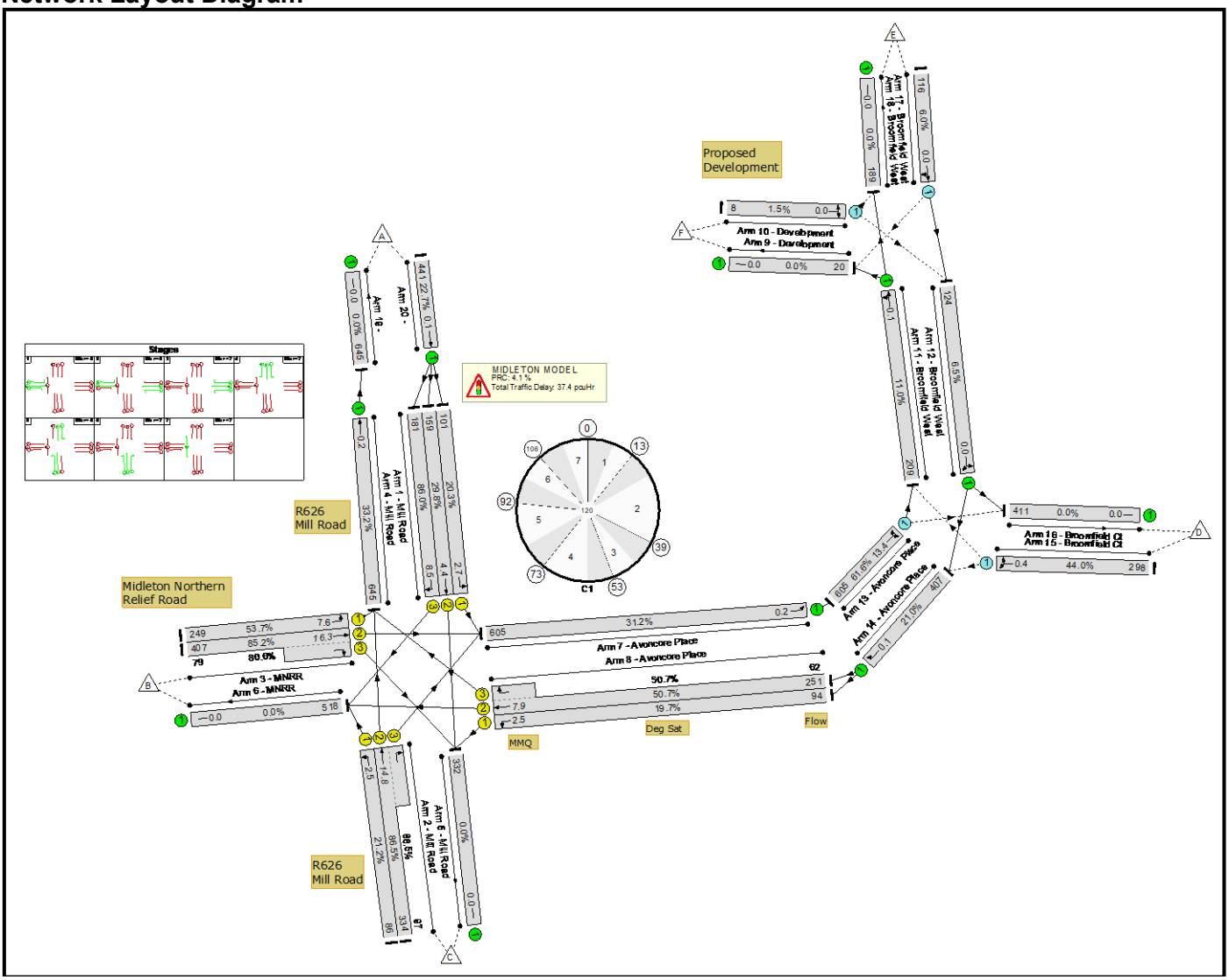
Signal Timings Diagram



Basic Results Summary

Scenario 8: 'Scenario 8 PM 2041' (FG8: 'PM 2041', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Midleton Housing Development	-	-	-		-	-	-	-	-	-	**86.5%**	**711**	**0**	**0**	**37.4**	-	-
MIDLETON MODEL	-	-	-		-	-	-	-	-	-	**86.5%**	**711**	**0**	**0**	**37.4**	-	-
1/1	Mill Road Left	U	F		1	32	-	101	1805	496	20.3%	-	-	-	1.1	38.0	2.7
1/2	Mill Road Ahead	U	E		1	32	-	159	1940	533	29.8%	-	-	-	1.7	39.2	4.4
1/3	Mill Road Right	U	D		1	13	-	181	1805	211	86.0%	-	-	-	5.2	103.8	8.5
2/1	Mill Road Left	U	J		1	26	-	86	1805	406	21.2%	-	-	-	1.0	43.5	2.5
2/2+2/3	Mill Road Ahead Right	U	K L		1	26:7	-	431	1940:1935	386+112	86.5 : 86.5%	-	-	-	8.5	70.9	14.8
3/1	MNRR Left	U	B		1	32	-	249	1687	464	53.7%	-	-	-	3.1	45.3	7.6
3/2+3/3	MNRR Right Ahead	U	A C		1	32:6	-	486	1940:1805	478+98	85.2 : 80.6%	-	-	-	9.0	66.9	16.3
4/1	Mill Road Ahead	U	-		-	-	-	645	1940	1940	33.2%	-	-	-	0.2	1.4	0.2
7/1	Avoncore Place Ahead	U	-		-	-	-	605	1940	1940	31.2%	-	-	-	0.2	1.3	0.2
8/1	Avoncore Place Left	U	I		1	33	-	94	1687	478	19.7%	-	-	-	1.0	37.3	2.5
8/2+8/3	Avoncore Place Right Ahead	U	H G		1	33:7	-	313	2080:1848	495+122	50.7 : 50.7%	-	-	-	3.9	44.8	7.9
10/1	Development Right Left	O	-		-	-	-	8	1665	532	1.5%	8	0	0	0.0	3.4	0.0
11/1	Broomfield West Left Ahead	U	-		-	-	-	209	1895	1895	11.0%	-	-	-	0.1	1.1	0.1
12/1	Broomfield West Right Left	U	-		-	-	-	124	1917	1917	6.5%	-	-	-	0.0	1.0	0.0

Basic Results Summary

13/1	Avoncore Place Left Right	O	-		-	-	-	605	1763	983	61.6%	405	0	0	1.5	9.1	13.4
14/1	Avoncore Place Ahead	U	-		-	-	-	407	1940	1940	21.0%	-	-	-	0.1	1.2	0.1
15/1	Broomfield Ct Right Left	O	-		-	-	-	298	1556	677	44.0%	298	0	0	0.4	4.7	0.4
17/1	Broomfield West Right Ahead	O	-		-	-	-	116	1940	1940	6.0%	0	0	0	0.0	1.0	0.0
20/1	Ahead	U	-		-	-	-	441	1940	1940	22.7%	-	-	-	0.1	1.2	0.1

C1

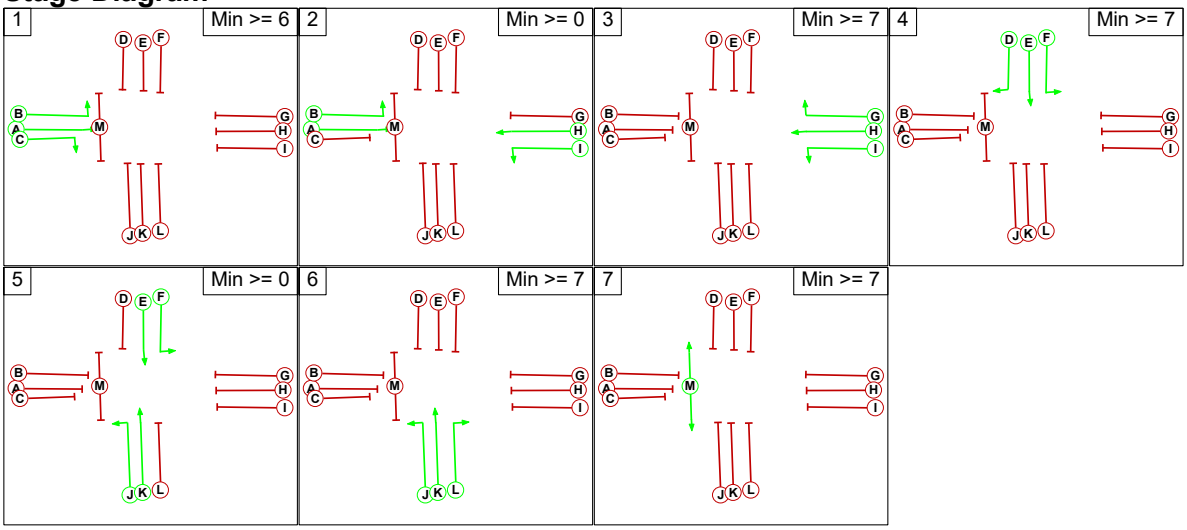
PRC for Signalled Lanes (%): 4.1
PRC Over All Lanes (%): 4.1

Total Delay for Signalled Lanes (pcuHr): 34.58
Total Delay Over All Lanes(pcuHr): 37.39

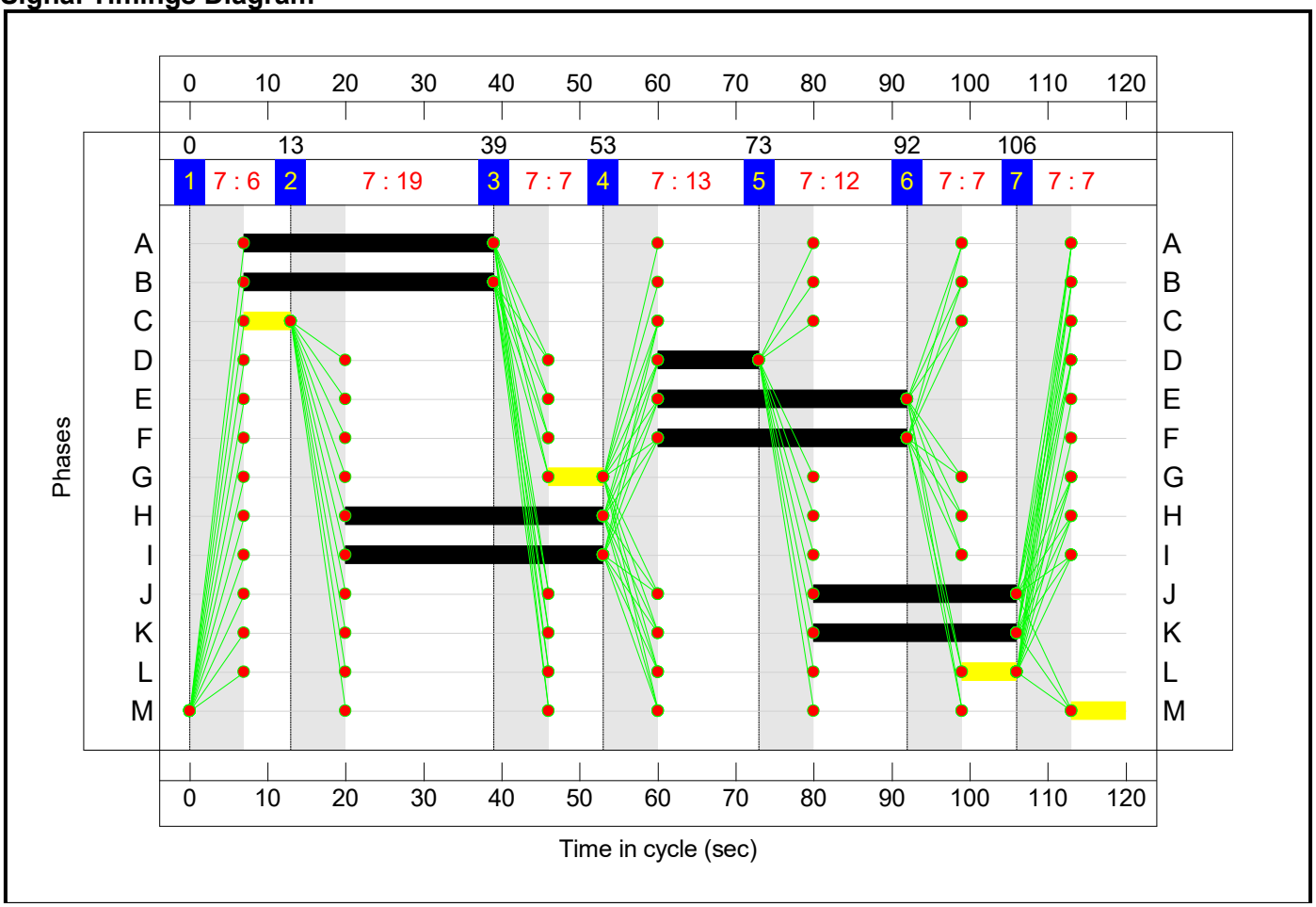
Cycle Time (s): 120

Basic Results Summary

Stage Diagram



Signal Timings Diagram



16.0 Appendix D- A3 Drawings

N

F.F.L. = 47.75M
B2 SITE 13 48.9 SQ/M
F.F.L. = 47.75M
B2 SITE 12
F.F.L. = 47.30M
B1 SITE 11
F.F.L. = 47.30M
50.50M
A2 SITE 6
F.F.L. = 49.150M
B4 SITE 7
F.F.L. = 48.700M
72.2 SQ/M
C2 SITE 8
C1 SITE 9
F.F.L. = 48.30M
F.F.L. = 47.85M
B5 SITE 10
F.F.L. = 47.40M
F.F.L. = 47.20M
D2
F.F.L. = 44.25M
D1
F.F.L. = 44.00M
F.F.L. = 44.00M
C
F.F.L. = 46.55M
D3
F.F.L. = 43.60M

PUBLIC OPEN SPACE
PUBLIC OPEN SPACE (SUDS)
CYCLE LANE
FOOTPATH
5.5m ROAD
4.8m SHARED SURFACE
Path 3
STOP
Crios Mail SLOW ZONE
30 km/h

Junction sight distance of 49m measured at 2.4m back from the road edge to the north and south in accordance with the Design Manual for Urban Roads and Streets for a residential design speed of 50km/h.

NOTES:

All dimensions in metres.
Do not scale from drawing.
For any discrepancies found please consult with design office.
This drawing should be read in conjunction with all contract drawings, documents and specifications.

Rev	By	Date	Description

Drawing Status: PLANNING
NOT CERTIFIED FOR CONSTRUCTION

Project Title:
RESIDENTIAL DEVELOPMENT, BROOMFIELD, MIDLETON

Drawing Title:
Development Access.

Client:
Cork County Council

Martin Hanley
Traffic & Transportation
Consulting Engineers.
70 Lisdaell, Maryborough Hill, Douglas, Cork.
Tel: 021-4857959
E-Mail:martin@mhce.ie

Designed:		
MH		
Scale: 1/500 at A3	Date: January 2025	
Job No: 25-01TT	Drawing No: BF-DA-P01	Revision: