



# Technical Note

Land to the North of  
Cronton Road, Cronton

Client: Bellway Homes Ltd (North West)



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# 1 INTRODUCTION

## 1.1 Planning Application

- 1.1.1 Bellway Homes Ltd (North West), hereafter referred to as 'Bellway', has submitted an outline planning application (including details of access with all other matters reserved) for the erection of up to 120 dwellings (Use Class C3 ) and other associated works on land adjacent to Cronton Road, Cronton, Knowsley.
- 1.1.2 Knowsley Metropolitan Borough Council (KMBC) validated the application in January 2026 and assigned the reference 26/00006/OUT.
- 1.1.3 A Transport Assessment (TA) and Travel Plan (TP), both dated December 2025, were prepared by Prime Transport Planning (Prime) on behalf of the applicant.

## 1.2 Purpose of Report

- 1.2.1 This Technical Note (TN) provides a response to consultation comments provided by KMBC in its role as local highway authority (LHA). A series of email-based discussions, along with a virtual meeting, have taken place between the LHA and Prime to fully understand KMBC's requirements and expectations. KMBC's comments have focused on the proposed access arrangement and off-site highway improvements. This has also included the request for a Stage 1 Road Safety Audit (RSA), with Prime providing a designer's response.
- 1.2.2 Halton Borough Council (HBC), in its role as neighbouring highway authority, has also provided consultation comments. Again, a number of email and telephone-based discussions took place between HBC and Prime to fully understand HBC's requirements and expectations. HBC's comments have focused on the traffic forecasting methodology and associated traffic impact assessment.
- 1.2.3 National Highways (NH), in its role as motorway and trunk road authority, has also been consulted. Prime met with NH and its consultant WSP to provide further clarification on the expected impact on the M62. This matter has been agreed but will be summarised in this TN.
- 1.2.4 Issues raised by each authority have been addressed in turn in each section of this TN as follows:
- Section 2 addresses KMBC's comments, including providing a Stage 1 RSA and designer's response;
  - Section 3 addresses HBC's comments on traffic impact;
  - Section 4 provides a summary of the agreement reached with NH on the impact on the M62; and
  - Section 5 provides a summary and conclusion.

## 2 RESPONSE TO KMBC

### 2.1 Initial Consultation

- 2.1.1 KMBC's initial consultation comments were provided via email on 20<sup>th</sup> May 2026.
- 2.1.2 The proposed site access and associated visibility splays were considered to be safe and capable of accommodating all anticipated vehicle types. The LHA was also welcoming of the offer to fund a traffic regulation order (TRO) to extend the existing 30mph speed limit further west on Cronton Road. This will be secured via S106 Agreement and the appropriate gateway features considered at the detailed design stage.
- 2.1.3 Further details of and amendments to the spine road geometry were requested, while KMBC's expectations for the internal road layout and parking, to be determined at the reserved matters stage, were also outlined.
- 2.1.4 The trip generation and associated traffic impact was considered to not be severe, however, further discussions were requested regarding off-site mitigation in the form of infrastructure improvements for sustainable transport. A request was made to formally submit drawing P25012-004-01A that was provided to KMBC Highways via email, however, this drawing has been superseded with the updated drawing detailed in Section 2.2 below.
- 2.1.5 KMBC has requested further technical details of the proposed pedestrian connection to the dog-walking field to the north-east of the site, which in turn provides connection to Houghton Croft. Such information has been provided in the updated proposed site layout prepared by Astle Planning & Design. The proposed connection also takes into account guidance provided by Merseyside Police.
- 2.1.6 Bus stop upgrades have been requested which are detailed in Section 2.2.
- 2.1.7 A Stage 1 RSA was requested which is detailed in Section 2.3.
- 2.1.8 KMBC acknowledges that public right of way footpath CD/5/1 runs through the site. The officers recognise that the interaction between it and the development will need to be detailed at the reserved matters stage which the applicant accepts.
- 2.1.9 KMBC has requested that a Construction Management Plan (CMP) is secured by planning condition. This is acceptable to the applicant.

### 2.2 Post Submission Discussions

- 2.2.1 The content of KMBC Highways' initial consultation response was discussed with KMBC in a meeting in June 2026. The following drawings were updated or produced and were subject to the Stage 1 RSA. They have not been formally submitted to KMBC as they have been superseded as part of the RSA process.

P25012-001D: Proposed Access Strategy

- 2.2.2 The originally submitted access drawing has been updated to show a wider site access carriageway width of 6.0m. This follows KMBC's feedback which is based on its emerging design guidance.
- 2.2.3 Also shown on the drawing is the location of the relocated pair of bus stops. The westbound stop will be located west of the proposed site access, while the eastbound stop will include a layby and shelter to be provided close to the western edge of the site frontage.

P25012-003D: Swept Path Analysis of Refuse Collection Vehicle

- 2.2.4 The originally submitted swept path drawing has been updated to reflect the 6.0m wide access carriageway.

P25012-009: Proposed Bus Stop Upgrades

- 2.2.5 This is a new drawing detailing the geometry of the relocated bus stops mentioned above.

P25012-004-02C: Potential Footway Improvements – Cronton Road

- 2.2.6 This drawing is an update of revision 02A included in the TA and supersedes revision 01A previously provided to KMBC. It shows the proposed realignment of Cronton Road to deliver footway widening between the proposed site access and Wheatfield Road.

Extent of Adoption on Cronton Road

- 2.2.7 Prime and KMBC have discussed a narrowing of the footway on Cronton Road adjacent to garden hedges outside of property number 397. KMBC confirmed via email on 6<sup>th</sup> August 2026 that the LHA's on-site observations and investigation aligns with Prime and the applicant's as follows:

*'Further to the discussion regarding pedestrian accessibility at the Cronton Road application site, a site inspection was undertaken of the footway adjacent to No. 397.*

*At the time of inspection, the footway appeared to have a width of approximately 0.8m.*

*However, this reduced width is attributable to vegetation overgrowth and the accumulation of soil and organic material along the footway edge.*

*Limited excavation of the overlying material exposed an additional 0.6m of existing asphalt surfacing, confirming a minimum footway width of approximately 1.4m. It is considered likely that further clearance works would reveal additional footway construction beyond that already identified.*

*The inspection findings indicate that the footway extends broadly in line with the adjacent property boundary to the east, where the footway width measures approximately 1.5m. Following the removal of vegetation and accumulated material, the*

*footway is therefore expected to provide an effective width comparable to the adjoining section.*

*Based on the evidence available, it is considered that the highway boundary extends beyond the currently visible edge of the footway and can accommodate an effective footway width of approximately 1.5m following appropriate clearance and maintenance works. As such, the existing footway is considered capable of providing an acceptable level of accessibility for pedestrians.*

*The current restriction is largely the result of vegetation encroachment, and the Council will write to the adjacent landowner requesting that the vegetation is cut back to restore the effective width of the footway.'*

## 2.3 Stage 1 RSA

### RSA Preamble

- 2.3.1 At the request of KMBC, a Stage 1 RSA has been undertaken to consider the proposed site access arrangement and associated pedestrian improvements as shown on the drawings detailed in Section 2.2. The independent consultant six:TEN Highways & Traffic Ltd was commissioned to undertake the audit.
- 2.3.2 The RSA was undertaken by two Society of Road Safety Auditors qualified professionals who undertook a site visit as part of the RSA on Wednesday 17<sup>th</sup> June 2026. The RSA was carried out based on the DMRB document GG119 Rev2 – Road Safety Audit. The RSA is provided in Appendix I.
- 2.3.3 The RSA identified four 'problems'. These are detailed below along with Prime's designer's response provided to each. The problems relate to 'local alignment' and 'walking, cycling and horse riding'; no problems relate to 'general' issues, 'junctions' or 'traffic signs, carriageway markings and lighting'.

### Designer's Response

#### RSA Item 2.2.1: On Cronton Road

*Summary: Proposed narrowed carriageway width may increase the risk of head-on or side-swipe type collisions*

*The potential footway widening on both sides of Cronton Road would result in a relatively narrow carriageway width on the bend on Cronton Road. It is noted that large farm type machinery vehicles were observed using Cronton Road during the site visit. The relatively narrow carriageway width on Cronton Road may increase the risk of vehicles encroaching into the opposing lane and may result in head-on or side-swipe type collisions.*

*It is also noted that the proposed footway widening on the southern side of Cronton Road does not appear to benefit the potential additional pedestrian use from the development and also terminates at its eastern extent when pedestrians would have to cross the carriageway at a location where pedestrian/driver intervisibility is reduced. A reduction of pedestrian and driver intervisibility may increase the risk of pedestrian/vehicular collisions as crossing pedestrians fail to sufficiently appreciate approaching traffic and vice versa.*

#### *Recommendation*

*It is recommended that any proposed footway widening does not significantly reduce the carriageway width and that the proposed widening of the southern footway is not implemented. The recommendations proposed in Problems 2.4.1 and 2.4.3 below may in part mitigate the potential reduction in footway widening.*

#### Designer's Response to Item 2.2.1

- 2.3.4 The carriageway width has been reviewed with use of swept path analysis. It is now proposed to provide a 6.7m wide carriageway which provides sufficient clearance for two 16.5m long heavy goods vehicles (including wing mirrors) to safely pass, with circa 500mm clearance, without compromising the proposed footway width. The updated geometry is shown in Drawing P25012-004-02D and the swept path analysis is shown in Drawing P25012-010. Both drawings are provided in Appendix II.

#### RSA Item 2.4.1: On Cronton Road

*Summary: Omission of uncontrolled pedestrian crossing facilities may increase the risk of pedestrian trips/falls*

*The drawings provided for audit do not show any proposed uncontrolled pedestrian crossing facilities on Cronton Road between the westbound bus stop and the proposed development. This may result in pedestrians wishing to cross Cronton Road having to negotiate an excessive kerb height, which may increase the risk of pedestrian trips/falls and create manoeuvrability issues for those with pushchairs or mobility impairments.*

#### *Recommendation*

*It is recommended that uncontrolled pedestrian crossing facilities with dropped kerbs and buff coloured tactile paving should be provided on Cronton Road, ensuring adequate intervisibility is provided between crossing pedestrians and approaching drivers.*

Designer's Response to Item 2.4.1

- 2.3.5 An uncontrolled crossing consisting of dropped kerbs and tactile paving is now proposed over Cronton Road immediately west of the proposed site access to aid crossing, particularly for pedestrians with wheeled mobility aids and pushchairs. This is shown in Drawing P25012-001E in Appendix II.

RSA Item 2.4.2: At the proposed uncontrolled pedestrian crossings on the Cronton Road Service Road

*Summary: Incorrect tactile paving layout increases the risk of visually impaired pedestrians inadvertently entering the carriageway and potentially being struck by a vehicle*

*The proposed tactile paving at the in-line type uncontrolled pedestrian crossings on the Cronton Road Service Road do not appear to have the required minimum depth of tactile paving across the whole width of the dropped kerbs for in-line type uncontrolled crossings. The audit team note that the minimum depth of tactile paving for in-line type crossings is generally 1200mm. A reduced depth of tactile paving results in a lack of appropriate warning for visually impaired pedestrians of the side road ahead and they may inadvertently enter the carriageway, which may increase the risk pedestrian/vehicular collisions.*

*Recommendations*

*It is recommended that the tactile paving layout should be amended to provide a minimum depth of 1200mm tactile paving across the whole width of the dropped kerbs at the in-line type uncontrolled pedestrian crossings.*

Designer's Response to Item 2.4.2

- 2.3.6 The proposed tactile paving arrangement at the service road/layby east of the site frontage has been updated to match the auditor's recommendations, as shown on Drawing P25012-004-02D in Appendix II.

RSA Item 2.4.3: Various locations on the northern side of Cronton Road between the proposed junction and Wheatfield Road

*Summary: Overgrown vegetation reduces the available footway width which may increase the risk of pedestrian/vehicular collisions*

*During the site visit it was observed that at various locations overgrown hedge/vegetation at the rear of the footway on the northern side of Cronton Road had reduced the available footway width for pedestrians. This may result in pedestrians having to walk in the carriageway if passing other pedestrians which may increase the risk of pedestrian/vehicular collisions.*

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### *Recommendation*

*It is recommended that the existing overgrown hedge/vegetation is cut back to ensure the full available footway width is provided, allowing for seasonal growth and that a regular maintenance regime for cutting back the vegetation is implemented. It is noted that the hedge/vegetation is privately owned by several different land/home owners and is encroaching onto the public highway, therefore, the local highway authority may need to serve notice on the land/home owners to cut back the overgrown hedge/vegetation.*

### Designer's Response to Item 2.4.3

- 2.3.7 Drawing P25012-004-02D in Appendix II includes a label to acknowledge this issue.

### **RSA Summary**

- 2.3.8 The four items raised in the independent RSA have been addressed. The preliminary designs will continue to evolve at the reserved matters and detailed design stages.
- 2.3.9 For completeness, Drawings P25012-003E: Swept Path Analysis of Refuse Collection Vehicle and P25012-009A: Proposed Bus Stop Upgrades have been updated to include the amendments detailed above. Both are provided in Appendix II.

### 3 RESPONSE TO HBC

#### 3.1 Initial Consultation

- 3.1.1 HBC Highways provided comments to KMBC which were shared with the applicant and Prime via email on 31<sup>st</sup> July 2026.
- 3.1.2 HBC has requested the inclusion of 'Land at Chapel Lane, Halton' (KMBC ref: 23/01037/OUT, HBC ref: 23/00244/OUT), despite the application having been refused planning permission, as well as inclusion of the sites collectively known as North Widnes (SRL 7) despite being around 2-3 miles away from the site.
- 3.1.3 HBC has questioned the robustness of the trip rates presented in the TA, suggesting that the authority has observed developments in the neighbouring part of Halton to generate a two-way peak hour trip rate of 0.7 compared to the circa 0.5 presented in the TA. This is also alongside querying the trip distribution.
- 3.1.4 HBC has also suggested that queuing and capacity assessment analysis of the "Chippy Junction" (A5080 Cronton Road/Chapel Lane/Smithy Lane) and the roundabout near the college (Cronton Sixth Form College) (A5080 Cronton Road/Queensbury Way) is required. This is despite the development not triggering the typical threshold for junction capacity assessment presented in the TA, though HBC suspects that such a threshold could be exceeded should its preferred trip rates and distribution be applied.
- 3.1.5 Much of HBC's critique is questionable, but nevertheless, Prime has considered it in the following section.

#### 3.2 Response to HBC

- 3.2.1 Before considering the detail required to address HBC's response, it is important to note that HBC's request does not align with modern 'decide and provide' principles which have been further underlined in their importance following publication of the August 2026 version of the NPPF. Instead, HBC requires a more traditional 'predict and provide' approach based on historic data which can lead to an overprovision of highway capacity based infrastructure.
- 3.2.2 Prime spoke with a highway officer at HBC in order to derive sufficient information to fully consider HBC's requests. The officer informed Prime that HBC was looking for consistency across assessments in the area.
- 3.2.3 The officer confirmed that the North Widnes sites were those included in the Halton Local Plan as Strategic Residential Location (SRL) 7 located in the Lunts Heath area and off the A5080 Derby Road/South Lane east of Watkinson Way, which includes major developments by Miller Homes, Redrow Homes, Prospect Homes and others, totalling 1,233 dwellings. Two technical notes prepared

by i-Transport were shared with Prime in which the cumulative impact of SRL 7 was considered as part of the Redrow Homes applications off Derby Road/South Lane.

- 3.2.4 Prime notes that i-Transport was asked by HBC to consider trip rates of 0.7-0.75 despite presenting its own TRICS based evidence that showed trip rates of closer to 0.5. Initially the consultant argued that its own TRICS based rates were appropriate, but in the technical note dated 28<sup>th</sup> February 2023, the consultant applied HBC's rates of 0.75 to the Redrow Homes developments and the other cumulative developments by way of sensitivity test. This followed HBC stating that it had observed such trip rates from its own counts at residential developments in north Widnes, though no such evidence was provided.
- 3.2.5 Prime has requested details of these surveys and HBC has provided the results which it undertook itself. Unlike the TRICS based surveys used in the TA, these surveys are not independent. Prime has however taken them at 'face value' without being able to fully verify or validate the results. Prime has summarised the information that has been provided as shown in Appendix III.
- 3.2.6 Whilst Prime welcomes HBC sharing the data, there are some significant shortfalls to the data presented, as summarised below:
- Limited arrival and departure counts;
  - Very limited PM peak information;
  - Actual surveyed times largely not stated;
  - Two sites without survey dates;
  - Barratt Homes site is in Hale Bank, not Widnes;
  - Redrow site in Lunts Heath is executive housing and would be expected to have high trip rates;
  - Redrow site in Lunts Heath has two accesses connected internally – unclear if through movements have been discounted; and
  - Unclear what roads/properties Barrow's Green Lane survey included.
- 3.2.7 The average trip rates taken from the above are 0.684 in the AM peak and 0.688 in the PM peak. Whilst HBC's sites are more localised, there are only five sites that were surveyed in the AM peak and two sites surveyed in the PM. The TRICS sample includes 35 surveyed sites with data for both peak hours and are statistically more reliable.
- 3.2.8 Prime would like to make it clear, that, generally speaking, if it had presented such limited and unverified information in a TA to support a planning application, the respective LHA would unlikely accept its use. Nevertheless, HBC's request has been honoured by way of a sensitivity test. This supplements the assessment already undertaken in the TA which remains relevant and robust.

### 3.3 Sensitivity Test Traffic Forecasting

#### Updated Traffic Flow Diagrams

- 3.3.1 For the sensitivity test, a second set of the traffic flow diagrams (FDs) presented in Appendix B of the Prime TA have been produced. These updated FDs are provided in Appendix IV of this TN. The survey data for the Cronton Road/Chapel Lane signals has been reused.

#### Development Trip Distribution

- 3.3.2 Prime has not adjusted the Bellway development trip distribution as it considers the methodology presented in Section 6.6 of the TA to be appropriate and robust. The main car trip attractors will be accessed via Tarbock Island (M62 Junction 6) west of the site.
- 3.3.3 The roads to the north are narrow and have visibility constraints which will deter drivers. Prime recognises that Cronton Sixth Form College is located to the east of the site, however, this is within a reasonable walking distance for most 16+ year olds.
- 3.3.4 The use of higher trip rates outlined below should allay any disagreement with HBC regarding development trip numbers assigned to the east of the site.

#### Trip Rates

- 3.3.5 Prime has honoured HBC's request to use higher trip rates despite its considerable reservations with the accuracy and suitability of the 'local' surveys. The split of the arrivals and departures from the TRICS data has been applied to HBC's total trip rates with a summary of the two provided in Table 3.1.

**Table 3.1: Trip Rate Comparison**

| Peak                                                     | Trip Rates |            |        | Trip Gen |            |        |
|----------------------------------------------------------|------------|------------|--------|----------|------------|--------|
|                                                          | Arrivals   | Departures | Totals | Arrivals | Departures | Totals |
| AM                                                       | 0.140      | 0.362      | 0.502  | 17       | 43         | 60     |
| PM                                                       | 0.319      | 0.160      | 0.479  | 38       | 19         | 57     |
| <b>HBC Rates (TRICS Arrival/Departure Split Applied)</b> |            |            |        |          |            |        |
| AM                                                       | 0.191      | 0.493      | 0.684  | 23       | 59         | 82     |
| PM                                                       | 0.458      | 0.230      | 0.688  | 55       | 28         | 83     |
| <b>Difference</b>                                        |            |            |        |          |            |        |
| AM                                                       | -          | -          | -      | 6        | 16         | 22     |
| PM                                                       | -          | -          | -      | 17       | 8          | 25     |

- 3.3.6 The above table shows that use of HBC's trip rates results in an additional 22 and 25 development trips in the respective AM and PM peak hours, roughly equivalent to an additional trip every four minutes.
- 3.3.7 The assigned trips are shown in FDs 18 and 19 in Appendix IV.

SRL 7 and other Development Sites

- 3.3.8 Whilst HBC has provided two technical notes by i-Transport which contains traffic assignment details of the SRL 7 sites, Prime has reviewed the TA prepared by the same consultant for the live Bloor Homes application adjacent to Pex Hill (26/00290/FUL) which also contains this information. Given that the latter is more recent, the SRL 7 traffic assignment details have been sourced from it.
- 3.3.9 It is also worth noting that for the Bloor Homes TA, the consultant has adopted a 'decide and provide' approach informed by TRICS; the consultant has not used HBC's trip rates.
- 3.3.10 A summary of the flows sourced from the Bloor Homes TA is as follows:
- Land off South Lane - Bloor Homes (24/00007/FUL);
  - Land to North of Derby Road - Redrow Homes (22/00178/FUL);
  - Land South of South Lane and East of Barrows Green Lane - Redrow Homes (22/00179/FUL);
  - Land at South Lane - Prospect Homes (22/00377/FUL);
  - Land North of Lunts Heath Road - Miller Homes (22/00318/FUL)
  - Watkinson Way Apartments (23/00500/FUL);
  - W10 Allocation (South Lane);
  - Remainder of W49 Allocation; and
  - W4 & W5 Allocation - Land at Chapel Lane (23/00244/OUT).
- 3.3.11 Flows from the above are shown cumulatively in Figure 9.10 of the Bloor Homes TA and have been added as FDs 22 and 23 in Prime's sensitivity test assessment. Also included, to be particularly robust, are the Bloor Homes traffic flows from Figure 8.5 of its TA, this is despite the application not yet being consented. It should also be noted that some of the cumulative schemes listed above also do not benefit from planning consent.
- 3.3.12 It is important to note that Prime believes that some of the above cumulative developments were partially built-out at the time of the surveys undertaken in support of the Bellway and Bloor Homes applications, so there will be an element of double counting. There will also be a further element of double counting as unadjusted TEMPro growth factors have been used.
- 3.3.13 Prime has also undertaken its own review of the assignment of the above developments through consideration of census method of travel to work data and believes that higher volumes of traffic have been assigned to Cronton Road and Cronton Lane than what will actually occur. It is important to acknowledge the close proximity of many of these sites to Watkinson Way, which readily provides access to Rainhill Stoops (M62 Junction 7), the Mersey Gateway and Speke Boulevard, all of which provide access to major employment destinations. From these sites, Rainhill Stoops via Watkinson Way provides a shorter and faster route to the M62 than Tarbock Island via Cronton Lane and Cronton Road. Nevertheless, Prime has not adjusted the assignment of these flows.

- 3.3.14 The sensitivity test cumulative developments have been added to the 2032 Without Development flows as shown in FDs 24 and 25, with the proposed development traffic then added to form the 2032 With Development Sensitivity Test flows as shown in FDs 26 and 27, all of which are in Appendix IV.
- 3.3.15 It should be noted that the forecast traffic flows still include traffic from the committed developments included in the TA. Not all of these are included in the Chapel Lane and Pex Hill assessments.

*Absolute and Percentage Impact*

- 3.3.16 A summary of the absolute and percentage impact of the sensitivity test development traffic flows on the local study area is provided in Table 3.2. The baseline flows for the Cronton Road/Queensbury Way roundabout have been sourced from the Bloor Homes TA (Figure 9.12).

**Table 3.2: Comparison of Two-Way Traffic Flows - Without and With Development Sensitivity Test**

| Junction                                                 | AM Peak     |          |          |        | PM Peak     |          |          |        |
|----------------------------------------------------------|-------------|----------|----------|--------|-------------|----------|----------|--------|
|                                                          | Without Dev | With Dev | Abs Diff | % Diff | Without Dev | With Dev | Abs Diff | % Diff |
| A5080 Cronton Road/<br>Chapel Lane/Smithy Lane<br>(2032) | 1703        | 1722     | 19       | 1.1%   | 1429        | 1448     | 19       | 1.3%   |
| A5080 Cronton Road/<br>Queensbury Way (2037)             | 1740        | 1750     | 10       | 0.6%   | 1867        | 1877     | 10       | 0.5%   |

- 3.3.17 The above table shows that the proposed development is forecast to add just 19 and 10 trips in the respective AM and PM peak hours to the Cronton Road/Chapel Lane signals and the Cronton Road/Queensbury Way roundabout, with the respective percentage impact being just 1.1-1.3% and 0.5-0.6%.
- 3.3.18 As acknowledged above, whilst HBC disagrees with the distribution applied, the use of higher trip rates should counter this. HBC has not provided any contradictory distribution details.

## 3.4 Sensitivity Test Junction Capacity Assessment

- 3.4.1 Junction capacity assessment models have been used to further consider the impact of the sensitivity test.
- 3.4.2 The industry standard software Junctions 11, developed by TRL Software, has been used to complete the capacity assessment for the proposed site access and the Cronton Road/Queensbury Way roundabout.
- 3.4.3 When interpreting the results, the capacity of each arm or movement is calculated as the Ratio of Flow to Capacity (RFC) with 0.85 representing the practical capacity threshold of the arm and 1.00 representing the theoretical capacity threshold. It is above the practical capacity threshold where

capacity problems may begin to occur, while exceeding the theoretical capacity means that arms are over capacity.

- 3.4.4 Modelled queues are shown in passenger car units (PCUs), with one PCU being equivalent to a distance of 5.75m which is the length of road space (car length plus gap length) that a typical car will occupy when queueing. In order to convert the traffic flows into PCUs, which is the requisite input flow unit required in the modelling software, a factor of 2.0 has been applied to the heavy vehicle user class, while cars effectively have a factor of 1.0. These factors are widely accepted in transport modelling.
- 3.4.5 Traffic flows have been input based on the 'ONE HOUR' (ODTAB) option, which synthesises a 'peak within a peak' at the middle of the time period modelled and is generally seen as being the worst-case form of assessment in terms of impact. However, where appropriate, other flow input methods have been considered.
- 3.4.6 LinSig 3 has been used to model the Cronton Road/Chapel Lane/Smithy Lane signals. When interpreting the results, the capacity of each lane is calculated as a degree of saturation (DoS) with 90% representing the practical capacity threshold of the lane and 100% representing the theoretical capacity threshold. The capacity of the junction as a whole is indicated by the practical reserve capacity (PRC) with negative values indicating that the practical capacity threshold has been exceeded and a PRC less than -10% indicating that a junction is operating above the theoretical capacity threshold. Queues are the mean maximum queue (MMQ) over the hour modelled.
- 3.4.7 The model report outputs from the capacity assessment software are provided in Appendix V.

#### Proposed Site Access

- 3.4.8 The same model presented in the TA has been used in this sensitivity test. The results are summarised in Table 3.3.

**Table 3.3: Junction Capacity Assessment Results - Proposed Site Access/Cronton Road**

| Arm                                             | AM   |         | PM   |         |
|-------------------------------------------------|------|---------|------|---------|
|                                                 | RFC  | Q (PCU) | RFC  | Q (PCU) |
| <b>2032 With Development - Sensitivity Test</b> |      |         |      |         |
| Proposed Site Access                            | 0.23 | 0.3     | 0.09 | 0.1     |
| Cronton Road (Eastern Arm)                      | 0.02 | 0.0     | 0.04 | 0.1     |

- 3.4.9 The results show that the proposed site access will provide sufficient capacity to serve the development and operate with a considerable level of spare capacity.

#### A5080 Cronton Road/Chapel Lane/Smithy Lane

- 3.4.10 The LinSig model presented in the Chapel Lane TA has been reconstructed.

- 3.4.11 A minor adjustment was made to better reflect the right turn storage on the two Cronton Road arms.
- 3.4.12 The 2025 observed flows have been used to consider the model calibration. The modelled queue lengths are notably longer than the surveyed queues. Whilst the two are not directly comparable, the reconstructed model calls the pedestrian crossing stage every cycle which Prime considers to be unrealistic. Prime staff regularly travel through the junction and are aware that the pedestrian stage is called infrequently, as such, a variation of the 2032 With Development Sensitivity Test scenario has been run on a double cycle with the pedestrian stage called every other cycle.
- 3.4.13 The results are summarised in Table 3.4.

**Table 3.4: Junction Capacity Assessment Results - Cronton Road/Chapel Lane/Smithy Lane**

| Item                                                            | Lane Description                | AM Peak |           | PM Peak |           |
|-----------------------------------------------------------------|---------------------------------|---------|-----------|---------|-----------|
|                                                                 |                                 | DoS (%) | MMQ (pcu) | DoS (%) | MMQ (pcu) |
| 2025 Observed - Sensitivity Test                                |                                 |         |           |         |           |
| 1/1                                                             | Smithy Ln Left Ahead Right      | 42.70%  | 6.3       | 40.90%  | 4.8       |
| 2/1                                                             | Cronton Rd (E) Right Left Ahead | 73.60%  | 13.8      | 64.90%  | 13.4      |
| 3/1                                                             | Chapel Ln Ahead Right Left      | 73.10%  | 11        | 65.70%  | 8.8       |
| 4/1                                                             | Cronton Rd (W) Left Ahead Right | 66.10%  | 13.2      | 42.70%  | 6.6       |
| PRC (%)                                                         |                                 | 22.3    |           | 37.0    |           |
| Delay (pcuHr)                                                   |                                 | 17.58   |           | 12.98   |           |
| 2032 Without Development - Sensitivity Test                     |                                 |         |           |         |           |
| 1/1                                                             | Smithy Ln Left Ahead Right      | 49.20%  | 7         | 52.90%  | 5.5       |
| 2/1                                                             | Cronton Rd (E) Right Left Ahead | 89.50%  | 21.7      | 76.00%  | 17.7      |
| 3/1                                                             | Chapel Ln Ahead Right Left      | 92.80%  | 15.9      | 76.20%  | 10.3      |
| 4/1                                                             | Cronton Rd (W) Left Ahead Right | 92.70%  | 24.6      | 65.60%  | 10.1      |
| PRC (%)                                                         |                                 | -3.2    |           | 18.2    |           |
| Delay (pcuHr)                                                   |                                 | 31.60   |           | 17.49   |           |
| 2032 With Development - Sensitivity Test                        |                                 |         |           |         |           |
| 1/1                                                             | Smithy Ln Left Ahead Right      | 50.80%  | 7.1       | 56.20%  | 5.5       |
| 2/1                                                             | Cronton Rd (E) Right Left Ahead | 83.60%  | 19.8      | 76.90%  | 18        |
| 3/1                                                             | Chapel Ln Ahead Right Left      | 94.60%  | 16.9      | 77.70%  | 10.6      |
| 4/1                                                             | Cronton Rd (W) Left Ahead Right | 95.30%  | 27.2      | 68.90%  | 11.7      |
| PRC (%)                                                         |                                 | -5.9    |           | 15.8    |           |
| Delay (pcuHr)                                                   |                                 | 32.99   |           | 18.23   |           |
| 2032 With Development - Sensitivity Test Peds Every Other Cycle |                                 |         |           |         |           |
| 1/1                                                             | Smithy Ln Left Ahead Right      | 53.00%  | 7.8       | 44.50%  | 5.4       |
| 2/1                                                             | Cronton Rd (E) Right Left Ahead | 73.20%  | 19.5      | 68.30%  | 18.7      |
| 3/1                                                             | Chapel Ln Ahead Right Left      | 79.00%  | 17        | 67.30%  | 10.2      |
| 4/1                                                             | Cronton Rd (W) Left Ahead Right | 79.00%  | 23.6      | 56.00%  | 14.2      |
| PRC (%)                                                         |                                 | 13.9    |           | 31.8    |           |
| Delay (pcuHr)                                                   |                                 | 22.15   |           | 14.80   |           |

- 3.4.14 The results show that the impact of the proposed development is minimal, reducing the PRC values by just 2.7% and 2.4% in the AM and PM peaks respectively, which compares to the cumulative impact of 25.5% and 18.8% respectively. With the proposed development in place, the junction will operate

well below the practical reserve capacity in the PM peak and slightly above it, but below the theoretical capacity threshold (PRC = -10%), in the AM peak.

- 3.4.15 These results, however, are based on the pedestrian stage being called every cycle, which Prime considers to be unrealistic. Calling the pedestrian stage once every other cycle, which itself is still likely to be overly frequent, suggests that the junction has ample spare capacity to accommodate the cumulative impact, including that of the proposed development.

A5080 Cronton Road/Queensbury Way

- 3.4.16 The model provided in the Bloor Homes TA has been recreated, however, Prime has noted that the PM Peak Base + Committed + Development Traffic Flows (i.e. Without Development Sensitivity Test) do not match those of the respective flow diagram (Figure 9.12). As those in the model were lower, Prime has input the higher flows from the flow diagrams.
- 3.4.17 The proposed development flows have been added to these flows to form the With Development flows. The flows are for the forecast year of 2037 which is higher than the 2032 flows considered at the other two junctions and in the Bellway TA.
- 3.4.18 The results are summarised in Table 3.5.

**Table 3.5: Junction Capacity Assessment Results - A5080 Cronton Road/Queensbury Way**

| Arm                                                | AM   |         | PM   |         |
|----------------------------------------------------|------|---------|------|---------|
|                                                    | RFC  | Q (PCU) | RFC  | Q (PCU) |
| <b>2037 Without Development - Sensitivity Test</b> |      |         |      |         |
| 1 - Cronton Ln                                     | 0.62 | 1.6     | 0.84 | 5.0     |
| 2 - Queensbury Way                                 | 0.46 | 0.9     | 0.38 | 0.6     |
| 3 - Cronton Rd                                     | 0.42 | 0.7     | 0.41 | 0.7     |
| <b>2037 With Development - Sensitivity Test</b>    |      |         |      |         |
| 1 - Cronton Ln                                     | 0.62 | 1.6     | 0.85 | 5.2     |
| 2 - Queensbury Way                                 | 0.46 | 0.9     | 0.38 | 0.6     |
| 3 - Cronton Rd                                     | 0.43 | 0.7     | 0.42 | 0.7     |

- 3.4.19 The results show that the roundabout will continue to operate with spare capacity with the development in place. The impact of the development is no greater than an RFC increase of 0.01 which is a negligible level of impact.

## 4 RESPONSE TO NH

### 4.1 Initial Consultation

- 4.1.1 NH's initial response included a TA Review by its consultant, WSP, dated 10<sup>th</sup> March 2026. Further details of the impact of the proposed development on M62 Junctions 6 and 7 were requested.

### 4.2 Meeting

- 4.2.1 Prime met with NH and WSP via Teams on 1<sup>st</sup> April 2026. Prime questioned the need and ability to assess the impact at the aforementioned junctions given the extensive roadworks at Junction 6 (Tarbock Island) which were having a knock-on effect on Junction 7 (Rainhill Stoops).
- 4.2.2 Prime also presented the likely development distribution which was based on a combination of survey data, census method of travel to work data, and Prime's local knowledge.
- 4.2.3 WSP requested the likely development traffic numbers at each junction to aid its ongoing monitoring of traffic growth.

### 4.3 Response to NH

- 4.3.1 Prime provided a detailed response to NH and WSP via email on 21<sup>st</sup> April 2026, with a copy of the email provided in Appendix VI. Following this, NH formally provided 'no objection' to the proposed development in its formal response dated 6<sup>th</sup> May 2026.

## 5 SUMMARY AND CONCLUSION

### 5.1 Summary

- 5.1.1 This Technical Note has been prepared to address consultation responses from Knowsley Metropolitan Borough Council (KMBC), Halton Borough Council (HBC) and National Highways (NH).
- 5.1.2 Discussions have taken place with KMBC following submission of the planning application. Whilst KMBC has not objected based on the cumulative impact of the proposed development, it has provided feedback on the proposed site access arrangement and has requested further improvements for pedestrians and bus passengers.
- 5.1.3 A number of new or updated drawings have been produced to address KMBC's comments which have also been subject to an independent Stage 1 Road Safety Audit (RSA) provided in Appendix I. A number of further adjustments have been made following the RSA with the updated package of drawings provided in Appendix II.
- 5.1.4 HBC has questioned the robustness of the traffic impact assessment presented in the submitted Transport Assessment (TA).
- 5.1.5 Discussions have taken place with HBC with the neighbouring authority requesting an assessment that is consistent with other applications in the area, which has specifically requested the inclusion of traffic flows from the Taylor Wimpey development off Chapel Lane, despite it being refused planning permission, and a number of allocated sites known as SRL 7 located some 2-3 miles away with a more direct route to the strategic road network. Not all of these allocated sites benefit from planning permission. Traffic flows associated with these developments and allocations have been sourced from the live planning application by Bloor Homes on land adjacent to Pex Hill, with traffic flows from said application also included to be particularly robust. A sensitivity test has been produced that includes these traffic flows (Appendix IV), though the flows forecast to pass through the study area do appear to be higher than what are likely to occur given the proximity of the majority of these sites to Watkinson Way, and onto the M62 via Rainhill Stoops, the Mersey Gateway and Speke Boulevard.
- 5.1.6 HBC has contested the traffic distribution applied to the proposed development, however, Prime stand by this as being appropriate and robust when considering the main trip attractors and the nature of the local roads, with the most direct route to the strategic road network being via Tarbock Island i.e. away from Halton. Any continued disagreement on this should be countered by the use of higher trip rates, and elements of double counting both traffic growth and cumulative development.
- 5.1.7 HBC has provided its own trip generation surveys of other sites in the Widnes and Hale Bank areas which are summarised in Appendix III. Prime considers the accuracy, suitability and validity of these surveys to be questionable, but has accepted them at face value and has applied them to the proposed development in the sensitivity test.

5.1.8 HBC has also requested junction capacity assessments that the A5080 Cronton Road/Chapel Lane/Smithy Lane signals and the A5080 Cronton Road/Queensbury Way roundabout, despite the proposed development not being forecast to add a level of traffic that would normally warrant such an assessment. Again, this request has been honoured, and models used in support of other applications in the area have been used for consistency. The junctions have been shown to operate with spare capacity with the proposed development in place along with the additional cumulative development traffic, which is in addition to the committed developments included in the TA and background traffic growth.

5.1.9 A meeting was held with NH and its consultant, WSP, following receipt of its initial consultation response. Their concerns were discussed and additional information was provided via email in April 2026 (Appendix VI), resulting in a second response which offered 'no objection'.

5.1.10 Prime believes that the matters raised by the three highway authorities have been addressed.

5.1.11 Prime and the applicant are willing to agree suitably worded conditions regarding the proposed access arrangement, and off-site highway and sustainable travel improvements.

## 5.2 Conclusion

5.2.1 The conclusion offered in the TA remains valid, albeit updated in line with the August 2026 publication of the NPPF, particularly Policy TR6, insofar as the proposed development would not result in '*a severe adverse impact on the transport network (in terms of capacity and congestion, including cumulative impacts), or an unacceptable impact on highway safety; taking into account any mitigation measures proposed as well as any wider network improvements, including measures to support sustainable patterns of movement.*'

5.2.2 As the proposal complies with local and national planning policy and guidance with respect to sustainable accessibility, safety and impact on the highway network, there are no highways or transportation related reasons why planning permission should not be granted.

## APPENDIX I

### STAGE 1 ROAD SAFETY AUDIT

## **CRONTON ROAD, CRONTON PROPOSED ACCESS STRATEGY**

### **STAGE 1 ROAD SAFETY AUDIT**

610/2026/158/01 Rev 1

30 July 2026

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| Rev: | Issue Status: | Prepared by/Date:              | Checked by/Date:         | Approved by/Date:              |
|------|---------------|--------------------------------|--------------------------|--------------------------------|
| 0    | DRAFT         | Tristan Brooks<br>29 July 2026 | R Lister<br>29 July 2026 |                                |
| 1    | FINAL         | Tristan Brooks<br>30 July 2026 | R Lister<br>30 July 2026 | Tristan Brooks<br>30 July 2026 |
|      |               |                                |                          |                                |

|                                           |                                                                               |
|-------------------------------------------|-------------------------------------------------------------------------------|
| <b>Report Title:</b>                      | Cronton Road, Cronton<br>Proposed Access Strategy - Stage 1 Road Safety Audit |
| <b>Date:</b>                              | 30 July 2026                                                                  |
| <b>Document Reference &amp; Revision:</b> | 610/2026/158/01 Rev 1                                                         |
| <b>Prepared by:</b>                       | Six Ten Highways & Traffic Ltd                                                |
| <b>On behalf of:</b>                      | Prime                                                                         |

## Disclaimer note

*The client has confirmed that it is entering into the agreement under which this report is being prepared on its own behalf and not on behalf of, or for the benefit of any other party and has agreed that in any event of any claim arising out of or in connection with that agreement and/or the report itself it shall be entitled to recover from six:TEN Highways & Traffic Limited only the losses, if any, it has itself suffered.*

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## 1.0 INTRODUCTION

1.1 This report results from a preliminary design Stage 1 Road Safety Audit (RSA) carried out on the proposed access strategy at Cronton Road, Cronton, associated with a proposed residential development on land to the north of Cronton Road at the request of Prime, the designer of the scheme who provided the Audit information, and although there was no formal 'audit brief' the RSA team has accepted that sufficient information has been provided to undertake the Stage 1 RSA. The audit team has been approved by the Overseeing Organisation Knowsley Council to carry out Road Safety Audits on their highway network.

1.2 The Road Safety Audit Team was as follows:

Tristan Brooks\* Bsc (Hons), MBA, CMILT, MCIHT, MSoRSA, NH RSA Cert of Comp  
Audit Team Leader

R Lister BSc (Hons), MSc, MRTPI, MCIHT, MSoRSA  
Audit Team Member

1.3 Audit Team members marked with an asterisk above hold a National Highways approved Certificate of Competency (CoC) in Road Safety Audit, in accordance with Article (1–3) of EC Directive 2008/96/EC.

1.4 The audit took place at the Manchester office of six:TEN Highways and Traffic between 16 June 2026 and 30 July 2026. The Road Safety Audit was undertaken in accordance with the Road Safety Audit information provided. The audit comprised an examination of the documents provided as detailed in Appendix One.

1.5 The Audit Team visited the site together during the morning of Wednesday 17 June 2026 between 09.45hrs and 10:25hrs and comprised a walk and drive-throughs (where available) of the area covered by the scheme. During the site visit the weather was partially cloudy and the carriageway surface was dry. At the time of the site visit traffic movements in the vicinity of the proposed scheme were moderate with no pedestrian or cyclist movements observed.

1.6 Cronton Road in the vicinity of the proposed highway works is currently subject to a 30mph speed limit transitioning to a 40mph speed limit approximately 50m to the west of the proposed site access and there is street lighting throughout.

1.7 The terms of reference of the audit are as described in the Design Manual for Roads and Bridges (DMRB) GG 119 Rev 2 *Road Safety Audit*. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria. This Road Safety Audit has been undertaken based on the Road Safety Audit Team's previous experience and knowledge in undertaking Collision Investigation, Road Safety Engineering and Road Safety Audits.

1.8 The proposed highway works are associated with a proposed residential development on land to the north of Cronton Road as shown in Appendix Two and in summary includes:

- Provision of a major/minor priority-controlled T-junction on the northern side of Cronton Road to provide access to the proposed development;
- Relocation/upgrade to 2 No. existing bus stops on Cronton Road;
- Relocation of the existing terminal 30/40mph speed limit approximately 100m to the west of its current location; and

- Potential footway widening on both sides of Cronton Road between the proposed access and Wheatfield Road including uncontrolled pedestrian crossings on the northern side.
- 1.9 The Audit Team have not been informed of any Departures from Standard for the proposed scheme nor have they been made aware of any previous RSA's undertaken on the scheme.
- 1.10 Personal injury collision data obtained from the online Crashmap database shows there has been no personal injury collisions in the vicinity of the proposed highway works during the latest five-year period for which data is available (2020-2024).
- 1.11 The scheme has been examined and this report compiled only regarding the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other Standards or criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. Any audit comments should not be construed as implying that a technical audit has been undertaken in any respect.
- 1.12 Any recommendations included within this report should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with GG 119 Rev 2, and in no way, imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.

## **2.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT**

### **2.1 General**

**2.1.1** No road safety issues identified at this stage.

### **2.2 Local Alignment**

#### **2.2.1 Location: On Cronton Road**

##### **Problem**

**Summary: Proposed narrowed carriageway width may increase the risk of head-on or side-swipe type collisions**

The potential footway widening on both sides of Cronton Road would result in a relatively narrow carriageway width on the bend on Cronton Road. It is noted that large farm type machinery vehicles were observed using Cronton Road during the site visit. The relatively narrow carriageway width on Cronton Road may increase the risk of vehicles encroaching into the opposing lane and may result in head-on or side-swipe type collisions.

It is also noted that the proposed footway widening on the southern side of Cronton Road does not appear to benefit the potential additional pedestrian use from the development and also terminates at its eastern extent when pedestrians would have to cross the carriageway at a location where pedestrian/driver intervisibility is reduced. A reduction of pedestrian and driver intervisibility may increase the risk of pedestrian/vehicular collisions as crossing pedestrians fail to sufficiently appreciate approaching traffic and vice versa.

##### **Recommendation**

It is recommended that any proposed footway widening does not significantly reduce the carriageway width and that the proposed widening of the southern footway is not implemented. The recommendations proposed in Problems 2.4.1 and 2.4.3 below may in part mitigate the potential reduction in footway widening.

### **2.3 Junctions**

**2.3.1** No road safety issues identified at this stage.

## **2.4 Walking, Cycling and Horse Riding**

### **2.4.1 Location: On Cronton Road**

#### **Problem**

**Summary: Omission of uncontrolled pedestrian crossing facilities may increase the risk of pedestrian trips/falls**

The drawings provided for audit do not show any proposed uncontrolled pedestrian crossing facilities on Cronton Road between the westbound bus stop and the proposed development. This may result in pedestrians wishing to cross Cronton Road having to negotiate an excessive kerb height, which may increase the risk of pedestrian trips/falls and create manoeuvrability issues for those with pushchairs or mobility impairments.

#### **Recommendation**

It is recommended that uncontrolled pedestrian crossing facilities with dropped kerbs and buff coloured tactile paving should be provided on Cronton Road, ensuring adequate intervisibility is provided between crossing pedestrians and approaching drivers.

### **2.4.2 Location: At the proposed uncontrolled pedestrian crossings on the Cronton Road Service Road**

#### **Problem**

**Summary: Incorrect tactile paving layout increases the risk of visually impaired pedestrians inadvertently entering the carriageway and potentially being struck by a vehicle**

The proposed tactile paving at the in-line type uncontrolled pedestrian crossings on the Cronton Road Service Road do not appear to have the required minimum depth of tactile paving across the whole width of the dropped kerbs for in-line type uncontrolled crossings. The audit team note that the minimum depth of tactile paving for in-line type crossings is generally 1200mm. A reduced depth of tactile paving results in a lack of appropriate warning for visually impaired pedestrians of the side road ahead and they may inadvertently enter the carriageway, which may increase the risk pedestrian/vehicular collisions.

#### **Recommendations**

It is recommended that the tactile paving layout should be amended to provide a minimum depth of 1200mm tactile paving across the whole width of the dropped kerbs at the in-line type uncontrolled pedestrian crossings.

## **2.4.3 Location: Various locations on the northern side of Cronton Road between the proposed junction and Wheatfield Road**

### **Problem**

**Summary: Overgrown vegetation reduces the available footway width which may increase the risk of pedestrian/vehicular collisions**

During the site visit it was observed that at various locations overgrown hedge/vegetation at the rear of the footway on the northern side of Cronton Road had reduced the available footway width for pedestrians. This may result in pedestrians having to walk in the carriageway if passing other pedestrians which may increase the risk of pedestrian/vehicular collisions.

### **Recommendation**

It is recommended that the existing overgrown hedge/vegetation is cut back to ensure the full available footway width is provided, allowing for seasonal growth and that a regular maintenance regime for cutting back the vegetation is implemented. It is noted that the hedge/vegetation is privately owned by several different land/home owners and is encroaching onto the public highway, therefore, the local highway authority may need to serve notice on the land/home owners to cut back the overgrown hedge/vegetation.

## **2.5 Traffic Signs, Carriageway Markings and Lighting**

### **2.5.1 No road safety issues identified at this stage.**

### 3.0 ROAD SAFETY AUDIT TEAM STATEMENT

We certify that the audit has been carried out in accordance with DMRB GG119 Rev 2.

#### AUDIT TEAM LEADER

Tristan Brooks Bsc (Hons), MBA, CMILT, MCIHT, MSoRSA, NH RSA Cert of Comp

Traffic & Road Safety Engineer

Signed: 

six:TEN Highways & Traffic Ltd

Date: 30 July 2026

#### AUDIT TEAM MEMBER

Rachel Lister BSc (Hons), MSc, MRTPI, MCIHT, MSoRSA

Traffic & Road Safety Engineer

Signed: 

six:TEN Highways & Traffic Ltd

Date: 30 July 2026

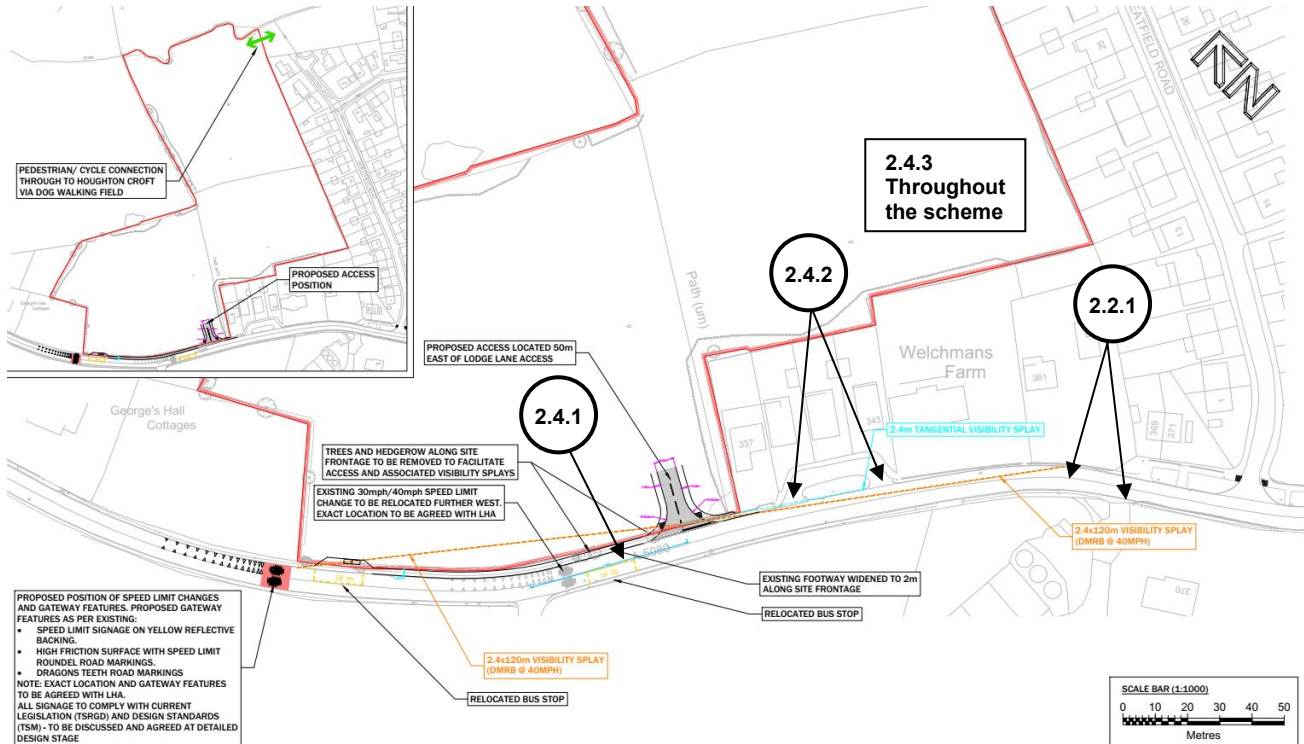
## **APPENDIX ONE**

### **4.0 LIST OF DRAWINGS AND DOCUMENTS SUPPLIED BY THE DESIGN ORGANISATION**

- P25012-001D Proposed Access Strategy
- P25012-003D Refuse Vehicle Swept Path Analysis
- P25012-004-02C Potential Footway Improvements
- P25012-009 Proposed Bus Stop Upgrades
- Traffic Flow Diagrams
- Five-year (2020-2024) personal injury collision data from Crashmap

## APPENDIX TWO

### 5.0 PROBLEM LOCATION PLAN



## APPENDIX THREE

### 6.0 PHOTOGRAPHS



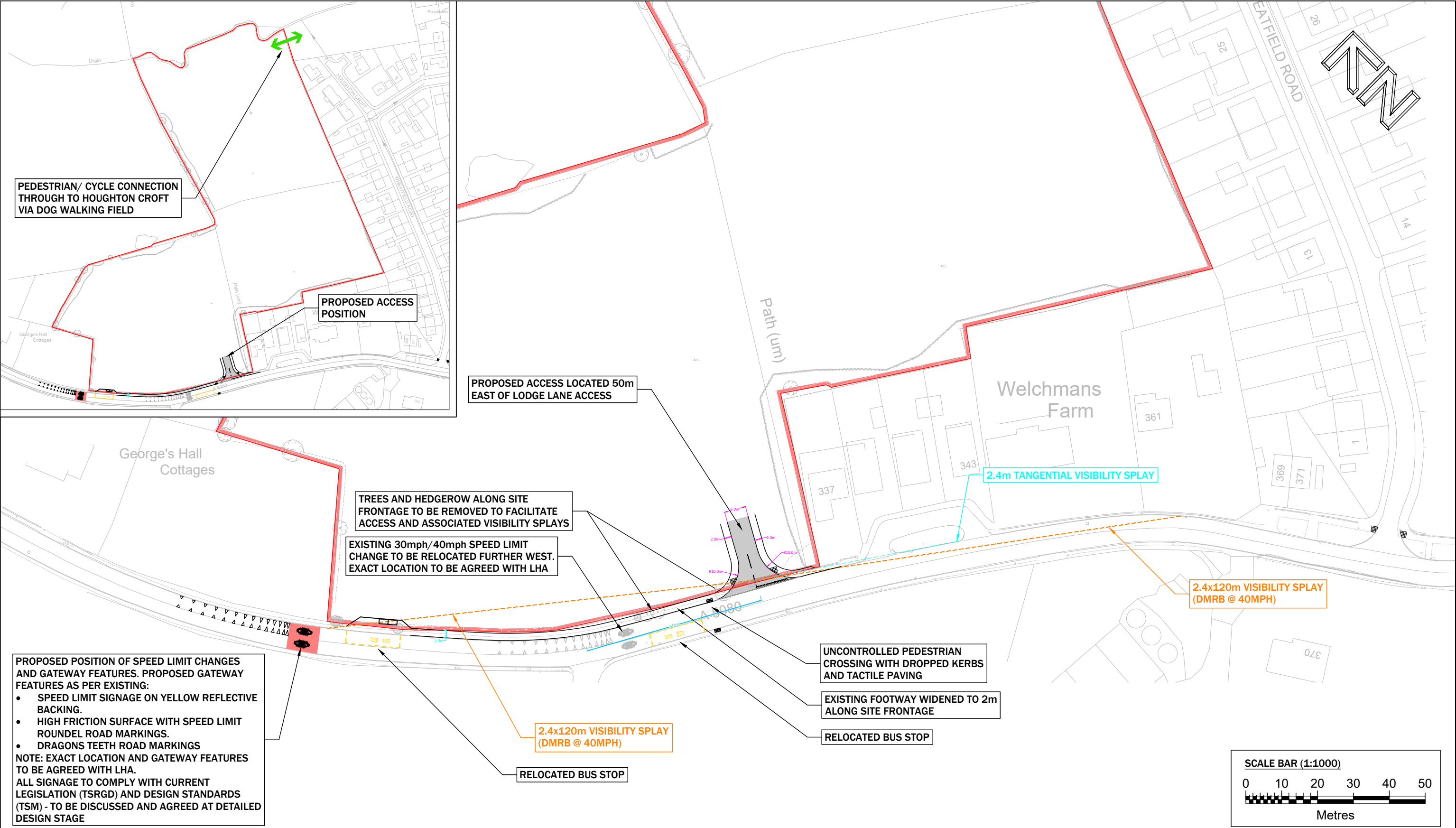
6.1 General view looking east on Cronton Road towards the proposed access.



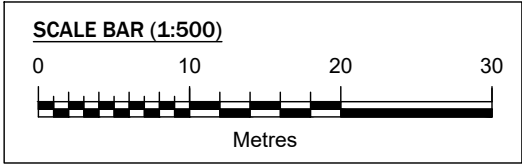
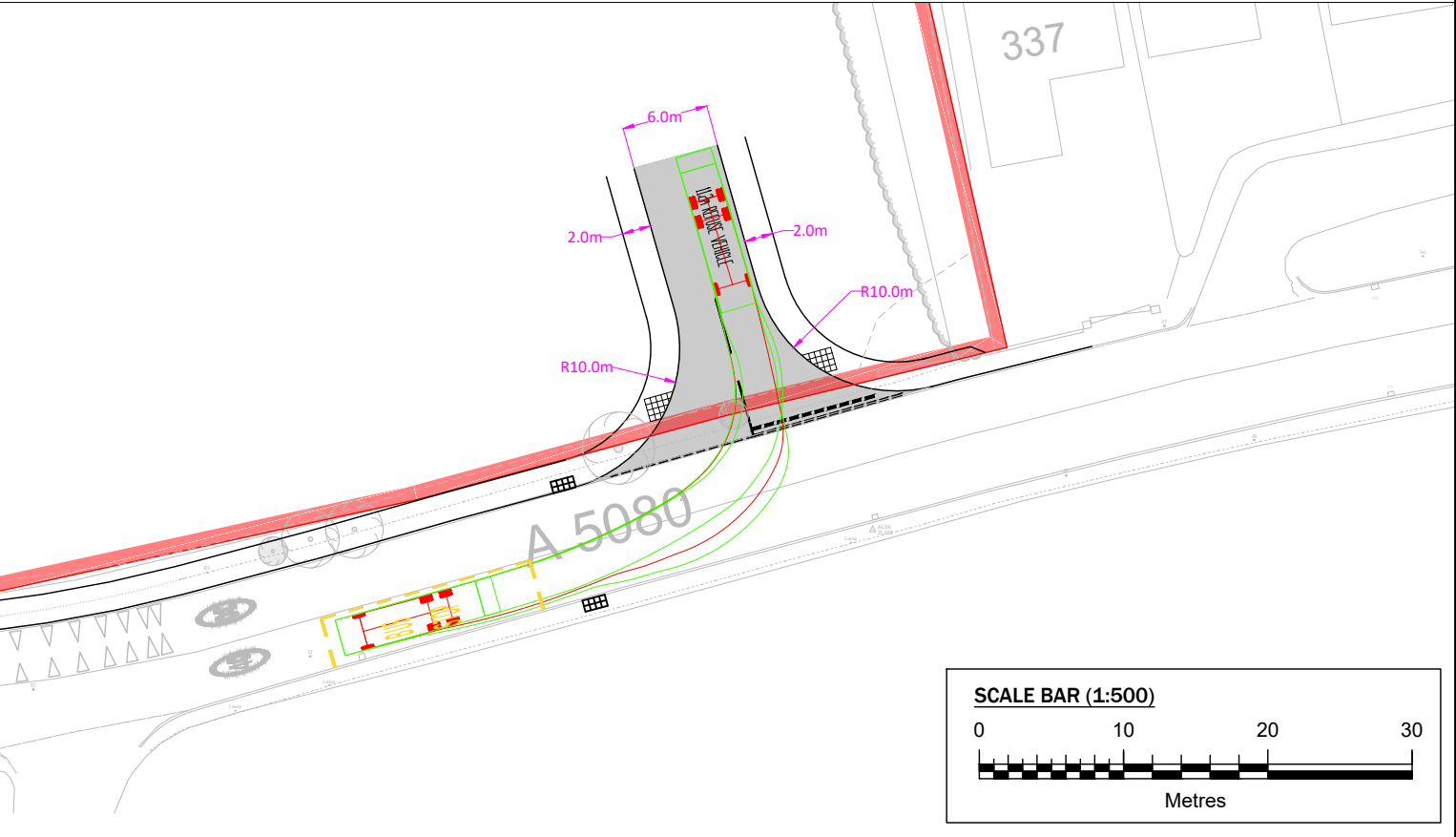
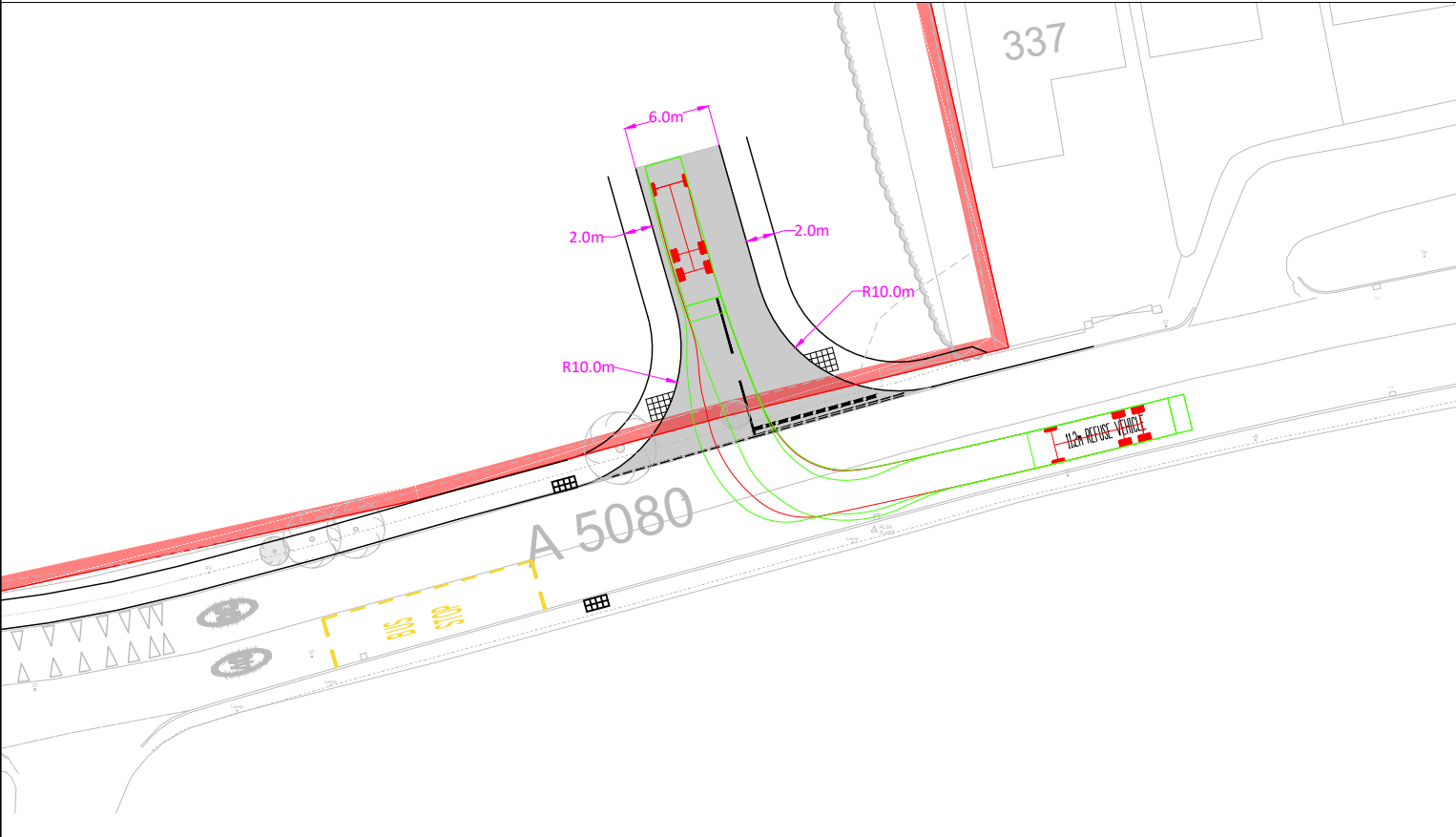
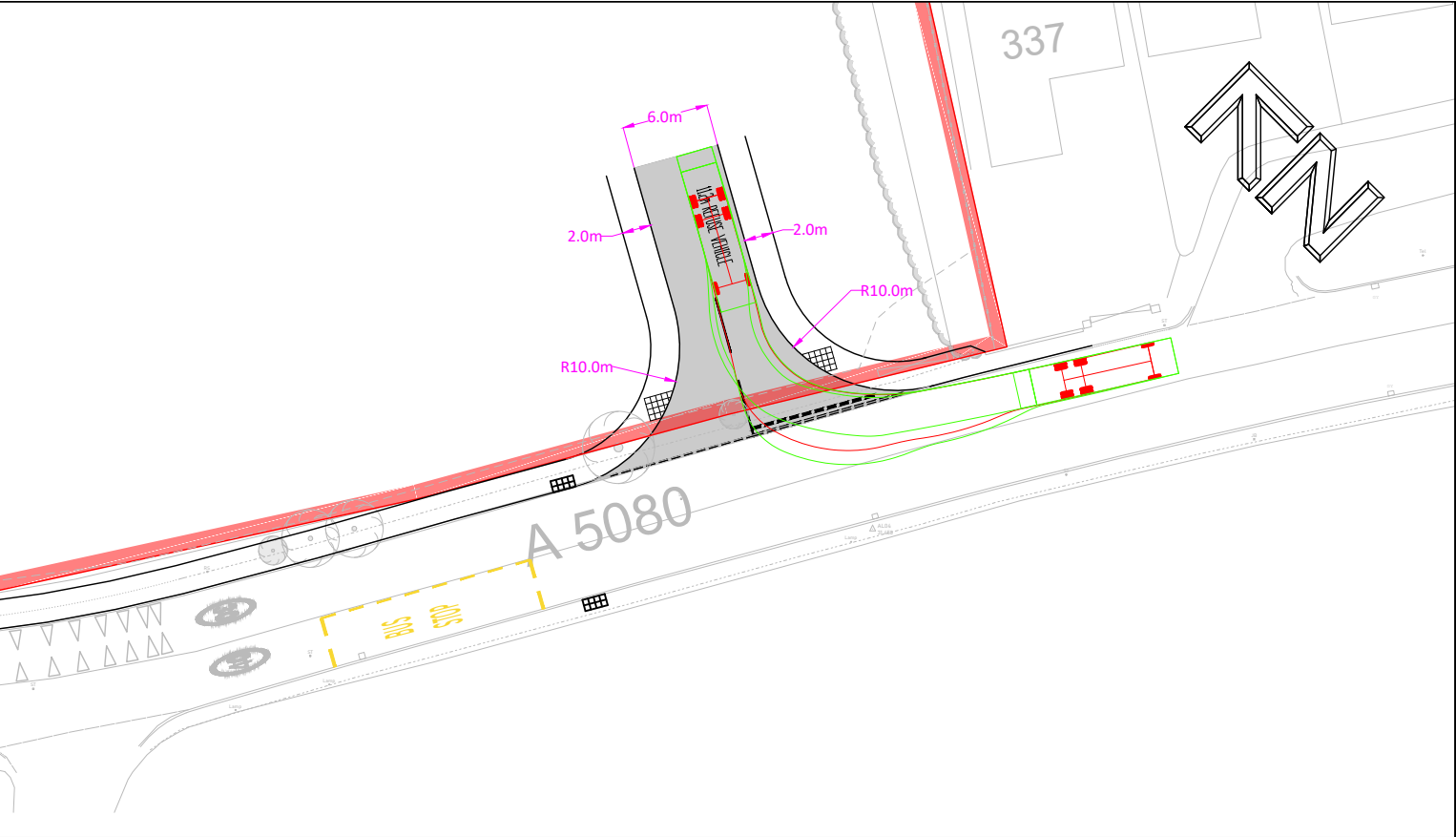
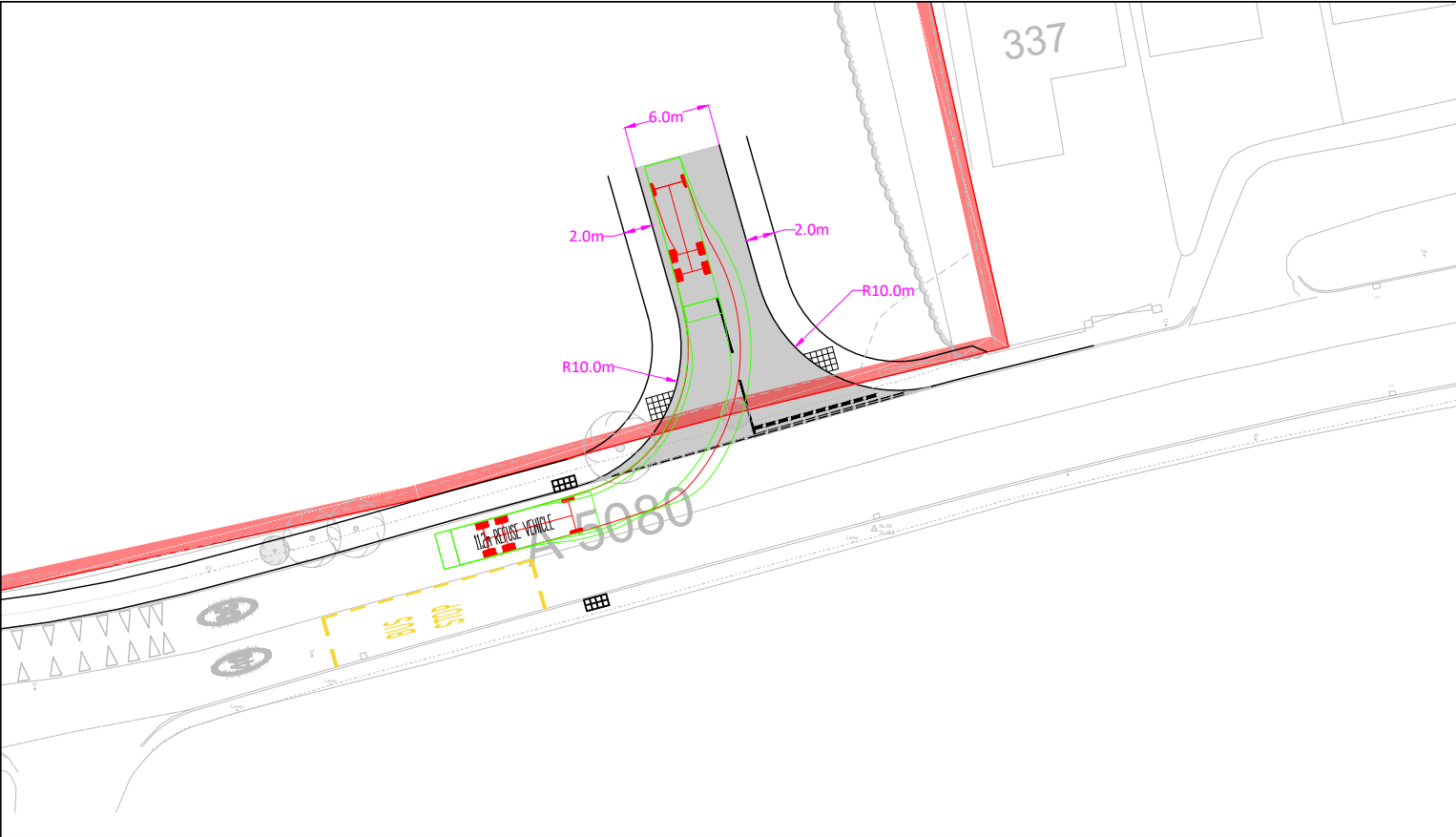
6.2 General view looking west on Cronton Road towards the proposed access.

## APPENDIX II

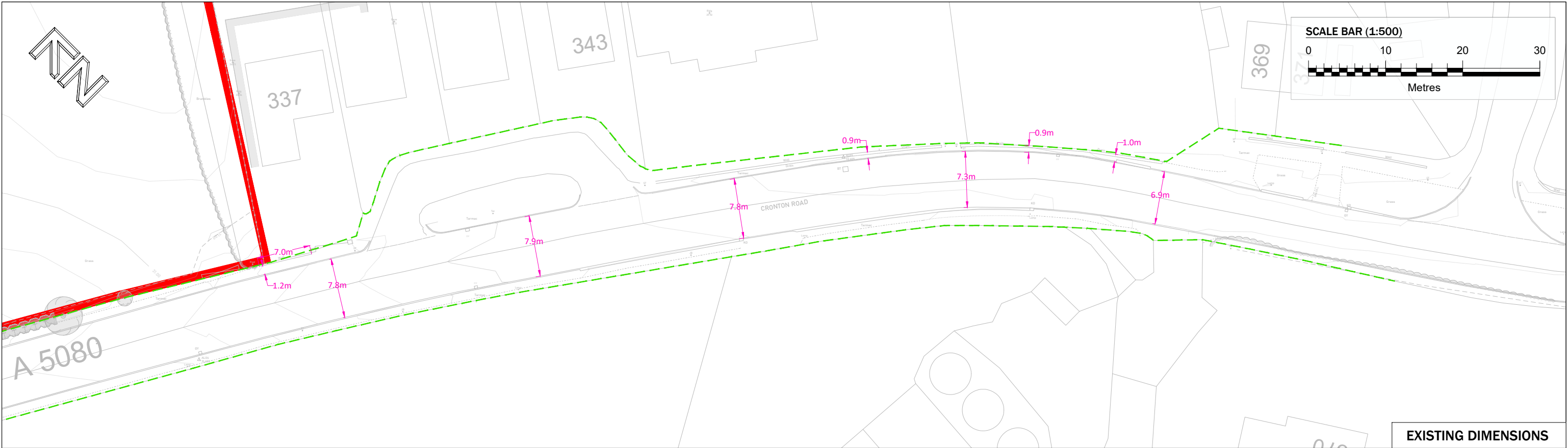
### TECHNICAL DRAWINGS



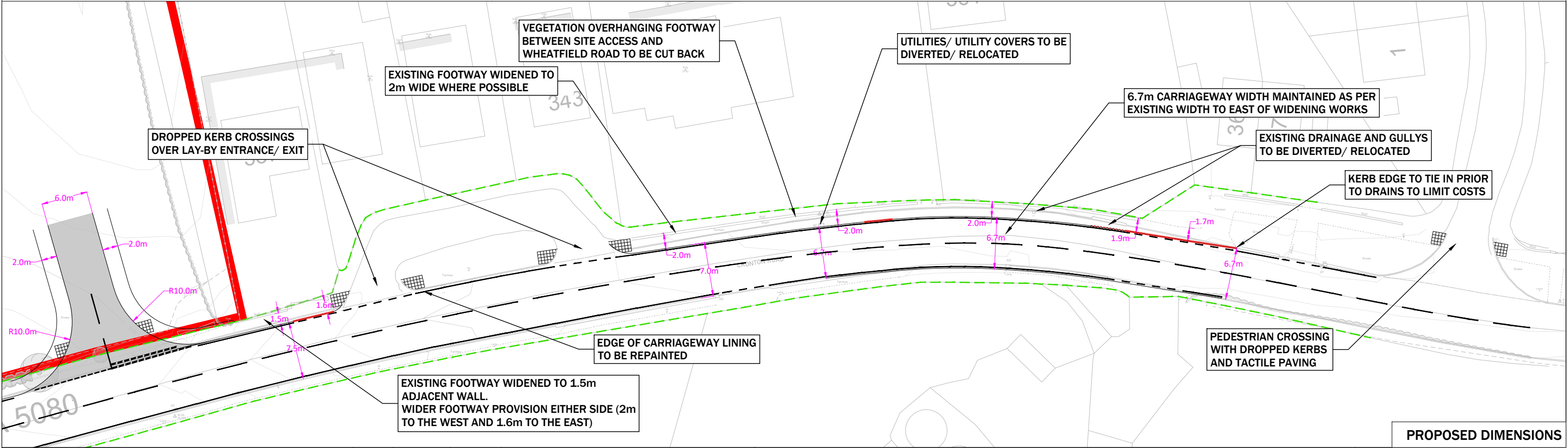
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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--|---------------------------|---------------------------|
| <div><p>9 Hurricane Court<br/>Liverpool International Business Park   Estuary Boulevard   Liverpool   L24 8RL<br/>www.primetp.co.uk   0151 728 1860</p></div> | <div><div><div>E06.08.26ROUPDATED TO STAGE 1 RSA</div><div>D30.06.26ROBUS STOPS ADDED</div><div>C27.01.26VBSCALE BAR</div><div>B04.12.25VBSUBMISSION ACCESS PROPOSALS</div><div>A25.04.25VBTREE SURVEY</div></div></div>                                                                                                                                                                                                                                                                                                     | <div>Project</div> <div>CRONTON ROAD, CRONTON</div>  |  | Drawn by<br>VB            | Issue date<br>29 JAN 2025 |
|                                                                                                                                                                                                                                                 | Scale(s)<br>1:1000 @ A3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                      |  |                           |                           |
|                                                                                                                                                                                                                                                 | <div><div><div>Rev</div><div>Date</div><div>By</div><div>Revision notes</div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                    | <div>Title</div> <div>PROPOSED ACCESS STRATEGY</div> |  | Drawing No<br>P25012-001E |                           |
|                                                                                                                                                                                                                                                 | <div><div>DISCLAIMER</div><div><ul style="list-style-type: none"><li>PROPOSALS ARE PRELIMINARY ONLY. NOT FOR CONSTRUCTION PURPOSES</li><li>PROPOSALS WILL BE SUBJECT TO UTILITY AND DRAINAGE INVESTIGATIONS</li><li>PROPOSALS WILL BE SUBJECT TO EXTENT OF ADOPTED HIGHWAY</li><li>DO NOT SCALE THIS DRAWING. DIMENSIONS ARE FOR REPRESENTATIONAL AND INFORMATIONAL PURPOSES ONLY AND SUBJECT TO DETAILED DESIGN</li><li>THIS DRAWING MUST ONLY BE USED FOR THE PURPOSE FOR WHICH IT HAS BEEN SUPPLIED</li></ul></div></div> |                                                      |  | Status<br>FINAL           |                           |



|                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                               |                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <div><p>9 Hurricane Court<br/>Liverpool International Business Park   Estuary Boulevard   Liverpool   L24 8RL<br/><a href="http://www.primetp.co.uk">www.primetp.co.uk</a>   0151 728 1860</p></div> | <div><div>E06.08.26ROUPDATED TO STAGE 1 RSA</div><div>D30.06.26ROBUS STOPS ADDED</div><div>C27.01.26VBSCALE BAR</div><div>B18.12.25VBACCESS SWEEP PATHS ONLY</div><div>A05.11.25ROSITE LAYOUT UPDATES</div></div>                                                                                                                                                                                                                                                                                                                                                                                                  | <div><div>Project</div><div>CRONTON ROAD, CRONTON</div><div>Title</div><div>SWEPT PATH ANALYSIS OF REFUSE VEHICLE</div></div> | <div><div>Drawn by</div><div>RO</div></div> <div><div>Issue date</div><div>02 MAY 2025</div></div> |
|                                                                                                                                                                                                                                                                                        | <div><div>Rev</div><div>Date</div><div>By</div><div>Revision notes</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                               | <div><div>Scale(s)</div><div>1:500 @ A3</div></div>                                                |
|                                                                                                                                                                                                                                                                                        | <div><div>DISCLAIMER</div><div><div><div>•</div><div>PROPOSALS ARE PRELIMINARY ONLY. NOT FOR CONSTRUCTION PURPOSES</div></div><div><div>•</div><div>PROPOSALS WILL BE SUBJECT TO UTILITY AND DRAINAGE INVESTIGATIONS</div></div><div><div>•</div><div>PROPOSALS WILL BE SUBJECT TO EXTENT OF ADOPTED HIGHWAY</div></div><div><div>•</div><div>DO NOT SCALE THIS DRAWING. DIMENSIONS ARE FOR REPRESENTATIONAL AND INFORMATIONAL PURPOSES ONLY AND SUBJECT TO DETAILED DESIGN</div></div><div><div>•</div><div>THIS DRAWING MUST ONLY BE USED FOR THE PURPOSE FOR WHICH IT HAS BEEN SUPPLIED</div></div></div></div> |                                                                                                                               | <div><div>Drawing No</div><div>P25012-003E</div></div>                                             |
|                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                               | <div><div>Status</div><div>INFORMATION</div></div>                                                 |



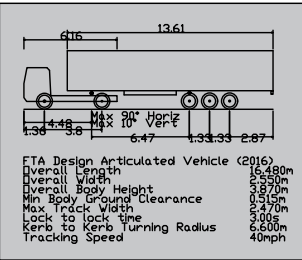
EXISTING DIMENSIONS



PROPOSED DIMENSIONS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                 |               |                           |                                                                               |                                                 |    |                        |   |          |    |                      |   |          |    |           |   |          |    |               |                                                               |                                   |                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------|-------------------------------------------------------------------------------|-------------------------------------------------|----|------------------------|---|----------|----|----------------------|---|----------|----|-----------|---|----------|----|---------------|---------------------------------------------------------------|-----------------------------------|----------------------------------------------|
| <div><p>9 Hurricane Court<br/>Liverpool International Business Park   Estuary Boulevard   Liverpool   L24 8RL<br/><a href="http://www.primetp.co.uk">www.primetp.co.uk</a>   0151 728 1860</p></div>                                                                                                                                                                                                                            | <table><tr><td>D</td><td>06.08.26</td><td>RO</td><td>UPDATED TO STAGE 1 RSA</td></tr><tr><td>C</td><td>27.07.26</td><td>RO</td><td>TACTILE PAVING ADDED</td></tr><tr><td>B</td><td>27.01.26</td><td>VB</td><td>SCALE BAR</td></tr><tr><td>A</td><td>18.12.25</td><td>VB</td><td>MINOR UPDATES</td></tr></table> |               |                           | D                                                                             | 06.08.26                                        | RO | UPDATED TO STAGE 1 RSA | C | 27.07.26 | RO | TACTILE PAVING ADDED | B | 27.01.26 | VB | SCALE BAR | A | 18.12.25 | VB | MINOR UPDATES | <div><div>Project</div><div>CRONTON ROAD, CRONTON</div></div> | <div>Drawn by</div> <div>VB</div> | <div>Issue date</div> <div>31 JUL 2025</div> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | D                                                                                                                                                                                                                                                                                                               | 06.08.26      | RO                        | UPDATED TO STAGE 1 RSA                                                        |                                                 |    |                        |   |          |    |                      |   |          |    |           |   |          |    |               |                                                               |                                   |                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | C                                                                                                                                                                                                                                                                                                               | 27.07.26      | RO                        | TACTILE PAVING ADDED                                                          |                                                 |    |                        |   |          |    |                      |   |          |    |           |   |          |    |               |                                                               |                                   |                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | B                                                                                                                                                                                                                                                                                                               | 27.01.26      | VB                        | SCALE BAR                                                                     |                                                 |    |                        |   |          |    |                      |   |          |    |           |   |          |    |               |                                                               |                                   |                                              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 18.12.25                                                                                                                                                                                                                                                                                                        | VB            | MINOR UPDATES             |                                                                               |                                                 |    |                        |   |          |    |                      |   |          |    |           |   |          |    |               |                                                               |                                   |                                              |
| <div>Rev</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <div>Date</div>                                                                                                                                                                                                                                                                                                 | <div>By</div> | <div>Revision notes</div> | <div>Scale(s)</div> <div>1:1000 @ A3</div>                                    |                                                 |    |                        |   |          |    |                      |   |          |    |           |   |          |    |               |                                                               |                                   |                                              |
| <div>DISCLAIMER</div> <ul style="list-style-type: none"><li>• PROPOSALS ARE PRELIMINARY ONLY, NOT FOR CONSTRUCTION PURPOSES</li><li>• PROPOSALS WILL BE SUBJECT TO UTILITY AND DRAINAGE INVESTIGATIONS</li><li>• PROPOSALS WILL BE SUBJECT TO EXTENT OF ADOPTED HIGHWAY</li><li>• DO NOT SCALE THIS DRAWING. DIMENSIONS ARE FOR REPRESENTATIONAL AND INFORMATIONAL PURPOSES ONLY AND SUBJECT TO DETAILED DESIGN</li><li>• THIS DRAWING MUST ONLY BE USED FOR THE PURPOSE FOR WHICH IT HAS BEEN SUPPLIED</li></ul> |                                                                                                                                                                                                                                                                                                                 |               |                           | <div>Title</div> <div>POTENTIAL FOOTWAY IMPROVEMENTS<br/>- CRONTON ROAD</div> | <div>Drawing No</div> <div>P25012-004-02D</div> |    |                        |   |          |    |                      |   |          |    |           |   |          |    |               |                                                               |                                   |                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                 |               |                           | <div>Status</div> <div>INFORMATION</div>                                      |                                                 |    |                        |   |          |    |                      |   |          |    |           |   |          |    |               |                                                               |                                   |                                              |





|                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |    |                |         |                                                            |                          |                           |
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| <div><p>9 Hurricane Court<br/>Liverpool International Business Park   Estuary Boulevard   Liverpool   L24 8RL<br/>www.primetp.co.uk   0151 728 1860</p></div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |    |                | Project | CRONTON ROAD, CRONTON                                      | Drawn by<br>RO           | Issue date<br>06 AUG 2026 |
|                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |    |                |         |                                                            | Scale(s)                 | 1:1000 @ A3               |
|                                                                                                                                                                                                                                                 | Rev                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Date | By | Revision notes | Title   | SWEPT PATH ANALYSIS OF NARROWED<br>SECTION OF CRONTON ROAD | Drawing No<br>P25012-010 | Status<br>INFORMATION     |
|                                                                                                                                                                                                                                                 | DISCLAIMER <ul style="list-style-type: none"><li>• PROPOSALS ARE PRELIMINARY ONLY, NOT FOR CONSTRUCTION PURPOSES</li><li>• PROPOSALS WILL BE SUBJECT TO UTILITY AND DRAINAGE INVESTIGATIONS</li><li>• PROPOSALS WILL BE SUBJECT TO EXTENT OF ADOPTED HIGHWAY</li><li>• DO NOT SCALE THIS DRAWING. DIMENSIONS ARE FOR REPRESENTATIONAL AND INFORMATIONAL PURPOSES ONLY AND SUBJECT TO DETAILED DESIGN</li><li>• THIS DRAWING MUST ONLY BE USED FOR THE PURPOSE FOR WHICH IT HAS BEEN SUPPLIED</li></ul> |      |    |                |         |                                                            |                          |                           |

| Rev                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date | By | Revision notes |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----|----------------|
| <b>DISCLAIMER</b> <ul style="list-style-type: none"><li>PROPOSALS ARE PRELIMINARY ONLY, NOT FOR CONSTRUCTION PURPOSES</li><li>PROPOSALS WILL BE SUBJECT TO UTILITY AND DRAINAGE INVESTIGATIONS</li><li>PROPOSALS WILL BE SUBJECT TO EXTENT OF ADOPTED HIGHWAY</li><li>DO NOT SCALE THIS DRAWING. DIMENSIONS ARE FOR REPRESENTATIONAL AND INFORMATIONAL PURPOSES ONLY AND SUBJECT TO DETAILED DESIGN</li><li>THIS DRAWING MUST ONLY BE USED FOR THE PURPOSE FOR WHICH IT HAS BEEN SUPPLIED</li></ul> |      |    |                |

## APPENDIX III

### HBC TRIP RATE SUMMARY

| Summary of Trip Generation Surveys Provided by Halton Borough Council (September 2026) |            |            |          |            |              |          |            |              |                                                                                    |
|----------------------------------------------------------------------------------------|------------|------------|----------|------------|--------------|----------|------------|--------------|------------------------------------------------------------------------------------|
| Location                                                                               | Date       | No. dwells | AM Peak  |            |              | PM Peak  |            |              | Prime Observations                                                                 |
|                                                                                        |            |            | Arrivals | Departures | Total        | Arrivals | Departures | Total        |                                                                                    |
| Foundry Ln/Palmarsh Rd WA8 8WG (Barratt Homes)                                         | 09/11/2022 | 187        | 30       | 74         | 104          | -        | -          | -            | Development is in Hale Bank 3.5 miles from site                                    |
|                                                                                        |            |            | 0.160    | 0.396      | 0.556        | -        | -          | -            |                                                                                    |
| Birket Dr & Hornsmill Av (Redrow)                                                      | Not stated | 126        | -        | -          | 110          | -        | -          | 111          | Executive homes development, likely to have high trip rates                        |
|                                                                                        |            |            | -        | -          | 0.873        | -        | -          | 0.881        | Site has two accesses and internal connection, some trips may be through movements |
| Barrows Grn Ln                                                                         | Not stated | 148        | -        | -          | 102          | -        | -          | 98           | Unclear what roads have been surveyed, Barrows Grn Ln is a through road            |
|                                                                                        |            |            | -        | -          | 0.689        | -        | -          | 0.662        | Suspect it may have been Redrow St Wilfred's Rd development                        |
| Upton Grange                                                                           | 08/11/2022 | 172        | 38       | 71         | 109          | -        | -          | -            | Assumed to be Upton Grange west of Old Upton Lane                                  |
|                                                                                        |            |            | 0.221    | 0.413      | 0.634        | -        | -          | -            |                                                                                    |
| Finsbury Park                                                                          | Oct-21     | 127        | -        | -          | 95           | -        | -          | -            | Development is very close to Watkinson Way &                                       |
|                                                                                        |            |            | -        | -          | 0.748        | -        | -          | -            | may attract high car use given ease of access to M62                               |
| <b>Average</b>                                                                         | -          | <b>152</b> | -        | -          | <b>104</b>   | -        | -          | <b>104.5</b> |                                                                                    |
|                                                                                        | -          | -          | -        | -          | <b>0.684</b> | -        | -          | <b>0.688</b> |                                                                                    |

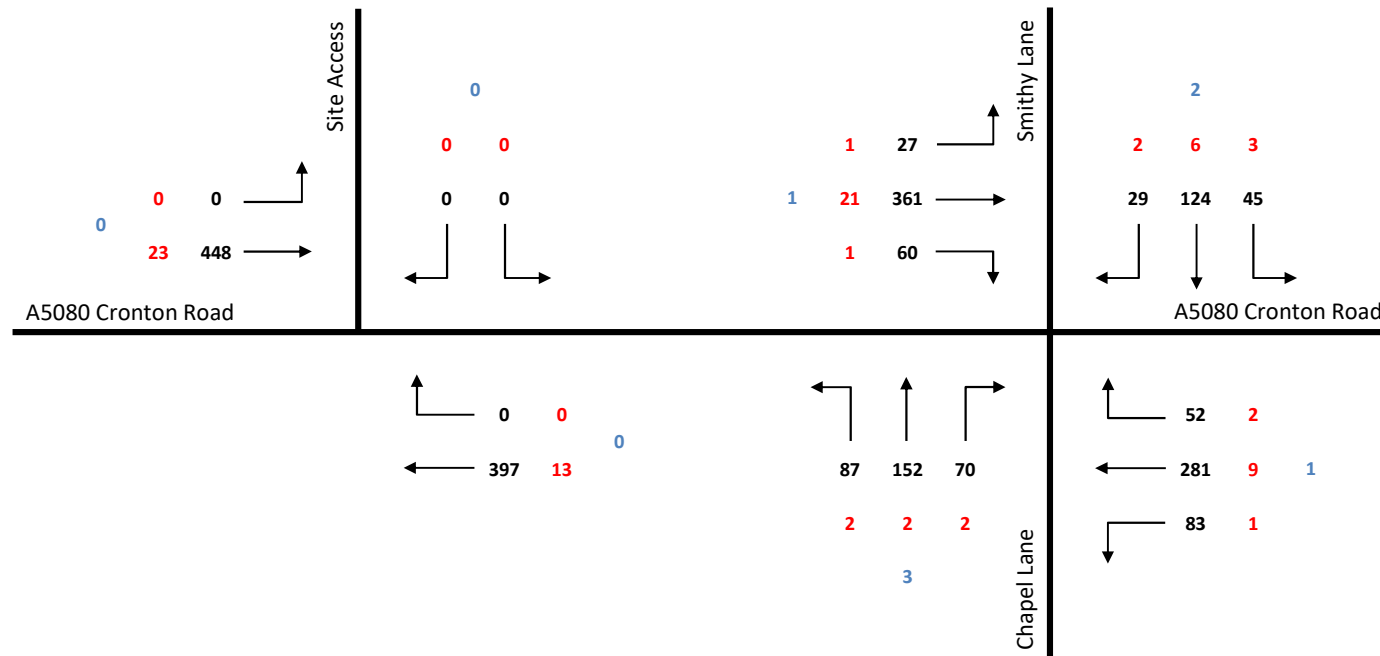
## APPENDIX IV

### SENSITIVITY TEST FLOW DIAGRAMS

| Traffic Flow Diagrams |                                                       |                    |                |
|-----------------------|-------------------------------------------------------|--------------------|----------------|
| Reference             | Scenario                                              | Peak               | Derivation     |
| 1                     | Flow Diagram 1 - 2025 Observed Flows                  | AM (08:00 - 09:00) | Raw Data       |
| 2                     | Flow Diagram 2 - 2025 Observed Flows                  | PM (16:45 - 17:45) | Raw Data       |
| 3                     | Flow Diagram 3 - 2032 Base Flows                      | AM (08:00 - 09:00) | 1*TEMPPro/NRTP |
| 4                     | Flow Diagram 4 - 2032 Base Flows                      | PM (16:45 - 17:45) | 2*TEMPPro/NRTP |
| 5                     | Flow Diagram 5 - Committed Development Flows          | AM (08:00 - 09:00) | 23/01037/OUT   |
| 6                     | Flow Diagram 6 - Committed Development Flows          | PM (17:00 - 18:00) | 23/01037/OUT   |
| 7                     | Flow Diagram 7 - Committed Development Flows          | AM (08:00 - 09:00) | 22/00587/FUL   |
| 8                     | Flow Diagram 8 - Committed Development Flows          | PM (17:00 - 18:00) | 22/00587/FUL   |
| 9                     | Flow Diagram 9 - Committed Development Flows          | AM (08:00 - 09:00) | 22/00587/FUL   |
| 10                    | Flow Diagram 10 - Committed Development Flows         | PM (17:00 - 18:00) | 22/00587/FUL   |
| 11                    | Flow Diagram 11 - Committed Development Flows         | AM (08:00 - 09:00) | 20/00494/FUL   |
| 12                    | Flow Diagram 12 - Committed Development Flows         | PM (17:00 - 18:00) | 20/00494/FUL   |
| 13                    | Flow Diagram 13 - Total Committed Development Flows   | AM (08:00 - 09:00) | 5+7+9+11       |
| 14                    | Flow Diagram 14 - Total Committed Development Flows   | PM (17:00 - 18:00) | 6+8+10+12      |
| 15                    | Flow Diagram 15 - 2032 Without Development Flows      | AM (08:00 - 09:00) | 3+13           |
| 16                    | Flow Diagram 16 - 2032 Without Development Flows      | PM (16:45 - 17:45) | 4+14           |
| 17                    | Flow Diagram 17 - Development Distribution            | Both               | MTW Census     |
| 18                    | Flow Diagram 18 - Development Flows                   | AM (08:00 - 09:00) | 5*TRICS        |
| 19                    | Flow Diagram 19 - Development Flows                   | PM (16:45 - 17:45) | 6*TRICS        |
| 20                    | Flow Diagram 20 - 2032 With Development Flows         | AM (08:00 - 09:00) | 15+18          |
| 21                    | Flow Diagram 21 - 2032 With Development Flows         | PM (16:45 - 17:45) | 16+19          |
| 22                    | Flow Diagram 22 - Cumulative ST Flows                 | AM (08:00 - 09:00) | Pex Hill TA    |
| 23                    | Flow Diagram 23 - Cumulative ST Flows                 | PM (16:45 - 17:45) | Pex Hill TA    |
| 24                    | Flow Diagram 24 - 2032 Without Development Flows (ST) | AM (08:00 - 09:00) | 15+22          |
| 25                    | Flow Diagram 25 - 2032 Without Development Flows (ST) | PM (16:45 - 17:45) | 16+23          |
| 26                    | Flow Diagram 26 - 2032 With Development Flows (ST)    | AM (08:00 - 09:00) | 18+24          |
| 27                    | Flow Diagram 27 - 2032 With Development Flows (ST)    | PM (16:45 - 17:45) | 19+25          |

**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 1 - 2025 Observed Flows  
**Peak:** AM (08:00 - 09:00)

**Notes:** All flows are in vehicles  
Light Vehicles (cars & LGVs) in black  
Heavy Vehicles (HGVs & buses) in red  
Observed queues in blue



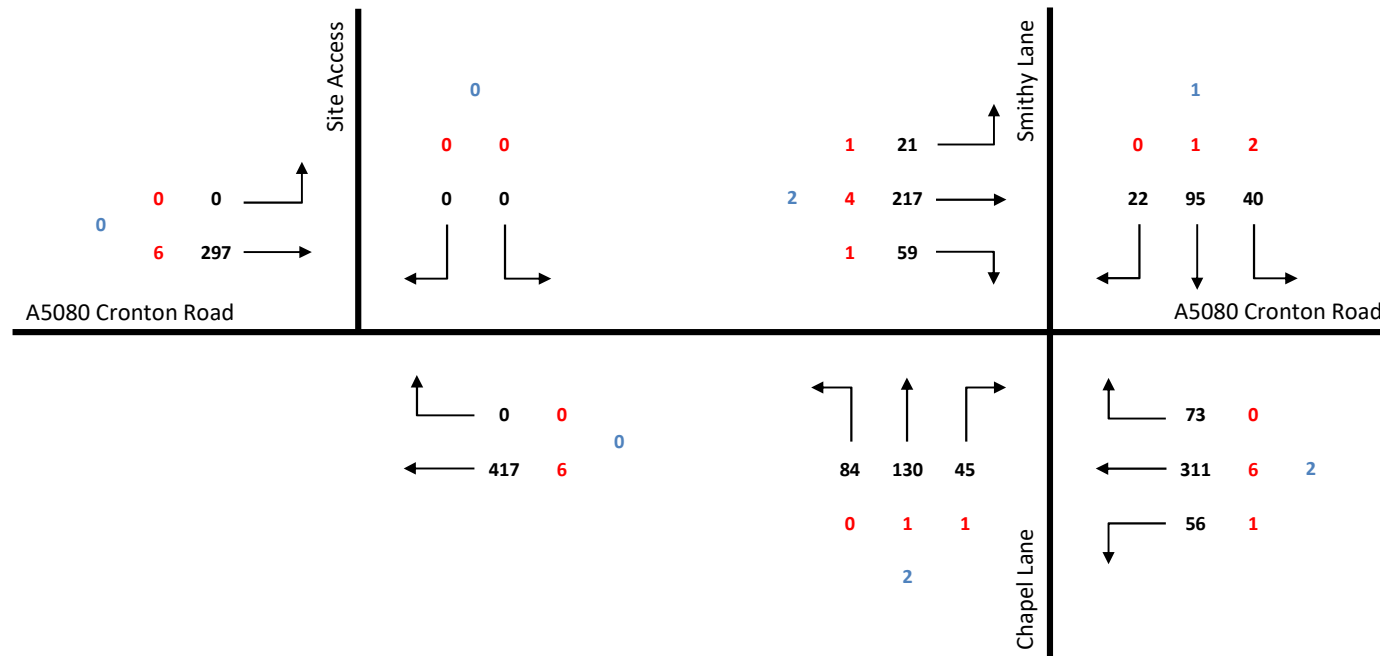
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 2 - 2025 Observed Flows  
**Peak:** PM (16:45 - 17:45)

**Notes:** All flows are in vehicles

Light Vehicles (cars & LGVs) in black

Heavy Vehicles (HGVs & buses) in red

Observed queues in blue



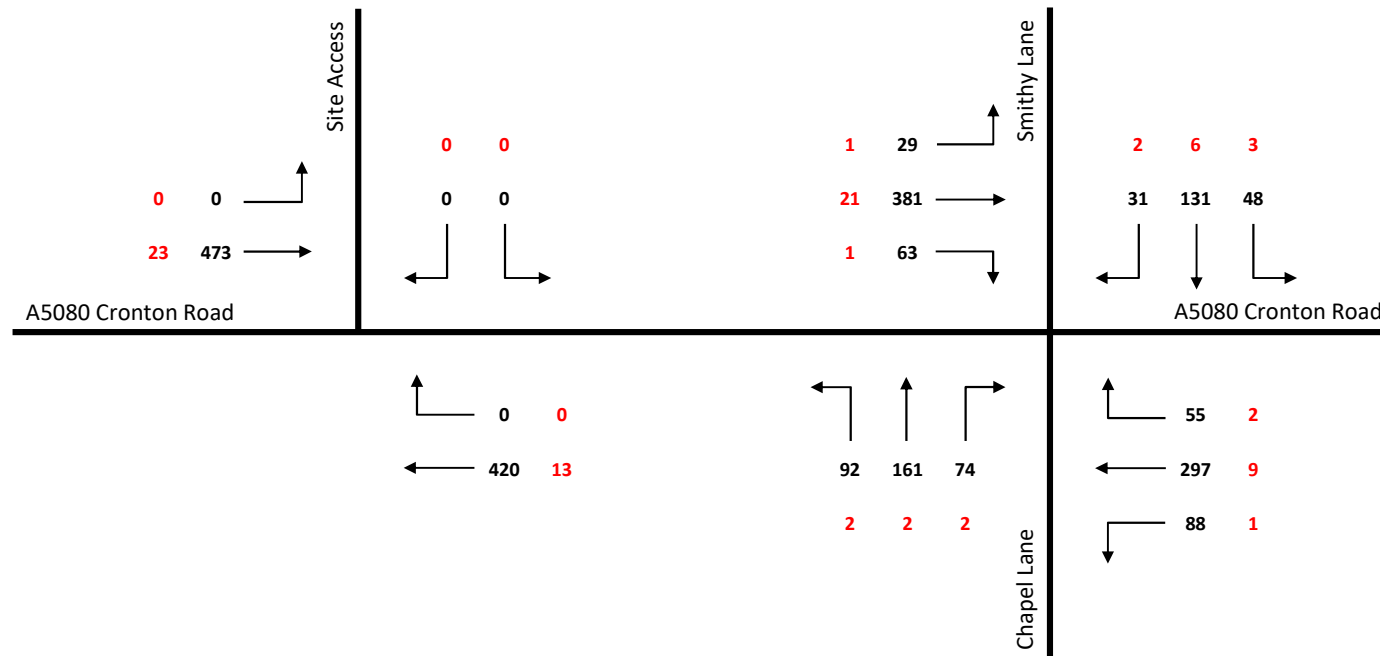
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 3 - 2032 Base Flows  
**Peak:** AM (08:00 - 09:00)

**Notes:** All flows are in vehicles

Light Vehicles (cars & LGVs) in black

Heavy Vehicles (HGVs & buses) in red

Observed queues in blue



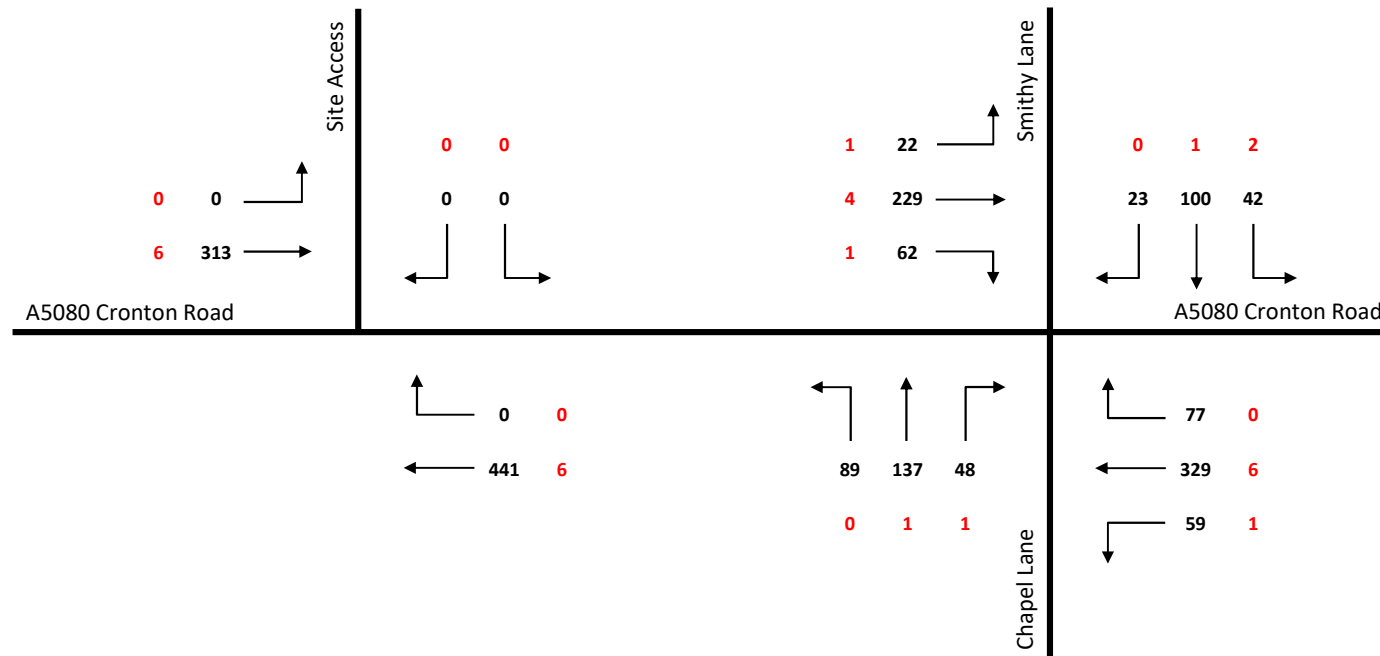
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 4 - 2032 Base Flows  
**Peak:** PM (16:45 - 17:45)

**Notes:** All flows are in vehicles

Light Vehicles (cars & LGVs) in black

Heavy Vehicles (HGVs & buses) in red

Observed queues in blue



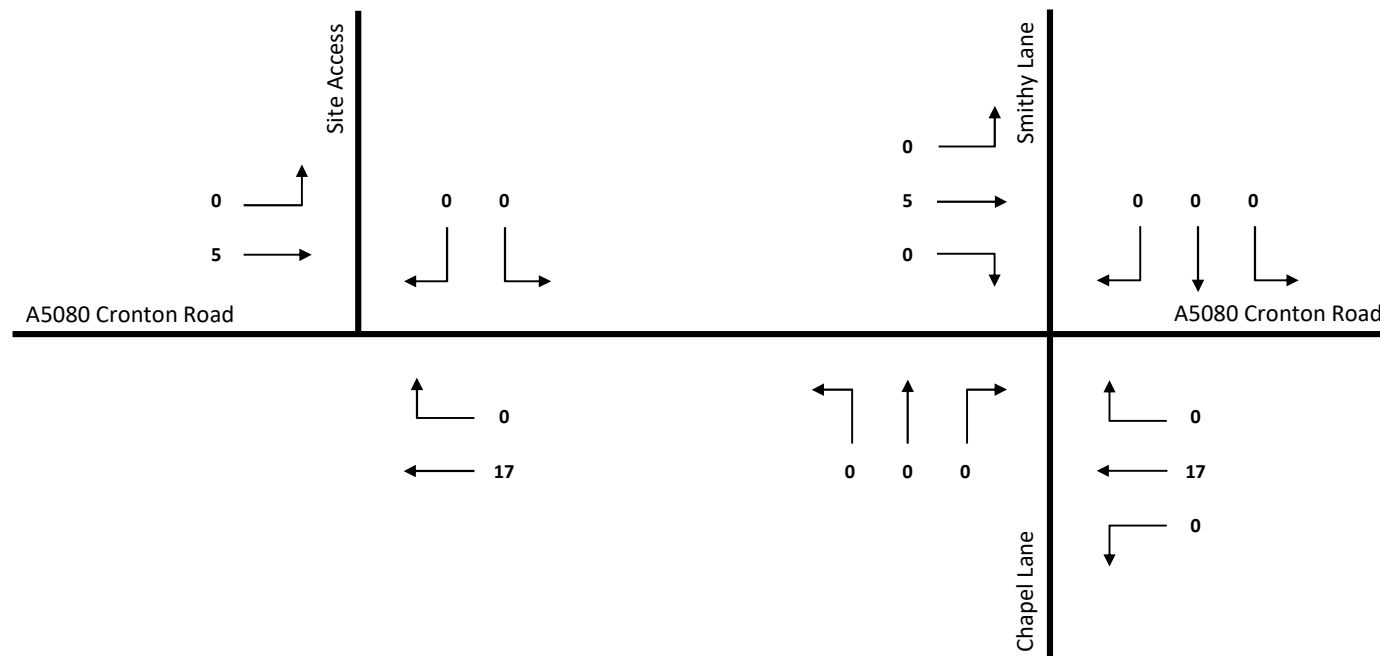
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 5 - Committed Development Flows  
**Peak:** AM (08:00 - 09:00)

**Notes:** App ref: 22/00318/FUL - Lunts Heath, Widnes

Traffic flows extracted from 'Miller Homes Lunts Heath AM' flow diagram in Appendix H of the

Land at Chapel Lane, Halton' TA (Ref: 23/01037/OUT)

All flows are in vehicles

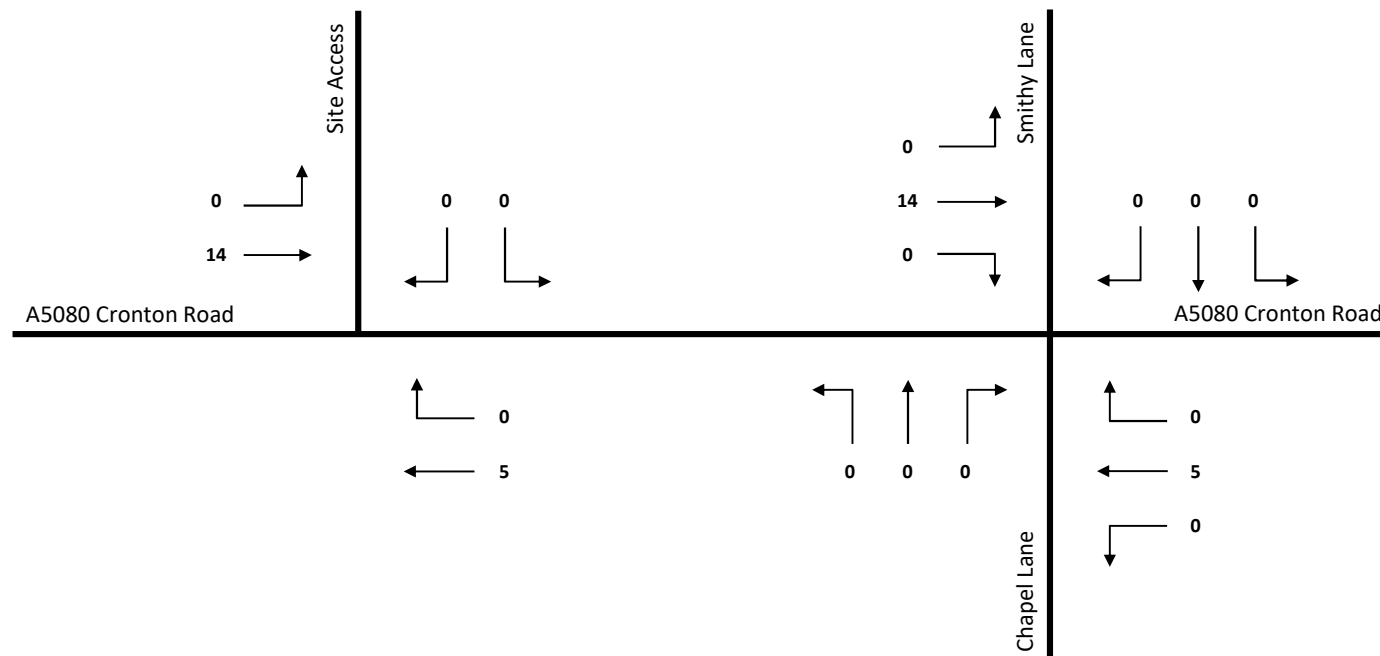


**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 6 - Committed Development Flows  
**Peak:** PM (16:45 - 17:45)

**Notes:** App ref: 22/00318/FUL - Lunts Heath, Widnes

Traffic flows extracted from 'Miller Homes Lunts Heath PM' flow diagram in Appendix H of the  
Land at Chapel Lane, Halton' TA (Ref: 23/01037/OUT)

All flows are in vehicles



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 7 - Committed Development Flows  
**Peak:** AM (08:00 - 09:00)

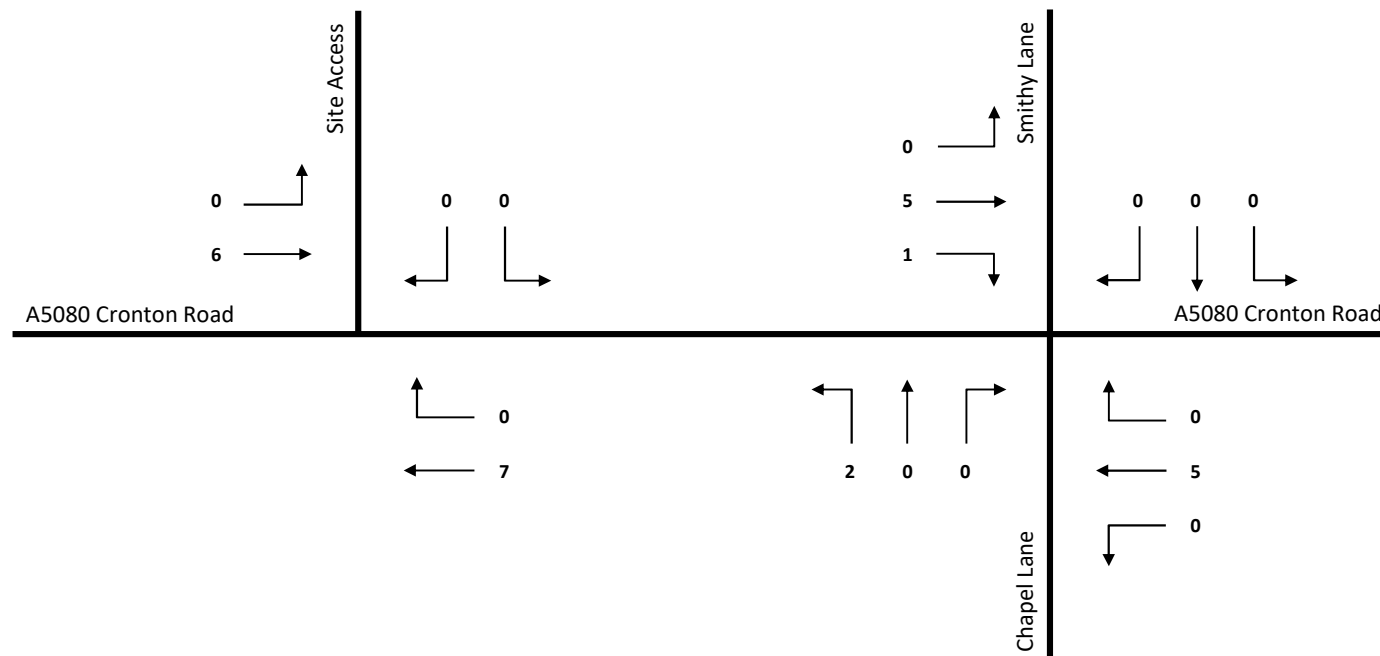
**Notes:** Halsnead Garden Village

Traffic flows extracted from 'Committed Development Flows' in Appendix C of the Mercury 62 TA Addendum (ref: 22/00587/FUL)

AM Committed Development Halsnead 2032 08:00 - 09:00

Flows at Cronton Road/Chapel Lane/Smithy Lane junction split between AM Observed turning count proportions

All flows are in vehicles



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 8 - Committed Development Flows  
**Peak:** PM (16:45 - 17:45)

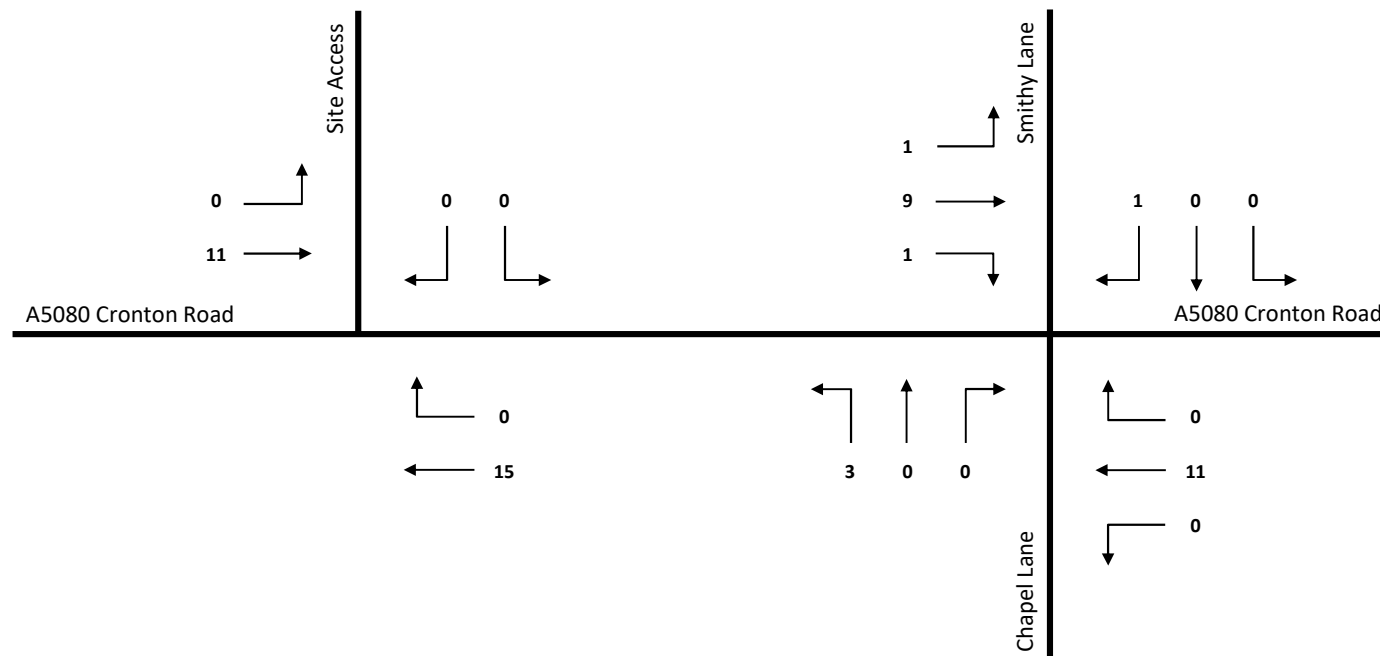
**Notes:** Halsnead Garden Village

Traffic flows extracted from 'Committed Development Flows' in Appendix C of the Mercury 62 TA Addendum (ref: 22/00587/FUL)

PM Committed Development Halsnead 2032 17:00 - 18:00

Flows at Cronton Road/Chapel Lane/Smithy Lane junction split between PM Observed turning count proportions

All flows are in vehicles



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 9 - Committed Development Flows  
**Peak:** AM (08:00 - 09:00)

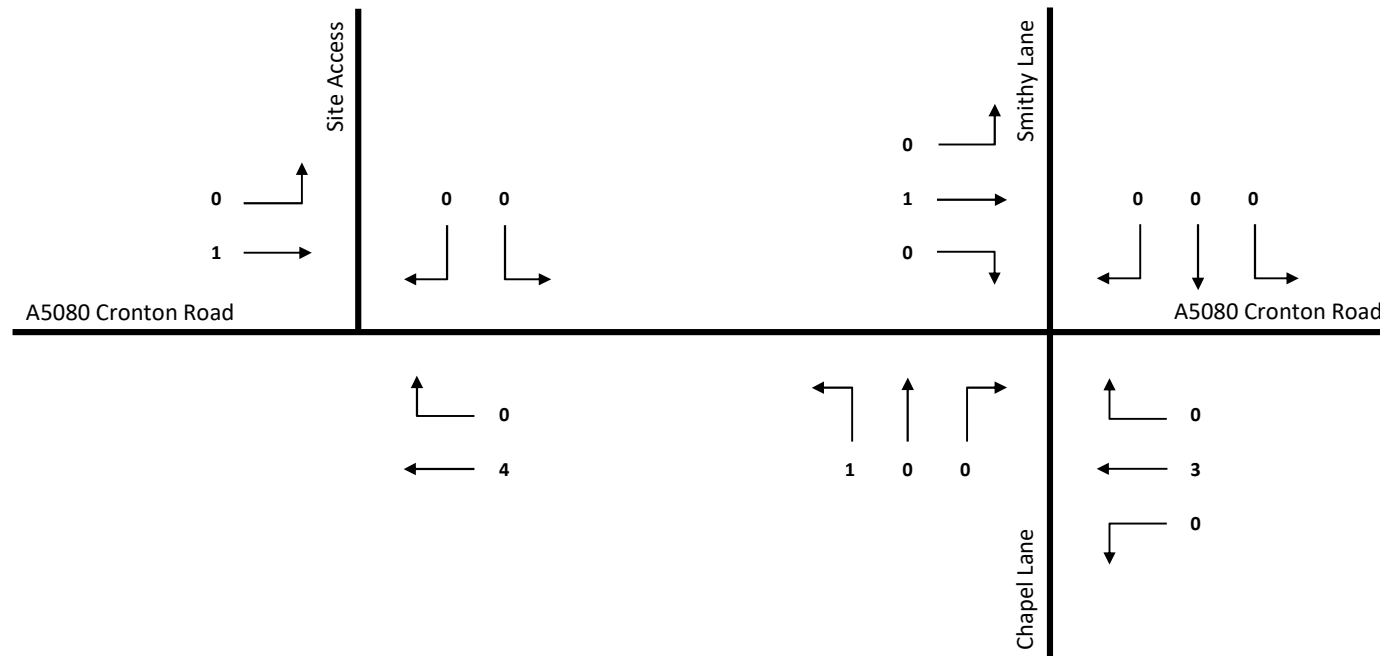
**Notes:** App ref: 22/00587/FUL - Mercury 62, Cronton Road

Traffic flows extracted from 'Development Traffic Flows' in Appendix B of the TA Addendum

Light Vehicles (cars & LGVs) in black - (combined Development Traffic AM Peak 08:00-09:00 Car Only & LGV Only)

No HGV traffic as TA Addendum assumed all HGVs would access Mercury 62 site via Tarbock Island

Flows at Cronton Road/Chapel Lane/Smithy Lane junction split between AM Observed turning count proportions



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 10 - Committed Development Flows  
**Peak:** PM (16:45 - 17:45)

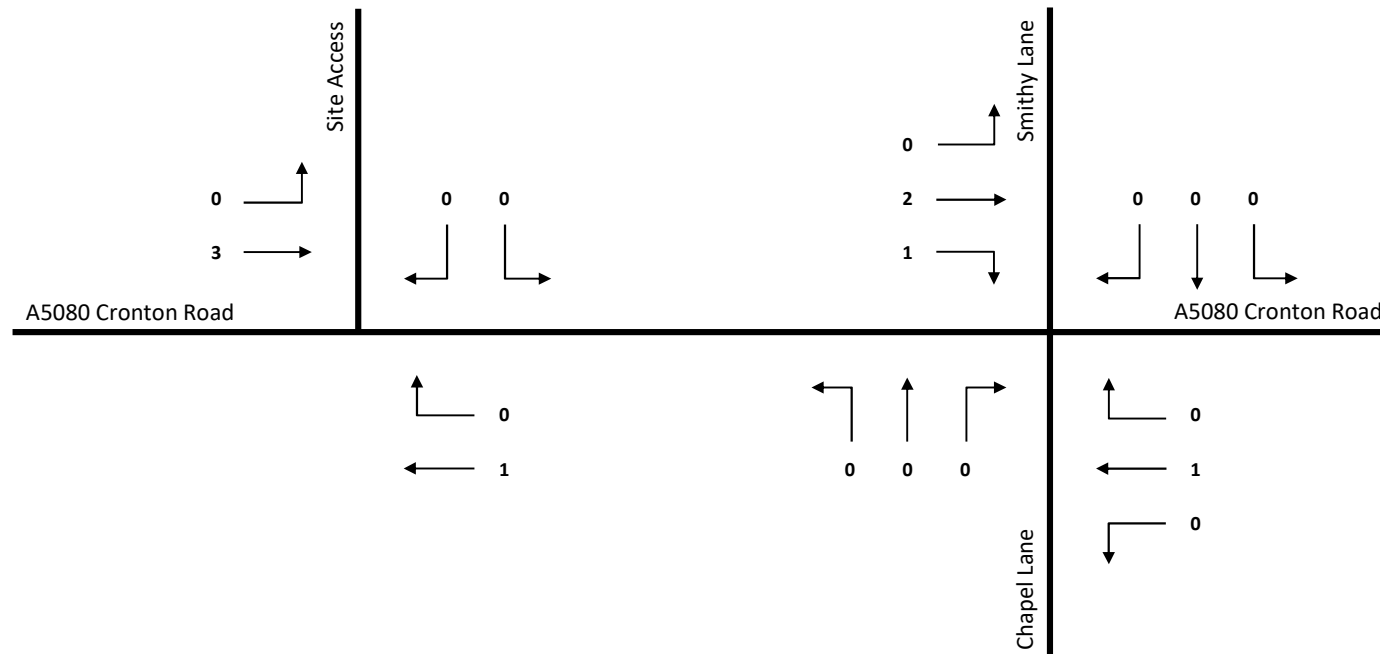
**Notes:** App ref: 22/00587/FUL - Mercury 62, Cronton Road

Traffic flows extracted from 'Development Traffic Flows' in Appendix B of the TA Addendum

Light Vehicles (cars & LGVs) in black - (combined Development Traffic PM Peak 17:00-18:00 Car Only & LGV Only)

No HGV traffic as TA Addendum assumed all HGVs would access Mercury 62 site via Tarbock Island

Flows at Cronton Road/Chapel Lane/Smithy Lane junction split between PM Observed turning count proportions



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 11 - Committed Development Flows  
**Peak:** AM (08:00 - 09:00)

**Notes:** App ref: 20/00494/FUL - Symmetry Park

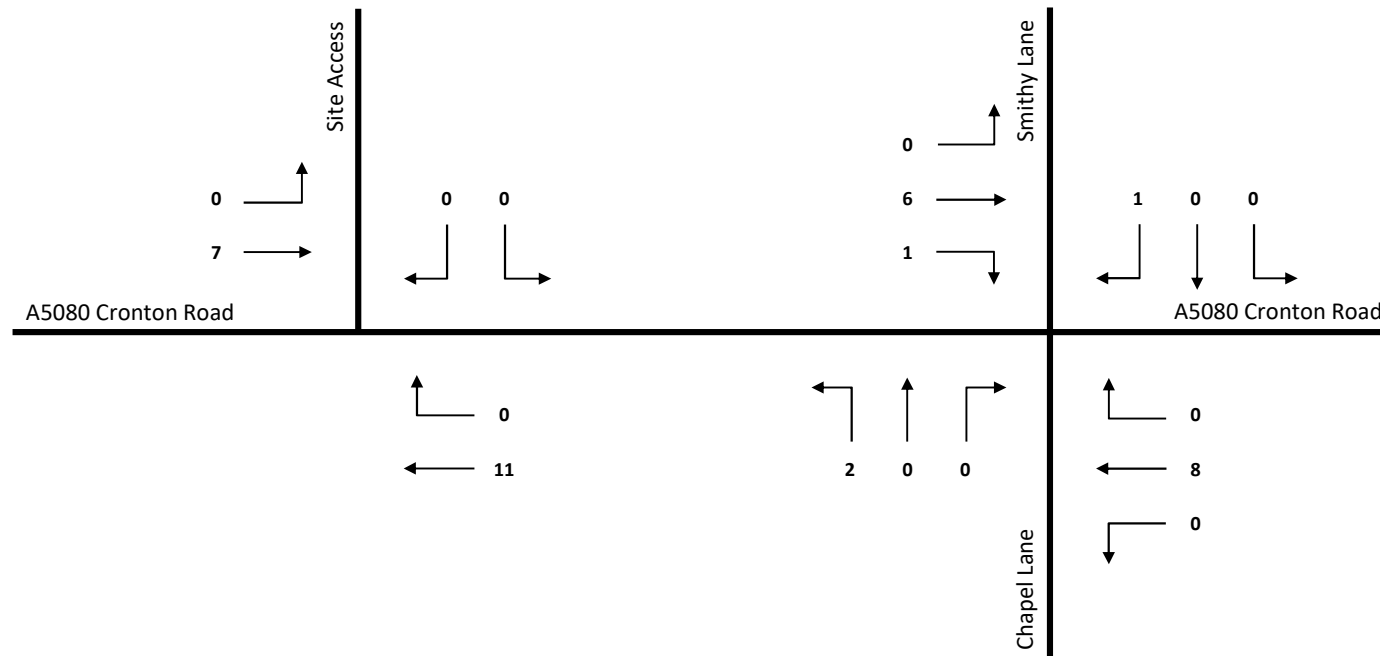
Traffic flows derived by subtracting Phase 1 Traffic Flows from Full Development Flows for 08:00-09:00

Appendix B of Technical Note 06: Tarbock Island Junction VISSIM Modelling Assessment

Flows at Cronton Road/Chapel Lane/Smithy Lane junction split between AM Observed turning count proportions

Light Vehicles (cars & LGVs) in black

No HGV traffic as TA Addendum assumed all HGVs would access Symmetry site via Tarbock Island



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 12 - Committed Development Flows  
**Peak:** PM (16:45 - 17:45)

**Notes:** App ref: 20/00494/FUL - Symmetry Park

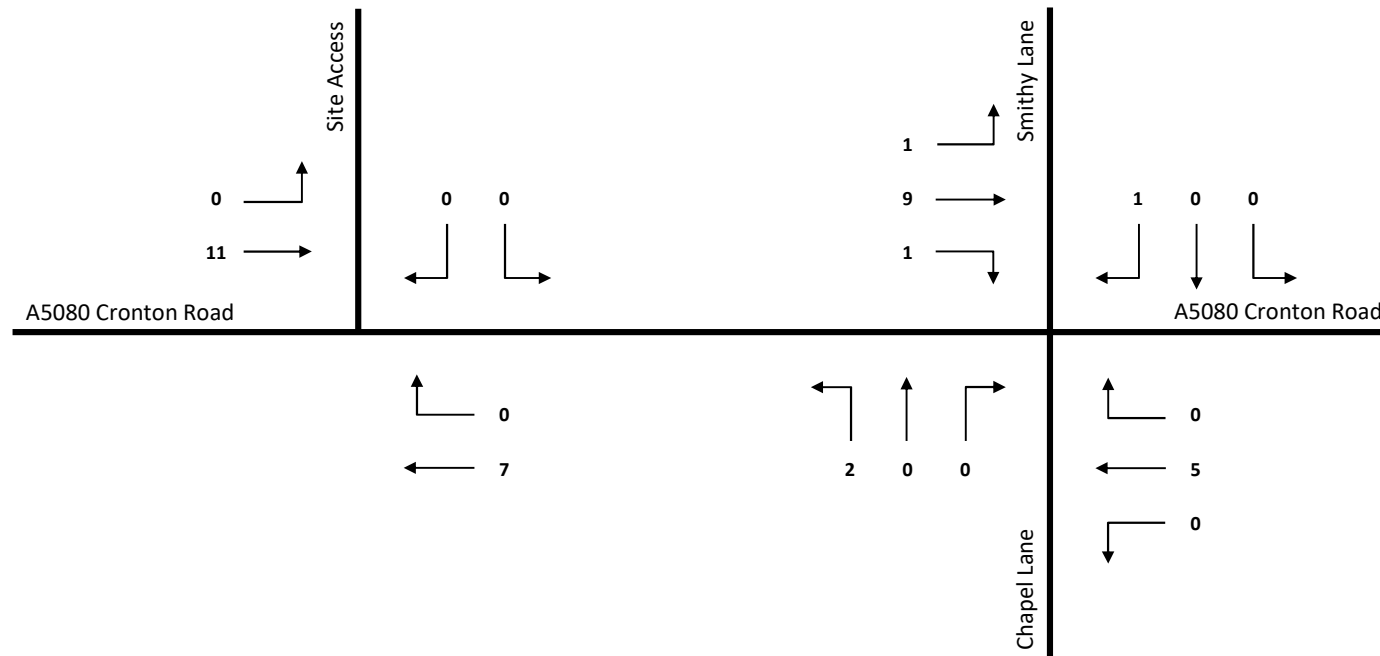
Traffic flows derived by subtracting Phase 1 Traffic Flows from Full Development Flows for 17:00-18:00

Appendix B of Technical Note 06: Tarbock Island Junction VISSIM Modelling Assessment

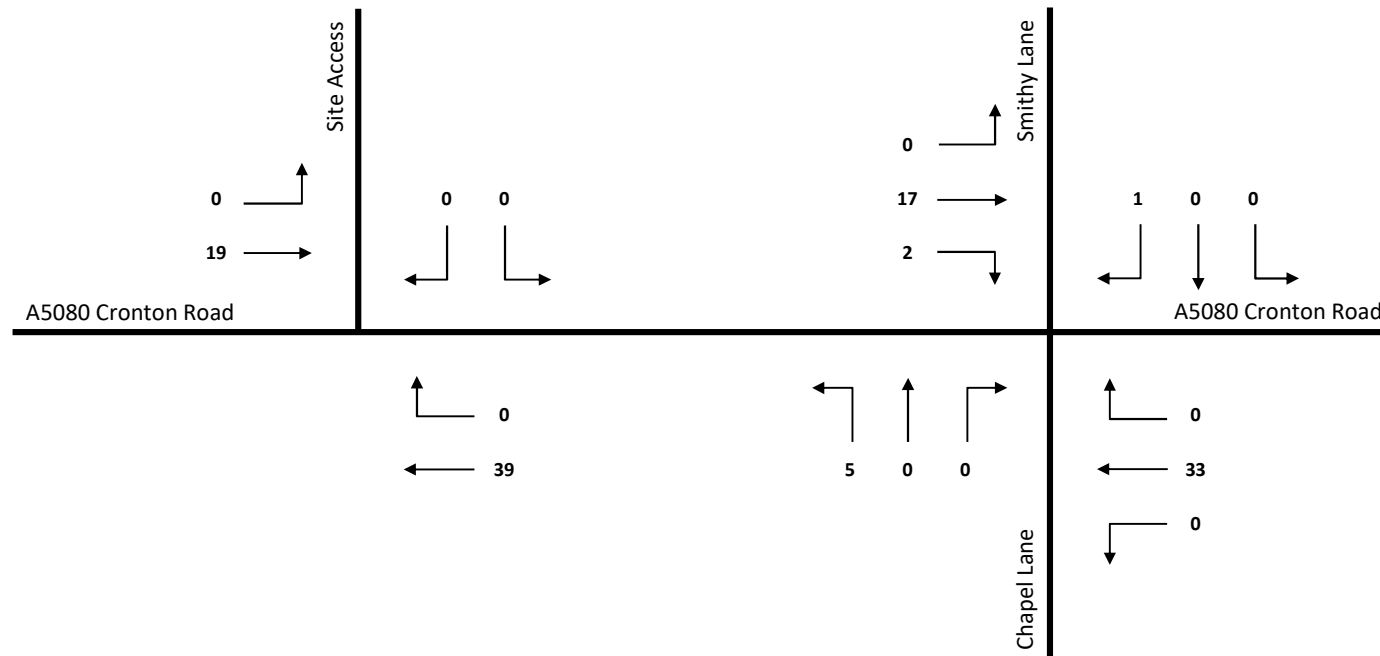
Flows at Cronton Road/Chapel Lane/Smithy Lane junction split between PM Observed turning count proportions

Light Vehicles (cars & LGVs) in black

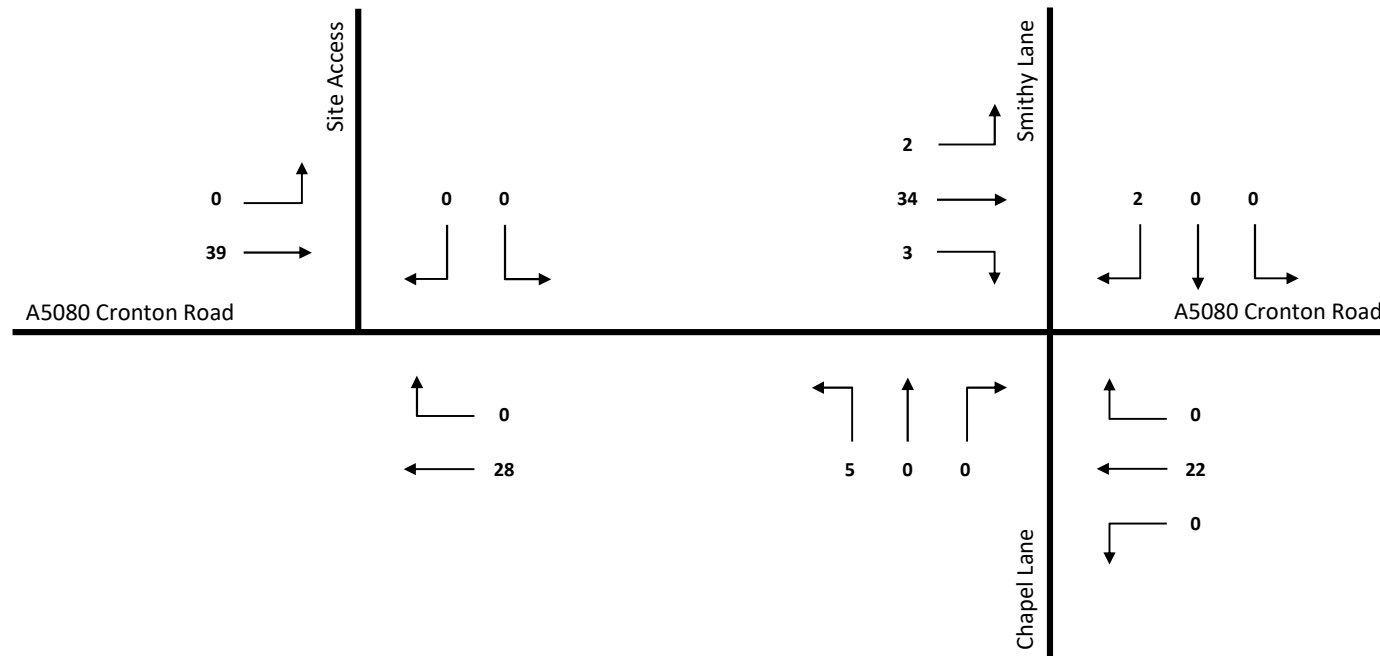
No HGV traffic as TA Addendum assumed all HGVs would access Symmetry site via Tarbock Island



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 13 - Total Committed Development Flows  
**Peak:** AM (08:00 - 09:00)  
**Notes:** All flows are in vehicles

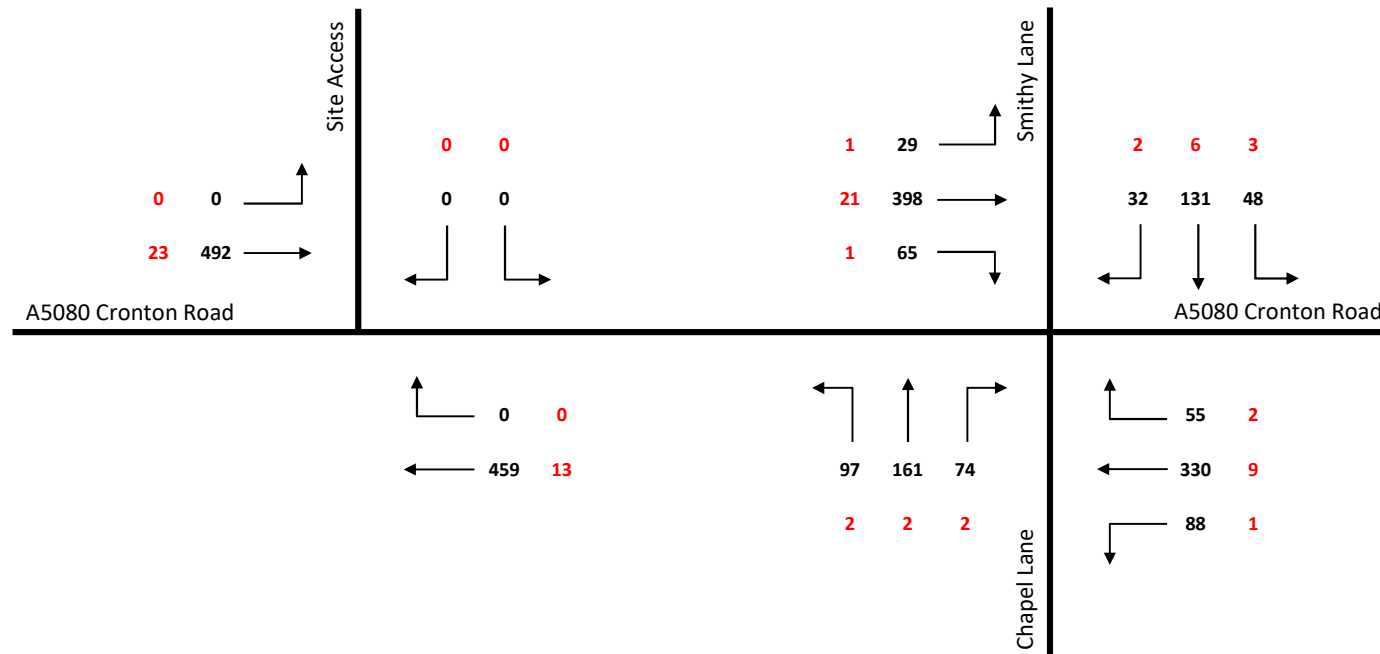


**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 14 - Total Committed Development Flows  
**Peak:** PM (16:45 - 17:45)  
**Notes:** All flows are in vehicles



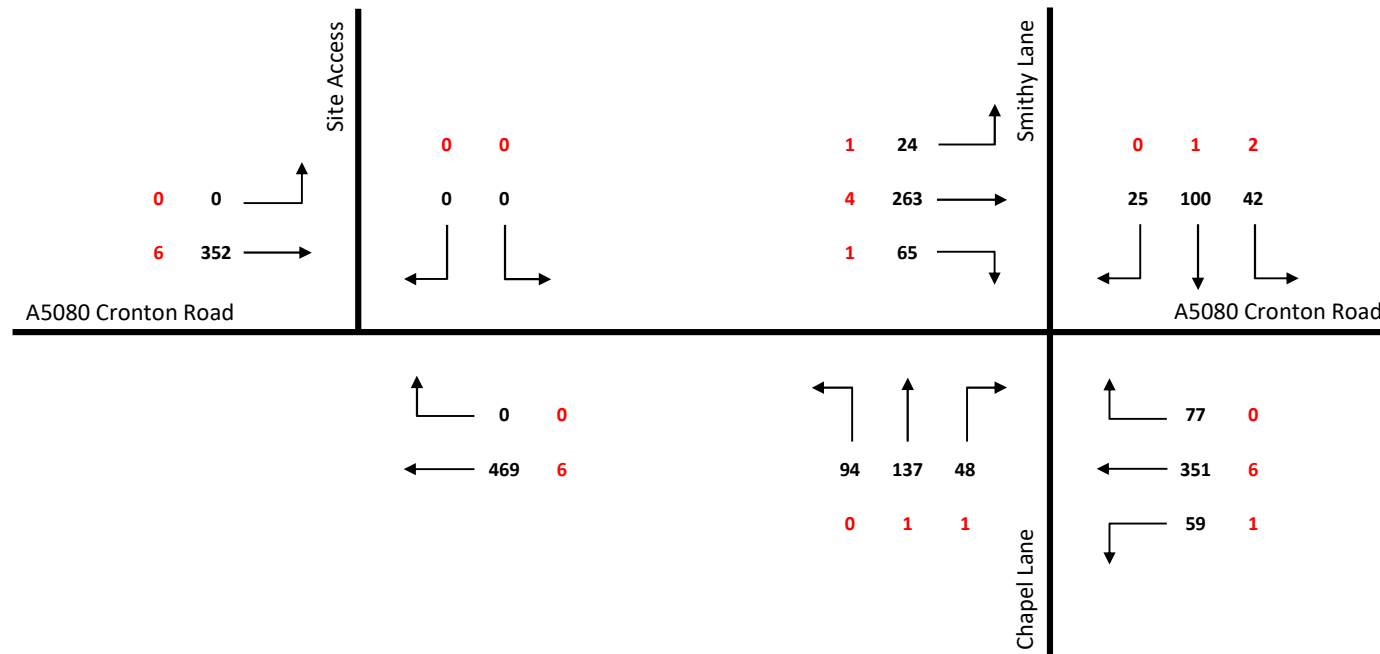
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 15 - 2032 Without Development Flows  
**Peak:** AM (08:00 - 09:00)

**Notes:** All flows are in vehicles  
 Light Vehicles (cars & LGVs) in black  
 Heavy Vehicles (HGVs & buses) in red



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 16 - 2032 Without Development Flows  
**Peak:** PM (16:45 - 17:45)

**Notes:** All flows are in vehicles  
Light Vehicles (cars & LGVs) in black  
Heavy Vehicles (HGVs & buses) in red



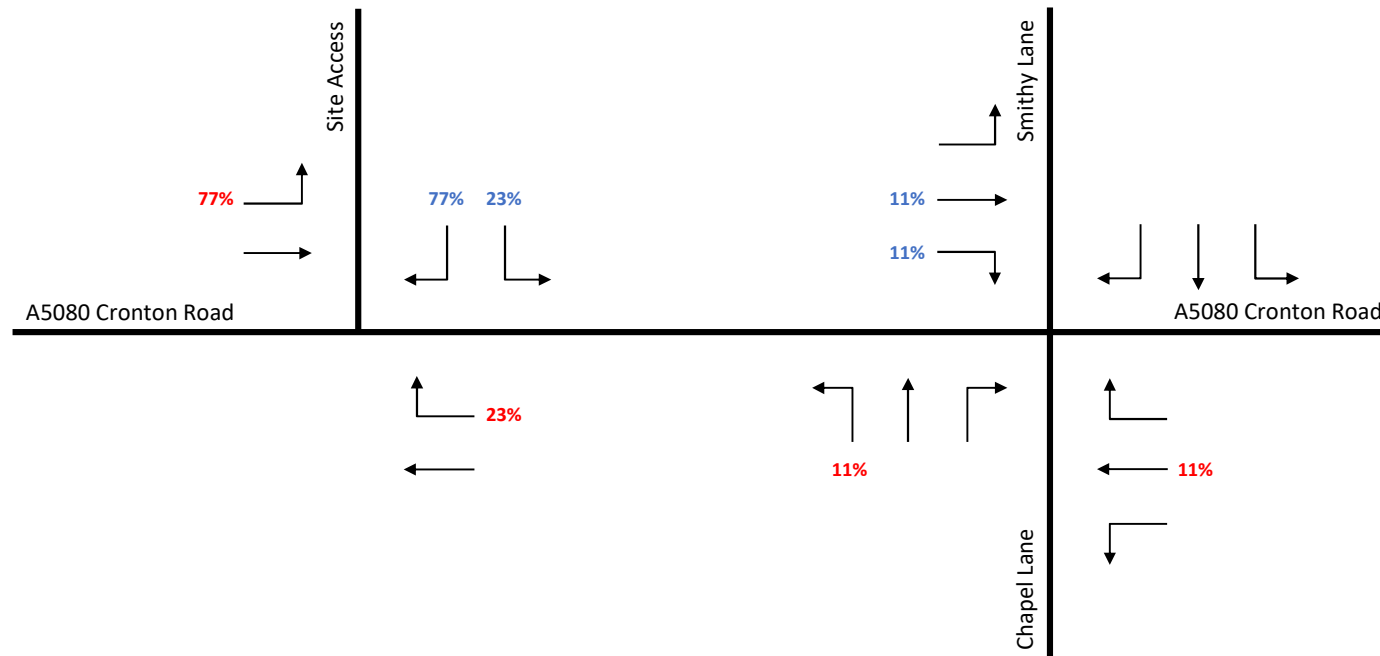
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 17 - Development Distribution  
**Peak:** Both

**Notes:** Based on 2011 Census MTW data for local MSOA

Arrivals in red

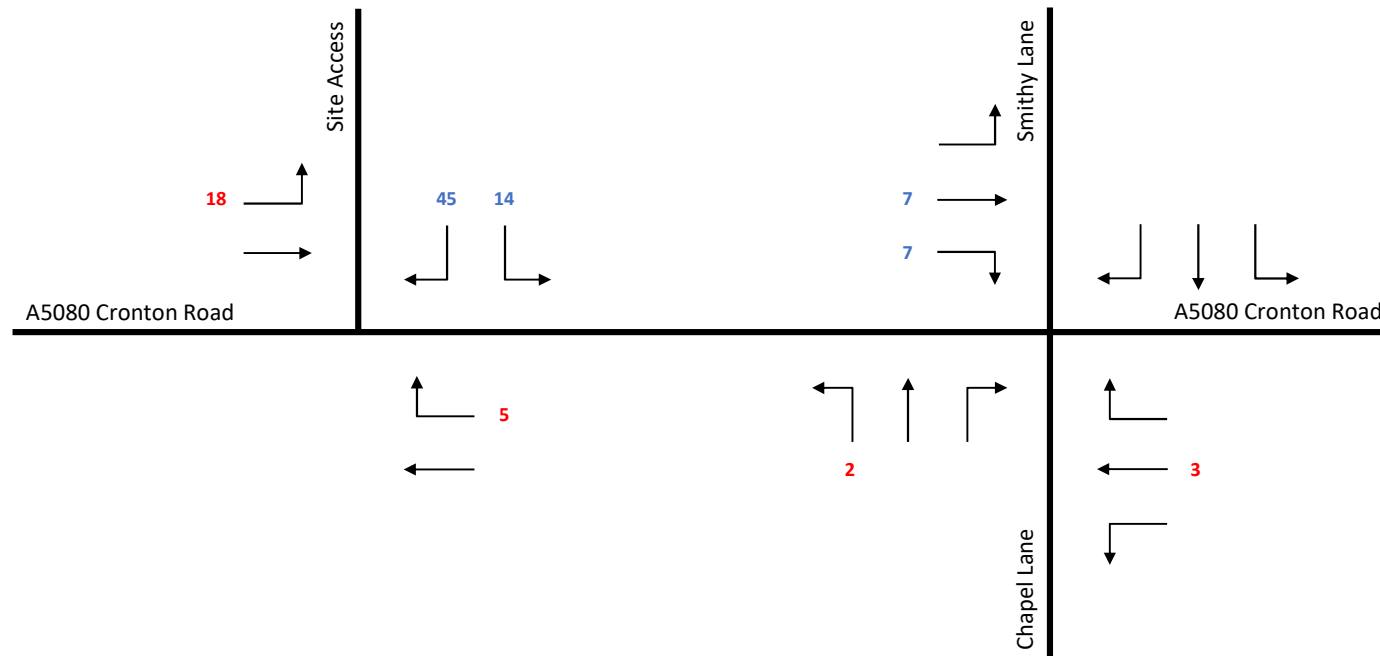
Departures in blue

Any differences =1 due to rounding



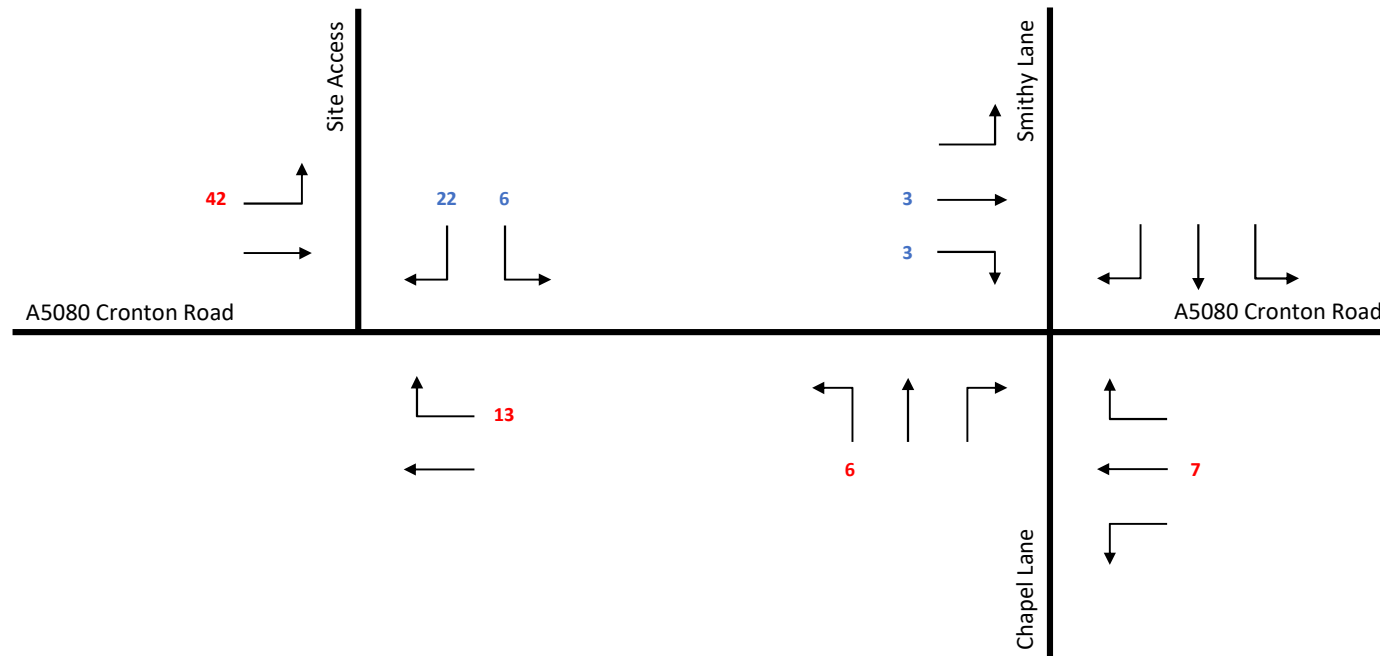
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 18 - Development Flows  
**Peak:** AM (08:00 - 09:00)

**Notes:** Arrivals 23  
Departures 59



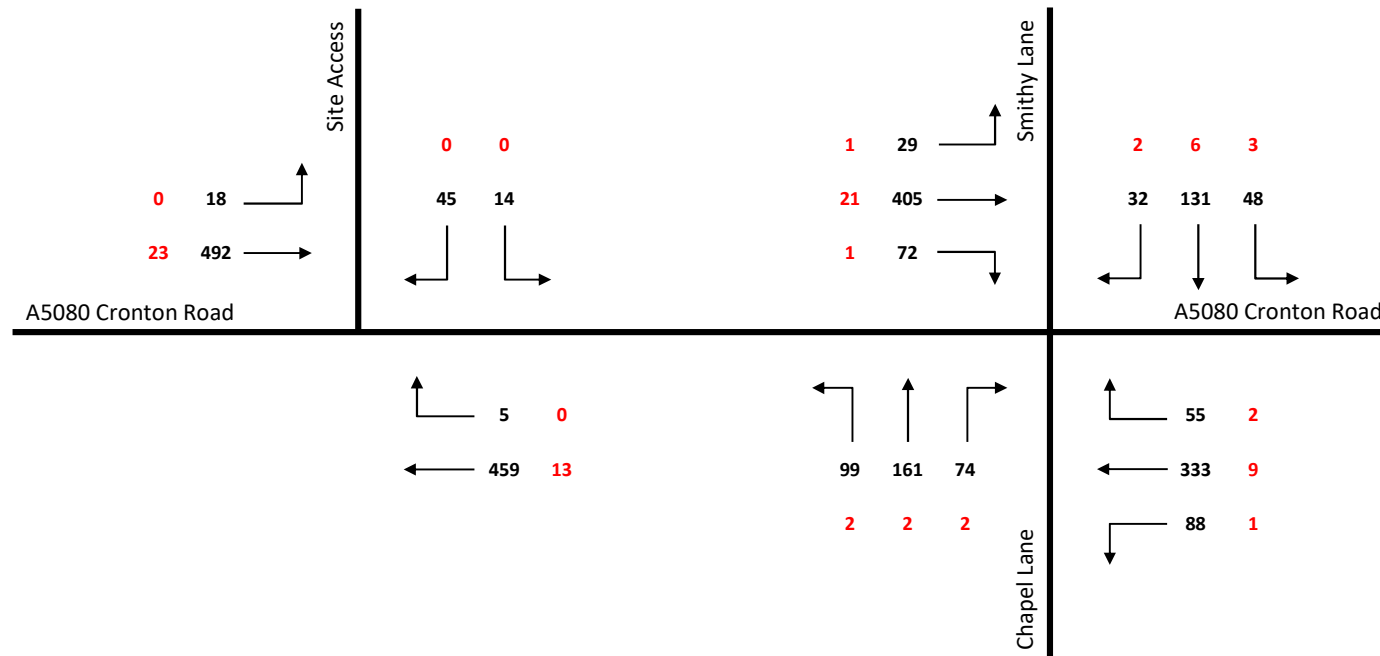
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 19 - Development Flows  
**Peak:** PM (16:45 - 17:45)

**Notes:** Arrivals 55  
Departures 28



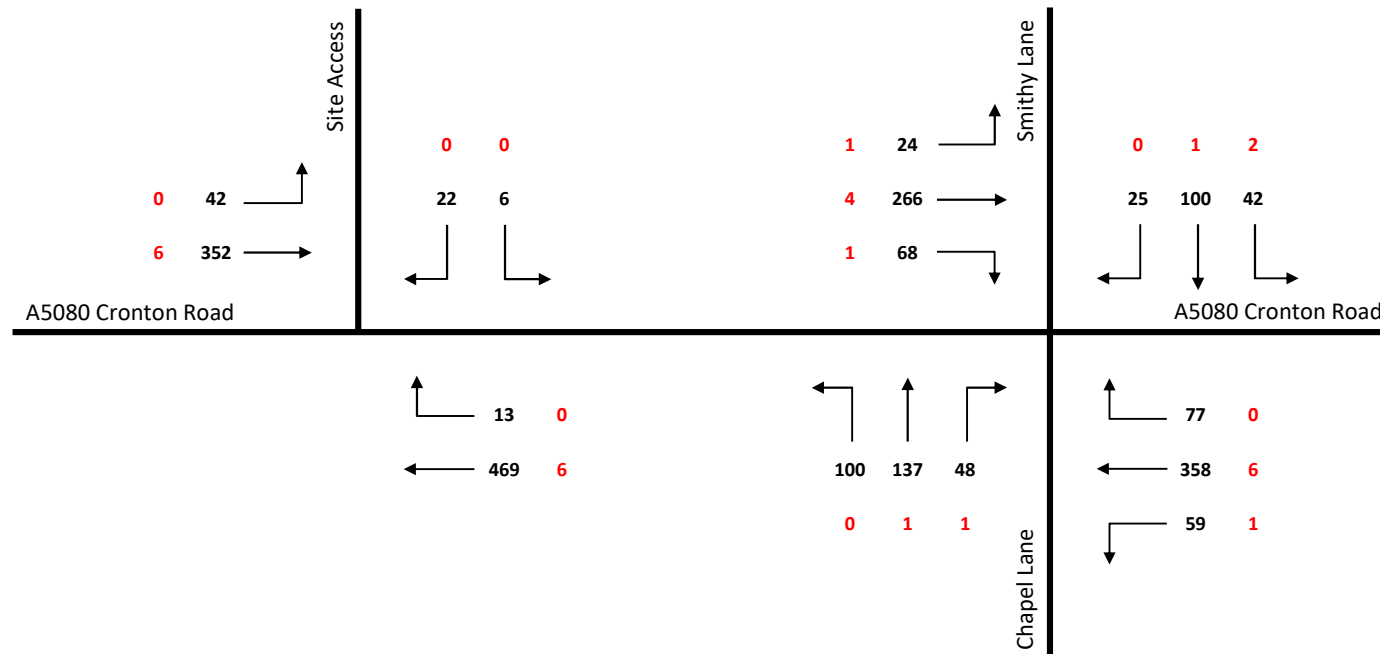
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 20 - 2032 With Development Flows  
**Peak:** AM (08:00 - 09:00)

**Notes:** All flows are in vehicles  
 Light Vehicles (cars & LGVs) in black  
 Heavy Vehicles (HGVs & buses) in red



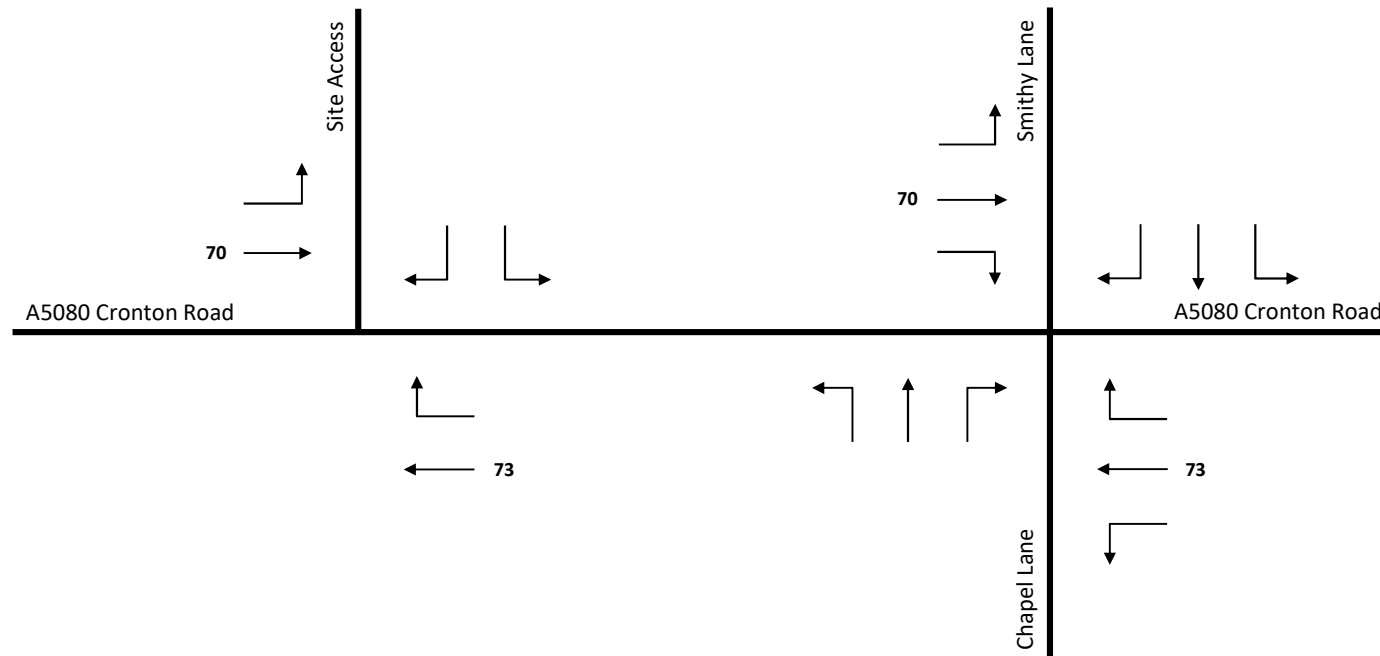
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 21 - 2032 With Development Flows  
**Peak:** PM (16:45 - 17:45)

**Notes:** All flows are in vehicles  
 Light Vehicles (cars & LGVs) in black  
 Heavy Vehicles (HGVs & buses) in red



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 22 - Cumulative ST Flows  
**Peak:** AM (08:00 - 09:00)

**Notes:** Flows transposed from Figure 9.1 of Bloor Homes, Pex Hill TA  
Bloor Homes development traffic from Figure 8.5 also added  
Assumed all traffic west of Queensbury Way RB continues ahead on Cronton Road towards Tarbock Island

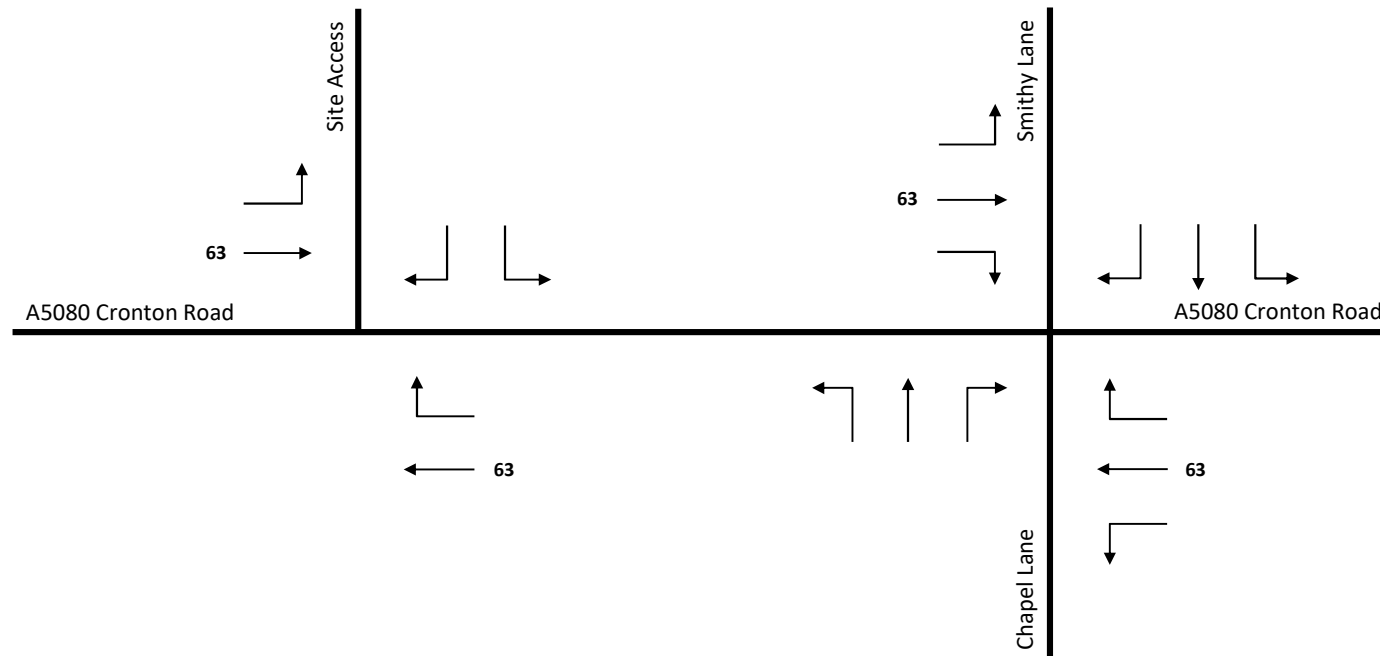


**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 23 - Cumulative ST Flows  
**Peak:** PM (16:45 - 17:45)

**Notes:** Flows transposed from Figure 9.1 of Bloor Homes, Pex Hill TA

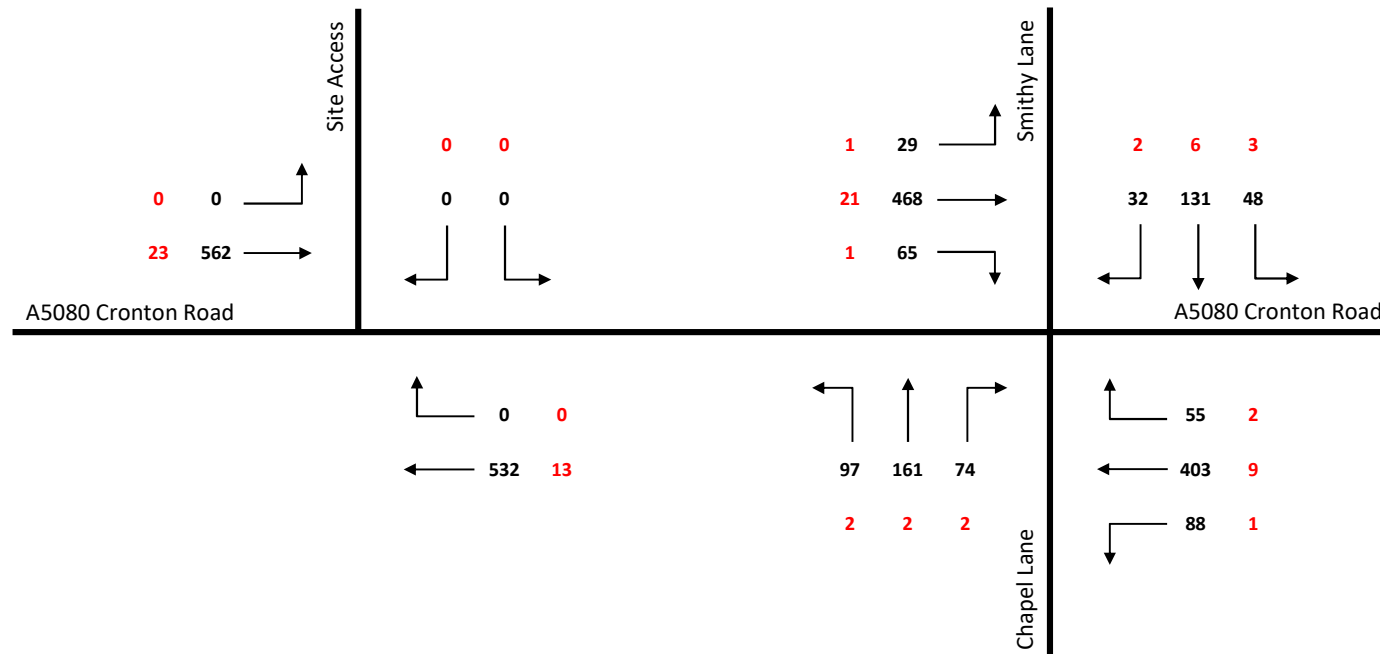
Bloor Homes development traffic from Figure 8.5 also added

Assumed all traffic west of Queensbury Way RB continues ahead on Cronton Road towards Tarbock Island



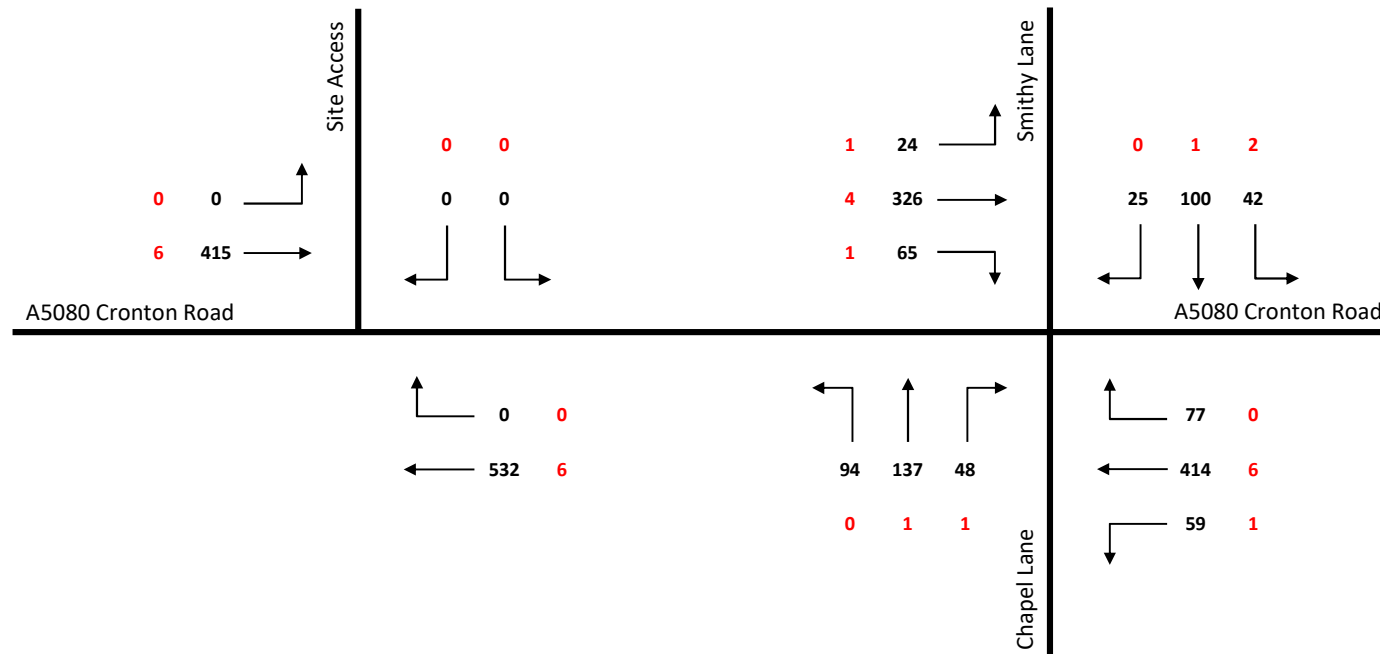
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 24 - 2032 Without Development Flows (ST)  
**Peak:** AM (08:00 - 09:00)

**Notes:** All flows are in vehicles  
Light Vehicles (cars & LGVs) in black  
Heavy Vehicles (HGVs & buses) in red



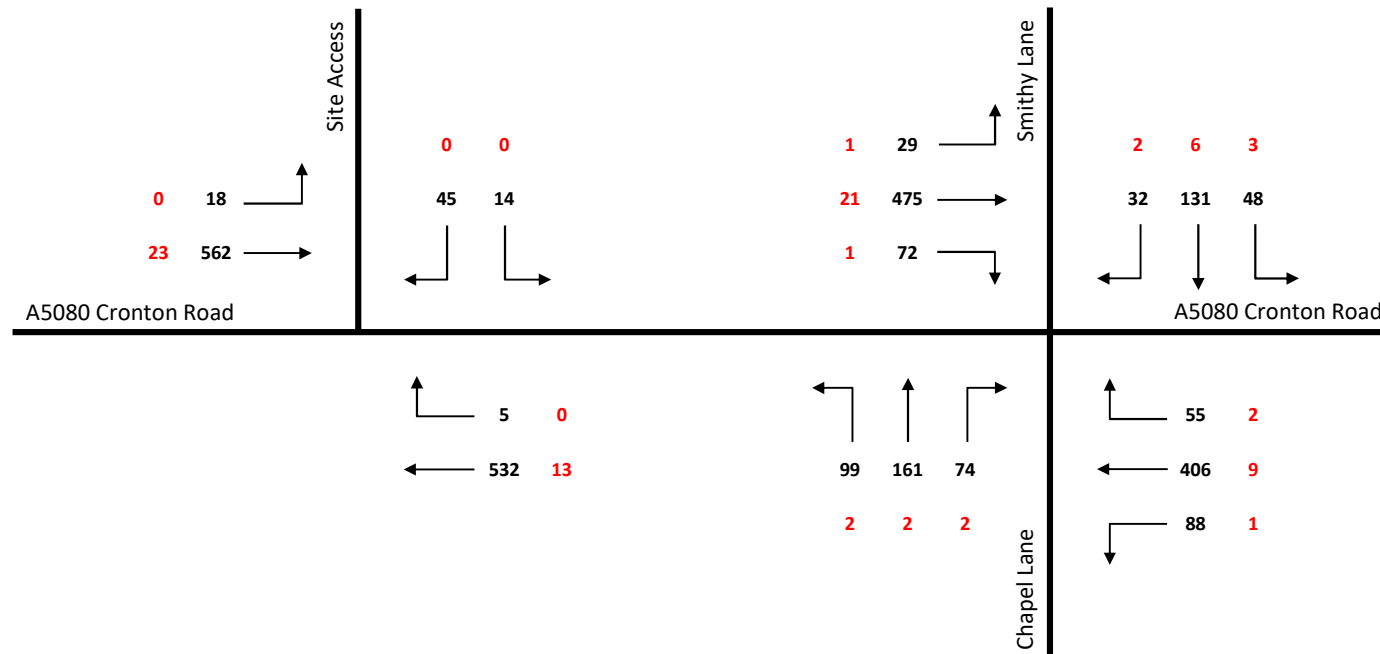
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 25 - 2032 Without Development Flows (ST)  
**Peak:** PM (16:45 - 17:45)

**Notes:** All flows are in vehicles  
Light Vehicles (cars & LGVs) in black  
Heavy Vehicles (HGVs & buses) in red



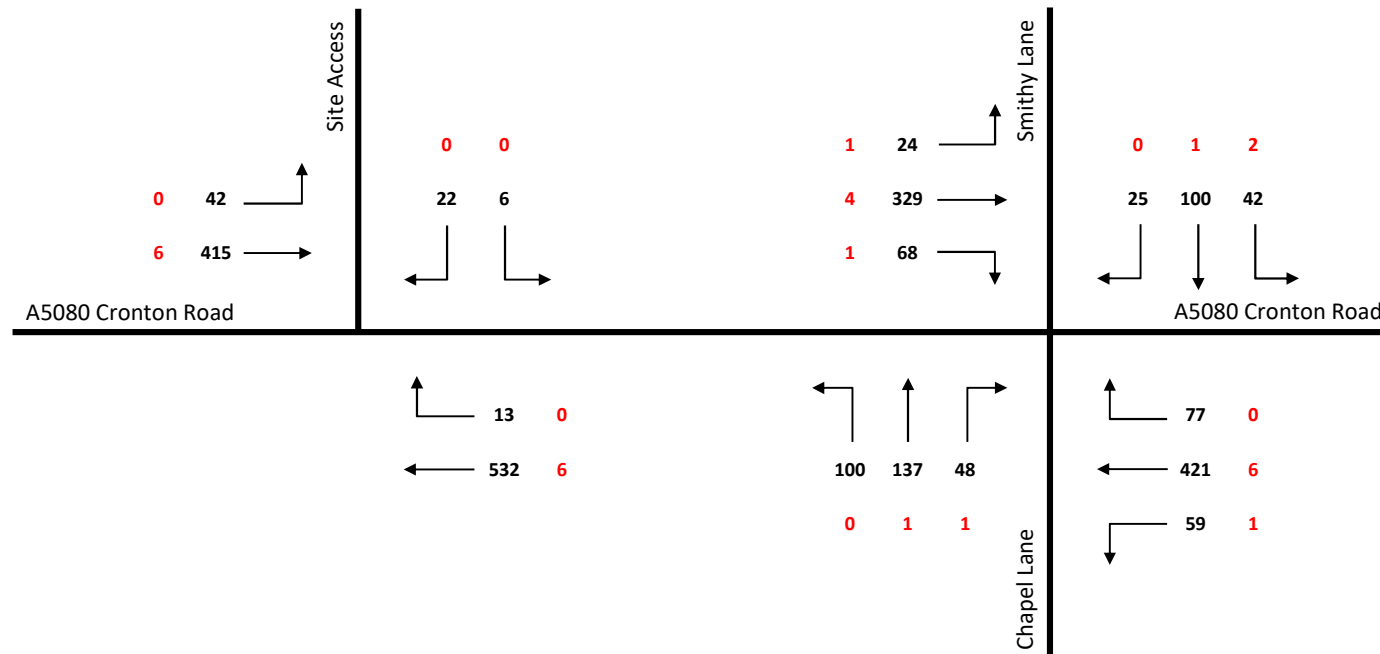
**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 26 - 2032 With Development Flows (ST)  
**Peak:** AM (08:00 - 09:00)

**Notes:** All flows are in vehicles  
Light Vehicles (cars & LGVs) in black  
Heavy Vehicles (HGVs & buses) in red



**Project:** Cronton Road, Town End, Widnes  
**Scenario:** Flow Diagram 27 - 2032 With Development Flows (ST)  
**Peak:** PM (16:45 - 17:45)

**Notes:** All flows are in vehicles  
Light Vehicles (cars & LGVs) in black  
Heavy Vehicles (HGVs & buses) in red



## APPENDIX V

### CAPACITY ASSESSMENT REPORT OUTPUTS

| Junctions 11                                                                                                                                                     |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| PICADY 11 - Priority Intersection Module                                                                                                                         |  |
| Version: 11.1.1.2424<br>© Copyright TRL Software Limited, 2026                                                                                                   |  |
| For sales and distribution information, program advice and maintenance, contact TRL Software:<br>+44 (0)1344 379777 software@trl.co.uk trlsoftware.com           |  |
| The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution |  |

Filename: SA-Cronton ST.j11

Path: C:\Users\d.stoddart\Prime Transport Planning\PrimeSharepoint - Documents\Projects 2025\P25012 - Cronton Road, Town End, Widnes\6.Technical\Models\ST

Report generation date: 16/09/2026 09:46:16

»D1 - 2032 | With Development ST | AM

»D2 - 2032 | With Development ST | PM

## File summary

### File Description

|             |                                   |
|-------------|-----------------------------------|
| Title       | Cronton Road/Proposed Site Access |
| Location    | Cronton                           |
| Site number |                                   |
| Date        | 15/09/2026                        |
| Version     |                                   |
| Status      | Sensitivity Test                  |
| Identifier  |                                   |
| Client      | Bellway                           |
| Jobnumber   | P25012                            |
| Enumerator  | GHC\b.gaze                        |
| Description | Checked by D. Stoddart            |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|---------------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s                   | -Min              | perMin              |

## Analysis Options

| PICADY short flare model | Vehicle length (m) | Calculate Queue Percentiles | Calculate detailed queueing delay | Show lane queues in feet / metres | Show all PICADY stream intercepts | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) | Use simulation for HCM roundabouts | Use iterations for HCM roundabouts |
|--------------------------|--------------------|-----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------|---------------|-----------------------------|-----------------------|------------------------------------|------------------------------------|
| PICADY 4.1               | 5.75               |                             |                                   |                                   |                                   |                             | 0.85          | 36.00                       | 20.00                 |                                    |                                    |

## Demand Set Summary

| ID | Year | Scenario            | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|------|---------------------|-------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2032 | With Development ST | AM          | ONE HOUR             | 07:45              | 09:15               | 15                        | ✓                 |
| D2 | 2032 | With Development ST | PM          | ONE HOUR             | 16:30              | 18:00               | 15                        | ✓                 |

## Analysis Set Details

| ID | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|----|-------------------|---------------------------------|-------------------------------------|
| A1 | ✓                 | 100.000                         | 100.000                             |

# D1 - 2032 | With Development ST | AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

| Junction | Name                              | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Junction Delay (s) | Junction LOS |
|----------|-----------------------------------|---------------|-----------------|-----------------|-----------------|--------------------|--------------|
| 1        | Cronton Road/Proposed Site Access | T-Junction    | Two-way         | Two-way         | Two-way         | 0.81               | A            |

### Junction Network

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.81              | A           |

## Arms

### Arms

| Arm | Name                       | Description | Arm type |
|-----|----------------------------|-------------|----------|
| A   | Cronton Road (Eastern Arm) |             | Major    |
| B   | Proposed Site Access       |             | Minor    |
| C   | Cronton Road (Western Arm) |             | Major    |

### Major Arm Geometry

| Arm                            | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|--------------------------------|--------------------------|----------------------------|------------------------|-------------------------------|---------|----------------------|
| C - Cronton Road (Western Arm) | 6.50                     |                            |                        | 94.4                          | ✓       | 0.00                 |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

### Minor Arm Geometry

| Arm                      | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|--------------------------|----------------|----------------|------------------------|-------------------------|
| B - Proposed Site Access | One lane       | 3.00           | 23                     | 21                      |

## Slope / Intercept / Capacity

### Priority Intersection Slopes and Intercepts

| Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|--------|--------------------|---------------|---------------|---------------|---------------|
| B-A    | 496                | 0.088         | 0.223         | 0.140         | 0.319         |
| B-C    | 637                | 0.096         | 0.242         | -             | -             |
| C-B    | 629                | 0.238         | 0.238         | -             | -             |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario            | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|------|---------------------|-------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2032 | With Development ST | AM          | ONE HOUR             | 07:45              | 09:15               | 15                        | ✓                 |

## Demand overview (Traffic)

| Arm                            | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|--------------------------------|------------|--------------|--------------|-------------------------|--------------------|
| A - Cronton Road (Eastern Arm) |            | ONE HOUR     | ✓            | 626                     | 100.000            |
| B - Proposed Site Access       |            | ONE HOUR     | ✓            | 59                      | 100.000            |
| C - Cronton Road (Western Arm) |            | ONE HOUR     | ✓            | 563                     | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      | To                             |                                |                          |                                |
|------|--------------------------------|--------------------------------|--------------------------|--------------------------------|
|      |                                | A - Cronton Road (Eastern Arm) | B - Proposed Site Access | C - Cronton Road (Western Arm) |
| From |                                |                                |                          |                                |
|      | A - Cronton Road (Eastern Arm) | 0                              | 18                       | 608                            |
|      | B - Proposed Site Access       | 45                             | 0                        | 14                             |
|      | C - Cronton Road (Western Arm) | 558                            | 5                        | 0                              |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages     | 2.00                      |

### Heavy Vehicle %

|      | To                             |                                |                          |                                |
|------|--------------------------------|--------------------------------|--------------------------|--------------------------------|
|      |                                | A - Cronton Road (Eastern Arm) | B - Proposed Site Access | C - Cronton Road (Western Arm) |
| From |                                |                                |                          |                                |
|      | A - Cronton Road (Eastern Arm) | 0                              | 0                        | 4                              |
|      | B - Proposed Site Access       | 0                              | 0                        | 0                              |
|      | C - Cronton Road (Western Arm) | 2                              | 0                        | 0                              |

## Results

### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|--------|---------|---------------|-----------------|---------|-------------------------|-------------------------------|
| B-AC   | 0.23    | 16.16         | 0.3             | C       | 54                      | 81                            |
| C-AB   | 0.02    | 4.51          | 0.0             | A       | 12                      | 18                            |
| C-A    |         |               |                 |         | 505                     | 757                           |
| A-B    |         |               |                 |         | 17                      | 25                            |
| A-C    |         |               |                 |         | 558                     | 837                           |

# D2 - 2032 | With Development ST | PM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

| Junction | Name                              | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Junction Delay (s) | Junction LOS |
|----------|-----------------------------------|---------------|-----------------|-----------------|-----------------|--------------------|--------------|
| 1        | Cronton Road/Proposed Site Access | T-Junction    | Two-way         | Two-way         | Two-way         | 0.45               | A            |

### Junction Network

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.45              | A           |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario            | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|------|---------------------|-------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2032 | With Development ST | PM          | ONE HOUR             | 16:30              | 18:00               | 15                        | ✓                 |

### Demand overview (Traffic)

| Arm                            | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|--------------------------------|------------|--------------|--------------|-------------------------|--------------------|
| A - Cronton Road (Eastern Arm) |            | ONE HOUR     | ✓            | 469                     | 100.000            |
| B - Proposed Site Access       |            | ONE HOUR     | ✓            | 28                      | 100.000            |
| C - Cronton Road (Western Arm) |            | ONE HOUR     | ✓            | 557                     | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      | To                             |                                |                          |                                |
|------|--------------------------------|--------------------------------|--------------------------|--------------------------------|
|      |                                | A - Cronton Road (Eastern Arm) | B - Proposed Site Access | C - Cronton Road (Western Arm) |
| From | A - Cronton Road (Eastern Arm) | 0                              | 42                       | 427                            |
|      | B - Proposed Site Access       | 22                             | 0                        | 6                              |
|      | C - Cronton Road (Western Arm) | 544                            | 13                       | 0                              |
|      |                                |                                |                          |                                |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages     | 2.00                      |

### Heavy Vehicle %

|      | To                             |                                |                          |                                |
|------|--------------------------------|--------------------------------|--------------------------|--------------------------------|
|      |                                | A - Cronton Road (Eastern Arm) | B - Proposed Site Access | C - Cronton Road (Western Arm) |
| From | A - Cronton Road (Eastern Arm) | 0                              | 0                        | 1                              |
|      | B - Proposed Site Access       | 0                              | 0                        | 0                              |
|      | C - Cronton Road (Western Arm) | 1                              | 0                        | 0                              |
|      |                                |                                |                          |                                |

## Results

### Results Summary for whole modelled period

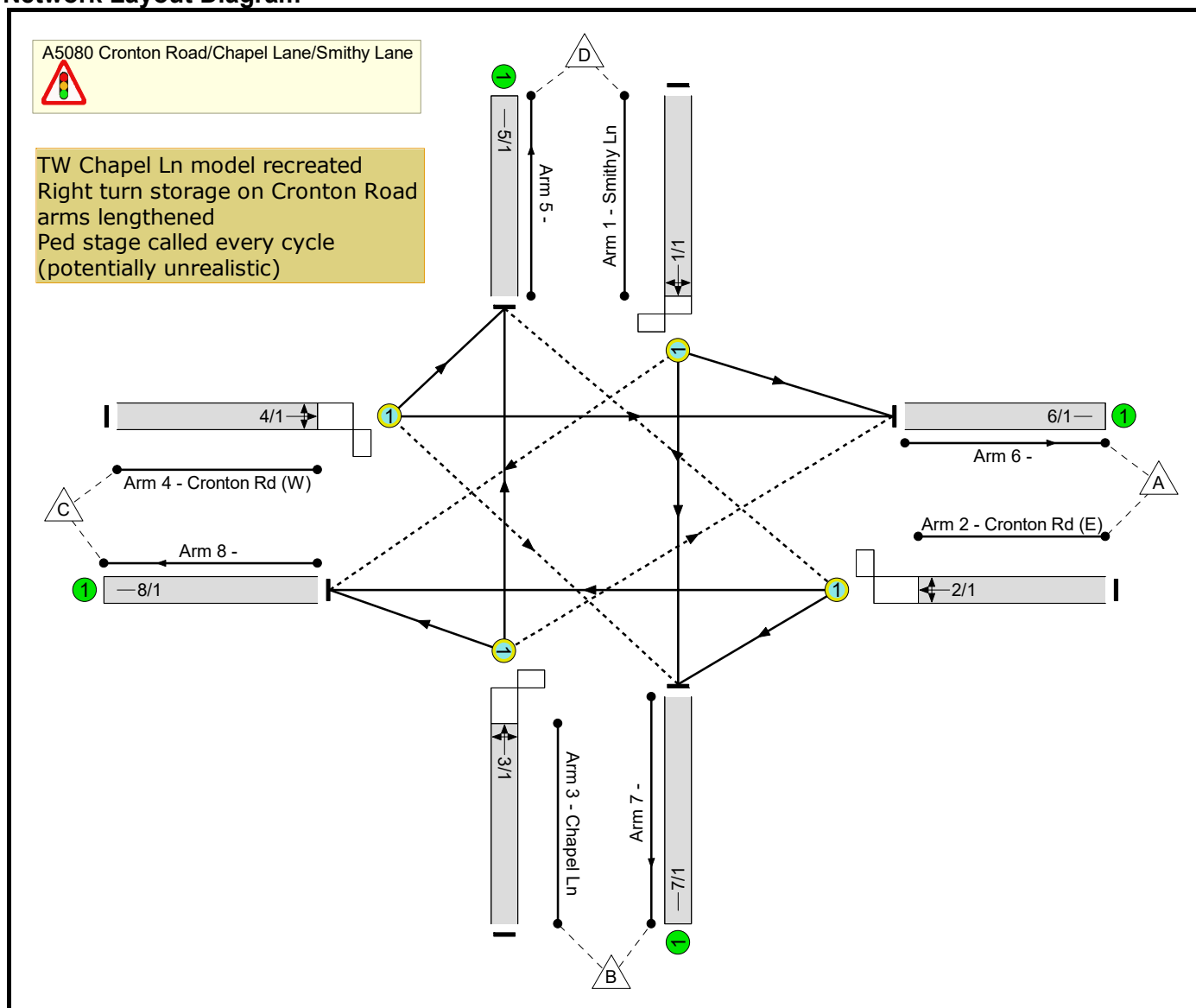
| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|--------|---------|---------------|-----------------|---------|-------------------------|-------------------------------|
| B-AC   | 0.09    | 12.12         | 0.1             | B       | 26                      | 39                            |
| C-AB   | 0.04    | 4.47          | 0.1             | A       | 29                      | 43                            |
| C-A    |         |               |                 |         | 482                     | 724                           |
| A-B    |         |               |                 |         | 39                      | 58                            |
| A-C    |         |               |                 |         | 392                     | 588                           |

Detailed Input Data And Results  
**Detailed Input Data And Results**

**User and Project Details**

|                           |                                |
|---------------------------|--------------------------------|
| <b>Project:</b>           | <b>Cronton Road</b>            |
| <b>Title:</b>             | <b>Cronton Chippy Junction</b> |
| <b>Location:</b>          | Cronton Rd/Chapel Ln/Smithy Ln |
| <b>Client:</b>            | Bellway                        |
| <b>Date Completed:</b>    | 15/09/26                       |
| <b>Model Purpose:</b>     | Sensitivity Test               |
| <b>Model Assumptions:</b> | Vectos/SLR model reconstructed |
| <b>Additional detail:</b> |                                |
| <b>File name:</b>         | The Chippy.lsg3x               |
| <b>Author:</b>            | D Stoddart                     |
| <b>Company:</b>           | Prime TP                       |
| <b>Address:</b>           | Liverpool                      |
| <b>Linsig Version:</b>    | 3, 3, 1, 0                     |

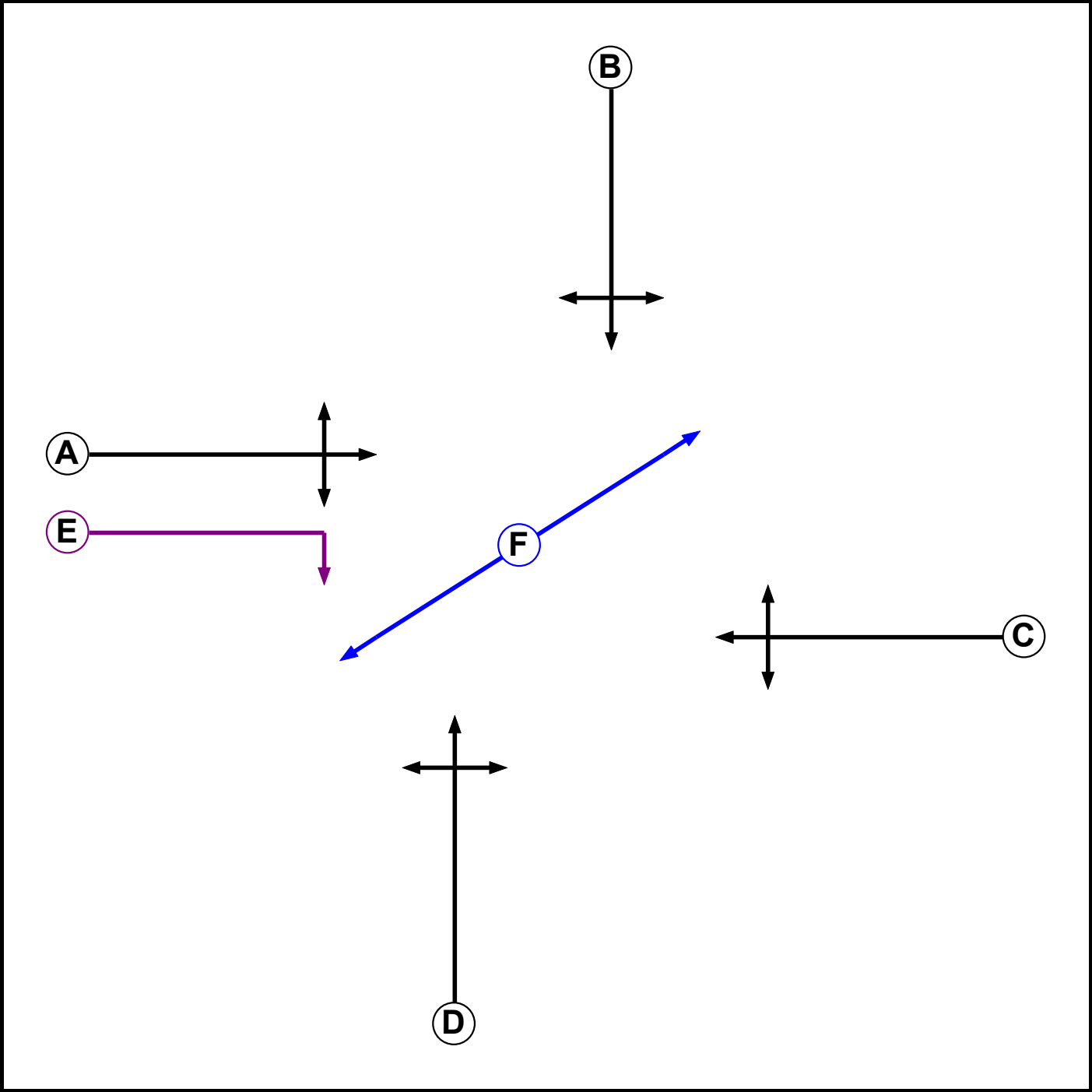
## Network Layout Diagram



**Scenarios**

| Number | Scenario Name          | Flow Group             | Network Control Plan   | Time          | Cycle Time (s) | PRC (%) | Delay (pcuHr) |
|--------|------------------------|------------------------|------------------------|---------------|----------------|---------|---------------|
| 1      | AM Obs 2025            | AM Obs 2025            | Peds every cycle       | 08:00 - 09:00 | 120            | 22.3    | 17.58         |
| 2      | PM Obs 2025            | PM Obs 2025            | Peds every cycle       | 16:45 - 17:45 | 120            | 37.0    | 12.98         |
| 3      | AM Without Dev ST 2032 | AM Without Dev ST 2032 | Peds every cycle       | 08:00 - 09:00 | 120            | -3.2    | 31.60         |
| 4      | PM Without Dev ST 2032 | PM Without Dev ST 2032 | Peds every cycle       | 16:45 - 17:45 | 120            | 18.2    | 17.49         |
| 5      | AM With Dev ST 2032    | AM With Dev ST 2032    | Peds every cycle       | 08:00 - 09:00 | 120            | -5.9    | 32.99         |
| 6      | PM With Dev ST 2032    | PM With Dev ST 2032    | Peds every cycle       | 16:45 - 17:45 | 120            | 15.8    | 18.23         |
| 7      | AM With Dev ST 2032 PO | AM With Dev ST 2032    | Peds every other cycle | 08:00 - 09:00 | 240            | 13.9    | 22.15         |
| 8      | PM With Dev ST 2032 PO | PM With Dev ST 2032    | Peds every other cycle | 16:45 - 17:45 | 240            | 31.8    | 14.80         |

Phase Diagram



Phase Input Data

| Phase Name | Phase Type | Assoc. Phase | Street Min (s) | Cont Min (s) |
|------------|------------|--------------|----------------|--------------|
| A          | Traffic    |              | 7              | 7            |
| B          | Traffic    |              | 7              | 7            |
| C          | Traffic    |              | 7              | 7            |
| D          | Traffic    |              | 7              | 7            |
| E          | Ind. Arrow | A            | 4              | 4            |
| F          | Pedestrian |              | 8              | 8            |

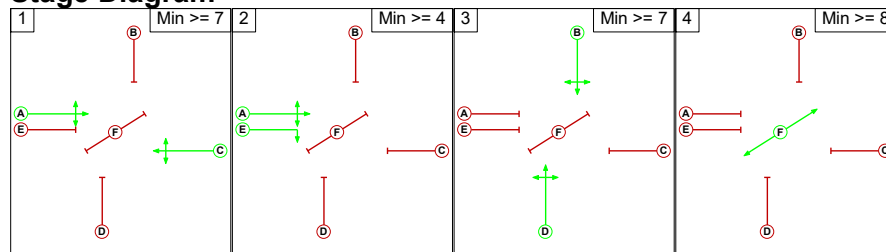
### Phase Intergreens Matrix

| Terminating Phase | Starting Phase |   |   |   |   |   |    |
|-------------------|----------------|---|---|---|---|---|----|
|                   |                | A | B | C | D | E | F  |
|                   | A              |   | 7 | - | 7 | - | 12 |
|                   | B              | 7 |   | 7 | - | 5 | 11 |
|                   | C              | - | 7 |   | 7 | 7 | 12 |
|                   | D              | 7 | - | 7 |   | 5 | 10 |
|                   | E              | - | 8 | 7 | 8 |   | 8  |
|                   | F              | 8 | 8 | 8 | 8 | 8 |    |

### Phases in Stage

| Stage No. | Phases in Stage |
|-----------|-----------------|
| 1         | A C             |
| 2         | A E             |
| 3         | B D             |
| 4         | F               |

### Stage Diagram



### Phase Delays

| Term. Stage                       | Start Stage | Phase | Type | Value | Cont value |
|-----------------------------------|-------------|-------|------|-------|------------|
| There are no Phase Delays defined |             |       |      |       |            |

**Lane Input Data**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |           |        |                 |               |                       |               |                                   |                |              |               |             |                    |
|------------------------------------------------------|-----------|--------|-----------------|---------------|-----------------------|---------------|-----------------------------------|----------------|--------------|---------------|-------------|--------------------|
| Lane                                                 | Lane Type | Phases | Start Disp. (s) | End Disp. (s) | Physical Length (PCU) | Sat Flow Type | Def User Saturation Flow (PCU/Hr) | Lane Width (m) | Gradient (%) | Nearside Lane | Turns       | Turning Radius (m) |
| 1/1<br>(Smithy Ln)                                   | O         | B      | 2               | 3             | 60.0                  | Geom          | -                                 | 3.50           | 0.00         | Y             | Arm 6 Left  | 15.00              |
|                                                      |           |        |                 |               |                       |               |                                   |                |              |               | Arm 7 Ahead | Inf                |
|                                                      |           |        |                 |               |                       |               |                                   |                |              |               | Arm 8 Right | 10.00              |
| 2/1<br>(Cronton Rd (E))                              | O         | C      | 2               | 3             | 60.0                  | Geom          | -                                 | 3.30           | 0.00         | Y             | Arm 5 Right | 10.00              |
|                                                      |           |        |                 |               |                       |               |                                   |                |              |               | Arm 7 Left  | 7.00               |
|                                                      |           |        |                 |               |                       |               |                                   |                |              |               | Arm 8 Ahead | Inf                |
| 3/1<br>(Chapel Ln)                                   | O         | D      | 2               | 3             | 60.0                  | Geom          | -                                 | 2.75           | 0.00         | Y             | Arm 5 Ahead | Inf                |
|                                                      |           |        |                 |               |                       |               |                                   |                |              |               | Arm 6 Right | 10.00              |
|                                                      |           |        |                 |               |                       |               |                                   |                |              |               | Arm 8 Left  | 7.00               |
| 4/1<br>(Cronton Rd (W))                              | O         | A E    | 2               | 3             | 60.0                  | Geom          | -                                 | 3.80           | 0.00         | Y             | Arm 5 Left  | 14.00              |
|                                                      |           |        |                 |               |                       |               |                                   |                |              |               | Arm 6 Ahead | Inf                |
|                                                      |           |        |                 |               |                       |               |                                   |                |              |               | Arm 7 Right | 8.00               |
| 5/1                                                  | U         |        | 2               | 3             | 60.0                  | Inf           | -                                 | -              | -            | -             | -           | -                  |
| 6/1                                                  | U         |        | 2               | 3             | 60.0                  | Inf           | -                                 | -              | -            | -             | -           | -                  |
| 7/1                                                  | U         |        | 2               | 3             | 60.0                  | Inf           | -                                 | -              | -            | -             | -           | -                  |
| 8/1                                                  | U         |        | 2               | 3             | 60.0                  | Inf           | -                                 | -              | -            | -             | -           | -                  |

**Give-Way Lane Input Data**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |             |                                            |                                            |                  |                     |                              |                             |                                  |      |                           |                                     |
|------------------------------------------------------|-------------|--------------------------------------------|--------------------------------------------|------------------|---------------------|------------------------------|-----------------------------|----------------------------------|------|---------------------------|-------------------------------------|
| Lane                                                 | Movement    | Max Flow<br>when<br>Giving Way<br>(PCU/Hr) | Min Flow<br>when<br>Giving Way<br>(PCU/Hr) | Opposing<br>Lane | Opp. Lane<br>Coeff. | Opp.<br>Mvmnts.              | Right Turn<br>Storage (PCU) | Non-Blocking<br>Storage<br>(PCU) | RTF  | Right Turn<br>Move up (s) | Max Turns<br>in Intergreen<br>(PCU) |
| 1/1<br>(Smithy Ln)                                   | 8/1 (Right) | 1439                                       | 0                                          | 3/1              | 1.09                | To 5/1 (Ahead) To 8/1 (Left) | 2.00                        | 1.00                             | 0.50 | 2                         | 2.00                                |
| 2/1<br>(Cronton Rd (E))                              | 5/1 (Right) | 1439                                       | 0                                          | 4/1              | 1.09                | To 5/1 (Left) To 6/1 (Ahead) | 3.50                        | 1.00                             | 0.50 | 4                         | 3.50                                |
| 3/1<br>(Chapel Ln)                                   | 6/1 (Right) | 1439                                       | 0                                          | 1/1              | 1.09                | To 6/1 (Left) To 7/1 (Ahead) | 3.00                        | 1.00                             | 0.50 | 3                         | 3.00                                |
| 4/1<br>(Cronton Rd (W))                              | 7/1 (Right) | 1439                                       | 0                                          | 2/1              | 1.09                | To 7/1 (Left) To 8/1 (Ahead) | 3.00                        | 1.00                             | 0.50 | 3                         | 3.00                                |

## Lane Saturation Flows

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |                          |              |               |               |                    |               |                   |                          |
|------------------------------------------------------|--------------------------|--------------|---------------|---------------|--------------------|---------------|-------------------|--------------------------|
| 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<br>(Smithy Ln)                                   | 3.50                     | 0.00         | Y             | Arm 6 Left    | 15.00              | 23.2 %        | 1879              | 1879                     |
|                                                      |                          |              |               | Arm 7 Ahead   | Inf                | 61.8 %        |                   |                          |
|                                                      |                          |              |               | Arm 8 Right   | 10.00              | 15.0 %        |                   |                          |
| 2/1<br>(Cronton Rd (E))                              | 3.30                     | 0.00         | Y             | Arm 5 Right   | 10.00              | 12.7 %        | 1834              | 1834                     |
|                                                      |                          |              |               | Arm 7 Left    | 7.00               | 19.3 %        |                   |                          |
|                                                      |                          |              |               | Arm 8 Ahead   | Inf                | 68.0 %        |                   |                          |
| 3/1<br>(Chapel Ln)                                   | 2.75                     | 0.00         | Y             | Arm 5 Ahead   | Inf                | 48.6 %        | 1726              | 1726                     |
|                                                      |                          |              |               | Arm 6 Right   | 10.00              | 23.1 %        |                   |                          |
|                                                      |                          |              |               | Arm 8 Left    | 7.00               | 28.3 %        |                   |                          |
| 4/1<br>(Cronton Rd (W))                              | 3.80                     | 0.00         | Y             | Arm 5 Left    | 14.00              | 5.9 %         | 1937              | 1937                     |
|                                                      |                          |              |               | Arm 6 Ahead   | Inf                | 81.6 %        |                   |                          |
|                                                      |                          |              |               | Arm 7 Right   | 8.00               | 12.6 %        |                   |                          |
| 5/1                                                  | Infinite Saturation Flow |              |               |               |                    |               | Inf               | Inf                      |
| 6/1                                                  | Infinite Saturation Flow |              |               |               |                    |               | Inf               | Inf                      |
| 7/1                                                  | Infinite Saturation Flow |              |               |               |                    |               | Inf               | Inf                      |
| 8/1                                                  | Infinite Saturation Flow |              |               |               |                    |               | Inf               | Inf                      |

**Bonus Green Times**

No Bonus Greens are defined For Scenario 1

**Scenario 2: 'PM Obs 2025'** (FG2: 'PM Obs 2025', Plan 1: 'Peds every cycle')**Lane Saturation Flows**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |                |              |                          |               |                    |               |                   |                          |
|------------------------------------------------------|----------------|--------------|--------------------------|---------------|--------------------|---------------|-------------------|--------------------------|
| 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<br>(Smithy Ln)                                   | 3.50           | 0.00         | Y                        | Arm 6 Left    | 15.00              | 27.0 %        | 1876              | 1876                     |
|                                                      |                |              |                          | Arm 7 Ahead   | Inf                | 59.5 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Right   | 10.00              | 13.5 %        |                   |                          |
| 2/1<br>(Cronton Rd (E))                              | 3.30           | 0.00         | Y                        | Arm 5 Right   | 10.00              | 16.1 %        | 1850              | 1850                     |
|                                                      |                |              |                          | Arm 7 Left    | 7.00               | 12.8 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Ahead   | Inf                | 71.1 %        |                   |                          |
| 3/1<br>(Chapel Ln)                                   | 2.75           | 0.00         | Y                        | Arm 5 Ahead   | Inf                | 50.2 %        | 1726              | 1726                     |
|                                                      |                |              |                          | Arm 6 Right   | 10.00              | 17.9 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Left    | 7.00               | 31.9 %        |                   |                          |
| 4/1<br>(Cronton Rd (W))                              | 3.80           | 0.00         | Y                        | Arm 5 Left    | 14.00              | 7.4 %         | 1909              | 1909                     |
|                                                      |                |              |                          | Arm 6 Ahead   | Inf                | 72.8 %        |                   |                          |
|                                                      |                |              |                          | Arm 7 Right   | 8.00               | 19.7 %        |                   |                          |
| 5/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 6/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 7/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 8/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |

**Bonus Green Times**

No Bonus Greens are defined For Scenario 2

**Scenario 3: 'AM Without Dev ST 2032'** (FG3: 'AM Without Dev ST 2032', Plan 1: 'Peds every cycle')  
**Lane Saturation Flows**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |                |              |                          |               |                    |               |                   |                          |
|------------------------------------------------------|----------------|--------------|--------------------------|---------------|--------------------|---------------|-------------------|--------------------------|
| 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<br>(Smithy Ln)                                   | 3.50           | 0.00         | Y                        | Arm 6 Left    | 15.00              | 23.2 %        | 1878              | 1878                     |
|                                                      |                |              |                          | Arm 7 Ahead   | Inf                | 61.4 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Right   | 10.00              | 15.5 %        |                   |                          |
| 2/1<br>(Cronton Rd (E))                              | 3.30           | 0.00         | Y                        | Arm 5 Right   | 10.00              | 10.4 %        | 1854              | 1854                     |
|                                                      |                |              |                          | Arm 7 Left    | 7.00               | 15.8 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Ahead   | Inf                | 73.9 %        |                   |                          |
| 3/1<br>(Chapel Ln)                                   | 2.75           | 0.00         | Y                        | Arm 5 Ahead   | Inf                | 48.0 %        | 1723              | 1723                     |
| 4/1<br>(Cronton Rd (W))                              | 3.80           | 0.00         | Y                        | Arm 6 Right   | 10.00              | 22.7 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Left    | 7.00               | 29.4 %        |                   |                          |
|                                                      |                |              |                          | Arm 5 Left    | 14.00              | 5.1 %         |                   |                          |
|                                                      |                |              |                          | Arm 6 Ahead   | Inf                | 83.9 %        | 1944              | 1944                     |
|                                                      |                |              |                          | Arm 7 Right   | 8.00               | 11.0 %        |                   |                          |
| 5/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 6/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 7/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 8/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |

**Bonus Green Times**

No Bonus Greens are defined For Scenario 3

**Scenario 4: 'PM Without Dev ST 2032'** (FG4: 'PM Without Dev ST 2032', Plan 1: 'Peds every cycle')  
**Lane Saturation Flows**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |                |              |                          |               |                    |               |                   |                          |
|------------------------------------------------------|----------------|--------------|--------------------------|---------------|--------------------|---------------|-------------------|--------------------------|
| 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<br>(Smithy Ln)                                   | 3.50           | 0.00         | Y                        | Arm 6 Left    | 15.00              | 26.6 %        | 1875              | 1875                     |
|                                                      |                |              |                          | Arm 7 Ahead   | Inf                | 59.0 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Right   | 10.00              | 14.5 %        |                   |                          |
| 2/1<br>(Cronton Rd (E))                              | 3.30           | 0.00         | Y                        | Arm 5 Right   | 10.00              | 13.7 %        | 1864              | 1864                     |
|                                                      |                |              |                          | Arm 7 Left    | 7.00               | 10.8 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Ahead   | Inf                | 75.5 %        |                   |                          |
| 3/1<br>(Chapel Ln)                                   | 2.75           | 0.00         | Y                        | Arm 5 Ahead   | Inf                | 49.1 %        | 1722              | 1722                     |
|                                                      |                |              |                          | Arm 6 Right   | 10.00              | 17.7 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Left    | 7.00               | 33.2 %        |                   |                          |
| 4/1<br>(Cronton Rd (W))                              | 3.80           | 0.00         | Y                        | Arm 5 Left    | 14.00              | 6.1 %         | 1926              | 1926                     |
|                                                      |                |              |                          | Arm 6 Ahead   | Inf                | 78.2 %        |                   |                          |
|                                                      |                |              |                          | Arm 7 Right   | 8.00               | 15.7 %        |                   |                          |
| 5/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 6/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 7/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 8/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |

**Bonus Green Times**

No Bonus Greens are defined For Scenario 4

**Scenario 5: 'AM With Dev ST 2032'** (FG5: 'AM With Dev ST 2032', Plan 1: 'Peds every cycle')**Lane Saturation Flows**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |                |              |                          |               |                    |               |                   |                          |
|------------------------------------------------------|----------------|--------------|--------------------------|---------------|--------------------|---------------|-------------------|--------------------------|
| 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<br>(Smithy Ln)                                   | 3.50           | 0.00         | Y                        | Arm 6 Left    | 15.00              | 23.2 %        | 1878              | 1878                     |
|                                                      |                |              |                          | Arm 7 Ahead   | Inf                | 61.4 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Right   | 10.00              | 15.5 %        |                   |                          |
| 2/1<br>(Cronton Rd (E))                              | 3.30           | 0.00         | Y                        | Arm 5 Right   | 10.00              | 10.3 %        | 1854              | 1854                     |
|                                                      |                |              |                          | Arm 7 Left    | 7.00               | 15.7 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Ahead   | Inf                | 74.0 %        |                   |                          |
| 3/1<br>(Chapel Ln)                                   | 2.75           | 0.00         | Y                        | Arm 5 Ahead   | Inf                | 47.7 %        | 1722              | 1722                     |
| 4/1<br>(Cronton Rd (W))                              | 3.80           | 0.00         | Y                        | Arm 6 Right   | 10.00              | 22.5 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Left    | 7.00               | 29.8 %        |                   |                          |
|                                                      |                |              |                          | Arm 5 Left    | 14.00              | 5.0 %         |                   |                          |
|                                                      |                |              |                          | Arm 6 Ahead   | Inf                | 83.1 %        | 1941              | 1941                     |
|                                                      |                |              |                          | Arm 7 Right   | 8.00               | 11.9 %        |                   |                          |
| 5/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 6/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 7/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 8/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |

**Bonus Green Times**

No Bonus Greens are defined For Scenario 5

**Scenario 6: 'PM With Dev ST 2032'** (FG6: 'PM With Dev ST 2032', Plan 1: 'Peds every cycle')**Lane Saturation Flows**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |                |              |                          |               |                    |               |                   |                          |
|------------------------------------------------------|----------------|--------------|--------------------------|---------------|--------------------|---------------|-------------------|--------------------------|
| 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<br>(Smithy Ln)                                   | 3.50           | 0.00         | Y                        | Arm 6 Left    | 15.00              | 26.6 %        | 1875              | 1875                     |
|                                                      |                |              |                          | Arm 7 Ahead   | Inf                | 59.0 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Right   | 10.00              | 14.5 %        |                   |                          |
| 2/1<br>(Cronton Rd (E))                              | 3.30           | 0.00         | Y                        | Arm 5 Right   | 10.00              | 13.5 %        | 1865              | 1865                     |
|                                                      |                |              |                          | Arm 7 Left    | 7.00               | 10.7 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Ahead   | Inf                | 75.8 %        |                   |                          |
| 3/1<br>(Chapel Ln)                                   | 2.75           | 0.00         | Y                        | Arm 5 Ahead   | Inf                | 48.1 %        | 1718              | 1718                     |
| 4/1<br>(Cronton Rd (W))                              | 3.80           | 0.00         | Y                        | Arm 6 Right   | 10.00              | 17.3 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Left    | 7.00               | 34.6 %        |                   |                          |
|                                                      |                |              |                          | Arm 5 Left    | 14.00              | 6.0 %         |                   |                          |
|                                                      |                |              |                          | Arm 6 Ahead   | Inf                | 77.8 %        | 1924              | 1924                     |
|                                                      |                |              |                          | Arm 7 Right   | 8.00               | 16.2 %        |                   |                          |
| 5/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 6/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 7/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 8/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |

**Bonus Green Times**

No Bonus Greens are defined For Scenario 6

**Scenario 7: 'AM With Dev ST 2032 PO'** (FG5: 'AM With Dev ST 2032', Plan 2: 'Peds every other cycle')  
**Lane Saturation Flows**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |                |              |                          |               |                    |               |                   |                          |
|------------------------------------------------------|----------------|--------------|--------------------------|---------------|--------------------|---------------|-------------------|--------------------------|
| 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<br>(Smithy Ln)                                   | 3.50           | 0.00         | Y                        | Arm 6 Left    | 15.00              | 23.2 %        | 1878              | 1878                     |
|                                                      |                |              |                          | Arm 7 Ahead   | Inf                | 61.4 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Right   | 10.00              | 15.5 %        |                   |                          |
| 2/1<br>(Cronton Rd (E))                              | 3.30           | 0.00         | Y                        | Arm 5 Right   | 10.00              | 10.3 %        | 1854              | 1854                     |
|                                                      |                |              |                          | Arm 7 Left    | 7.00               | 15.7 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Ahead   | Inf                | 74.0 %        |                   |                          |
| 3/1<br>(Chapel Ln)                                   | 2.75           | 0.00         | Y                        | Arm 5 Ahead   | Inf                | 47.7 %        | 1722              | 1722                     |
| 4/1<br>(Cronton Rd (W))                              | 3.80           | 0.00         | Y                        | Arm 6 Right   | 10.00              | 22.5 %        |                   |                          |
|                                                      |                |              |                          | Arm 8 Left    | 7.00               | 29.8 %        |                   |                          |
|                                                      |                |              |                          | Arm 5 Left    | 14.00              | 5.0 %         |                   |                          |
|                                                      |                |              |                          | Arm 6 Ahead   | Inf                | 83.1 %        | 1941              | 1941                     |
|                                                      |                |              |                          | Arm 7 Right   | 8.00               | 11.9 %        |                   |                          |
| 5/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 6/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 7/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |
| 8/1                                                  |                |              | Infinite Saturation Flow |               |                    |               | Inf               | Inf                      |

**Bonus Green Times**

No Bonus Greens are defined For Scenario 7

**Scenario 8: 'PM With Dev ST 2032 PO'** (FG6: 'PM With Dev ST 2032', Plan 2: 'Peds every other cycle')  
**Lane Saturation Flows**

| Junction: A5080 Cronton Road/Chapel Lane/Smithy Lane |                |              |               |                          |                    |               |                   |                          |
|------------------------------------------------------|----------------|--------------|---------------|--------------------------|--------------------|---------------|-------------------|--------------------------|
| 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<br>(Smithy Ln)                                   | 3.50           | 0.00         | Y             | Arm 6 Left               | 15.00              | 26.6 %        | 1875              | 1875                     |
|                                                      |                |              |               | Arm 7 Ahead              | Inf                | 59.0 %        |                   |                          |
|                                                      |                |              |               | Arm 8 Right              | 10.00              | 14.5 %        |                   |                          |
| 2/1<br>(Cronton Rd (E))                              | 3.30           | 0.00         | Y             | Arm 5 Right              | 10.00              | 13.5 %        | 1865              | 1865                     |
|                                                      |                |              |               | Arm 7 Left               | 7.00               | 10.7 %        |                   |                          |
|                                                      |                |              |               | Arm 8 Ahead              | Inf                | 75.8 %        |                   |                          |
| 3/1<br>(Chapel Ln)                                   | 2.75           | 0.00         | Y             | Arm 5 Ahead              | Inf                | 48.1 %        | 1718              | 1718                     |
|                                                      |                |              |               | Arm 6 Right              | 10.00              | 17.3 %        |                   |                          |
|                                                      |                |              |               | Arm 8 Left               | 7.00               | 34.6 %        |                   |                          |
| 4/1<br>(Cronton Rd (W))                              | 3.80           | 0.00         | Y             | Arm 5 Left               | 14.00              | 6.0 %         | 1924              | 1924                     |
|                                                      |                |              |               | Arm 6 Ahead              | Inf                | 77.8 %        |                   |                          |
|                                                      |                |              |               | Arm 7 Right              | 8.00               | 16.2 %        |                   |                          |
| 5/1                                                  |                |              |               | Infinite Saturation Flow |                    |               | Inf               | Inf                      |
| 6/1                                                  |                |              |               | Infinite Saturation Flow |                    |               | Inf               | Inf                      |
| 7/1                                                  |                |              |               | Infinite Saturation Flow |                    |               | Inf               | Inf                      |
| 8/1                                                  |                |              |               | Infinite Saturation Flow |                    |               | Inf               | Inf                      |

**Bonus Green Times**

No Bonus Greens are defined For Scenario 8

**Traffic Flow Groups**

| Flow Group                  | Start Time | End Time | Duration | Formula |
|-----------------------------|------------|----------|----------|---------|
| 1: 'AM Obs 2025'            | 08:00      | 09:00    | 01:00    |         |
| 2: 'PM Obs 2025'            | 16:45      | 17:45    | 01:00    |         |
| 3: 'AM Without Dev ST 2032' | 08:00      | 09:00    | 01:00    |         |
| 4: 'PM Without Dev ST 2032' | 16:45      | 17:45    | 01:00    |         |
| 5: 'AM With Dev ST 2032'    | 08:00      | 09:00    | 01:00    |         |
| 6: 'PM With Dev ST 2032'    | 16:45      | 17:45    | 01:00    |         |

**Traffic Flows, Actual****Scenario 1: 'AM Obs 2025'** (FG1: 'AM Obs 2025', Plan 1: 'Peds every cycle')**Actual Flow :**

|        | Destination |     |     |     |     |      |
|--------|-------------|-----|-----|-----|-----|------|
|        |             | A   | B   | C   | D   | Tot. |
| Origin | A           | 0   | 85  | 299 | 56  | 440  |
|        | B           | 74  | 0   | 91  | 156 | 321  |
|        | C           | 403 | 62  | 0   | 29  | 494  |
|        | D           | 51  | 136 | 33  | 0   | 220  |
|        | Tot.        | 528 | 283 | 423 | 241 | 1475 |

**Scenario 2: 'PM Obs 2025'** (FG2: 'PM Obs 2025', Plan 1: 'Peds every cycle')**Actual Flow :**

|        | Destination |     |     |     |     |      |
|--------|-------------|-----|-----|-----|-----|------|
|        |             | A   | B   | C   | D   | Tot. |
| Origin | A           | 0   | 58  | 323 | 73  | 454  |
|        | B           | 47  | 0   | 84  | 132 | 263  |
|        | C           | 225 | 61  | 0   | 23  | 309  |
|        | D           | 44  | 97  | 22  | 0   | 163  |
|        | Tot.        | 316 | 216 | 429 | 228 | 1189 |

**Scenario 3: 'AM Without Dev ST 2032'** (FG3: 'AM Without Dev ST 2032', Plan 1: 'Peds every cycle')**Actual Flow :**

|        | Destination |     |     |     |     |      |
|--------|-------------|-----|-----|-----|-----|------|
|        |             | A   | B   | C   | D   | Tot. |
| Origin | A           | 0   | 90  | 421 | 59  | 570  |
|        | B           | 78  | 0   | 101 | 165 | 344  |
|        | C           | 510 | 67  | 0   | 31  | 608  |
|        | D           | 54  | 143 | 36  | 0   | 233  |
|        | Tot.        | 642 | 300 | 558 | 255 | 1755 |

**Scenario 4: 'PM Without Dev ST 2032'** (FG4: 'PM Without Dev ST 2032', Plan 1: 'Peds every cycle')**Actual Flow :**

|        | Destination |     |     |     |     |      |
|--------|-------------|-----|-----|-----|-----|------|
|        |             | A   | B   | C   | D   | Tot. |
| Origin | A           | 0   | 61  | 426 | 77  | 564  |
|        | B           | 50  | 0   | 94  | 139 | 283  |
|        | C           | 334 | 67  | 0   | 26  | 427  |
|        | D           | 46  | 102 | 25  | 0   | 173  |
|        | Tot.        | 430 | 230 | 545 | 242 | 1447 |

## Detailed Input Data And Results

**Scenario 5: 'AM With Dev ST 2032'** (FG5: 'AM With Dev ST 2032', Plan 1: 'Peds every cycle')

**Actual Flow :**

|        | Destination |     |     |     |     |      |
|--------|-------------|-----|-----|-----|-----|------|
|        |             | A   | B   | C   | D   | Tot. |
| Origin | A           | 0   | 90  | 424 | 59  | 573  |
|        | B           | 78  | 0   | 103 | 165 | 346  |
|        | C           | 517 | 74  | 0   | 31  | 622  |
|        | D           | 54  | 143 | 36  | 0   | 233  |
|        | Tot.        | 649 | 307 | 563 | 255 | 1774 |

**Scenario 6: 'PM With Dev ST 2032'** (FG6: 'PM With Dev ST 2032', Plan 1: 'Peds every cycle')

**Actual Flow :**

|        | Destination |     |     |     |     |      |
|--------|-------------|-----|-----|-----|-----|------|
|        |             | A   | B   | C   | D   | Tot. |
| Origin | A           | 0   | 61  | 433 | 77  | 571  |
|        | B           | 50  | 0   | 100 | 139 | 289  |
|        | C           | 337 | 70  | 0   | 26  | 433  |
|        | D           | 46  | 102 | 25  | 0   | 173  |
|        | Tot.        | 433 | 233 | 558 | 242 | 1466 |

**Scenario 7: 'AM With Dev ST 2032 PO'** (FG5: 'AM With Dev ST 2032', Plan 2: 'Peds every other cycle')

**Actual Flow :**

|        | Destination |     |     |     |     |      |
|--------|-------------|-----|-----|-----|-----|------|
|        |             | A   | B   | C   | D   | Tot. |
| Origin | A           | 0   | 90  | 424 | 59  | 573  |
|        | B           | 78  | 0   | 103 | 165 | 346  |
|        | C           | 517 | 74  | 0   | 31  | 622  |
|        | D           | 54  | 143 | 36  | 0   | 233  |
|        | Tot.        | 649 | 307 | 563 | 255 | 1774 |

**Scenario 8: 'PM With Dev ST 2032 PO'** (FG6: 'PM With Dev ST 2032', Plan 2: 'Peds every other cycle')

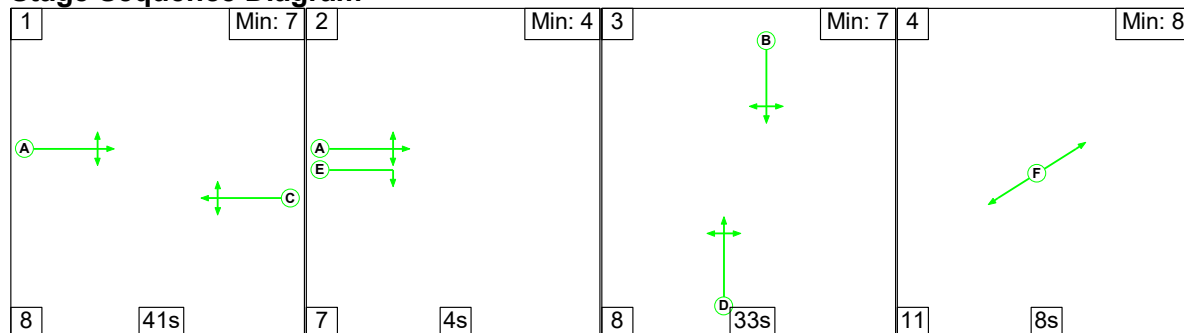
**Actual Flow :**

|        | Destination |     |     |     |     |      |
|--------|-------------|-----|-----|-----|-----|------|
|        |             | A   | B   | C   | D   | Tot. |
| Origin | A           | 0   | 61  | 433 | 77  | 571  |
|        | B           | 50  | 0   | 100 | 139 | 289  |
|        | C           | 337 | 70  | 0   | 26  | 433  |
|        | D           | 46  | 102 | 25  | 0   | 173  |
|        | Tot.        | 433 | 233 | 558 | 242 | 1466 |

## Detailed Input Data And Results

**Scenario 1: 'AM Obs 2025'** (FG1: 'AM Obs 2025', Plan 1: 'Peds every cycle')

### Stage Sequence Diagram



### Stage Timings

| Stage        | 1  | 2  | 3  | 4   |
|--------------|----|----|----|-----|
| Duration     | 41 | 4  | 33 | 8   |
| Change Point | 0  | 49 | 60 | 101 |

### Phase Timings

| Phase Name | Description                     | Phase      | Green Period 1 |            |          |
|------------|---------------------------------|------------|----------------|------------|----------|
|            |                                 |            | Total Green    | Start Time | End Time |
| A          | Cronton Rd (W) Left Ahead Right | Traffic    | 52             | 8          | 60       |
| B          | Smithy Ln Left Ahead Right      | Traffic    | 33             | 68         | 101      |
| C          | Cronton Rd (E) Right Left Ahead | Traffic    | 41             | 8          | 49       |
| D          | Chapel Ln Ahead Right Left      | Traffic    | 33             | 68         | 101      |
| E          | Cronton Rd (W) Right IGA        | Ind. Arrow | 4              | 56         | 60       |
| F          | Pedestrians across              | Pedestrian | 8              | 112        | 0        |

## Detailed 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) | Bonus Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%)  |
|---------------------------------------------------|---------------------------------|-----------|-------------------|----------------------------|------------|-------------|------------|-----------------|-----------------|-----------------|-------------------|-------------------|----------------|--------------|
| <b>Network: Cronton Chippy Junction</b>           | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>73.6%</b> |
| <b>A5080 Cronton Road/Chapel Lane/Smithy Lane</b> | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>73.6%</b> |
| 1/1                                               | Smithy Ln Left Ahead Right      | O         | N/A               | N/A                        | B          |             | 1          | 33              | -               | -               | 220               | 1879              | 516            | 42.7%        |
| 2/1                                               | Cronton Rd (E) Right Left Ahead | O         | N/A               | N/A                        | C          |             | 1          | 41              | -               | -               | 440               | 1834              | 598            | 73.6%        |
| 3/1                                               | Chapel Ln Ahead Right Left      | O         | N/A               | N/A                        | D          |             | 1          | 33              | -               | -               | 321               | 1726              | 439            | 73.1%        |
| 4/1                                               | Cronton Rd (W) Left Ahead Right | O         | N/A               | N/A                        | A          | E           | 1          | 52              | 4               | -               | 494               | 1937              | 748            | 66.1%        |
| 5/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 241               | Inf               | Inf            | 0.0%         |
| 6/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 528               | Inf               | Inf            | 0.0%         |
| 7/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 283               | Inf               | Inf            | 0.0%         |
| 8/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 423               | Inf               | Inf            | 0.0%         |

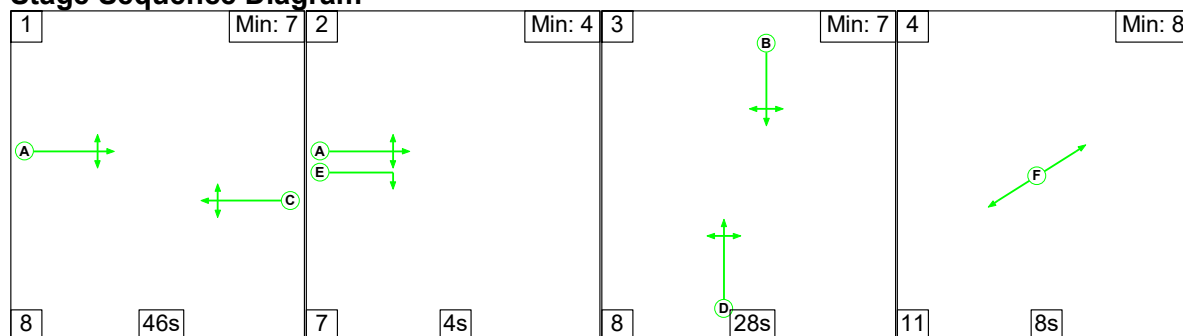
## Detailed Input Data And Results

| 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: Cronton Chippy Junction                                                                                                                                                                                                                                                       | -              | -             | 216                   | 5                            | 4                           | 13.1                  | 4.0                          | 0.4                                | 17.6                | -                         | -                                | -                          | -                    |  |
| A5080 Cronton Road/Chapel Lane/Smithy Lane                                                                                                                                                                                                                                             | -              | -             | 216                   | 5                            | 4                           | 13.1                  | 4.0                          | 0.4                                | 17.6                | -                         | -                                | -                          | -                    |  |
| 1/1                                                                                                                                                                                                                                                                                    | 220            | 220           | 33                    | 0                            | 0                           | 2.1                   | 0.4                          | 0.0                                | 2.5                 | 41.5                      | 5.9                              | 0.4                        | 6.3                  |  |
| 2/1                                                                                                                                                                                                                                                                                    | 440            | 440           | 55                    | 0                            | 1                           | 4.1                   | 1.4                          | 0.1                                | 5.6                 | 45.7                      | 12.5                             | 1.4                        | 13.8                 |  |
| 3/1                                                                                                                                                                                                                                                                                    | 321            | 321           | 73                    | 0                            | 1                           | 3.5                   | 1.3                          | 0.1                                | 4.9                 | 54.7                      | 9.7                              | 1.3                        | 11.0                 |  |
| 4/1                                                                                                                                                                                                                                                                                    | 494            | 494           | 56                    | 5                            | 2                           | 3.4                   | 1.0                          | 0.2                                | 4.6                 | 33.3                      | 12.2                             | 1.0                        | 13.2                 |  |
| 5/1                                                                                                                                                                                                                                                                                    | 241            | 241           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 6/1                                                                                                                                                                                                                                                                                    | 528            | 528           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 7/1                                                                                                                                                                                                                                                                                    | 283            | 283           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 8/1                                                                                                                                                                                                                                                                                    | 423            | 423           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| <div> <div>C1</div> <div> <div>PRC for Signalled Lanes (%): 22.3</div> <div>PRC Over All Lanes (%): 22.3</div> </div> <div> <div>Total Delay for Signalled Lanes (pcuHr): 17.58</div> <div>Total Delay Over All Lanes(pcuHr): 17.58</div> </div> <div>Cycle Time (s): 120</div> </div> |                |               |                       |                              |                             |                       |                              |                                    |                     |                           |                                  |                            |                      |  |

# Detailed Input Data And Results

**Scenario 2: 'PM Obs 2025'** (FG2: 'PM Obs 2025', Plan 1: 'Peds every cycle')

## Stage Sequence Diagram



## Stage Timings

| Stage        | 1  | 2  | 3  | 4   |
|--------------|----|----|----|-----|
| Duration     | 46 | 4  | 28 | 8   |
| Change Point | 0  | 54 | 65 | 101 |

## Phase Timings

| Phase Name | Description                     | Phase      | Green Period 1 |            |          |
|------------|---------------------------------|------------|----------------|------------|----------|
|            |                                 |            | Total Green    | Start Time | End Time |
| A          | Cronton Rd (W) Left Ahead Right | Traffic    | 57             | 8          | 65       |
| B          | Smithy Ln Left Ahead Right      | Traffic    | 28             | 73         | 101      |
| C          | Cronton Rd (E) Right Left Ahead | Traffic    | 46             | 8          | 54       |
| D          | Chapel Ln Ahead Right Left      | Traffic    | 28             | 73         | 101      |
| E          | Cronton Rd (W) Right IGA        | Ind. Arrow | 4              | 61         | 65       |
| F          | Pedestrians across              | Pedestrian | 8              | 112        | 0        |

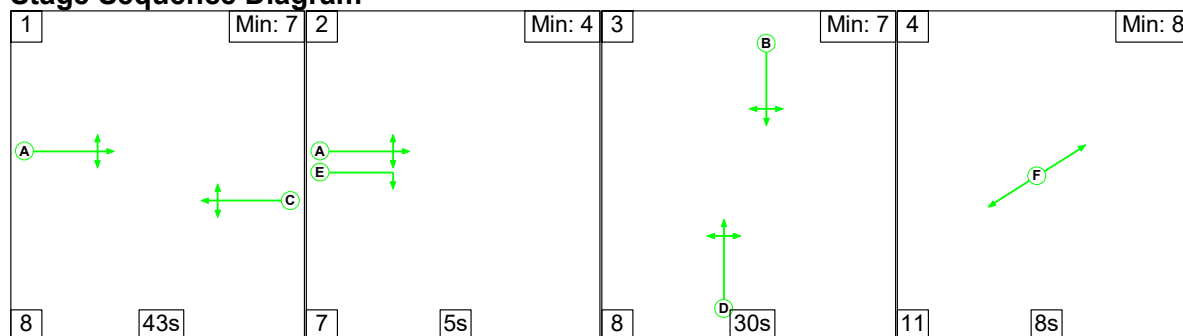
## Detailed Input Data And Results

**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) | Bonus Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%)  |
|---------------------------------------------------|---------------------------------|-----------|-------------------|----------------------------|------------|-------------|------------|-----------------|-----------------|-----------------|-------------------|-------------------|----------------|--------------|
| <b>Network: Cronton Chippy Junction</b>           | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>65.7%</b> |
| <b>A5080 Cronton Road/Chapel Lane/Smithy Lane</b> | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>65.7%</b> |
| 1/1                                               | Smithy Ln Left Ahead Right      | O         | N/A               | N/A                        | B          |             | 1          | 28              | -               | -               | 163               | 1876              | 398            | 40.9%        |
| 2/1                                               | Cronton Rd (E) Right Left Ahead | O         | N/A               | N/A                        | C          |             | 1          | 46              | -               | -               | 454               | 1850              | 699            | 64.9%        |
| 3/1                                               | Chapel Ln Ahead Right Left      | O         | N/A               | N/A                        | D          |             | 1          | 28              | -               | -               | 263               | 1726              | 400            | 65.7%        |
| 4/1                                               | Cronton Rd (W) Left Ahead Right | O         | N/A               | N/A                        | A          | E           | 1          | 57              | 4               | -               | 309               | 1909              | 724            | 42.7%        |
| 5/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 228               | Inf               | Inf            | 0.0%         |
| 6/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 316               | Inf               | Inf            | 0.0%         |
| 7/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 216               | Inf               | Inf            | 0.0%         |
| 8/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 429               | Inf               | Inf            | 0.0%         |

## Detailed 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: Cronton Chippy Junction                                                                                                                                                                                                                                                       | -              | -             | 194                   | 5                            | 4                           | 10.1                  | 2.6                          | 0.3                                | 13.0                | -                         | -                                | -                          | -                    |  |
| A5080 Cronton Road/Chapel Lane/Smithy Lane                                                                                                                                                                                                                                             | -              | -             | 194                   | 5                            | 4                           | 10.1                  | 2.6                          | 0.3                                | 13.0                | -                         | -                                | -                          | -                    |  |
| 1/1                                                                                                                                                                                                                                                                                    | 163            | 163           | 22                    | 0                            | 0                           | 1.7                   | 0.3                          | 0.1                                | 2.1                 | 46.7                      | 4.5                              | 0.3                        | 4.8                  |  |
| 2/1                                                                                                                                                                                                                                                                                    | 454            | 454           | 71                    | 0                            | 2                           | 3.8                   | 0.9                          | 0.1                                | 4.8                 | 37.7                      | 12.5                             | 0.9                        | 13.4                 |  |
| 3/1                                                                                                                                                                                                                                                                                    | 263            | 263           | 46                    | 0                            | 1                           | 3.0                   | 0.9                          | 0.0                                | 4.0                 | 54.2                      | 7.8                              | 0.9                        | 8.8                  |  |
| 4/1                                                                                                                                                                                                                                                                                    | 309            | 309           | 55                    | 5                            | 2                           | 1.6                   | 0.4                          | 0.1                                | 2.1                 | 25.0                      | 6.3                              | 0.4                        | 6.6                  |  |
| 5/1                                                                                                                                                                                                                                                                                    | 228            | 228           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 6/1                                                                                                                                                                                                                                                                                    | 316            | 316           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 7/1                                                                                                                                                                                                                                                                                    | 216            | 216           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 8/1                                                                                                                                                                                                                                                                                    | 429            | 429           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| <div> <div>C1</div> <div> <div>PRC for Signalled Lanes (%): 37.0</div> <div>PRC Over All Lanes (%): 37.0</div> </div> <div> <div>Total Delay for Signalled Lanes (pcuHr): 12.98</div> <div>Total Delay Over All Lanes(pcuHr): 12.98</div> </div> <div>Cycle Time (s): 120</div> </div> |                |               |                       |                              |                             |                       |                              |                                    |                     |                           |                                  |                            |                      |  |

**Stage Sequence Diagram****Stage Timings**

| Stage        | 1  | 2  | 3  | 4   |
|--------------|----|----|----|-----|
| Duration     | 43 | 5  | 30 | 8   |
| Change Point | 0  | 51 | 63 | 101 |

**Phase Timings**

| Phase Name | Description                     | Phase      | Green Period 1 |            |          |
|------------|---------------------------------|------------|----------------|------------|----------|
|            |                                 |            | Total Green    | Start Time | End Time |
| A          | Cronton Rd (W) Left Ahead Right | Traffic    | 55             | 8          | 63       |
| B          | Smithy Ln Left Ahead Right      | Traffic    | 30             | 71         | 101      |
| C          | Cronton Rd (E) Right Left Ahead | Traffic    | 43             | 8          | 51       |
| D          | Chapel Ln Ahead Right Left      | Traffic    | 30             | 71         | 101      |
| E          | Cronton Rd (W) Right IGA        | Ind. Arrow | 5              | 58         | 63       |
| F          | Pedestrians across              | Pedestrian | 8              | 112        | 0        |

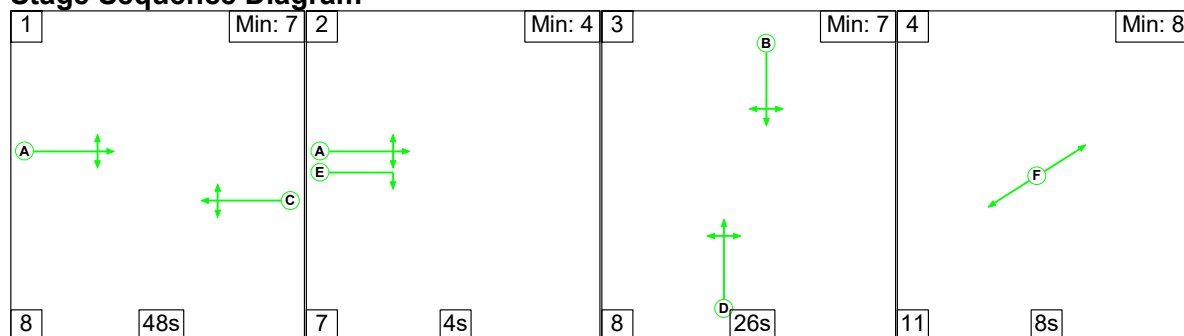
## Detailed Input Data And Results

**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) | Bonus Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%)  |
|---------------------------------------------------|---------------------------------|-----------|-------------------|----------------------------|------------|-------------|------------|-----------------|-----------------|-----------------|-------------------|-------------------|----------------|--------------|
| <b>Network: Cronton Chippy Junction</b>           | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>92.8%</b> |
| <b>A5080 Cronton Road/Chapel Lane/Smithy Lane</b> | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>92.8%</b> |
| 1/1                                               | Smithy Ln Left Ahead Right      | O         | N/A               | N/A                        | B          |             | 1          | 30              | -               | -               | 233               | 1878              | 474            | 49.2%        |
| 2/1                                               | Cronton Rd (E) Right Left Ahead | O         | N/A               | N/A                        | C          |             | 1          | 43              | -               | -               | 570               | 1854              | 637            | 89.5%        |
| 3/1                                               | Chapel Ln Ahead Right Left      | O         | N/A               | N/A                        | D          |             | 1          | 30              | -               | -               | 344               | 1723              | 371            | 92.8%        |
| 4/1                                               | Cronton Rd (W) Left Ahead Right | O         | N/A               | N/A                        | A          | E           | 1          | 55              | 5               | -               | 608               | 1944              | 656            | 92.7%        |
| 5/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 255               | Inf               | Inf            | 0.0%         |
| 6/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 642               | Inf               | Inf            | 0.0%         |
| 7/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 300               | Inf               | Inf            | 0.0%         |
| 8/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 558               | Inf               | Inf            | 0.0%         |

## Detailed 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: Cronton Chippy Junction                                                                                                                                                                                                                                                       | -              | -             | 209                   | 26                           | 5                           | 16.8                  | 14.3                         | 0.5                                | 31.6                | -                         | -                                | -                          | -                    |  |
| A5080 Cronton Road/Chapel Lane/Smithy Lane                                                                                                                                                                                                                                             | -              | -             | 209                   | 26                           | 5                           | 16.8                  | 14.3                         | 0.5                                | 31.6                | -                         | -                                | -                          | -                    |  |
| 1/1                                                                                                                                                                                                                                                                                    | 233            | 233           | 36                    | 0                            | 0                           | 2.4                   | 0.5                          | 0.0                                | 3.0                 | 45.7                      | 6.5                              | 0.5                        | 7.0                  |  |
| 2/1                                                                                                                                                                                                                                                                                    | 570            | 570           | 58                    | 0                            | 1                           | 5.6                   | 3.8                          | 0.1                                | 9.6                 | 60.5                      | 17.9                             | 3.8                        | 21.7                 |  |
| 3/1                                                                                                                                                                                                                                                                                    | 344            | 344           | 77                    | 0                            | 1                           | 4.1                   | 4.8                          | 0.1                                | 9.0                 | 94.2                      | 11.2                             | 4.8                        | 15.9                 |  |
| 4/1                                                                                                                                                                                                                                                                                    | 608            | 608           | 39                    | 26                           | 2                           | 4.6                   | 5.2                          | 0.3                                | 10.1                | 59.6                      | 19.4                             | 5.2                        | 24.6                 |  |
| 5/1                                                                                                                                                                                                                                                                                    | 255            | 255           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 6/1                                                                                                                                                                                                                                                                                    | 642            | 642           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 7/1                                                                                                                                                                                                                                                                                    | 300            | 300           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 8/1                                                                                                                                                                                                                                                                                    | 558            | 558           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| <div> <div>C1</div> <div> <div>PRC for Signalled Lanes (%): -3.2</div> <div>PRC Over All Lanes (%): -3.2</div> </div> <div> <div>Total Delay for Signalled Lanes (pcuHr): 31.60</div> <div>Total Delay Over All Lanes(pcuHr): 31.60</div> </div> <div>Cycle Time (s): 120</div> </div> |                |               |                       |                              |                             |                       |                              |                                    |                     |                           |                                  |                            |                      |  |

**Stage Sequence Diagram****Stage Timings**

| Stage        | 1  | 2  | 3  | 4   |
|--------------|----|----|----|-----|
| Duration     | 48 | 4  | 26 | 8   |
| Change Point | 0  | 56 | 67 | 101 |

**Phase Timings**

| Phase Name | Description                     | Phase      | Green Period 1 |            |          |
|------------|---------------------------------|------------|----------------|------------|----------|
|            |                                 |            | Total Green    | Start Time | End Time |
| A          | Cronton Rd (W) Left Ahead Right | Traffic    | 59             | 8          | 67       |
| B          | Smithy Ln Left Ahead Right      | Traffic    | 26             | 75         | 101      |
| C          | Cronton Rd (E) Right Left Ahead | Traffic    | 48             | 8          | 56       |
| D          | Chapel Ln Ahead Right Left      | Traffic    | 26             | 75         | 101      |
| E          | Cronton Rd (W) Right IGA        | Ind. Arrow | 4              | 63         | 67       |
| F          | Pedestrians across              | Pedestrian | 8              | 112        | 0        |

## Detailed 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) | Bonus Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%)  |
|---------------------------------------------------|---------------------------------|-----------|-------------------|----------------------------|------------|-------------|------------|-----------------|-----------------|-----------------|-------------------|-------------------|----------------|--------------|
| <b>Network: Cronton Chippy Junction</b>           | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>76.2%</b> |
| <b>A5080 Cronton Road/Chapel Lane/Smithy Lane</b> | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>76.2%</b> |
| 1/1                                               | Smithy Ln Left Ahead Right      | O         | N/A               | N/A                        | B          |             | 1          | 26              | -               | -               | 173               | 1875              | 327            | 52.9%        |
| 2/1                                               | Cronton Rd (E) Right Left Ahead | O         | N/A               | N/A                        | C          |             | 1          | 48              | -               | -               | 564               | 1864              | 742            | 76.0%        |
| 3/1                                               | Chapel Ln Ahead Right Left      | O         | N/A               | N/A                        | D          |             | 1          | 26              | -               | -               | 283               | 1722              | 372            | 76.2%        |
| 4/1                                               | Cronton Rd (W) Left Ahead Right | O         | N/A               | N/A                        | A          | E           | 1          | 59              | 4               | -               | 427               | 1926              | 651            | 65.6%        |
| 5/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 242               | Inf               | Inf            | 0.0%         |
| 6/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 430               | Inf               | Inf            | 0.0%         |
| 7/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 230               | Inf               | Inf            | 0.0%         |
| 8/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 545               | Inf               | Inf            | 0.0%         |

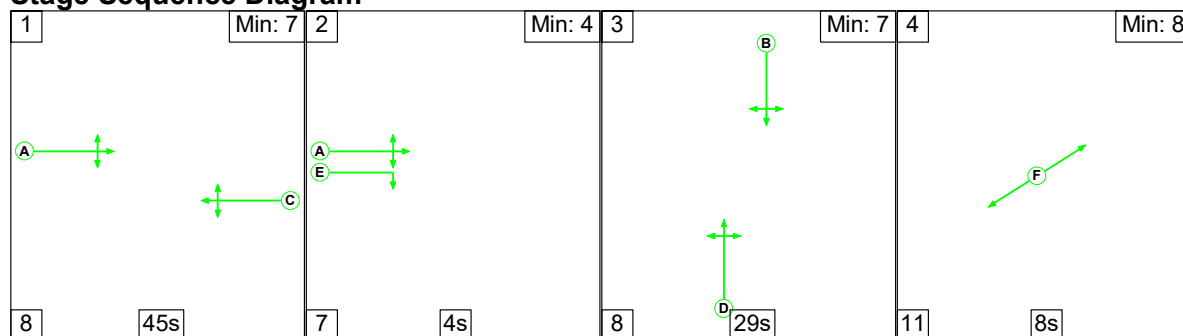
## Detailed Input Data And Results

| 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: Cronton Chippy Junction                                                                                                                                                                                                                                                       | -              | -             | 209                   | 5                            | 5                           | 12.4                  | 4.6                          | 0.5                                | 17.5                | -                         | -                                | -                          | -                    |  |
| A5080 Cronton Road/Chapel Lane/Smithy Lane                                                                                                                                                                                                                                             | -              | -             | 209                   | 5                            | 5                           | 12.4                  | 4.6                          | 0.5                                | 17.5                | -                         | -                                | -                          | -                    |  |
| 1/1                                                                                                                                                                                                                                                                                    | 173            | 173           | 25                    | 0                            | 0                           | 1.9                   | 0.6                          | 0.1                                | 2.5                 | 52.9                      | 4.9                              | 0.6                        | 5.5                  |  |
| 2/1                                                                                                                                                                                                                                                                                    | 564            | 564           | 75                    | 0                            | 2                           | 4.8                   | 1.6                          | 0.1                                | 6.4                 | 40.8                      | 16.1                             | 1.6                        | 17.7                 |  |
| 3/1                                                                                                                                                                                                                                                                                    | 283            | 283           | 49                    | 0                            | 1                           | 3.4                   | 1.5                          | 0.0                                | 5.0                 | 63.4                      | 8.7                              | 1.5                        | 10.3                 |  |
| 4/1                                                                                                                                                                                                                                                                                    | 427            | 427           | 60                    | 5                            | 2                           | 2.3                   | 0.9                          | 0.3                                | 3.6                 | 30.2                      | 9.1                              | 0.9                        | 10.1                 |  |
| 5/1                                                                                                                                                                                                                                                                                    | 242            | 242           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 6/1                                                                                                                                                                                                                                                                                    | 430            | 430           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 7/1                                                                                                                                                                                                                                                                                    | 230            | 230           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 8/1                                                                                                                                                                                                                                                                                    | 545            | 545           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| <div> <div>C1</div> <div> <div>PRC for Signalled Lanes (%): 18.2</div> <div>PRC Over All Lanes (%): 18.2</div> </div> <div> <div>Total Delay for Signalled Lanes (pcuHr): 17.49</div> <div>Total Delay Over All Lanes(pcuHr): 17.49</div> </div> <div>Cycle Time (s): 120</div> </div> |                |               |                       |                              |                             |                       |                              |                                    |                     |                           |                                  |                            |                      |  |

# Detailed Input Data And Results

**Scenario 5: 'AM With Dev ST 2032'** (FG5: 'AM With Dev ST 2032', Plan 1: 'Peds every cycle')

## Stage Sequence Diagram



## Stage Timings

| Stage        | 1  | 2  | 3  | 4   |
|--------------|----|----|----|-----|
| Duration     | 45 | 4  | 29 | 8   |
| Change Point | 0  | 53 | 64 | 101 |

## Phase Timings

| Phase Name | Description                     | Phase      | Green Period 1 |            |          |
|------------|---------------------------------|------------|----------------|------------|----------|
|            |                                 |            | Total Green    | Start Time | End Time |
| A          | Cronton Rd (W) Left Ahead Right | Traffic    | 56             | 8          | 64       |
| B          | Smithy Ln Left Ahead Right      | Traffic    | 29             | 72         | 101      |
| C          | Cronton Rd (E) Right Left Ahead | Traffic    | 45             | 8          | 53       |
| D          | Chapel Ln Ahead Right Left      | Traffic    | 29             | 72         | 101      |
| E          | Cronton Rd (W) Right IGA        | Ind. Arrow | 4              | 60         | 64       |
| F          | Pedestrians across              | Pedestrian | 8              | 112        | 0        |

# Detailed 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) | Bonus Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|--------------------------------------------|---------------------------------|-----------|-------------------|----------------------------|------------|-------------|------------|-----------------|-----------------|-----------------|-------------------|-------------------|----------------|-------------|
| Network: Cronton Chippy Junction           | -                               | -         | N/A               | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | 95.3%       |
| A5080 Cronton Road/Chapel Lane/Smithy Lane | -                               | -         | N/A               | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | 95.3%       |
| 1/1                                        | Smithy Ln Left Ahead Right      | O         | N/A               | N/A                        | B          |             | 1          | 29              | -               | -               | 233               | 1878              | 459            | 50.8%       |
| 2/1                                        | Cronton Rd (E) Right Left Ahead | O         | N/A               | N/A                        | C          |             | 1          | 45              | -               | -               | 573               | 1854              | 686            | 83.6%       |
| 3/1                                        | Chapel Ln Ahead Right Left      | O         | N/A               | N/A                        | D          |             | 1          | 29              | -               | -               | 346               | 1722              | 366            | 94.6%       |
| 4/1                                        | Cronton Rd (W) Left Ahead Right | O         | N/A               | N/A                        | A          | E           | 1          | 56              | 4               | -               | 622               | 1941              | 652            | 95.3%       |
| 5/1                                        |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 255               | Inf               | Inf            | 0.0%        |
| 6/1                                        |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 649               | Inf               | Inf            | 0.0%        |
| 7/1                                        |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 307               | Inf               | Inf            | 0.0%        |
| 8/1                                        |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 563               | Inf               | Inf            | 0.0%        |

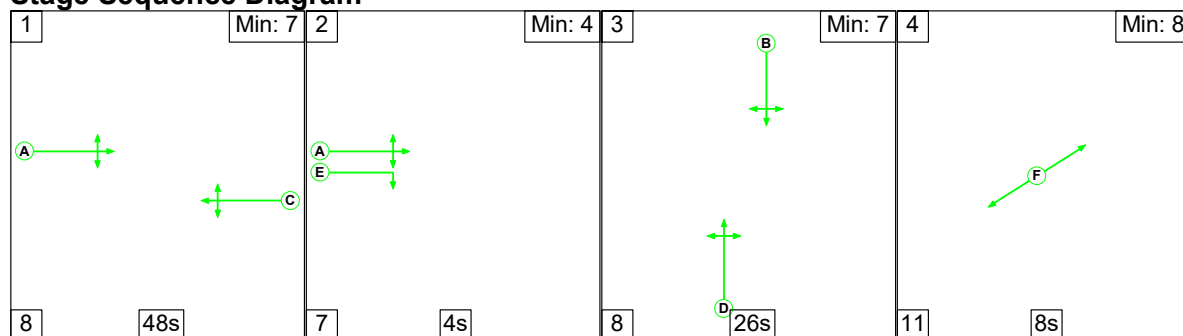
## Detailed Input Data And Results

| 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: Cronton Chippy Junction                                                                                                                                                                                                                                                       | -              | -             | 221                   | 17                           | 8                           | 17.0                  | 15.5                         | 0.5                                | 33.0                | -                         | -                                | -                          | -                    |  |
| A5080 Cronton Road/Chapel Lane/Smithy Lane                                                                                                                                                                                                                                             | -              | -             | 221                   | 17                           | 8                           | 17.0                  | 15.5                         | 0.5                                | 33.0                | -                         | -                                | -                          | -                    |  |
| 1/1                                                                                                                                                                                                                                                                                    | 233            | 233           | 33                    | 0                            | 3                           | 2.5                   | 0.5                          | 0.0                                | 3.0                 | 47.1                      | 6.6                              | 0.5                        | 7.1                  |  |
| 2/1                                                                                                                                                                                                                                                                                    | 573            | 573           | 58                    | 0                            | 1                           | 5.3                   | 2.4                          | 0.1                                | 7.8                 | 49.3                      | 17.3                             | 2.4                        | 19.8                 |  |
| 3/1                                                                                                                                                                                                                                                                                    | 346            | 346           | 76                    | 0                            | 2                           | 4.2                   | 5.6                          | 0.1                                | 9.9                 | 102.9                     | 11.3                             | 5.6                        | 16.9                 |  |
| 4/1                                                                                                                                                                                                                                                                                    | 622            | 622           | 55                    | 17                           | 2                           | 5.0                   | 7.0                          | 0.3                                | 12.2                | 70.7                      | 20.2                             | 7.0                        | 27.2                 |  |
| 5/1                                                                                                                                                                                                                                                                                    | 255            | 255           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 6/1                                                                                                                                                                                                                                                                                    | 649            | 649           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 7/1                                                                                                                                                                                                                                                                                    | 307            | 307           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 8/1                                                                                                                                                                                                                                                                                    | 563            | 563           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| <div> <div>C1</div> <div> <div>PRC for Signalled Lanes (%): -5.9</div> <div>PRC Over All Lanes (%): -5.9</div> </div> <div> <div>Total Delay for Signalled Lanes (pcuHr): 32.99</div> <div>Total Delay Over All Lanes(pcuHr): 32.99</div> </div> <div>Cycle Time (s): 120</div> </div> |                |               |                       |                              |                             |                       |                              |                                    |                     |                           |                                  |                            |                      |  |

# Detailed Input Data And Results

**Scenario 6: 'PM With Dev ST 2032'** (FG6: 'PM With Dev ST 2032', Plan 1: 'Peds every cycle')

## Stage Sequence Diagram



## Stage Timings

| Stage        | 1  | 2  | 3  | 4   |
|--------------|----|----|----|-----|
| Duration     | 48 | 4  | 26 | 8   |
| Change Point | 0  | 56 | 67 | 101 |

## Phase Timings

| Phase Name | Description                     | Phase      | Green Period 1 |            |          |
|------------|---------------------------------|------------|----------------|------------|----------|
|            |                                 |            | Total Green    | Start Time | End Time |
| A          | Cronton Rd (W) Left Ahead Right | Traffic    | 59             | 8          | 67       |
| B          | Smithy Ln Left Ahead Right      | Traffic    | 26             | 75         | 101      |
| C          | Cronton Rd (E) Right Left Ahead | Traffic    | 48             | 8          | 56       |
| D          | Chapel Ln Ahead Right Left      | Traffic    | 26             | 75         | 101      |
| E          | Cronton Rd (W) Right IGA        | Ind. Arrow | 4              | 63         | 67       |
| F          | Pedestrians across              | Pedestrian | 8              | 112        | 0        |

## Detailed 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) | Bonus Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%)  |
|---------------------------------------------------|---------------------------------|-----------|-------------------|----------------------------|------------|-------------|------------|-----------------|-----------------|-----------------|-------------------|-------------------|----------------|--------------|
| <b>Network: Cronton Chippy Junction</b>           | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>77.7%</b> |
| <b>A5080 Cronton Road/Chapel Lane/Smithy Lane</b> | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>77.7%</b> |
| 1/1                                               | Smithy Ln Left Ahead Right      | O         | N/A               | N/A                        | B          |             | 1          | 26              | -               | -               | 173               | 1875              | 308            | 56.2%        |
| 2/1                                               | Cronton Rd (E) Right Left Ahead | O         | N/A               | N/A                        | C          |             | 1          | 48              | -               | -               | 571               | 1865              | 743            | 76.9%        |
| 3/1                                               | Chapel Ln Ahead Right Left      | O         | N/A               | N/A                        | D          |             | 1          | 26              | -               | -               | 289               | 1718              | 372            | 77.7%        |
| 4/1                                               | Cronton Rd (W) Left Ahead Right | O         | N/A               | N/A                        | A          | E           | 1          | 59              | 4               | -               | 433               | 1924              | 628            | 68.9%        |
| 5/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 242               | Inf               | Inf            | 0.0%         |
| 6/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 433               | Inf               | Inf            | 0.0%         |
| 7/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 233               | Inf               | Inf            | 0.0%         |
| 8/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 558               | Inf               | Inf            | 0.0%         |

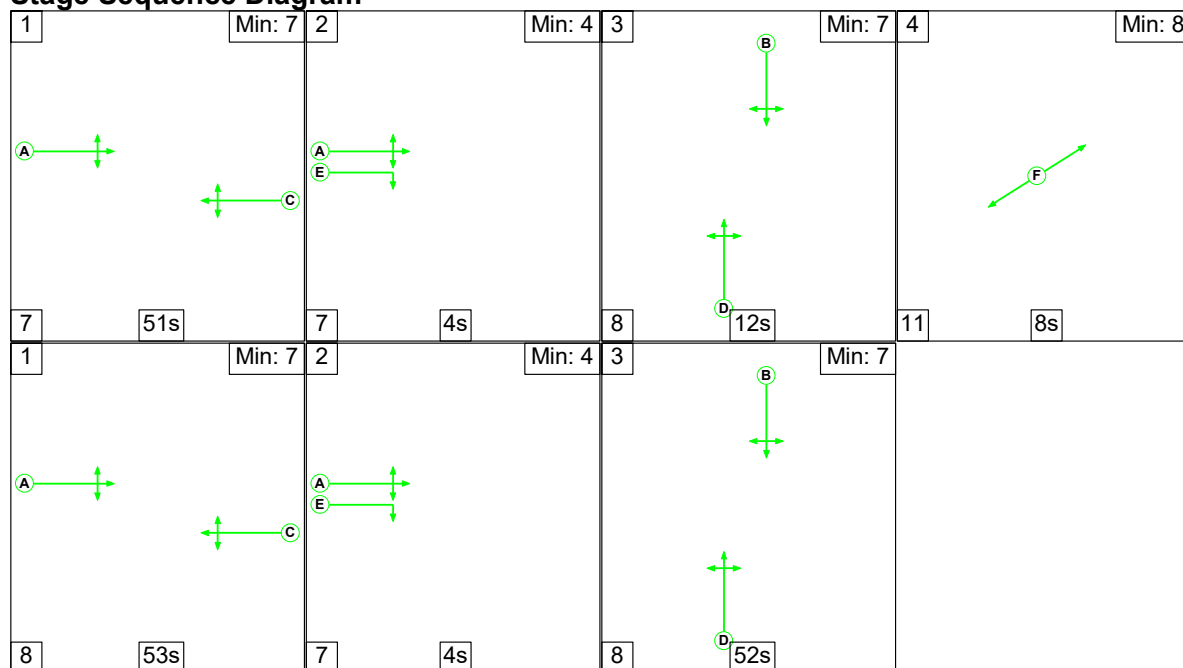
## Detailed Input Data And Results

| 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: Cronton Chippy Junction                                                                                                                                                                                                                                                       | -              | -             | 212                   | 5                            | 5                           | 12.7                  | 5.0                          | 0.5                                | 18.2                | -                         | -                                | -                          | -                    |  |
| A5080 Cronton Road/Chapel Lane/Smithy Lane                                                                                                                                                                                                                                             | -              | -             | 212                   | 5                            | 5                           | 12.7                  | 5.0                          | 0.5                                | 18.2                | -                         | -                                | -                          | -                    |  |
| 1/1                                                                                                                                                                                                                                                                                    | 173            | 173           | 25                    | 0                            | 0                           | 1.9                   | 0.6                          | 0.1                                | 2.6                 | 54.6                      | 4.9                              | 0.6                        | 5.5                  |  |
| 2/1                                                                                                                                                                                                                                                                                    | 571            | 571           | 75                    | 0                            | 2                           | 4.9                   | 1.6                          | 0.1                                | 6.5                 | 41.3                      | 16.3                             | 1.6                        | 18.0                 |  |
| 3/1                                                                                                                                                                                                                                                                                    | 289            | 289           | 49                    | 0                            | 1                           | 3.5                   | 1.7                          | 0.0                                | 5.2                 | 64.8                      | 8.9                              | 1.7                        | 10.6                 |  |
| 4/1                                                                                                                                                                                                                                                                                    | 433            | 433           | 63                    | 5                            | 2                           | 2.5                   | 1.1                          | 0.3                                | 3.9                 | 32.1                      | 10.6                             | 1.1                        | 11.7                 |  |
| 5/1                                                                                                                                                                                                                                                                                    | 242            | 242           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 6/1                                                                                                                                                                                                                                                                                    | 433            | 433           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 7/1                                                                                                                                                                                                                                                                                    | 233            | 233           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 8/1                                                                                                                                                                                                                                                                                    | 558            | 558           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| <div> <div>C1</div> <div> <div>PRC for Signalled Lanes (%): 15.8</div> <div>PRC Over All Lanes (%): 15.8</div> </div> <div> <div>Total Delay for Signalled Lanes (pcuHr): 18.23</div> <div>Total Delay Over All Lanes(pcuHr): 18.23</div> </div> <div>Cycle Time (s): 120</div> </div> |                |               |                       |                              |                             |                       |                              |                                    |                     |                           |                                  |                            |                      |  |

## Detailed Input Data And Results

**Scenario 7: 'AM With Dev ST 2032 PO'** (FG5: 'AM With Dev ST 2032', Plan 2: 'Peds every other cycle')

### Stage Sequence Diagram



### Stage Timings

| Stage        | 1  | 2  | 3  | 4  | 1   | 2   | 3   |
|--------------|----|----|----|----|-----|-----|-----|
| Duration     | 51 | 4  | 12 | 8  | 53  | 4   | 52  |
| Change Point | 0  | 58 | 69 | 89 | 108 | 169 | 180 |

### Phase Timings

| Phase Name | Description                     | Phase      | Green Period 1 |            |          | Green Period 2 |            |          |
|------------|---------------------------------|------------|----------------|------------|----------|----------------|------------|----------|
|            |                                 |            | Total Green    | Start Time | End Time | Total Green    | Start Time | End Time |
| A          | Cronton Rd (W) Left Ahead Right | Traffic    | 62             | 7          | 69       | 64             | 116        | 180      |
| B          | Smithy Ln Left Ahead Right      | Traffic    | 12             | 77         | 89       | 52             | 188        | 0        |
| C          | Cronton Rd (E) Right Left Ahead | Traffic    | 51             | 7          | 58       | 53             | 116        | 169      |
| D          | Chapel Ln Ahead Right Left      | Traffic    | 12             | 77         | 89       | 52             | 188        | 0        |
| E          | Cronton Rd (W) Right IGA        | Ind. Arrow | 4              | 65         | 69       | 4              | 176        | 180      |
| F          | Pedestrians across              | Pedestrian | 8              | 100        | 108      |                |            |          |

## Detailed 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) | Bonus Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---------------------------------------------------|---------------------------------|-----------|-------------------|----------------------------|------------|-------------|------------|-----------------|-----------------|-----------------|-------------------|-------------------|----------------|-------------|
| <b>Network: Cronton Chippy Junction</b>           | -                               | -         | N/A               | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | 79.0%       |
| <b>A5080 Cronton Road/Chapel Lane/Smithy Lane</b> | -                               | -         | N/A               | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | 79.0%       |
| 1/1                                               | Smithy Ln Left Ahead Right      | O         | N/A               | N/A                        | B          |             | 2          | 64              | -               | -               | 233               | 1878              | 439            | 53.0%       |
| 2/1                                               | Cronton Rd (E) Right Left Ahead | O         | N/A               | N/A                        | C          |             | 2          | 104             | -               | -               | 573               | 1854              | 783            | 73.2%       |
| 3/1                                               | Chapel Ln Ahead Right Left      | O         | N/A               | N/A                        | D          |             | 2          | 64              | -               | -               | 346               | 1722              | 438            | 79.0%       |
| 4/1                                               | Cronton Rd (W) Left Ahead Right | O         | N/A               | N/A                        | A          | E           | 2          | 126             | 8               | -               | 622               | 1941              | 787            | 79.0%       |
| 5/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 255               | Inf               | Inf            | 0.0%        |
| 6/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 649               | Inf               | Inf            | 0.0%        |
| 7/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 307               | Inf               | Inf            | 0.0%        |
| 8/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 563               | Inf               | Inf            | 0.0%        |

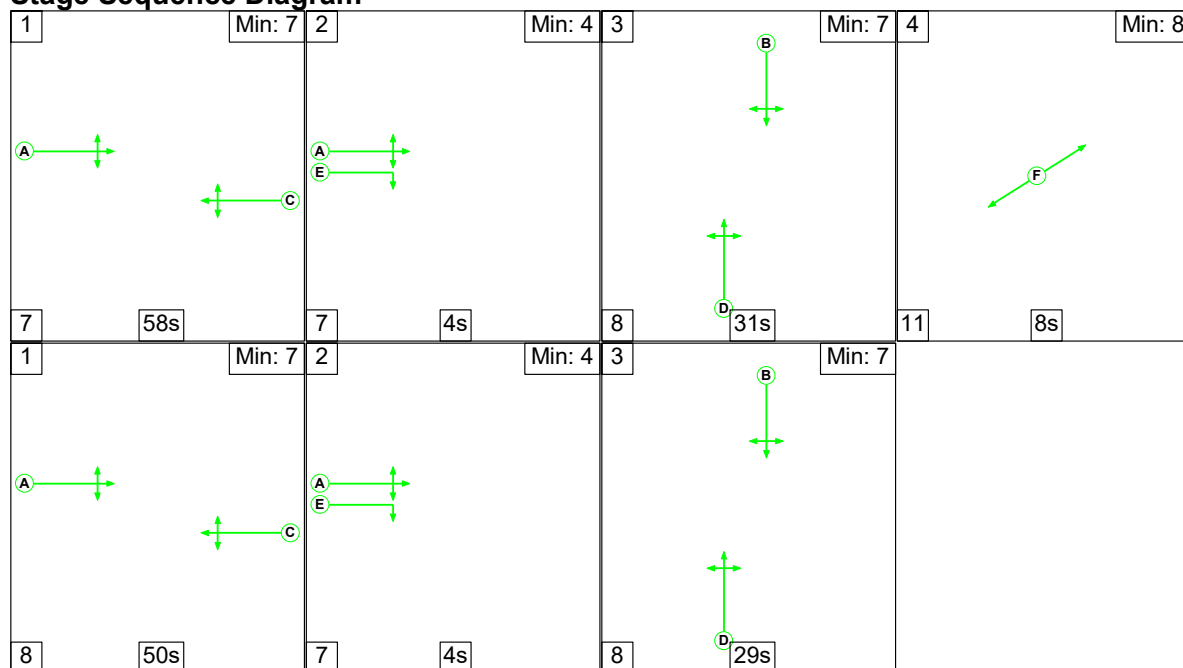
## Detailed Input Data And Results

| 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: Cronton Chippy Junction                                                                                                                                                                                                                                                       | -              | -             | 212                   | 11                           | 24                          | 16.1                  | 5.6                          | 0.5                                | 22.1                | -                         | -                                | -                          | -                    |  |
| A5080 Cronton Road/Chapel Lane/Smithy Lane                                                                                                                                                                                                                                             | -              | -             | 212                   | 11                           | 24                          | 16.1                  | 5.6                          | 0.5                                | 22.1                | -                         | -                                | -                          | -                    |  |
| 1/1                                                                                                                                                                                                                                                                                    | 233            | 233           | 34                    | 0                            | 2                           | 2.4                   | 0.6                          | 0.0                                | 3.0                 | 45.9                      | 7.2                              | 0.6                        | 7.8                  |  |
| 2/1                                                                                                                                                                                                                                                                                    | 573            | 573           | 57                    | 0                            | 2                           | 4.5                   | 1.3                          | 0.1                                | 5.9                 | 37.3                      | 18.1                             | 1.3                        | 19.5                 |  |
| 3/1                                                                                                                                                                                                                                                                                    | 346            | 346           | 62                    | 0                            | 16                          | 5.2                   | 1.8                          | 0.1                                | 7.1                 | 74.0                      | 15.2                             | 1.8                        | 17.0                 |  |
| 4/1                                                                                                                                                                                                                                                                                    | 622            | 622           | 60                    | 11                           | 2                           | 4.0                   | 1.8                          | 0.3                                | 6.1                 | 35.5                      | 21.8                             | 1.8                        | 23.6                 |  |
| 5/1                                                                                                                                                                                                                                                                                    | 255            | 255           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 6/1                                                                                                                                                                                                                                                                                    | 649            | 649           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 7/1                                                                                                                                                                                                                                                                                    | 307            | 307           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 8/1                                                                                                                                                                                                                                                                                    | 563            | 563           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| <div> <div>C1</div> <div> <div>PRC for Signalled Lanes (%): 13.9</div> <div>PRC Over All Lanes (%): 13.9</div> </div> <div> <div>Total Delay for Signalled Lanes (pcuHr): 22.15</div> <div>Total Delay Over All Lanes(pcuHr): 22.15</div> </div> <div>Cycle Time (s): 240</div> </div> |                |               |                       |                              |                             |                       |                              |                                    |                     |                           |                                  |                            |                      |  |

# Detailed Input Data And Results

**Scenario 8: 'PM With Dev ST 2032 PO'** (FG6: 'PM With Dev ST 2032', Plan 2: 'Peds every other cycle')

## Stage Sequence Diagram



## Stage Timings

| Stage        | 1  | 2  | 3  | 4   | 1   | 2   | 3   |
|--------------|----|----|----|-----|-----|-----|-----|
| Duration     | 58 | 4  | 31 | 8   | 50  | 4   | 29  |
| Change Point | 0  | 65 | 76 | 115 | 134 | 192 | 203 |

## Phase Timings

| Phase Name | Description                     | Phase      | Green Period 1 |            |          | Green Period 2 |            |          |
|------------|---------------------------------|------------|----------------|------------|----------|----------------|------------|----------|
|            |                                 |            | Total Green    | Start Time | End Time | Total Green    | Start Time | End Time |
| A          | Cronton Rd (W) Left Ahead Right | Traffic    | 69             | 7          | 76       | 61             | 142        | 203      |
| B          | Smithy Ln Left Ahead Right      | Traffic    | 31             | 84         | 115      | 29             | 211        | 0        |
| C          | Cronton Rd (E) Right Left Ahead | Traffic    | 58             | 7          | 65       | 50             | 142        | 192      |
| D          | Chapel Ln Ahead Right Left      | Traffic    | 31             | 84         | 115      | 29             | 211        | 0        |
| E          | Cronton Rd (W) Right IGA        | Ind. Arrow | 4              | 72         | 76       | 4              | 199        | 203      |
| F          | Pedestrians across              | Pedestrian | 8              | 126        | 134      |                |            |          |

## Detailed 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) | Bonus Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%)  |
|---------------------------------------------------|---------------------------------|-----------|-------------------|----------------------------|------------|-------------|------------|-----------------|-----------------|-----------------|-------------------|-------------------|----------------|--------------|
| <b>Network: Cronton Chippy Junction</b>           | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>68.3%</b> |
| <b>A5080 Cronton Road/Chapel Lane/Smithy Lane</b> | -                               | -         | <b>N/A</b>        | -                          | -          |             | -          | -               | -               | -               | -                 | -                 | -              | <b>68.3%</b> |
| 1/1                                               | Smithy Ln Left Ahead Right      | O         | N/A               | N/A                        | B          |             | 2          | 60              | -               | -               | 173               | 1875              | 389            | 44.5%        |
| 2/1                                               | Cronton Rd (E) Right Left Ahead | O         | N/A               | N/A                        | C          |             | 2          | 108             | -               | -               | 571               | 1865              | 836            | 68.3%        |
| 3/1                                               | Chapel Ln Ahead Right Left      | O         | N/A               | N/A                        | D          |             | 2          | 60              | -               | -               | 289               | 1718              | 429            | 67.3%        |
| 4/1                                               | Cronton Rd (W) Left Ahead Right | O         | N/A               | N/A                        | A          | E           | 2          | 130             | 8               | -               | 433               | 1924              | 773            | 56.0%        |
| 5/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 242               | Inf               | Inf            | 0.0%         |
| 6/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 433               | Inf               | Inf            | 0.0%         |
| 7/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 233               | Inf               | Inf            | 0.0%         |
| 8/1                                               |                                 | U         | N/A               | N/A                        | -          |             | -          | -               | -               | -               | 558               | Inf               | Inf            | 0.0%         |

## Detailed 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: Cronton Chippy Junction                                                                                                                                                                                                                                                       | -              | -             | 212                   | 5                            | 5                           | 11.3                  | 3.1                          | 0.4                                | 14.8                | -                         | -                                | -                          | -                    |  |
| A5080 Cronton Road/Chapel Lane/Smithy Lane                                                                                                                                                                                                                                             | -              | -             | 212                   | 5                            | 5                           | 11.3                  | 3.1                          | 0.4                                | 14.8                | -                         | -                                | -                          | -                    |  |
| 1/1                                                                                                                                                                                                                                                                                    | 173            | 173           | 25                    | 0                            | 0                           | 1.8                   | 0.4                          | 0.1                                | 2.2                 | 46.3                      | 5.0                              | 0.4                        | 5.4                  |  |
| 2/1                                                                                                                                                                                                                                                                                    | 571            | 571           | 75                    | 0                            | 2                           | 4.2                   | 1.1                          | 0.1                                | 5.3                 | 33.5                      | 17.6                             | 1.1                        | 18.7                 |  |
| 3/1                                                                                                                                                                                                                                                                                    | 289            | 289           | 49                    | 0                            | 1                           | 3.2                   | 1.0                          | 0.0                                | 4.3                 | 53.1                      | 9.2                              | 1.0                        | 10.2                 |  |
| 4/1                                                                                                                                                                                                                                                                                    | 433            | 433           | 63                    | 5                            | 2                           | 2.1                   | 0.6                          | 0.2                                | 3.0                 | 25.0                      | 13.6                             | 0.6                        | 14.2                 |  |
| 5/1                                                                                                                                                                                                                                                                                    | 242            | 242           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 6/1                                                                                                                                                                                                                                                                                    | 433            | 433           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 7/1                                                                                                                                                                                                                                                                                    | 233            | 233           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| 8/1                                                                                                                                                                                                                                                                                    | 558            | 558           | -                     | -                            | -                           | 0.0                   | 0.0                          | -                                  | 0.0                 | 0.0                       | 0.0                              | 0.0                        | 0.0                  |  |
| <div> <div>C1</div> <div> <div>PRC for Signalled Lanes (%): 31.8</div> <div>PRC Over All Lanes (%): 31.8</div> </div> <div> <div>Total Delay for Signalled Lanes (pcuHr): 14.80</div> <div>Total Delay Over All Lanes(pcuHr): 14.80</div> </div> <div>Cycle Time (s): 240</div> </div> |                |               |                       |                              |                             |                       |                              |                                    |                     |                           |                                  |                            |                      |  |

| Junctions 11                                                                                                                                                     |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| ARCADY 11 - Roundabout Module                                                                                                                                    |  |
| Version: 11.1.1.2424<br>© Copyright TRL Software Limited, 2026                                                                                                   |  |
| For sales and distribution information, program advice and maintenance, contact TRL Software:<br>+44 (0)1344 379777 software@trl.co.uk trlsoftware.com           |  |
| The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution |  |

**Filename:** Queensbury RB ST.j11

**Path:** C:\Users\d.stoddart\Prime Transport Planning\PrimeSharepoint - Documents\Projects 2025\P25012 - Cronton Road, Town End, Widnes\6.Technical\Models\ST

**Report generation date:** 15/09/2026 14:09:39

»D1 - 2037 | Without Dev ST | AM

»D2 - 2037 | Without Dev ST | PM

»D3 - 2037 | With Dev ST | AM

»D4 - 2037 | With Dev ST | PM

## File summary

### File Description

|                    |                                      |
|--------------------|--------------------------------------|
| <b>Title</b>       | Cronton Rd/Queensbury Way            |
| <b>Location</b>    | Cronton                              |
| <b>Site number</b> |                                      |
| <b>Date</b>        | 15/09/2026                           |
| <b>Version</b>     |                                      |
| <b>Status</b>      | Final Sensitivity Test               |
| <b>Identifier</b>  |                                      |
| <b>Client</b>      | Bellway                              |
| <b>Jobnumber</b>   | P25012                               |
| <b>Enumerator</b>  | GHC\d.stoddart                       |
| <b>Description</b> | Bloor Homes Pex Hill Model Recreated |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|---------------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s                   | -Min              | perMin              |

## Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
|                             |                             | 0.85          | 36.00                       | 20.00                 |

## Demand Set Summary

| ID | Year | Scenario       | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|------|----------------|-------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | 2037 | Without Dev ST | AM          | ONE HOUR             | 08:00              | 09:30               | 15                        |
| D2 | 2037 | Without Dev ST | PM          | ONE HOUR             | 16:00              | 17:30               | 15                        |
| D3 | 2037 | With Dev ST    | AM          | ONE HOUR             | 08:00              | 09:30               | 15                        |
| D4 | 2037 | With Dev ST    | PM          | ONE HOUR             | 16:00              | 17:30               | 15                        |

## Analysis Set Details

| ID | Network flow scaling factor (%) |
|----|---------------------------------|
| A1 | 100.000                         |



# D1 - 2037 | Without Dev ST | AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

| Junction | Name                      | Junction type       | Arm order | Junction Delay (s) | Junction LOS |
|----------|---------------------------|---------------------|-----------|--------------------|--------------|
| 1        | Cronton Rd/Queensbury Way | Standard Roundabout | 1, 2, 3   | 6.01               | A            |

### Junction Network

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 6.01              | A           |

## Arms

### Arms

| Arm | Name           | Description | No give-way line |
|-----|----------------|-------------|------------------|
| 1   | Cronton Ln     |             |                  |
| 2   | Queensbury Way |             |                  |
| 3   | Cronton Rd     |             |                  |

### Roundabout Geometry

| Arm                | V - Approach road half-width (m) | E - Entry width (m) | I' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Entry only | Exit only |
|--------------------|----------------------------------|---------------------|---------------------------------|----------------------|-----------------------------------|------------------------------------|------------|-----------|
| 1 - Cronton Ln     | 3.74                             | 4.79                | 19.1                            | 72.1                 | 39.0                              | 27.0                               |            |           |
| 2 - Queensbury Way | 3.69                             | 8.39                | 5.2                             | 172.4                | 39.0                              | 22.0                               |            |           |
| 3 - Cronton Rd     | 3.81                             | 4.65                | 15.3                            | 19.8                 | 39.0                              | 17.0                               |            |           |

### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm                | Final slope | Final intercept (PCU/hr) |
|--------------------|-------------|--------------------------|
| 1 - Cronton Ln     | 0.612       | 1468                     |
| 2 - Queensbury Way | 0.644       | 1589                     |
| 3 - Cronton Rd     | 0.604       | 1432                     |

The slope and intercept shown above include any corrections and adjustments.

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario       | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|------|----------------|-------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | 2037 | Without Dev ST | AM          | ONE HOUR             | 08:00              | 09:30               | 15                        |

### Demand overview (Traffic)

| Arm                | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|--------------------|------------|--------------|-------------------------|--------------------|
| 1 - Cronton Ln     |            | ✓            | 793                     | 100.000            |
| 2 - Queensbury Way |            | ✓            | 511                     | 100.000            |
| 3 - Cronton Rd     |            | ✓            | 436                     | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      | To                 |                |                    |                |
|------|--------------------|----------------|--------------------|----------------|
|      |                    | 1 - Cronton Ln | 2 - Queensbury Way | 3 - Cronton Rd |
| From | 1 - Cronton Ln     | 98             | 275                | 420            |
|      | 2 - Queensbury Way | 320            | 18                 | 173            |
|      | 3 - Cronton Rd     | 379            | 55                 | 2              |

## Vehicle Mix

### Heavy Vehicle %

|      | To                 |                |                    |                |
|------|--------------------|----------------|--------------------|----------------|
|      |                    | 1 - Cronton Ln | 2 - Queensbury Way | 3 - Cronton Rd |
| From | 1 - Cronton Ln     | 0.12           | 0.35               | 0.53           |
|      | 2 - Queensbury Way | 0.63           | 0.04               | 0.34           |
|      | 3 - Cronton Rd     | 0.87           | 0.13               | 0              |

## Results

### Results Summary for whole modelled period

| Arm                | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------------------|---------|---------------|-----------------|---------|
| 1 - Cronton Ln     | 0.62    | 6.64          | 1.6             | A       |
| 2 - Queensbury Way | 0.46    | 5.50          | 0.9             | A       |
| 3 - Cronton Rd     | 0.42    | 5.48          | 0.7             | A       |

# D2 - 2037 | Without Dev ST | PM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

| Junction | Name                      | Junction type       | Arm order | Junction Delay (s) | Junction LOS |
|----------|---------------------------|---------------------|-----------|--------------------|--------------|
| 1        | Cronton Rd/Queensbury Way | Standard Roundabout | 1, 2, 3   | 11.40              | B            |

### Junction Network

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 11.40             | B           |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario       | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|------|----------------|-------------|----------------------|--------------------|---------------------|---------------------------|
| D2 | 2037 | Without Dev ST | PM          | ONE HOUR             | 16:00              | 17:30               | 15                        |

### Demand overview (Traffic)

| Arm                | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|--------------------|------------|--------------|-------------------------|--------------------|
| 1 - Cronton Ln     |            | ✓            | 1062                    | 100.000            |
| 2 - Queensbury Way |            | ✓            | 381                     | 100.000            |
| 3 - Cronton Rd     |            | ✓            | 424                     | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      | To                 |                |                    |                |
|------|--------------------|----------------|--------------------|----------------|
|      |                    | 1 - Cronton Ln | 2 - Queensbury Way | 3 - Cronton Rd |
| From | 1 - Cronton Ln     | 143            | 391                | 528            |
|      | 2 - Queensbury Way | 292            | 19                 | 70             |
|      | 3 - Cronton Rd     | 330            | 94                 | 0              |
|      |                    |                |                    |                |

## Vehicle Mix

### Heavy Vehicle %

|      | To                 |                |                    |                |
|------|--------------------|----------------|--------------------|----------------|
|      |                    | 1 - Cronton Ln | 2 - Queensbury Way | 3 - Cronton Rd |
| From | 1 - Cronton Ln     | 0              | 1                  | 0              |
|      | 2 - Queensbury Way | 0              | 0                  | 1              |
|      | 3 - Cronton Rd     | 0              | 1                  | 0              |
|      |                    |                |                    |                |

## Results

### Results Summary for whole modelled period

| Arm                | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------------------|---------|---------------|-----------------|---------|
| 1 - Cronton Ln     | 0.84    | 16.00         | 5.0             | C       |
| 2 - Queensbury Way | 0.38    | 5.19          | 0.6             | A       |
| 3 - Cronton Rd     | 0.41    | 5.44          | 0.7             | A       |

# D3 - 2037 | With Dev ST | AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

| Junction | Name                      | Junction type       | Arm order | Junction Delay (s) | Junction LOS |
|----------|---------------------------|---------------------|-----------|--------------------|--------------|
| 1        | Cronton Rd/Queensbury Way | Standard Roundabout | 1, 2, 3   | 6.05               | A            |

### Junction Network

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 6.05              | A           |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario    | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|------|-------------|-------------|----------------------|--------------------|---------------------|---------------------------|
| D3 | 2037 | With Dev ST | AM          | ONE HOUR             | 08:00              | 09:30               | 15                        |

### Demand overview (Traffic)

| Arm                | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|--------------------|------------|--------------|-------------------------|--------------------|
| 1 - Cronton Ln     |            | ✓            | 796                     | 100.000            |
| 2 - Queensbury Way |            | ✓            | 511                     | 100.000            |
| 3 - Cronton Rd     |            | ✓            | 443                     | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      | To                 |                |                    |                |
|------|--------------------|----------------|--------------------|----------------|
|      |                    | 1 - Cronton Ln | 2 - Queensbury Way | 3 - Cronton Rd |
| From | 1 - Cronton Ln     | 98             | 275                | 423            |
|      | 2 - Queensbury Way | 320            | 18                 | 173            |
|      | 3 - Cronton Rd     | 386            | 55                 | 2              |
|      |                    |                |                    |                |

## Vehicle Mix

### Heavy Vehicle %

|      | To                 |                |                    |                |
|------|--------------------|----------------|--------------------|----------------|
|      |                    | 1 - Cronton Ln | 2 - Queensbury Way | 3 - Cronton Rd |
| From | 1 - Cronton Ln     | 0.12           | 0.35               | 0.53           |
|      | 2 - Queensbury Way | 0.63           | 0.04               | 0.34           |
|      | 3 - Cronton Rd     | 0.87           | 0.13               | 0              |
|      |                    |                |                    |                |

## Results

### Results Summary for whole modelled period

| Arm                | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------------------|---------|---------------|-----------------|---------|
| 1 - Cronton Ln     | 0.62    | 6.68          | 1.6             | A       |
| 2 - Queensbury Way | 0.46    | 5.51          | 0.9             | A       |
| 3 - Cronton Rd     | 0.43    | 5.54          | 0.7             | A       |

# D4 - 2037 | With Dev ST | PM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

| Junction | Name                      | Junction type       | Arm order | Junction Delay (s) | Junction LOS |
|----------|---------------------------|---------------------|-----------|--------------------|--------------|
| 1        | Cronton Rd/Queensbury Way | Standard Roundabout | 1, 2, 3   | 11.73              | B            |

### Junction Network

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 11.73             | B           |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario    | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|------|-------------|-------------|----------------------|--------------------|---------------------|---------------------------|
| D4 | 2037 | With Dev ST | PM          | ONE HOUR             | 16:00              | 17:30               | 15                        |

### Demand overview (Traffic)

| Arm                | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|--------------------|------------|--------------|-------------------------|--------------------|
| 1 - Cronton Ln     |            | ✓            | 1069                    | 100.000            |
| 2 - Queensbury Way |            | ✓            | 381                     | 100.000            |
| 3 - Cronton Rd     |            | ✓            | 427                     | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      | To                 |                |                    |                |
|------|--------------------|----------------|--------------------|----------------|
| From |                    | 1 - Cronton Ln | 2 - Queensbury Way | 3 - Cronton Rd |
|      | 1 - Cronton Ln     | 143            | 391                | 535            |
|      | 2 - Queensbury Way | 292            | 19                 | 70             |
|      | 3 - Cronton Rd     | 333            | 94                 | 0              |

## Vehicle Mix

### Heavy Vehicle %

|      | To                 |                |                    |                |
|------|--------------------|----------------|--------------------|----------------|
| From |                    | 1 - Cronton Ln | 2 - Queensbury Way | 3 - Cronton Rd |
|      | 1 - Cronton Ln     | 0              | 1                  | 0              |
|      | 2 - Queensbury Way | 0              | 0                  | 1              |
|      | 3 - Cronton Rd     | 0              | 1                  | 0              |

## Results

### Results Summary for whole modelled period

| Arm                | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------------------|---------|---------------|-----------------|---------|
| 1 - Cronton Ln     | 0.85    | 16.54         | 5.2             | C       |
| 2 - Queensbury Way | 0.38    | 5.23          | 0.6             | A       |
| 3 - Cronton Rd     | 0.42    | 5.46          | 0.7             | A       |

## APPENDIX VI

### EMAIL TO NATIONAL HIGHWAYS

**From:** Vanessa Blackburn  
**Sent:** 21 April 2026 12:43  
**To:** 'danielle.mensah@nationalhighways.co.uk'; Trevett, Emma; Kelshaw, Holly  
**Cc:** David Stoddart  
**Subject:** Cronton Road 26/00006/OUT - Response to NH/WSP Comments  
**Attachments:** Flow Diagrams\_M62 J6 + J7 Cronton Road, Widnes 1-3.pdf; Flow Diagrams\_M62 J6 + J7 Cronton Road, Widnes 4-6.pdf

Afternoon All,

Thank you for meeting with Dave and me on the 1<sup>st</sup>, it was very helpful to discuss the methodology and agree a reasonable way forward. Apologies for the slight delay in getting this to you, between myself and Dave having some leave over the last few weeks, it took a little longer to pull together than I had originally anticipated.

This email summarises the key points discussed, along with a clarification of the trip generation and distribution assumptions previously presented. It also introduces the development traffic flows, together with a brief collision review and some points on sustainability for your consideration.

#### **Meeting Summary**

- Prime raised concerns regarding the need to fully assess the impact of the proposed Cronton Road development at Junction 6 Tarbock Island (J6) and Junction 7 Rainhill Stoops Interchange (J7) of the M62, given the relatively small scale of the development, particularly in the context of the extensive mitigation works currently being undertaken at J6;
- Whilst Prime considers that a reasonable justification for scoping out detailed junction assessment has already been provided within the TA, WSP advised that development traffic flows must be clearly evidenced for both WSP and National Highways (NH), to support ongoing monitoring of development in the area;
- Prime confirmed that new traffic surveys are not feasible due to ongoing construction works at J6 which are also influencing traffic flows at J7;
- WSP confirmed that junction modelling will not be required;
- Prime confirmed that the application relates to a single-phase development, with no future phases to be considered;
- Prime clarified its position regarding the trip distribution presented in the TA, noting that residents are likely to favour eastbound travel on the M62 via the least constrained route once the J6 improvements are complete, and that J7 and routes via Rainhill are known to experience constraints (substandard widths and visibility);
- WSP advised that, due to the number of approved and live applications in the vicinity of J6 and J7, applicants are expected to clearly demonstrate development traffic flows on the SRN;
- WSP confirmed that this information is required to enable consideration of cumulative impacts at the junctions; and
- It was agreed that Prime will demonstrate development traffic flows at J6 and J7 only, to enable WSP and NH to determine whether the impact is acceptable and for inclusion in future cumulative assessment work led by WSP on behalf of NH.

#### **Trip Generation**

- Whilst WSP raised minor comments regarding trip generation in their response, the trip rates used in the TA are considered robust, as no reductions have been applied to account for potential modal shift associated with a Travel Plan;

- The applicant has indicated that approximately 40% of the scheme will be affordable housing. As the trip rates presented do not take account of any affordable housing element, the assessment can be considered robust.

#### **Trip Distribution**

- Census Travel to Work data indicates that the majority of trips are westbound, followed by northbound and southbound movements, with relatively few trips travelling eastbound;
- WSP raised concerns that eastbound M62 traffic, currently assigned via J6, may not be appropriately routed given similar journey times to J7;
- Prime advised that local knowledge indicates drivers are more likely to favour the least constrained route, i.e. via J6 particularly once the substantial improvements at J6 are complete (believed to be in the next 12 months);
- Whilst Prime maintains that routing eastbound traffic via J6 is appropriate given local conditions and known constraints, a sensitivity test has been undertaken to reassign these flows.

#### **Development Traffic Flows (TA Scenario)**

- Using the same trip generation and distribution methodology presented in the TA, Traffic Flow Diagrams (TFDs) 1-3 (attached) illustrate the forecast development traffic at J6 and J7;
- The maximum development impact on any single approach is 25 vehicles on the Cronton Road (south-eastern) arm of J6 in the AM peak, equating to approximately one additional vehicle every 2.5 minutes;
- J7 is forecast to experience negligible development traffic, with only 3 two-way trips across the junction.

#### **Development Traffic Flows (Sensitivity Test)**

- A sensitivity test has been undertaken using the same trip generation assumptions, with M62 eastbound trips reassigned from J6 to J7. In addition, flows previously routing eastbound via Warrington Road have been reassigned to the M62 to provide a robust scenario (refer to TFDs 4–6);
- This results in a reduction of one vehicle on Cronton Road in both the AM and PM peaks;
- Whilst flows at J7 increase slightly, the overall impact remains negligible, with approximately 7 two-way trips across the junction.

Given the minimal levels of development traffic in both scenarios, and noting that J6 is currently subject to significant capacity enhancements, Prime considers that further detailed assessment of the M62 junctions is not proportionate or necessary.

#### **Collision Review**

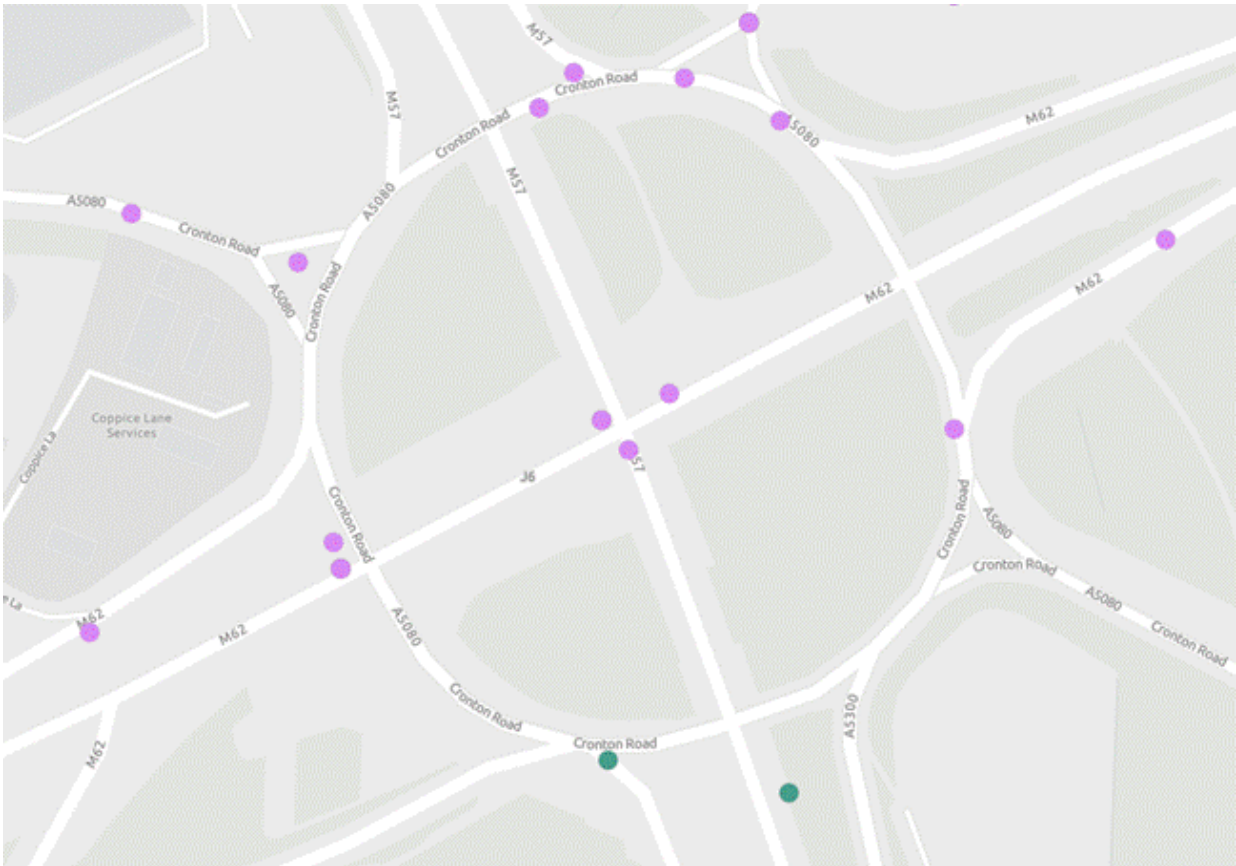
Collision data has been obtained from DfT's MAVRIC for the most recent 5-year period (2020-2024) at M62 J6 and J7.

-

#### **M62 J6**

The image below shows the location of the collisions on the M62 J6:

-

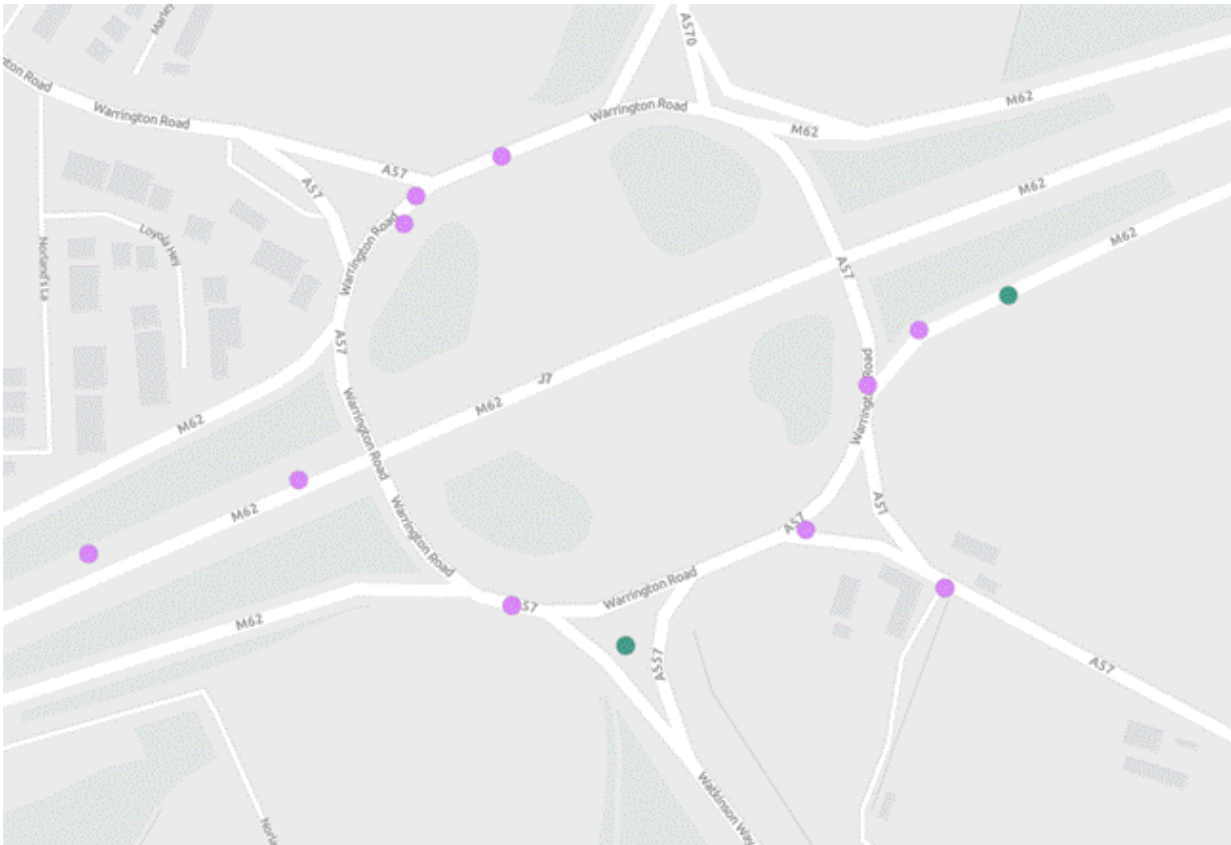


A summary of the collision data is provided in the table below. Six collisions have been excluded, as they occurred on the main carriageway of the M62 or M57, or on the approach roads to the junction.

| Year  | Slight | Serious | Fatal | Total |
|-------|--------|---------|-------|-------|
| 2020  | 2      |         |       | 2     |
| 2021  | 1      |         |       | 1     |
| 2022  | 2      | 1       |       | 3     |
| 2023  | 3      |         |       | 3     |
| 2024  | 2      |         |       | 2     |
| Total | 10     | 1       | 0     | 11    |

M62 J7

The image below shows the location of the collisions on the M62 J7:



A summary of the collision data is shown in the table below. Note that two collisions have been excluded from the summary below, as the collisions took place on the main carriageway of the M62.

| Year         | Slight   | Serious  | Fatal    | Total     |
|--------------|----------|----------|----------|-----------|
| 2020         |          | 1        |          | <b>1</b>  |
| 2021         |          | 1        |          | <b>1</b>  |
| 2022         | 3        |          |          | <b>3</b>  |
| 2023         | 2        |          |          | <b>2</b>  |
| 2024         | 3        |          |          | <b>3</b>  |
| <b>Total</b> | <b>8</b> | <b>2</b> | <b>0</b> | <b>10</b> |

The number and severity of recorded collisions do not indicate any inherent highway safety concerns at either junction. It is further assumed that the proposed improvements at the junction will also offer a safety benefit.

#### **Travel Plan and Sustainability**

WSP had raised some comments relating to the Travel Plan and sustainability. These are noted and will be addressed within the full Travel Plan to be submitted alongside the future Reserved Matters application.

As set out in the TA, the applicant is committed to improving the sustainability of the site where reasonably possible, including the following potential measures

- Widening of the northern footway along Cronton Road between the proposed site access and Wheatfield Road;
- Widening of the northern footway adjacent No. 397 Cronton Road;

- Widening of the Smithy Close footway on the eastern side, with a priority-controlled arrangement;
- Relocation and/or upgrade of the nearest bus stops to the west of the site on Cronton Road;
- A potential financial contribution towards resurfacing the section of bridleway CR/17/1 between Lodge Lane and the track further south; and
- The applicant commits to the travel planning process which will continue to evolve with input from KMBC as the scheme develops.

Prime would be grateful if WSP and NH could confirm agreement of the above at their earliest convenience.

Kind regards,  
Vanessa

**Vanessa Blackburn**  
Principal Transport Planner

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**\*Please note my working days are Tuesday-Thursday. For anything urgent outside these days please contact Dave Schumacher on [D.Schumacher@primetp.co.uk](mailto:D.Schumacher@primetp.co.uk)**

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