local transport projects

*traffic engineering and transport planning*

North Lincolnshire Council

# A1077 Corridor Improvements Technical Note

December 2021

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# A1077 Corridor Improvements Technical Note

December 2021

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## LTP PROJECT TEAM

*As part of our commitment to quality the following team of transport professionals was assembled specifically for the delivery of this project. Relevant qualifications are shown and CVs are available upon request to demonstrate our experience and credentials.*

| Team Member | LTP Designation | Qualifications |
|---|---|---|
| *Nigel Wilson* | *Technical Director* | *CEng FICE MCIHT FIHE* |
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# A1077 CORRIDOR IMPROVEMENTS TECHNICAL NOTE

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# 1. INTRODUCTION

## 1.1 Background

1.1.1 Local Transport Projects Ltd has been commissioned by North Lincolnshire Council (NLC) to undertake assessment work and produce this Technical Note that considers potential corridor improvements on the A1077 to support proposed residential development aspirations. The work that has informed this Technical Note follows on from a number of previous commissions, including the Barton Link Road Technical Note (LTP, 2021), Barton Highways Masterplan (LTP, 2018), Barton Link Road Preliminary Design Layout Briefing Note (LTP, 2020a) and Barton Southern Access Road, North Lincolnshire Feasibility Design Assessment Summary Note (LTP, 2020b).

1.1.2 This Technical Note provides details of the proposed residential allocations to be promoted within an updated North Lincolnshire Local Plan and provides the results of the requested traffic assessments associated with the potential A1077 corridor improvements. The Technical Note also considers some sensitivity testing in terms of NLC's wider development aspirations of circa 1,500 dwellings within Barton and the associated impact on the local junctions on the A1077 and the level of residential development that could potentially be delivered as a result of the A1077 corridor improvements.

# 2. PROPOSED RESIDENTIAL ALLOCATIONS

## 2.1 Introduction

2.1.1 This section of the Technical Note provides details of the proposed residential allocations to be promoted within the refreshed North Lincolnshire Local Plan and the expected build-out period of the proposed sites.

## 2.2 NLC Residential Land Allocations

2.2.1 It is understood that NLC is in the process of refreshing the North Lincolnshire Local Plan and therefore the proposed residential sites to be put forward for allocation have been considered within this Technical Note. Full details of the proposed residential land allocations and the likely build-out period has been provided by NLC and is outlined in Table 1 below.

**Table 1: NLC Proposed Residential Land Allocations (Likely Build-Out)**

| Emerging Local Plan Ref | Description | No. of Dwellings | 2020/2021 | 2021/2022 | 2022/2023 | 2023/2024 | 2024/2025 | 2025/2026 | 2026/2027 | 2027/2028 | 2028/2029 | 2029/2030 | 2030/2031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H1C-29 | Land to the rear of 13-19 Pasture Road | 16 | 0 | 10 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H1C-30 | Coach and Horses Inn 86 - 88 High Street | 18 | 0 | 0 | 8 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H1C-31 | 7a, Marsh Lane | 5 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H1C-32 | Bank House, 8 Holydyke | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H1P-10 | Pasture Road South | 350 | 31 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 39 |
| **Total** | | **394** | **35** | **41** | **44** | **45** | **30** | **30** | **30** | **30** | **30** | **40** | **39** |

2.2.2 Table 1 shows that a total of 394 dwellings are to be promoted within the refreshed North Lincolnshire Local Plan, with the proposed allocation sites expected to be fully built-out by 2030/2031.

## 2.3 Residential Allocation Sites Vehicle Trip Generation

2.3.1 The vehicle trip generation potential of the proposed residential sites to be promoted as part of the refreshed North Lincolnshire Local Plan is outlined in Table 2 which have been obtained from the industry-standard TRICS database.

**Table 2: Residential Allocation Sites Vehicle Trip Generation**

| Residential Sites | AM Peak (08:00-09:00) | | | PM Peak (17:00-18:00) | | |
|---|---|---|---|---|---|---|
| | Arrivals | Departures | Total | Arrivals | Departures | Total |
| Land to the rear of 13-19 Pasture Road (16 dwellings) | 3 | 7 | 10 | 5 | 3 | 8 |
| Coach and Horses Inn 86 - 88 High Street (18 dwellings) | 3 | 6 | 9 | 7 | 4 | 11 |
| 7a, Marsh Lane (5 dwellings) | 1 | 2 | 3 | 2 | 1 | 3 |
| Bank House, 8 Holydyke (5 dwellings) | 1 | 2 | 3 | 2 | 1 | 3 |
| Pasture Road South (350 dwellings) | 45 | 125 | 170 | 119 | 56 | 175 |
| **Overall Development (394 dwellings)** | **53** | **142** | **195** | **135** | **65** | **200** |

2.3.2 Table 2 shows that the proposed residential site allocations could be expected to generate up to 195 two-way vehicle trips in the AM peak hour (08:00-09:00) and 200 in the PM peak hour (17:00-18:00).

# 3. A1077 CORRIDOR ASSESSMENT

## 3.1 Introduction

3.1.1 A future year assessment considering the future housing allocations within Barton has been undertaken, including potential highway improvements at the A1077/Holydyke/Hungate mini-roundabout. An assessment of a priority-controlled roundabout in the location of the existing A1077/Falkland Way junction has also been considered.

## 3.2 Trip Distribution & Assignment

3.2.1 The likely distribution of vehicle trips associated with the proposed residential sites to be promoted within the refreshed North Lincolnshire Local Plan has been predicted utilising a gravity model based upon commuting patterns of existing residents within the *'North Lincolnshire 001'* Middle-Layer Super Output Area (MSOA). *'Location of usual residence and place of work by method of travel to work'* data from the 2011 National Census (ONS, 2014) indicates the proportion of local residents travelling to each workplace destination (MSOAs and local authority districts) by mode of travel.

3.2.2 This trip distribution data has been combined with an assessment of route choice (traffic assignment) to determine the likely distribution of development traffic across the highway network. The predicted traffic assignment has been undertaken utilising journey planning tools to help determine the relative attractiveness of alternative routes, with consideration of influences such as the location and size of settlements and employment areas within each workplace destination and known existing traffic conditions on the relevant routes.

## 3.3 Assessment Scenarios

3.3.1 In order to establish the impact of the residential development sites on the A1077 corridor, including the operation of the existing A1077/Holydyke/Hungate mini-roundabout, a number of assessments have been undertaken. The junctions have been assessed against an assessment year of 2031 when the sites are expected to be fully built-out. The assessments also consider sensitivity testing in terms of NLC's wider development aspirations of circa 1,500 dwellings within Barton. The key A1077 corridor junctions have been tested against the following weekday AM and PM peak hour traffic flow scenarios:

- ***2021 Base:*** Traffic flows recorded and observed during the June 2019 traffic surveys, growthed to a base year of 2021 in order to provide a consistent baseline;
- ***2031 With Residential Allocation Sites:*** *'2021 Base'* traffic flows, growthed to 2031 with the addition of traffic associated with the Wren Kitchens extension and the traffic associated with the proposed residential sites to be promoted in the refreshed North Lincolnshire Local Plan;

- ***Sensitivity Test 1 (1,500 dwellings):*** *'2021 Base'* traffic flows, growthed to 2031 with the addition of traffic associated with the Wren Kitchens extension and the traffic associated with the proposed residential sites to be promoted in the refreshed North Lincolnshire Local Plan and additional dwellings within Barton to reach the aspirational threshold of 1,500 dwellings. It is acknowledged that 1,500 dwellings would not be built and occupied by 2031, however it still provides a reasonable indication of the capacity implications at key A1077 corridor junctions; and
- ***Sensitivity Test 2:*** *'2021 Base'* traffic flows, growthed to 2031 with the addition of traffic associated with the Wren Kitchens extension and the traffic associated with the proposed residential sites to be promoted in the refreshed North Lincolnshire Local Plan and the number of additional dwellings within Barton that could be accommodated within the spare capacity generated by the A1077 corridor improvements.

3.3.2 The traffic flows at 2021 and 2031 have been predicted using the DfT's *'National Traffic Model'* (NTM) and *'Road Traffic Forecasts'* (RTFs). The growth factor obtained from the NTM has been adjusted to reflect local circumstances from the local Middle-Layer Super Output Area (MSOA) *'North Lincolnshire 001'*, using TEMPro (v7.2c) software (Ref: Yorkshire & Humber Dataset Version 7.2).

3.3.3 In accordance with the DfT's *'Transport Analysis Guidance'* (TAG) (DfT, 2019), the underlying NTEM growth includes for households and jobs have also been adjusted to reflect the local development traffic that has been explicitly incorporated into the traffic projections of this Technical Note, in order to avoid double-counting the associated traffic flows.

## 3.4 A1077/Holydyke/Hungate Mini-Roundabout - Existing Layout

3.4.1 For consistency, a junction model that was previously utilised to inform the Barton Link Road Technical Note (LTP, 2021) has been used as part of this Technical Note. The junction capacity assessment has been undertaken using Junctions 9 modelling software (ARCADY module), which is a software package produced by Transport Research Laboratory (TRL) that provides an industry-standard method for assessing capacity, queuing and delay at priority junctions and roundabouts. An aerial image of the A1077/Holydyke/Hungate mini-roundabout can be seen in Figure 1.

**Figure 1: A1077/Holydyke/Hungate Mini-Roundabout**

Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

3.4.2 The geometric input parameters used to create the Junctions 9 model have been based on a combination of measurements obtained from scaled Ordnance Survey plans and scaled aerial imagery, verified on-site. The baseline and future peak hour traffic flows have been assessed against the existing junction layout, the results of which are summarised in Table 3 and the complete modelling output in Appendix 1.

3.4.3 The peak hour traffic flows have been assessed against the existing junction layout, the results of which are summarised in Table 3 and the complete modelling output in Appendix 1.

**Table 3: A1077/Holydyke/Hungate Mini Roundabout Modelling Results**

| Arm | 2021 Base | | 2031 With Residential Site Allocations | | Sensitivity Test 1 (1,500 dwellings) | |
|---|---|---|---|---|---|---|
| | Max. RFC | Max End Q | Max. RFC | Max End Q | Max. RFC | Max End Q |
| **AM Peak (07:45-08:45)** | | | | | | |
| B1218 (Holydyke) | 39.5% | 0.7 | 43.0% | 0.8 | 50.6% | 1.0 |
| Hungate | 31.1% | 0.5 | 37.7% | 0.6 | 61.7% | 1.5 |
| A1077 (Holydyke) | 61.6% | 1.6 | 70.3% | 2.4 | 110.9% | 61.1 |
| A1077 (Ferriby Road) | 71.2% | 2.5 | 76.3% | 3.2 | 93.3% | 10.6 |
| **OVERALL** | **71.2%** | **2.5** | **76.3%** | **3.2** | **110.9%** | **61.1** |
| **PM Peak (17:00-18:00)** | | | | | | |
| B1218 (Holydyke) | 47.7% | 0.9 | 50.6% | 1.0 | 53.7% | 1.1 |
| Hungate | 53.4% | 1.1 | 61.9% | 1.5 | 82.9% | 3.7 |
| A1077 (Holydyke) | 70.6% | 2.4 | 76.1% | 3.1 | 93.9% | 10.9 |
| A1077 (Ferriby Road) | 98.8% | 18.6 | 108.0% | 48.1 | 142.0% | 268.3 |
| **OVERALL** | **98.8%** | **18.6** | **108.0%** | **48.1** | **142.0%** | **268.3** |

3.4.4 The capacity assessment results shown in Table 3 indicate that the existing mini-roundabout would be expected to operate considerably over capacity in the PM peak hour in 2031 with the proposed residential site allocations fully built-out and therefore it is likely that a highway improvement scheme would be required in order to accommodate the future traffic flows on the A1077 corridor.

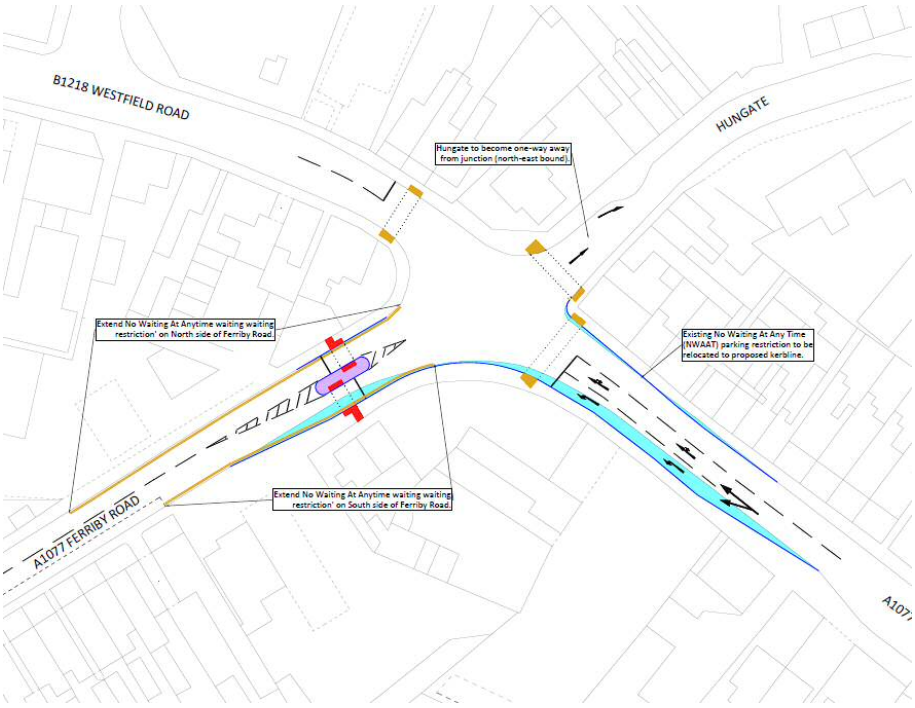
3.4.5 The modelling results indicate that the maximum Ratio of Flow to Capacity (RFC) during the peak hours is likely to be 108% (PM peak), which is above the 100% RFC level of full capacity. The results of the sensitivity test demonstrate that NLC's development aspirations of 1,500 dwellings would not be possible without upgrading the existing mini-roundabout.

3.4.6 As part of the Wren Kitchens extension planning approval, a S106 contribution of £250,000 has been secured towards A1077 corridor improvements, including the potential for capacity improvements at the junction which could include replacing the mini-roundabout with a traffic signal junction. It should also be noted as part of the planning application (ref: PA/2020/1628), which is yet to be determined for Phases 5 & 6 of residential development on land to the south of Pasture Road, NLC Highways has also requested a contribution of £100,000 towards highway improvements on the A1077 corridor.

## 3.5 A1077/Holydyke/Hungate Junction Improvement Scheme

3.5.1 A potential improvement scheme at the A1077/Holydyke/Hungate junction would see the introduction of a signalised junction. As part of the scheme, Hungate would form a one-way egress. Figure 2 provides an outline feasibility design for the proposed signalised junction with the drawing (ref: LTP/3628/P3/01.01) attached as Appendix 2.

**Figure 2: Potential Signalised Junction Option**




Source: LTP, 2021

3.5.2 In order to assess the ability of the proposed signalised junction option to accommodate the baseline and future year traffic flows, a junction capacity assessment has been undertaken using the industry-standard LinSig v3, a design and assessment tool for traffic signal junctions. The geometric input parameters for the model have been based on the feasibility drawing attached as Appendix 2.

3.5.3 A total of three stages will be in operation at the junction during the AM and PM peak hours and it has been assumed that all stages are called every cycle with an assumed cycle time of 120 seconds. The stages are as follows:

- Stage 1: A1077 (Ferriby Road) & A1077 (Holydyke);
- Stage 2: A1077 (Holydyke) & Pedestrians across A1077 (Ferriby Road); and
- Stage 3: Holydyke & Internal A1077 (Ferriby Road) Link.

3.5.4 The baseline and future peak hour traffic flows have been assessed against the proposed junction layout, the results of which are summarised in Table 4 and the complete modelling output is provided in Appendix 3.

**Table 4: A1077/Holydyke/Hungate Signalised Junction Modelling Results**

| Movement From | 2021 Base | | 2031 With Residential Site Allocations | | Sensitivity Test 1 (1,500 dwellings) | |
|---|---|---|---|---|---|---|
| | DoS (%) | MMQ (PCU) | DoS (%) | MMQ (PCU) | DoS (%) | MMQ (PCU) |
| **AM PEAK** | | | | | | |
| A1077 (W) | 62.6% | 15.0 | 67.0% | 16.7 | 78.7% | 22.6 |
| Holydyke | 62.9% | 10.9 | 65.2% | 11.4 | 77.5% | 14.3 |
| A1077 (E) | 61.4% | 8.1 | 62.6% | 11.1 | 78.3% | 22.9 |
| A1077 (W) Internal | 38.3% | 2.2 | 45.4% | 2.9 | 64.6% | 5.0 |
| **PRC** | **+43.2%** | | **+34.3%** | | **+14.4%** | |
| **PM PEAK** | | | | | | |
| A1077 (W) | 80.3% | 23.9 | 85.0% | 27.4 | 106.4% | 84.0 |
| Holydyke | 77.8% | 13.7 | 86.2% | 15.7 | 104.6% | 32.0 |
| A1077 (E) | 75.7% | 10.8 | 77.0% | 11.5 | 89.8% | 16.3 |
| A1077 (W) Internal | 44.3% | 2.7 | 47.4% | 2.9 | 54.6% | 3.5 |
| **PRC** | **+12.1%** | | **+4.4%** | | **-18.3%** | |

3.5.5 The Degree of Saturation (DoS) quoted within Table 4 is a ratio of the demand to capacity on each approach to the junction, with a value of 100% meaning that demand and capacity are equal. The Mean Max Queue (MMQ) is a measurement of the average maximum queue likely to occur across all cycles of the modelled scenario.

3.5.6 The results of the capacity assessments presented in Table 4 indicate that the signalised junction would be expected to operate with levels of reserve capacity in both peak hours with the proposed residential site allocations coming forward by 2031 (394 dwellings).

3.5.7 The results of the sensitivity test demonstrate that even with the junction improvement scheme, NLC's aspirational 1,500 dwellings in Barton could not be achieved without additional highway infrastructure to relieve pressure on the A1077 corridor e.g. a new relief road to the south of Barton.

## 3.6 Sensitivity Test 2

3.6.1 A second sensitivity test has been undertaken to understand the level of additional dwellings that could potentially be delivered with the proposed improvement scheme still operating within capacity. The modelling results are summarised in Table 5 with the complete modelling output provided in Appendix 3.

**Table 5: A1077/Holydyke/Hungate Signalised Junction Modelling Results - Sensitivity Test 2**

| Movement From | DoS (%) | MMQ (PCU) |
|---|---|---|
| **AM PEAK** | | |
| A1077 (W) | 70.6% | 18.7 |
| Holydyke | 71.5% | 12.4 |
| A1077 (E) | 69.6% | 14.5 |
| A1077 (W) Internal | 52.0% | 3.5 |
| **PRC** | **+25.9%** | |
| **PM PEAK** | | |
| A1077 (W) | 89.6% | 31.7 |
| Holydyke | 89.4% | 16.7 |
| A1077 (E) | 79.9% | 12.8 |
| A1077 (W) Internal | 50.0% | 3.3 |
| **PRC** | **+0.5%** | |

3.6.2 Based on the results of this sensitivity test, a further 190 dwellings (584 dwellings in total) could be provided in Barton before the potential improvement scheme at the A1077/Holydyke/Hungate junction operates at its theoretical capacity during the PM peak hour.

## 3.7 A1077/Falkland Way Junction (Existing Layout)

3.7.1 A junction capacity assessment of the existing A1077/Falkland Way junction has been undertaken using Junctions 9 modelling software (PICADY module). An aerial image of the existing A1077/Falkland Way priority T-junction can be seen in Figure 3.

**Figure 3: A1077/Falkland Way Junction**

Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

3.7.2 For consistency, the measurements have been based on those utilised within the junction model used as part of the Transport Assessment (BSP, 2020) submitted in support of the planning application (ref: PA/2020/1628 for Phases 5 & 6 of residential development on land to the south of Pasture Road, which is yet to be determined, although the model used for the planning application had non-blocking storage of 1 PCU and the model produced for this Technical Note has the non-blocking storage set at 0 PCU.

3.7.3 The baseline and future peak hour traffic flows have been assessed against the existing junction layout, the results of which are summarised in Table 6 and the complete modelling output in Appendix 4.

**Table 6: A1077/Falkland Way Junction Modelling Results**

| Traffic Stream | 2021 Base | | 2031 With Residential Site Allocations | |
|---|---|---|---|---|
| | Max. RFC | Max End Q | Max. RFC | Max End Q |
| **AM Peak (07:45-08:45)** | | | | |
| Falkland Way Left Turn (B-C) | 10.1% | 0.1 | 21.0% | 0.3 |
| Falkland Way Right Turn (B-A) | 34.1% | 0.6 | 51.3% | 1.2 |
| A1077 (E) (C-AB) | 33.0% | 0.8 | 39.1% | 1.0 |
| **OVERALL** | **34.1%** | **0.6** | **51.3%** | **1.2** |
| **PM Peak (17:00-18:00)** | | | | |
| Falkland Way Left Turn (B-C) | 39.1% | 0.6 | 96.6% | 6.3 |
| Falkland Way Right Turn (B-A) | 76.9% | 3.1 | 95.3% | 9.2 |
| A1077 (E) (C-AB) | 22.2% | 0.4 | 36.8% | 0.9 |
| **OVERALL** | **76.9%** | **3.1** | **96.6%** | **6.3** |

3.7.4 The capacity assessment results shown in Table 6 indicate that the existing A1077/Falkland Way priority junction would be expected to operate over capacity in the PM peak hour in 2031 with the proposed residential site allocations fully built-out and therefore it is likely that a highway improvement scheme would be required in order to accommodate the future traffic flows on the A1077 corridor.

3.7.5 Furthermore, it is understood that NLC would like to introduce a new priority-controlled roundabout to replace the existing A1077/Falkland Way priority T-junction which would also allow the opportunity to create a fourth arm to unlock further development land to facilitate additional residential development.

## 3.8 A1077/Falkland Way Junction Improvement Scheme

3.8.1 A potential improvement scheme at the A1077/Falkland Way junction would see the introduction of a four-arm priority-controlled roundabout. The future year peak hour traffic flows have been assessed against the proposed junction layout, the results of which are summarised in Table 7 and the complete modelling output in Appendix 5.

**Table 7: A1077/Falkland Way Improvement Scheme Modelling Results**

| Arm | 2031 With Residential Site Allocations | | Sensitivity Test 1 (1,500 dwellings) | | Sensitivity Test 2 (584 dwellings) | |
|---|---|---|---|---|---|---|
| | Max. RFC | Max End Q | Max. RFC | Max End Q | Max. RFC | Max End Q |
| **AM Peak (07:45-08:45)** | | | | | | |
| Falkland Way | 17.9% | 0.2 | 26.6% | 0.4 | 25.2% | 0.4 |
| A1077 (E) | 32.6% | 0.5 | 36.6% | 0.6 | 34.9% | 0.6 |
| Future Development Access | - | - | 19.0% | 0.3 | 4.1% | 0.0 |
| A1077 (W) | 39.9% | 0.7 | 49.9% | 1.1 | 45.0% | 0.9 |
| **OVERALL** | **39.9%** | **0.7** | **49.9%** | **1.1** | **45.0%** | **0.9** |
| **PM Peak (17:00-18:00)** | | | | | | |
| Falkland Way | 31.6% | 0.5 | 36.7% | 0.6 | 32.7% | 0.5 |
| A1077 (E) | 30.5% | 0.5 | 39.1% | 0.7 | 34.5% | 0.6 |
| Future Development Access | - | - | 8.7% | 0.1 | 1.9% | 0.0 |
| A1077 (W) | 42.9% | 0.8 | 56.8% | 1.4 | 46.4% | 0.9 |
| **OVERALL** | **42.9%** | **0.8** | **56.8%** | **1.4** | **46.4%** | **0.9** |

3.8.2 The capacity assessment results shown in Table 7 indicate that the proposed roundabout would be expected to operate within capacity in 2031 with the proposed residential site allocations fully built-out. As mentioned previously, a sensitivity test that considers NLC's aspirational level of 1,500 dwellings within Barton has been assessed in this Technical Note and shows that the proposed roundabout would be expected to operate within capacity.

3.8.3 The second sensitivity test considers a further 190 dwellings above the 394 dwellings proposed (584 dwellings in total) to be allocated within the refreshed local plan, with the additional dwellings served via the fourth arm of the roundabout and demonstrates that the roundabout would be expected to operate well within capacity during both peak hours.

# 4. SUMMARY

4.1.1 The assessments presented in this Technical Note demonstrate that the existing mini-roundabout would be expected to operate considerably over capacity during the PM peak in 2031 with the residential allocations fully built-out.

4.1.2 As part of the Wren Kitchens extension planning approval, a S106 contribution of £250,000 has been secured towards A1077 corridor improvements, including the potential for capacity improvements at the junction which could include replacing the mini-roundabout with a traffic signal junction. It should also be noted as part of the planning application (ref: PA/2020/1628), which is yet to be determined for Phases 5 & 6 of residential development on land to the south of Pasture Road, NLC Highways has also requested a contribution of £100,000 towards highway improvements on the A1077 corridor.

4.1.3 A junction improvement option in the form of a signalised junction has been considered at the A1077/Holydyke/Hungate junction with the results indicating that the signalised junction would be expected to operate with levels of reserve capacity in both peak hours.

4.1.4 A sensitivity test has been undertaken to understand the impact of NLC's future growth aspirations for Barton of 1,500 additional dwellings. The results demonstrate that even with the A1077/Holydyke/Hungate junction improvement scheme, 1,500 additional dwellings in Barton could not be delivered without significant additional highway infrastructure to relieve pressure on the existing A1077 corridor e.g. a new relief road to the south of Barton.

4.1.5 A second sensitivity test was also undertaken to understand the level of additional dwellings that could potentially be delivered without the proposed signalised junction option operating above capacity. Based on the results of the sensitivity test, a further 190 dwellings (584 dwellings in total) could be provided in Barton before the potential A1077/Holydyke/Hungate signalised junction operates at its theoretical capacity during the PM peak hour.

4.1.6 The A1077/Falkland Way junction is also a key junction on the A1077 corridor. The capacity assessments undertaken in this Technical Note demonstrate that the existing priority T-junction would be expected to operate over capacity during the PM peak in 2031 with the residential allocations fully built-out. A junction improvement option in the form of a four-arm priority-controlled roundabout has been considered, with the results indicating that the roundabout would be expected to operate with levels of reserve capacity in both peak hours. A sensitivity test that considers NLC's aspirational level of 1,500 dwellings within Barton has been assessed and shows that the proposed roundabout would be expected to operate within capacity.

4.1.7 The second sensitivity test considers a further 190 dwellings above the 394 dwellings proposed (584 dwellings in total) to be allocated within the refreshed local plan, with the additional dwellings served via the fourth arm of the roundabout and demonstrates that the roundabout would be expected to operate well within capacity during both peak hours.

# 5. REFERENCES

BSP (BSP Consulting Ltd), 2020. Proposed Residential Development, Falkland Way, Barton upon Humber. Transport Assessment.

CIHT (Chartered Institution of Highways and Transportation), 2010. Manual for Streets 2: Wider Application of the Principles.

DCLG (Department for Communities and Local Government), 2014. Planning Practice Guidance – Travel Plans, Transport Assessments and Statements in Decision-Taking (ID: 42-06/03/2014) [online: http://planningguidance.planningportal.gov.uk].

DCLG, 2012. National Planning Policy Framework.

DfT (Department for Transport), 2007a. Guidance on Transport Assessment.

DfT, 2007b. Manual for Streets.

IHT (Institution of Highways and Transportation), 2000. Guidelines for Providing for Journeys on Foot.

IHT, 1999. Guidelines for Public Transport in Development.

LTP (Local Transport Projects Ltd), 2021. Barton Link Road. Technical Note.

LTP, 2020a. Barton Link Road Preliminary Design Layout Briefing Note

LTP, 2020b. Barton Southern Access Road, North Lincolnshire Feasibility Design Assessment Summary Note.

LTP, 2018. Barton Highways Masterplan.

NLC (North Lincolnshire Council), 2016. Housing and Employment Land Allocations Development Plan Document.

TCL (TRICS Consortium Ltd), 2020. TRICS Good Practice Guide 2021.

# Appendix 1 – J1 Existing Junction Modelling

# Junctions 9

## ARCADY 9 - Roundabout Module



**Filename:** A1077 Holydyke Hungate Mini-Roundabout Existing.j9
**Path:** Z:\Projects\3628 Barton Link Road\Data\Junction Capacity Modelling
**Report generation date:** 21/12/2021 17:42:37

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»Existing Layout - 2021 Base, AM
»Existing Layout - 2021 Base, PM
»Existing Layout - 2031 With Residential Site Allocations, AM
»Existing Layout - 2031 With Residential Site Allocations, PM
»Existing Layout - Sensitivity Test, AM
»Existing Layout - Sensitivity Test, PM
»Existing Layout - Sensitivity Test (1,500 dwellings), AM
»Existing Layout - Sensitivity Test (1,500 dwellings), PM

### Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Set ID | Queue (PCU) | Delay (s) | RFC | LOS |
| | Existing Layout - 2021 Base | | | | | | | | | |
| 1 - B1218 (Holydyke) | D1 | 0.7 | 7.09 | 0.39 | A | D2 | 0.9 | 8.77 | 0.48 | A |
| 2 - Hungate | | 0.5 | 16.79 | 0.31 | C | | 1.1 | 31.01 | 0.53 | D |
| 3 - A1077 (Holydyke) | | 1.6 | 10.15 | 0.62 | B | | 2.4 | 13.21 | 0.71 | B |
| 4 - A1077 (Ferriby Road) | | 2.5 | 13.99 | 0.71 | B | | 18.6 | 76.02 | 0.99 | F |
| | Existing Layout - 2031 With Residential Site Allocations | | | | | | | | | |
| 1 - B1218 (Holydyke) | D3 | 0.8 | 7.75 | 0.43 | A | D4 | 1.0 | 9.48 | 0.51 | A |
| 2 - Hungate | | 0.6 | 20.62 | 0.38 | C | | 1.5 | 41.47 | 0.62 | E |
| 3 - A1077 (Holydyke) | | 2.4 | 13.29 | 0.70 | B | | 3.1 | 16.37 | 0.76 | C |
| 4 - A1077 (Ferriby Road) | | 3.2 | 16.96 | 0.76 | C | | 48.1 | 163.09 | 1.08 | F |
| | Existing Layout - Sensitivity Test | | | | | | | | | |
| 1 - B1218 (Holydyke) | D5 | 0.9 | 8.83 | 0.47 | A | D6 | 1.1 | 9.82 | 0.52 | A |
| 2 - Hungate | | 0.9 | 29.61 | 0.48 | D | | 1.8 | 50.70 | 0.67 | F |
| 3 - A1077 (Holydyke) | | 5.0 | 24.34 | 0.84 | C | | 4.3 | 21.35 | 0.82 | C |
| 4 - A1077 (Ferriby Road) | | 5.1 | 24.96 | 0.84 | C | | 83.4 | 303.28 | 1.16 | F |
| | Existing Layout - Sensitivity Test (1,500 dwellings) | | | | | | | | | |
| 1 - B1218 (Holydyke) | D7 | 1.0 | 10.21 | 0.51 | B | D8 | 1.1 | 10.70 | 0.54 | B |
| 2 - Hungate | | 1.5 | 50.38 | 0.62 | F | | 3.7 | 104.52 | 0.83 | F |
| 3 - A1077 (Holydyke) | | 61.1 | 195.44 | 1.11 | F | | 10.9 | 48.14 | 0.94 | E |
| 4 - A1077 (Ferriby Road) | | 10.6 | 47.00 | 0.93 | E | | 268.3 | 1011.22 | 1.42 | F |

*There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.*

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.*

## File summary

### File Description

| | |
|---|---|
| **Title** | A1077 Holydyke Hungate Mini-Roundabout |
| **Location** | Barton, North Lincolnshire |
| **Site number** | |
| **Date** | 29/01/2021 |
| **Version** | |
| **Status** | |
| **Identifier** | |
| **Client** | North Lincolnshire Council |
| **Jobnumber** | 3628 |
| **Enumerator** | LTP\MR |
| **Description** | |

## 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

| Mini-roundabout model | Vehicle length (m) | Calculate Queue Percentiles | Calculate detailed queueing delay | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|---|---|---|
| JUNCTIONS 9 | 5.75 | | | | 0.85 | 36.00 | 20.00 |

## Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D1 | 2021 Base | AM | ONE HOUR | 07:30 | 09:00 | 15 | ✓ |
| D2 | 2021 Base | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |
| D3 | 2031 With Residential Site Allocations | AM | ONE HOUR | 07:30 | 09:00 | 15 | ✓ |
| D4 | 2031 With Residential Site Allocations | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |
| D5 | Sensitivity Test | AM | ONE HOUR | 07:30 | 09:00 | 15 | ✓ |
| D6 | Sensitivity Test | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |
| D7 | Sensitivity Test (1,500 dwellings) | AM | ONE HOUR | 07:30 | 09:00 | 15 | ✓ |
| D8 | Sensitivity Test (1,500 dwellings) | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

## Analysis Set Details

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

# Existing Layout - 2021 Base, AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Mini-roundabout | | Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 74% of the total flow for the roundabout for one or more time segments] |

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077 Holydyke Hungate | Mini-roundabout | | 1, 2, 3, 4 | 11.43 | B |

### Junction Network Options

| Driving side | Lighting | Road surface | In London |
|---|---|---|---|
| Left | Normal/unknown | Normal/unknown | |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| 1 | B1218 (Holydyke) | |
| 2 | Hungate | |
| 3 | A1077 (Holydyke) | |
| 4 | A1077 (Ferriby Road) | |

### Mini Roundabout Geometry

| Arm | Approach road half-width (m) | Minimum approach road half-width (m) | Entry width (m) | Effective flare length (m) | Distance to next arm (m) | Entry corner kerb line distance (m) | Gradient over 50m (%) | Kerbed central island |
|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 4.20 | 3.90 | 6.50 | 4.1 | 13.20 | 8.70 | 0.0 | |
| 2 - Hungate | 3.10 | 2.10 | 5.65 | 7.7 | 6.90 | 2.25 | 0.0 | |
| 3 - A1077 (Holydyke) | 3.80 | 3.80 | 4.70 | 10.5 | 18.10 | 15.30 | 0.0 | |
| 4 - A1077 (Ferriby Road) | 4.10 | 4.10 | 4.70 | 1.6 | 10.90 | 7.20 | 0.0 | |

### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm | Final slope | Final intercept (PCU/hr) |
|---|---|---|
| 1 - B1218 (Holydyke) | 0.658 | 1208 |
| 2 - Hungate | 0.610 | 784 |
| 3 - A1077 (Holydyke) | 0.676 | 1141 |
| 4 - A1077 (Ferriby Road) | 0.643 | 996 |

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

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D1 | 2021 Base | AM | ONE HOUR | 07:30 | 09:00 | 15 | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|
| ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | | ONE HOUR | ✓ | 306 | 100.000 |
| 2 - Hungate | | ONE HOUR | ✓ | 90 | 100.000 |
| 3 - A1077 (Holydyke) | | ONE HOUR | ✓ | 535 | 100.000 |
| 4 - A1077 (Ferriby Road) | | ONE HOUR | ✓ | 598 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 10 | 119 | 177 |
| | 2 - Hungate | 0 | 0 | 18 | 72 |
| | 3 - A1077 (Holydyke) | 92 | 7 | 1 | 435 |
| | 4 - A1077 (Ferriby Road) | 116 | 86 | 396 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 0 | 3 | 1 |
| | 2 - Hungate | 0 | 0 | 13 | 0 |
| | 3 - A1077 (Holydyke) | 1 | 0 | 0 | 4 |
| | 4 - A1077 (Ferriby Road) | 6 | 2 | 4 | 0 |

## Results

### Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 0.39 | 7.09 | 0.7 | A | 281 | 421 |
| 2 - Hungate | 0.31 | 16.79 | 0.5 | C | 83 | 124 |
| 3 - A1077 (Holydyke) | 0.62 | 10.15 | 1.6 | B | 491 | 736 |
| 4 - A1077 (Ferriby Road) | 0.71 | 13.99 | 2.5 | B | 549 | 823 |

### Main Results for each time segment

#### 07:30 - 07:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 230 | 58 | 366 | 967 | 0.238 | 229 | 155 | 0.0 | 0.3 | 4.953 | A |
| 2 - Hungate | 68 | 17 | 518 | 468 | 0.145 | 67 | 77 | 0.0 | 0.2 | 9.180 | A |
| 3 - A1077 (Holydyke) | 403 | 101 | 186 | 1015 | 0.397 | 400 | 399 | 0.0 | 0.7 | 6.027 | A |
| 4 - A1077 (Ferriby Road) | 450 | 113 | 75 | 948 | 0.475 | 446 | 511 | 0.0 | 0.9 | 7.417 | A |

### 07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 275 | 69 | 439 | 919 | 0.299 | 275 | 186 | 0.3 | 0.4 | 5.679 | A |
| 2 - Hungate | 81 | 20 | 621 | 405 | 0.200 | 81 | 92 | 0.2 | 0.3 | 11.356 | B |
| 3 - A1077 (Holydyke) | 481 | 120 | 223 | 990 | 0.486 | 480 | 479 | 0.7 | 1.0 | 7.281 | A |
| 4 - A1077 (Ferriby Road) | 538 | 134 | 90 | 938 | 0.573 | 536 | 613 | 0.9 | 1.4 | 9.264 | A |

### 08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 337 | 84 | 536 | 855 | 0.394 | 336 | 228 | 0.4 | 0.7 | 7.040 | A |
| 2 - Hungate | 99 | 25 | 759 | 321 | 0.309 | 98 | 113 | 0.3 | 0.4 | 16.528 | C |
| 3 - A1077 (Holydyke) | 589 | 147 | 273 | 956 | 0.616 | 586 | 585 | 1.0 | 1.6 | 9.993 | A |
| 4 - A1077 (Ferriby Road) | 658 | 165 | 110 | 926 | 0.711 | 654 | 750 | 1.4 | 2.4 | 13.579 | B |

### 08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 337 | 84 | 539 | 853 | 0.395 | 337 | 229 | 0.7 | 0.7 | 7.092 | A |
| 2 - Hungate | 99 | 25 | 763 | 318 | 0.311 | 99 | 113 | 0.4 | 0.5 | 16.794 | C |
| 3 - A1077 (Holydyke) | 589 | 147 | 274 | 956 | 0.616 | 589 | 588 | 1.6 | 1.6 | 10.146 | B |
| 4 - A1077 (Ferriby Road) | 658 | 165 | 110 | 925 | 0.712 | 658 | 753 | 2.4 | 2.5 | 13.989 | B |

### 08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 275 | 69 | 444 | 916 | 0.300 | 276 | 188 | 0.7 | 0.4 | 5.732 | A |
| 2 - Hungate | 81 | 20 | 627 | 401 | 0.202 | 82 | 93 | 0.5 | 0.3 | 11.548 | B |
| 3 - A1077 (Holydyke) | 481 | 120 | 225 | 989 | 0.486 | 484 | 483 | 1.6 | 1.0 | 7.403 | A |
| 4 - A1077 (Ferriby Road) | 538 | 134 | 90 | 938 | 0.573 | 542 | 618 | 2.5 | 1.4 | 9.558 | A |

### 08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 230 | 58 | 370 | 964 | 0.239 | 231 | 157 | 0.4 | 0.3 | 4.998 | A |
| 2 - Hungate | 68 | 17 | 523 | 464 | 0.146 | 68 | 78 | 0.3 | 0.2 | 9.305 | A |
| 3 - A1077 (Holydyke) | 403 | 101 | 188 | 1014 | 0.397 | 404 | 404 | 1.0 | 0.7 | 6.116 | A |
| 4 - A1077 (Ferriby Road) | 450 | 113 | 76 | 948 | 0.475 | 452 | 516 | 1.4 | 1.0 | 7.590 | A |

# Existing Layout - 2021 Base, PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Mini-roundabout | | Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 75% of the total flow for the roundabout for one or more time segments] |

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077 Holydyke Hungate | Mini-roundabout | | 1, 2, 3, 4 | 40.91 | E |

### Junction Network Options

| Driving side | Lighting | Road surface | In London |
|---|---|---|---|
| Left | Normal/unknown | Normal/unknown | |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D2 | 2021 Base | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|
| ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | | ONE HOUR | ✓ | 341 | 100.000 |
| 2 - Hungate | | ONE HOUR | ✓ | 120 | 100.000 |
| 3 - A1077 (Holydyke) | | ONE HOUR | ✓ | 602 | 100.000 |
| 4 - A1077 (Ferriby Road) | | ONE HOUR | ✓ | 821 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 4 | 166 | 171 |
| | 2 - Hungate | 4 | 1 | 20 | 95 |
| | 3 - A1077 (Holydyke) | 98 | 11 | 1 | 492 |
| | 4 - A1077 (Ferriby Road) | 240 | 110 | 471 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 33 | 0 | 0 |
| | 2 - Hungate | 0 | 0 | 0 | 0 |
| | 3 - A1077 (Holydyke) | 0 | 10 | 0 | 2 |
| | 4 - A1077 (Ferriby Road) | 0 | 0 | 1 | 0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 0.48 | 8.77 | 0.9 | A | 313 | 469 |
| 2 - Hungate | 0.53 | 31.01 | 1.1 | D | 110 | 165 |
| 3 - A1077 (Holydyke) | 0.71 | 13.21 | 2.4 | B | 552 | 829 |
| 4 - A1077 (Ferriby Road) | 0.99 | 76.02 | 18.6 | F | 753 | 1130 |

## Main Results for each time segment

### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 257 | 64 | 442 | 917 | 0.280 | 255 | 255 | 0.0 | 0.4 | 5.441 | A |
| 2 - Hungate | 90 | 23 | 603 | 416 | 0.217 | 89 | 94 | 0.0 | 0.3 | 10.990 | B |
| 3 - A1077 (Holydyke) | 453 | 113 | 202 | 1004 | 0.451 | 450 | 490 | 0.0 | 0.8 | 6.577 | A |
| 4 - A1077 (Ferriby Road) | 618 | 155 | 86 | 941 | 0.657 | 611 | 566 | 0.0 | 1.9 | 10.738 | B |

### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 307 | 77 | 529 | 860 | 0.357 | 306 | 305 | 0.4 | 0.5 | 6.509 | A |
| 2 - Hungate | 108 | 27 | 723 | 343 | 0.315 | 107 | 112 | 0.3 | 0.4 | 15.230 | C |
| 3 - A1077 (Holydyke) | 541 | 135 | 243 | 977 | 0.554 | 540 | 587 | 0.8 | 1.2 | 8.348 | A |
| 4 - A1077 (Ferriby Road) | 738 | 185 | 103 | 930 | 0.794 | 731 | 679 | 1.9 | 3.6 | 17.635 | C |

### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 375 | 94 | 625 | 797 | 0.471 | 374 | 364 | 0.5 | 0.9 | 8.515 | A |
| 2 - Hungate | 132 | 33 | 866 | 255 | 0.517 | 130 | 133 | 0.4 | 1.0 | 28.196 | D |
| 3 - A1077 (Holydyke) | 663 | 166 | 296 | 941 | 0.704 | 658 | 700 | 1.2 | 2.3 | 12.782 | B |
| 4 - A1077 (Ferriby Road) | 904 | 226 | 126 | 915 | 0.988 | 863 | 829 | 3.6 | 13.7 | 48.810 | E |

### 17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 375 | 94 | 640 | 787 | 0.477 | 375 | 371 | 0.9 | 0.9 | 8.770 | A |
| 2 - Hungate | 132 | 33 | 879 | 247 | 0.534 | 132 | 136 | 1.0 | 1.1 | 31.014 | D |
| 3 - A1077 (Holydyke) | 663 | 166 | 298 | 939 | 0.706 | 663 | 713 | 2.3 | 2.4 | 13.207 | B |
| 4 - A1077 (Ferriby Road) | 904 | 226 | 127 | 915 | 0.988 | 884 | 834 | 13.7 | 18.6 | 76.023 | F |

### 17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 307 | 77 | 574 | 830 | 0.369 | 308 | 325 | 0.9 | 0.6 | 6.928 | A |
| 2 - Hungate | 108 | 27 | 761 | 319 | 0.338 | 110 | 121 | 1.1 | 0.5 | 17.386 | C |
| 3 - A1077 (Holydyke) | 541 | 135 | 246 | 974 | 0.555 | 546 | 625 | 2.4 | 1.3 | 8.628 | A |
| 4 - A1077 (Ferriby Road) | 738 | 185 | 104 | 929 | 0.794 | 795 | 687 | 18.6 | 4.3 | 34.429 | D |

### 18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 257 | 64 | 454 | 909 | 0.282 | 258 | 261 | 0.6 | 0.4 | 5.544 | A |
| 2 - Hungate | 90 | 23 | 615 | 408 | 0.221 | 91 | 96 | 0.5 | 0.3 | 11.381 | B |
| 3 - A1077 (Holydyke) | 453 | 113 | 205 | 1002 | 0.452 | 455 | 501 | 1.3 | 0.9 | 6.718 | A |
| 4 - A1077 (Ferriby Road) | 618 | 155 | 87 | 940 | 0.657 | 627 | 573 | 4.3 | 2.0 | 11.900 | B |

# Existing Layout - 2031 With Residential Site Allocations, AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Mini-roundabout | | Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 74% of the total flow for the roundabout for one or more time segments] |

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077 Holydyke Hungate | Mini-roundabout | | 1, 2, 3, 4 | 14.06 | B |

### Junction Network Options

| Driving side | Lighting | Road surface | In London |
|---|---|---|---|
| Left | Normal/unknown | Normal/unknown | |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D3 | 2031 With Residential Site Allocations | AM | ONE HOUR | 07:30 | 09:00 | 15 | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|
| ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | | ONE HOUR | ✓ | 323 | 100.000 |
| 2 - Hungate | | ONE HOUR | ✓ | 98 | 100.000 |
| 3 - A1077 (Holydyke) | | ONE HOUR | ✓ | 600 | 100.000 |
| 4 - A1077 (Ferriby Road) | | ONE HOUR | ✓ | 640 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 10 | 122 | 191 |
| | 2 - Hungate | 0 | 0 | 19 | 79 |
| | 3 - A1077 (Holydyke) | 94 | 7 | 1 | 498 |
| | 4 - A1077 (Ferriby Road) | 123 | 90 | 427 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 0 | 3 | 1 |
| | 2 - Hungate | 0 | 0 | 13 | 0 |
| | 3 - A1077 (Holydyke) | 1 | 0 | 0 | 4 |
| | 4 - A1077 (Ferriby Road) | 6 | 2 | 4 | 0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 0.43 | 7.75 | 0.8 | A | 296 | 445 |
| 2 - Hungate | 0.38 | 20.62 | 0.6 | C | 90 | 135 |
| 3 - A1077 (Holydyke) | 0.70 | 13.29 | 2.4 | B | 551 | 826 |
| 4 - A1077 (Ferriby Road) | 0.76 | 16.96 | 3.2 | C | 587 | 881 |

## Main Results for each time segment

### 07:30 - 07:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 243 | 61 | 392 | 950 | 0.256 | 242 | 162 | 0.0 | 0.3 | 5.159 | A |
| 2 - Hungate | 74 | 18 | 554 | 446 | 0.165 | 73 | 80 | 0.0 | 0.2 | 9.850 | A |
| 3 - A1077 (Holydyke) | 452 | 113 | 202 | 1004 | 0.450 | 448 | 425 | 0.0 | 0.8 | 6.658 | A |
| 4 - A1077 (Ferriby Road) | 482 | 120 | 76 | 947 | 0.509 | 478 | 574 | 0.0 | 1.1 | 7.911 | A |

### 07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 290 | 73 | 470 | 899 | 0.323 | 290 | 194 | 0.3 | 0.5 | 6.009 | A |
| 2 - Hungate | 88 | 22 | 664 | 379 | 0.233 | 88 | 96 | 0.2 | 0.3 | 12.639 | B |
| 3 - A1077 (Holydyke) | 539 | 135 | 242 | 977 | 0.552 | 538 | 510 | 0.8 | 1.2 | 8.441 | A |
| 4 - A1077 (Ferriby Road) | 575 | 144 | 91 | 937 | 0.614 | 573 | 688 | 1.1 | 1.6 | 10.225 | B |

### 08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 356 | 89 | 573 | 831 | 0.428 | 355 | 237 | 0.5 | 0.8 | 7.668 | A |
| 2 - Hungate | 108 | 27 | 811 | 289 | 0.373 | 107 | 117 | 0.3 | 0.6 | 20.069 | C |
| 3 - A1077 (Holydyke) | 661 | 165 | 296 | 941 | 0.702 | 656 | 622 | 1.2 | 2.3 | 12.887 | B |
| 4 - A1077 (Ferriby Road) | 705 | 176 | 112 | 924 | 0.762 | 699 | 840 | 1.6 | 3.1 | 16.170 | C |

### 08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 356 | 89 | 578 | 828 | 0.430 | 356 | 239 | 0.8 | 0.8 | 7.750 | A |
| 2 - Hungate | 108 | 27 | 816 | 286 | 0.377 | 108 | 118 | 0.6 | 0.6 | 20.624 | C |
| 3 - A1077 (Holydyke) | 661 | 165 | 297 | 940 | 0.703 | 660 | 626 | 2.3 | 2.4 | 13.293 | B |
| 4 - A1077 (Ferriby Road) | 705 | 176 | 112 | 924 | 0.763 | 704 | 845 | 3.1 | 3.2 | 16.963 | C |

**08:30 - 08:45**

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 290 | 73 | 477 | 894 | 0.325 | 291 | 197 | 0.8 | 0.5 | 6.084 | A |
| 2 - Hungate | 88 | 22 | 671 | 374 | 0.235 | 89 | 97 | 0.6 | 0.3 | 12.969 | B |
| 3 - A1077 (Holydyke) | 539 | 135 | 244 | 976 | 0.553 | 544 | 516 | 2.4 | 1.3 | 8.706 | A |
| 4 - A1077 (Ferriby Road) | 575 | 144 | 92 | 937 | 0.614 | 581 | 696 | 3.2 | 1.7 | 10.719 | B |

**08:45 - 09:00**

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 243 | 61 | 397 | 947 | 0.257 | 244 | 164 | 0.5 | 0.4 | 5.214 | A |
| 2 - Hungate | 74 | 18 | 560 | 442 | 0.167 | 74 | 81 | 0.3 | 0.2 | 10.019 | B |
| 3 - A1077 (Holydyke) | 452 | 113 | 204 | 1003 | 0.450 | 453 | 430 | 1.3 | 0.9 | 6.799 | A |
| 4 - A1077 (Ferriby Road) | 482 | 120 | 77 | 947 | 0.509 | 484 | 580 | 1.7 | 1.1 | 8.149 | A |

# Existing Layout - 2031 With Residential Site Allocations, PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Mini-roundabout | | Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 76% of the total flow for the roundabout for one or more time segments] |

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077 Holydyke Hungate | Mini-roundabout | | 1, 2, 3, 4 | 81.87 | F |

### Junction Network Options

| Driving side | Lighting | Road surface | In London |
|---|---|---|---|
| Left | Normal/unknown | Normal/unknown | |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D4 | 2031 With Residential Site Allocations | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|
| ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | | ONE HOUR | ✓ | 354 | 100.000 |
| 2 - Hungate | | ONE HOUR | ✓ | 126 | 100.000 |
| 3 - A1077 (Holydyke) | | ONE HOUR | ✓ | 642 | 100.000 |
| 4 - A1077 (Ferriby Road) | | ONE HOUR | ✓ | 896 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 4 | 170 | 180 |
| | 2 - Hungate | 4 | 1 | 21 | 100 |
| | 3 - A1077 (Holydyke) | 100 | 11 | 1 | 530 |
| | 4 - A1077 (Ferriby Road) | 254 | 118 | 524 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 33 | 0 | 0 |
| | 2 - Hungate | 0 | 0 | 0 | 0 |
| | 3 - A1077 (Holydyke) | 0 | 10 | 0 | 2 |
| | 4 - A1077 (Ferriby Road) | 0 | 0 | 1 | 0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 0.51 | 9.48 | 1.0 | A | 325 | 487 |
| 2 - Hungate | 0.62 | 41.47 | 1.5 | E | 116 | 173 |
| 3 - A1077 (Holydyke) | 0.76 | 16.37 | 3.1 | C | 589 | 884 |
| 4 - A1077 (Ferriby Road) | 1.08 | 163.09 | 48.1 | F | 822 | 1233 |

## Main Results for each time segment

### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 267 | 67 | 486 | 888 | 0.300 | 265 | 266 | 0.0 | 0.4 | 5.776 | A |
| 2 - Hungate | 95 | 24 | 651 | 386 | 0.245 | 94 | 100 | 0.0 | 0.3 | 12.243 | B |
| 3 - A1077 (Holydyke) | 483 | 121 | 213 | 997 | 0.485 | 480 | 532 | 0.0 | 0.9 | 7.031 | A |
| 4 - A1077 (Ferriby Road) | 675 | 169 | 87 | 940 | 0.718 | 665 | 605 | 0.0 | 2.4 | 12.750 | B |

### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 318 | 80 | 580 | 826 | 0.385 | 317 | 318 | 0.4 | 0.6 | 7.083 | A |
| 2 - Hungate | 113 | 28 | 779 | 309 | 0.367 | 112 | 119 | 0.3 | 0.6 | 18.238 | C |
| 3 - A1077 (Holydyke) | 577 | 144 | 255 | 969 | 0.596 | 575 | 636 | 0.9 | 1.5 | 9.265 | A |
| 4 - A1077 (Ferriby Road) | 805 | 201 | 105 | 929 | 0.867 | 793 | 725 | 2.4 | 5.5 | 24.679 | C |

### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 390 | 97 | 655 | 777 | 0.502 | 388 | 367 | 0.6 | 1.0 | 9.248 | A |
| 2 - Hungate | 139 | 35 | 908 | 230 | 0.604 | 135 | 135 | 0.6 | 1.4 | 36.950 | E |
| 3 - A1077 (Holydyke) | 707 | 177 | 310 | 931 | 0.759 | 701 | 733 | 1.5 | 3.0 | 15.499 | C |
| 4 - A1077 (Ferriby Road) | 987 | 247 | 128 | 914 | 1.079 | 894 | 883 | 5.5 | 28.5 | 82.772 | F |

### 17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 390 | 97 | 665 | 770 | 0.506 | 390 | 372 | 1.0 | 1.0 | 9.476 | A |
| 2 - Hungate | 139 | 35 | 918 | 224 | 0.619 | 138 | 137 | 1.4 | 1.5 | 41.471 | E |
| 3 - A1077 (Holydyke) | 707 | 177 | 313 | 929 | 0.761 | 706 | 742 | 3.0 | 3.1 | 16.370 | C |
| 4 - A1077 (Ferriby Road) | 987 | 247 | 129 | 913 | 1.080 | 908 | 891 | 28.5 | 48.1 | 163.089 | F |

### 17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 318 | 80 | 663 | 772 | 0.412 | 319 | 352 | 1.0 | 0.7 | 8.000 | A |
| 2 - Hungate | 113 | 28 | 848 | 266 | 0.425 | 116 | 134 | 1.5 | 0.8 | 24.435 | C |
| 3 - A1077 (Holydyke) | 577 | 144 | 259 | 966 | 0.598 | 583 | 705 | 3.1 | 1.6 | 9.741 | A |
| 4 - A1077 (Ferriby Road) | 805 | 201 | 106 | 928 | 0.868 | 909 | 736 | 48.1 | 22.3 | 143.475 | F |

### 18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 267 | 67 | 549 | 847 | 0.315 | 268 | 292 | 0.7 | 0.5 | 6.243 | A |
| 2 - Hungate | 95 | 24 | 705 | 353 | 0.268 | 96 | 111 | 0.8 | 0.4 | 14.093 | B |
| 3 - A1077 (Holydyke) | 483 | 121 | 216 | 995 | 0.486 | 486 | 586 | 1.6 | 1.0 | 7.231 | A |
| 4 - A1077 (Ferriby Road) | 675 | 169 | 89 | 939 | 0.718 | 753 | 613 | 22.3 | 2.7 | 26.942 | D |

# Existing Layout - Sensitivity Test, AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Mini-roundabout | | Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 76% of the total flow for the roundabout for one or more time segments] |

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077 Holydyke Hungate | Mini-roundabout | | 1, 2, 3, 4 | 22.08 | C |

### Junction Network Options

| Driving side | Lighting | Road surface | In London |
|---|---|---|---|
| Left | Normal/unknown | Normal/unknown | |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D5 | Sensitivity Test | AM | ONE HOUR | 07:30 | 09:00 | 15 | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|
| ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | | ONE HOUR | ✓ | 334 | 100.000 |
| 2 - Hungate | | ONE HOUR | ✓ | 104 | 100.000 |
| 3 - A1077 (Holydyke) | | ONE HOUR | ✓ | 712 | 100.000 |
| 4 - A1077 (Ferriby Road) | | ONE HOUR | ✓ | 707 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 10 | 128 | 196 |
| | 2 - Hungate | 0 | 0 | 20 | 84 |
| | 3 - A1077 (Holydyke) | 94 | 7 | 1 | 610 |
| | 4 - A1077 (Ferriby Road) | 126 | 93 | 488 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 0 | 3 | 1 |
| | 2 - Hungate | 0 | 0 | 13 | 0 |
| | 3 - A1077 (Holydyke) | 1 | 0 | 0 | 4 |
| | 4 - A1077 (Ferriby Road) | 6 | 2 | 4 | 0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 0.47 | 8.83 | 0.9 | A | 306 | 460 |
| 2 - Hungate | 0.48 | 29.61 | 0.9 | D | 95 | 143 |
| 3 - A1077 (Holydyke) | 0.84 | 24.34 | 5.0 | C | 653 | 980 |
| 4 - A1077 (Ferriby Road) | 0.84 | 24.96 | 5.1 | C | 649 | 973 |

## Main Results for each time segment

### 07:30 - 07:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 251 | 63 | 439 | 919 | 0.274 | 250 | 164 | 0.0 | 0.4 | 5.460 | A |
| 2 - Hungate | 78 | 20 | 607 | 414 | 0.189 | 77 | 82 | 0.0 | 0.2 | 10.921 | B |
| 3 - A1077 (Holydyke) | 536 | 134 | 209 | 1000 | 0.536 | 531 | 475 | 0.0 | 1.2 | 7.889 | A |
| 4 - A1077 (Ferriby Road) | 532 | 133 | 76 | 947 | 0.562 | 527 | 664 | 0.0 | 1.3 | 8.813 | A |

### 07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 300 | 75 | 527 | 861 | 0.349 | 300 | 197 | 0.4 | 0.5 | 6.512 | A |
| 2 - Hungate | 93 | 23 | 728 | 340 | 0.275 | 93 | 98 | 0.2 | 0.4 | 14.886 | B |
| 3 - A1077 (Holydyke) | 640 | 160 | 251 | 971 | 0.659 | 637 | 570 | 1.2 | 1.9 | 11.049 | B |
| 4 - A1077 (Ferriby Road) | 636 | 159 | 91 | 937 | 0.678 | 632 | 797 | 1.3 | 2.1 | 12.149 | B |

### 08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 368 | 92 | 640 | 787 | 0.467 | 366 | 239 | 0.5 | 0.9 | 8.672 | A |
| 2 - Hungate | 115 | 29 | 886 | 243 | 0.471 | 113 | 120 | 0.4 | 0.9 | 27.830 | D |
| 3 - A1077 (Holydyke) | 784 | 196 | 306 | 934 | 0.839 | 773 | 693 | 1.9 | 4.7 | 21.736 | C |
| 4 - A1077 (Ferriby Road) | 778 | 195 | 111 | 925 | 0.842 | 768 | 968 | 2.1 | 4.8 | 22.389 | C |

### 08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 368 | 92 | 647 | 782 | 0.470 | 368 | 242 | 0.9 | 0.9 | 8.834 | A |
| 2 - Hungate | 115 | 29 | 894 | 238 | 0.481 | 114 | 121 | 0.9 | 0.9 | 29.611 | D |
| 3 - A1077 (Holydyke) | 784 | 196 | 308 | 933 | 0.841 | 783 | 700 | 4.7 | 5.0 | 24.343 | C |
| 4 - A1077 (Ferriby Road) | 778 | 195 | 112 | 924 | 0.842 | 777 | 979 | 4.8 | 5.1 | 24.958 | C |

**08:30 - 08:45**

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 300 | 75 | 539 | 853 | 0.352 | 302 | 201 | 0.9 | 0.6 | 6.654 | A |
| 2 - Hungate | 93 | 23 | 740 | 332 | 0.281 | 96 | 101 | 0.9 | 0.4 | 15.672 | C |
| 3 - A1077 (Holydyke) | 640 | 160 | 254 | 969 | 0.660 | 652 | 581 | 5.0 | 2.1 | 12.158 | B |
| 4 - A1077 (Ferriby Road) | 636 | 159 | 93 | 936 | 0.679 | 647 | 813 | 5.1 | 2.3 | 13.429 | B |

**08:45 - 09:00**

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 251 | 63 | 447 | 914 | 0.275 | 252 | 167 | 0.6 | 0.4 | 5.538 | A |
| 2 - Hungate | 78 | 20 | 615 | 408 | 0.192 | 79 | 83 | 0.4 | 0.2 | 11.196 | B |
| 3 - A1077 (Holydyke) | 536 | 134 | 212 | 998 | 0.537 | 539 | 483 | 2.1 | 1.2 | 8.193 | A |
| 4 - A1077 (Ferriby Road) | 532 | 133 | 77 | 946 | 0.562 | 536 | 674 | 2.3 | 1.4 | 9.210 | A |

# Existing Layout - Sensitivity Test, PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Mini-roundabout | | Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 77% of the total flow for the roundabout for one or more time segments] |

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077 Holydyke Hungate | Mini-roundabout | | 1, 2, 3, 4 | 148.04 | F |

### Junction Network Options

| Driving side | Lighting | Road surface | In London |
|---|---|---|---|
| Left | Normal/unknown | Normal/unknown | |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D6 | Sensitivity Test | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|
| ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | | ONE HOUR | ✓ | 355 | 100.000 |
| 2 - Hungate | | ONE HOUR | ✓ | 126 | 100.000 |
| 3 - A1077 (Holydyke) | | ONE HOUR | ✓ | 691 | 100.000 |
| 4 - A1077 (Ferriby Road) | | ONE HOUR | ✓ | 959 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 4 | 171 | 180 |
| | 2 - Hungate | 4 | 1 | 21 | 100 |
| | 3 - A1077 (Holydyke) | 103 | 12 | 1 | 575 |
| | 4 - A1077 (Ferriby Road) | 254 | 118 | 587 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 33 | 0 | 0 |
| | 2 - Hungate | 0 | 0 | 0 | 0 |
| | 3 - A1077 (Holydyke) | 0 | 10 | 0 | 2 |
| | 4 - A1077 (Ferriby Road) | 0 | 0 | 1 | 0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 0.52 | 9.82 | 1.1 | A | 326 | 489 |
| 2 - Hungate | 0.67 | 50.70 | 1.8 | F | 116 | 173 |
| 3 - A1077 (Holydyke) | 0.82 | 21.35 | 4.3 | C | 634 | 951 |
| 4 - A1077 (Ferriby Road) | 1.16 | 303.28 | 83.4 | F | 880 | 1320 |

## Main Results for each time segment

### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 267 | 67 | 532 | 858 | 0.311 | 265 | 268 | 0.0 | 0.4 | 6.074 | A |
| 2 - Hungate | 95 | 24 | 697 | 358 | 0.265 | 93 | 100 | 0.0 | 0.4 | 13.525 | B |
| 3 - A1077 (Holydyke) | 520 | 130 | 212 | 997 | 0.522 | 516 | 578 | 0.0 | 1.1 | 7.548 | A |
| 4 - A1077 (Ferriby Road) | 722 | 180 | 90 | 938 | 0.770 | 709 | 638 | 0.0 | 3.1 | 15.120 | C |

### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 319 | 80 | 630 | 794 | 0.402 | 318 | 318 | 0.4 | 0.7 | 7.582 | A |
| 2 - Hungate | 113 | 28 | 830 | 278 | 0.408 | 112 | 119 | 0.4 | 0.7 | 21.588 | C |
| 3 - A1077 (Holydyke) | 621 | 155 | 255 | 969 | 0.641 | 618 | 687 | 1.1 | 1.8 | 10.385 | B |
| 4 - A1077 (Ferriby Road) | 862 | 216 | 108 | 927 | 0.931 | 840 | 765 | 3.1 | 8.7 | 35.018 | E |

### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 391 | 98 | 679 | 761 | 0.514 | 389 | 356 | 0.7 | 1.0 | 9.671 | A |
| 2 - Hungate | 139 | 35 | 939 | 211 | 0.658 | 135 | 130 | 0.7 | 1.7 | 45.042 | E |
| 3 - A1077 (Holydyke) | 761 | 190 | 310 | 932 | 0.817 | 752 | 764 | 1.8 | 4.1 | 19.426 | C |
| 4 - A1077 (Ferriby Road) | 1056 | 264 | 132 | 912 | 1.158 | 903 | 930 | 8.7 | 46.8 | 123.838 | F |

### 17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 391 | 98 | 684 | 758 | 0.516 | 391 | 358 | 1.0 | 1.1 | 9.822 | A |
| 2 - Hungate | 139 | 35 | 944 | 208 | 0.668 | 138 | 131 | 1.7 | 1.8 | 50.702 | F |
| 3 - A1077 (Holydyke) | 761 | 190 | 313 | 929 | 0.819 | 760 | 769 | 4.1 | 4.3 | 21.351 | C |
| 4 - A1077 (Ferriby Road) | 1056 | 264 | 133 | 911 | 1.160 | 909 | 940 | 46.8 | 83.4 | 266.562 | F |

### 17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 319 | 80 | 685 | 758 | 0.421 | 320 | 340 | 1.1 | 0.7 | 8.283 | A |
| 2 - Hungate | 113 | 28 | 877 | 249 | 0.456 | 117 | 128 | 1.8 | 0.9 | 28.099 | D |
| 3 - A1077 (Holydyke) | 621 | 155 | 260 | 965 | 0.644 | 631 | 734 | 4.3 | 1.9 | 11.265 | B |
| 4 - A1077 (Ferriby Road) | 862 | 216 | 111 | 925 | 0.932 | 914 | 780 | 83.4 | 70.5 | 303.276 | F |

### 18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 267 | 67 | 690 | 754 | 0.354 | 268 | 326 | 0.7 | 0.6 | 7.439 | A |
| 2 - Hungate | 95 | 24 | 831 | 277 | 0.343 | 96 | 127 | 0.9 | 0.5 | 20.107 | C |
| 3 - A1077 (Holydyke) | 520 | 130 | 216 | 995 | 0.523 | 523 | 711 | 1.9 | 1.1 | 7.824 | A |
| 4 - A1077 (Ferriby Road) | 722 | 180 | 92 | 937 | 0.770 | 924 | 648 | 70.5 | 20.0 | 180.851 | F |

# Existing Layout - Sensitivity Test (1,500 dwellings), AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Mini-roundabout | | Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 79% of the total flow for the roundabout for one or more time segments] |

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077 Holydyke Hungate | Mini-roundabout | | 1, 2, 3, 4 | 105.88 | F |

### Junction Network Options

| Driving side | Lighting | Road surface | In London |
|---|---|---|---|
| Left | Normal/unknown | Normal/unknown | |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D7 | Sensitivity Test (1,500 dwellings) | AM | ONE HOUR | 07:30 | 09:00 | 15 | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|
| ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | | ONE HOUR | ✓ | 334 | 100.000 |
| 2 - Hungate | | ONE HOUR | ✓ | 104 | 100.000 |
| 3 - A1077 (Holydyke) | | ONE HOUR | ✓ | 940 | 100.000 |
| 4 - A1077 (Ferriby Road) | | ONE HOUR | ✓ | 789 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 10 | 128 | 196 |
| | 2 - Hungate | 0 | 0 | 20 | 84 |
| | 3 - A1077 (Holydyke) | 94 | 7 | 1 | 838 |
| | 4 - A1077 (Ferriby Road) | 126 | 93 | 570 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 0 | 3 | 1 |
| | 2 - Hungate | 0 | 0 | 13 | 0 |
| | 3 - A1077 (Holydyke) | 1 | 0 | 0 | 4 |
| | 4 - A1077 (Ferriby Road) | 6 | 2 | 4 | 0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 0.51 | 10.21 | 1.0 | B | 306 | 460 |
| 2 - Hungate | 0.62 | 50.38 | 1.5 | F | 95 | 143 |
| 3 - A1077 (Holydyke) | 1.11 | 195.44 | 61.1 | F | 863 | 1294 |
| 4 - A1077 (Ferriby Road) | 0.93 | 47.00 | 10.6 | E | 724 | 1086 |

## Main Results for each time segment

### 07:30 - 07:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 251 | 63 | 499 | 879 | 0.286 | 250 | 164 | 0.0 | 0.4 | 5.803 | A |
| 2 - Hungate | 78 | 20 | 667 | 377 | 0.208 | 77 | 82 | 0.0 | 0.3 | 12.253 | B |
| 3 - A1077 (Holydyke) | 708 | 177 | 209 | 1000 | 0.708 | 698 | 536 | 0.0 | 2.4 | 12.025 | B |
| 4 - A1077 (Ferriby Road) | 594 | 149 | 76 | 947 | 0.627 | 587 | 831 | 0.0 | 1.7 | 10.219 | B |

### 07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 300 | 75 | 599 | 814 | 0.369 | 300 | 196 | 0.4 | 0.6 | 7.105 | A |
| 2 - Hungate | 93 | 23 | 800 | 296 | 0.316 | 93 | 98 | 0.3 | 0.5 | 18.067 | C |
| 3 - A1077 (Holydyke) | 845 | 211 | 251 | 971 | 0.870 | 832 | 642 | 2.4 | 5.8 | 24.560 | C |
| 4 - A1077 (Ferriby Road) | 709 | 177 | 90 | 938 | 0.756 | 704 | 992 | 1.7 | 3.0 | 15.643 | C |

### 08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 368 | 92 | 718 | 736 | 0.500 | 366 | 227 | 0.6 | 1.0 | 9.862 | A |
| 2 - Hungate | 115 | 29 | 967 | 194 | 0.590 | 111 | 117 | 0.5 | 1.3 | 42.742 | E |
| 3 - A1077 (Holydyke) | 1035 | 259 | 305 | 935 | 1.107 | 919 | 773 | 5.8 | 34.8 | 93.505 | F |
| 4 - A1077 (Ferriby Road) | 869 | 217 | 100 | 932 | 0.932 | 845 | 1124 | 3.0 | 9.0 | 35.740 | E |

### 08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 368 | 92 | 732 | 726 | 0.506 | 368 | 231 | 1.0 | 1.0 | 10.206 | B |
| 2 - Hungate | 115 | 29 | 980 | 186 | 0.617 | 114 | 120 | 1.3 | 1.5 | 50.383 | F |
| 3 - A1077 (Holydyke) | 1035 | 259 | 308 | 933 | 1.109 | 930 | 787 | 34.8 | 61.1 | 195.437 | F |
| 4 - A1077 (Ferriby Road) | 869 | 217 | 101 | 931 | 0.933 | 862 | 1136 | 9.0 | 10.6 | 46.996 | E |

### 08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 300 | 75 | 628 | 795 | 0.378 | 302 | 213 | 1.0 | 0.6 | 7.450 | A |
| 2 - Hungate | 93 | 23 | 826 | 280 | 0.334 | 97 | 103 | 1.5 | 0.5 | 20.610 | C |
| 3 - A1077 (Holydyke) | 845 | 211 | 256 | 968 | 0.873 | 952 | 668 | 61.1 | 34.4 | 183.039 | F |
| 4 - A1077 (Ferriby Road) | 709 | 177 | 103 | 930 | 0.763 | 737 | 1104 | 10.6 | 3.6 | 21.753 | C |

### 08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 251 | 63 | 512 | 871 | 0.289 | 252 | 179 | 0.6 | 0.4 | 5.927 | A |
| 2 - Hungate | 78 | 20 | 680 | 369 | 0.212 | 79 | 85 | 0.5 | 0.3 | 12.747 | B |
| 3 - A1077 (Holydyke) | 708 | 177 | 212 | 998 | 0.709 | 834 | 547 | 34.4 | 2.7 | 39.612 | E |
| 4 - A1077 (Ferriby Road) | 594 | 149 | 91 | 938 | 0.633 | 601 | 956 | 3.6 | 1.9 | 11.343 | B |

# Existing Layout - Sensitivity Test (1,500 dwellings), PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Mini-roundabout | | Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 80% of the total flow for the roundabout for one or more time segments] |

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077 Holydyke Hungate | Mini-roundabout | | 1, 2, 3, 4 | 507.69 | F |

### Junction Network Options

| Driving side | Lighting | Road surface | In London |
|---|---|---|---|
| Left | Normal/unknown | Normal/unknown | |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D8 | Sensitivity Test (1,500 dwellings) | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|
| ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | | ONE HOUR | ✓ | 355 | 100.000 |
| 2 - Hungate | | ONE HOUR | ✓ | 126 | 100.000 |
| 3 - A1077 (Holydyke) | | ONE HOUR | ✓ | 793 | 100.000 |
| 4 - A1077 (Ferriby Road) | | ONE HOUR | ✓ | 1175 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 4 | 171 | 180 |
| | 2 - Hungate | 4 | 1 | 21 | 100 |
| | 3 - A1077 (Holydyke) | 103 | 12 | 1 | 677 |
| | 4 - A1077 (Ferriby Road) | 254 | 118 | 803 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - B1218 (Holydyke) | 2 - Hungate | 3 - A1077 (Holydyke) | 4 - A1077 (Ferriby Road) |
| From | 1 - B1218 (Holydyke) | 0 | 33 | 0 | 0 |
| | 2 - Hungate | 0 | 0 | 0 | 0 |
| | 3 - A1077 (Holydyke) | 0 | 10 | 0 | 2 |
| | 4 - A1077 (Ferriby Road) | 0 | 0 | 1 | 0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 0.54 | 10.70 | 1.1 | B | 326 | 489 |
| 2 - Hungate | 0.83 | 104.52 | 3.7 | F | 116 | 173 |
| 3 - A1077 (Holydyke) | 0.94 | 48.14 | 10.9 | E | 728 | 1092 |
| 4 - A1077 (Ferriby Road) | 1.42 | 1011.22 | 268.3 | F | 1078 | 1617 |

## Main Results for each time segment

### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 267 | 67 | 674 | 764 | 0.350 | 265 | 263 | 0.0 | 0.5 | 7.202 | A |
| 2 - Hungate | 95 | 24 | 842 | 270 | 0.351 | 93 | 98 | 0.0 | 0.5 | 20.070 | C |
| 3 - A1077 (Holydyke) | 597 | 149 | 212 | 998 | 0.598 | 591 | 723 | 0.0 | 1.5 | 8.892 | A |
| 4 - A1077 (Ferriby Road) | 885 | 221 | 90 | 938 | 0.943 | 847 | 713 | 0.0 | 9.4 | 32.187 | D |

### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 319 | 80 | 732 | 727 | 0.439 | 318 | 294 | 0.5 | 0.8 | 8.819 | A |
| 2 - Hungate | 113 | 28 | 943 | 209 | 0.543 | 111 | 107 | 0.5 | 1.1 | 36.051 | E |
| 3 - A1077 (Holydyke) | 713 | 178 | 254 | 969 | 0.735 | 708 | 800 | 1.5 | 2.7 | 13.778 | B |
| 4 - A1077 (Ferriby Road) | 1056 | 264 | 108 | 927 | 1.140 | 918 | 854 | 9.4 | 44.0 | 118.378 | F |

### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 391 | 98 | 730 | 728 | 0.537 | 389 | 312 | 0.8 | 1.1 | 10.628 | B |
| 2 - Hungate | 139 | 35 | 1010 | 168 | 0.827 | 131 | 110 | 1.1 | 3.1 | 83.308 | F |
| 3 - A1077 (Holydyke) | 873 | 218 | 306 | 934 | 0.935 | 848 | 834 | 2.7 | 9.0 | 35.195 | E |
| 4 - A1077 (Ferriby Road) | 1294 | 323 | 129 | 913 | 1.417 | 913 | 1025 | 44.0 | 139.3 | 370.110 | F |

### 17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 391 | 98 | 729 | 728 | 0.537 | 391 | 314 | 1.1 | 1.1 | 10.699 | B |
| 2 - Hungate | 139 | 35 | 1010 | 167 | 0.829 | 137 | 110 | 3.1 | 3.7 | 104.516 | F |
| 3 - A1077 (Holydyke) | 873 | 218 | 312 | 930 | 0.939 | 865 | 835 | 9.0 | 10.9 | 48.135 | E |
| 4 - A1077 (Ferriby Road) | 1294 | 323 | 132 | 911 | 1.420 | 911 | 1045 | 139.3 | 234.9 | 741.104 | F |

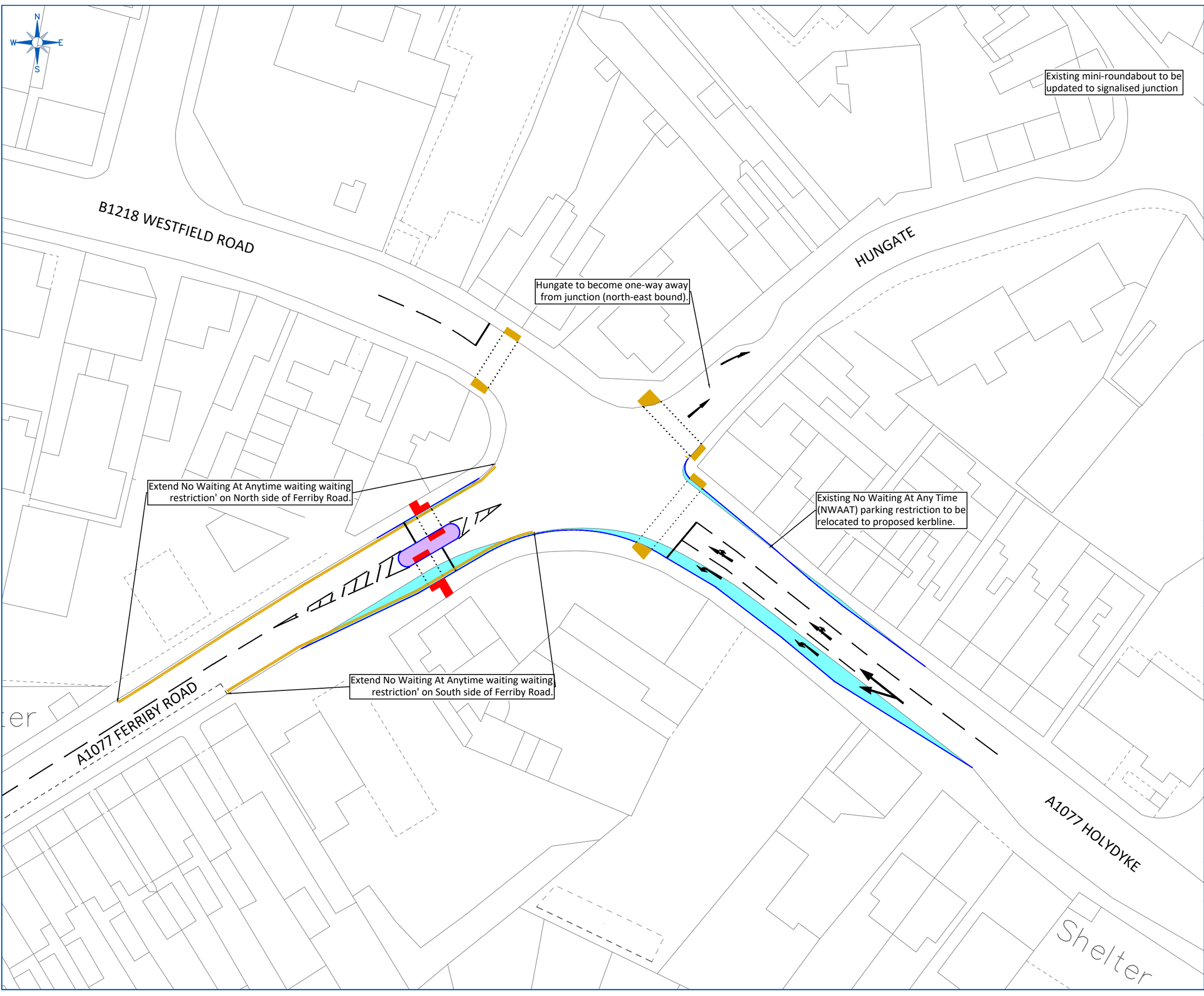
### 17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 319 | 80 | 737 | 723 | 0.441 | 321 | 300 | 1.1 | 0.8 | 8.990 | A |
| 2 - Hungate | 113 | 28 | 949 | 205 | 0.552 | 123 | 109 | 3.7 | 1.3 | 47.403 | E |
| 3 - A1077 (Holydyke) | 713 | 178 | 265 | 962 | 0.741 | 744 | 806 | 10.9 | 3.1 | 18.913 | C |
| 4 - A1077 (Ferriby Road) | 1056 | 264 | 114 | 923 | 1.144 | 923 | 895 | 234.9 | 268.3 | 985.619 | F |

### 18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - B1218 (Holydyke) | 267 | 67 | 742 | 720 | 0.371 | 268 | 283 | 0.8 | 0.6 | 8.010 | A |
| 2 - Hungate | 95 | 24 | 904 | 232 | 0.408 | 97 | 107 | 1.3 | 0.7 | 27.121 | D |
| 3 - A1077 (Holydyke) | 597 | 149 | 217 | 994 | 0.601 | 603 | 784 | 3.1 | 1.6 | 9.519 | A |
| 4 - A1077 (Ferriby Road) | 885 | 221 | 92 | 937 | 0.944 | 933 | 728 | 268.3 | 256.1 | 1011.219 | F |

# Appendix 2 – J1 Improvement Scheme Drawing




10mm



A3

Key:-

- Proposed Kerbline
- Proposed Widening
- Proposed Pedestrian Refuge
- Proposed Road Markings
- Proposed Tactiles

## Disclaimers:-

i. This drawing is copyright and must not be copied in part or in whole unless agreed in writing by Local Transport Projects Ltd

ii. Reference should be made to the project's drawing register to ensure the latest drawing is being referred to.

iii. All dimensions are to be checked by the contractor prior to commencement of work. Any discrepancy shall be reported immediately to Local Transport Projects Ltd

iv. All work shall be carried out in accordance with local authority, statutory authority and health & safety requirements & regulations

v. Mapping supplied by Client

| Rev. | Date | By | Chk | Description |
|---|---|---|---|---|
| A | 17 05 21 | SL | MR | Drawing updated for NLC member/public consultation process |

Client

North Lincolnshire Council

Project

Barton Southern Access Road

Title

A1077 / B1218 Proposed Junction Improvement Scheme
Signalised Junction
Feasibility Design

local transport projects
traffic engineering and transport planning
Office 2, Armstrong House,
The Flemingate Centre,
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HU17 0NW.
t 01482 679 911
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www.local-transport-projects.co.uk
Registered No. 5295328

| Drawn | Date |
|---|---|
| OA | 27 01 21 |
| Scale | Checked |
| 1 : 250 | NW |

Status

DRAFT FEASIBILITY

Drawing number

| Project | Job | Drawing | Sheet | Revision |
|---|---|---|---|---|
| LTP/ | 3628/ | P3 / | 01 | .01 A |

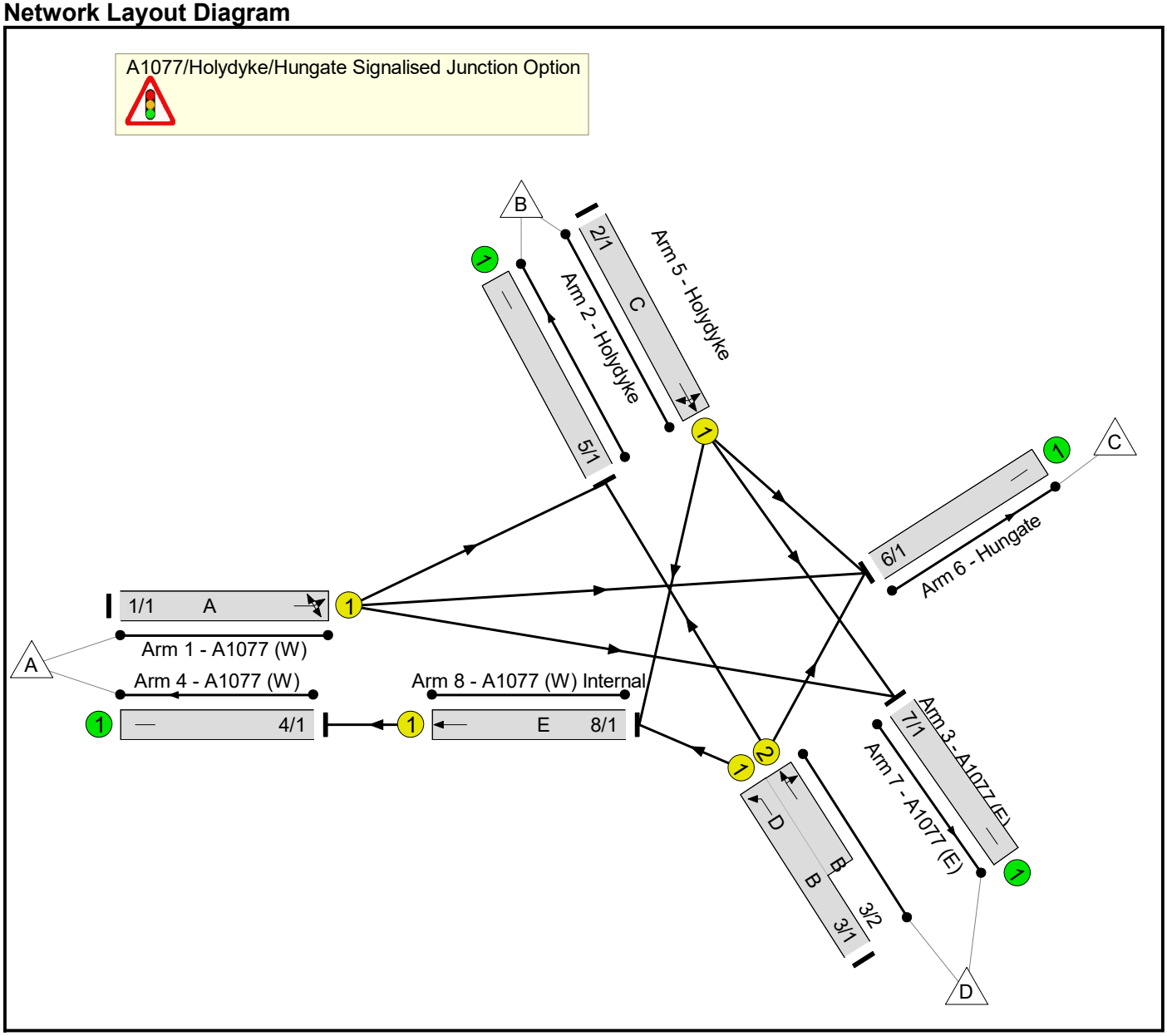
# Appendix 3 – J1 Improvement Scheme Modelling

## LTP LinSig Output

### User and Project Details

| | |
|---|---|
| **Project:** | **Barton Link Road** |
| **Title:** | **A1077/Holydyke/Hungate Signalised Junction Option** |
| **Location:** | Barton upon Humber, North Lincolnshire |
| **Client:** | North Lincolnshire Council |
| **Additional detail:** | |
| **File name:** | A1077 Holydyke Hungate Signalised Junction Improvement Scheme.lsg3x |
| **Author:** | MR |
| **Company:** | LTP |
| **Address:** | |

### Network Layout Diagram



## Phase Input Data

| Phase Name | Phase Type | Assoc. Phase | Street Min | Cont Min |
|---|---|---|---|---|
| A | Traffic | | 7 | 7 |
| B | Traffic | | 7 | 7 |
| C | Traffic | | 7 | 7 |
| D | Filter | B | 4 | 0 |
| E | Traffic | | 7 | 7 |
| F | Pedestrian | | 6 | 6 |
| G | Pedestrian | | 6 | 6 |

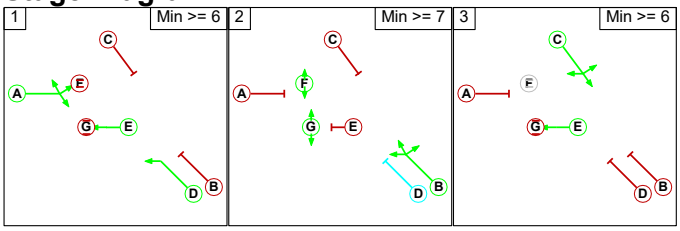
## Phase Intergreens Matrix

| | | Starting Phase | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| Terminating Phase | A | | 5 | 5 | - | - | 5 | - |
| | B | 5 | | 5 | - | - | - | - |
| | C | 5 | 5 | | 6 | - | - | - |
| | D | - | - | 5 | | - | - | - |
| | E | - | - | - | - | | - | 5 |
| | F | 5 | - | - | - | - | | - |
| | G | - | - | - | - | 6 | - | |

## Phases in Stage

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

## Stage Diagram




## Phase Delays

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

**Prohibited Stage Change**

| | To Stage | | | |
|---|---|---|---|---|
| | | 1 | 2 | 3 |
| From Stage | 1 | | 5 | X |
| | 2 | 6 | | 6 |
| | 3 | 6 | 5 | |

## Give-Way Lane Input Data

| Junction: A1077/Holydyke/Hungate Signalised Junction Option |
| --- |
| There are no Opposed Lanes in this Junction |

## Lane Input Data

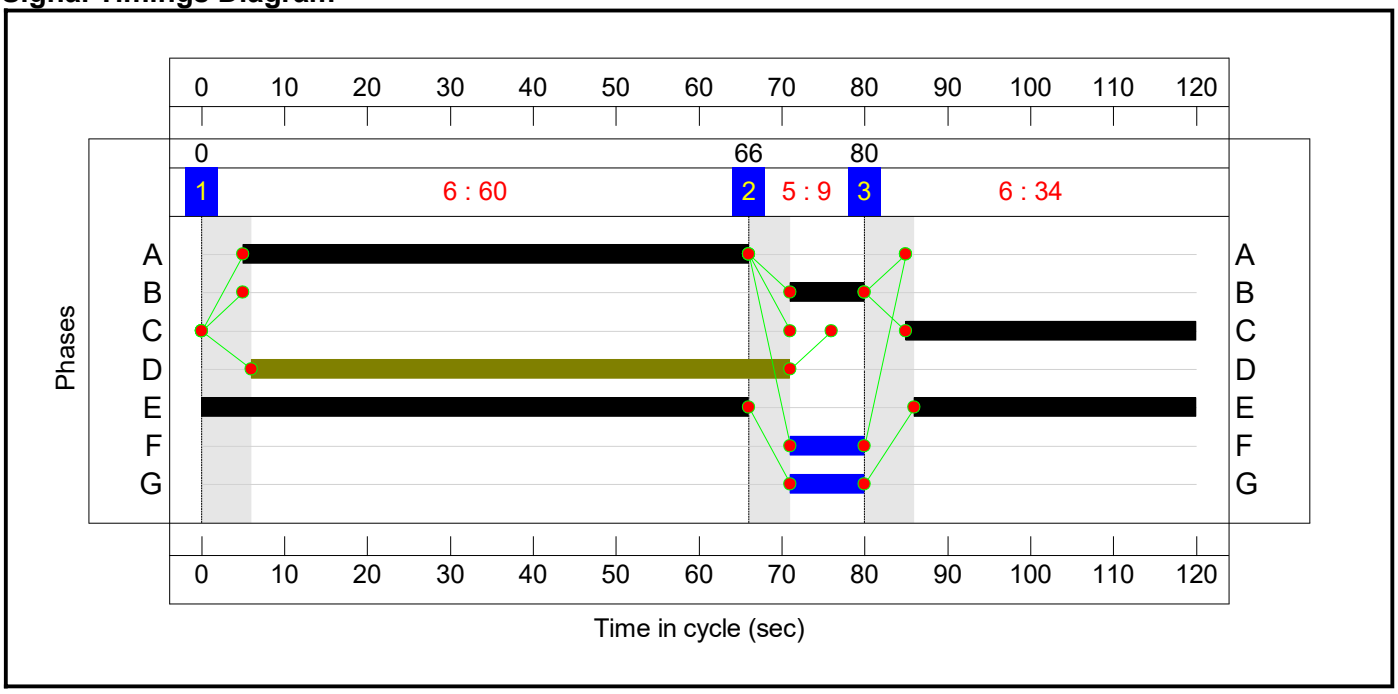
| Junction: A1077/Holydyke/Hungate Signalised Junction Option | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lane** | **Lane Type** | **Phases** | **Start Disp.** | **End Disp.** | **Physical Length (PCU)** | **Sat Flow Type** | **Def User Saturation Flow (PCU/Hr)** | **Lane Width (m)** | **Gradient** | **Nearside Lane** | **Turns** | **Turning Radius (m)** |
| 1/1 (A1077 (W)) | U | A | 2 | 3 | 60.0 | Geom | - | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 |
| | | | | | | | | | | | Arm 6 Ahead | Inf |
| | | | | | | | | | | | Arm 7 Right | 28.00 |
| 2/1 (Holydyke) | U | C | 2 | 3 | 60.0 | Geom | - | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 |
| | | | | | | | | | | | Arm 7 Ahead | Inf |
| | | | | | | | | | | | Arm 8 Right | 12.90 |
| 3/1 (A1077 (E)) | U | B D | 2 | 3 | 60.0 | Geom | - | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 |
| 3/2 (A1077 (E)) | U | B | 2 | 3 | 5.8 | Geom | - | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf |
| | | | | | | | | | | | Arm 6 Right | 6.65 |
| 4/1 (A1077 (W)) | U | | 2 | 3 | 60.0 | Inf | - | - | - | - | - | - |
| 5/1 (Holydyke) | U | | 2 | 3 | 60.0 | Inf | - | - | - | - | - | - |
| 6/1 (Hungate) | U | | 2 | 3 | 60.0 | Inf | - | - | - | - | - | - |
| 7/1 (A1077 (E)) | U | | 2 | 3 | 60.0 | Inf | - | - | - | - | - | - |
| 8/1 (A1077 (W) Internal) | U | E | 2 | 3 | 3.0 | Geom | - | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf |

## Traffic Flow Groups

| Flow Group | Start Time | End Time | Duration | Formula |
|---|---|---|---|---|
| 1: '2021 Base AM' | 07:45 | 08:45 | 01:00 | |
| 2: '2021 Base PM' | 17:00 | 18:00 | 01:00 | |
| 3: '2031 With Residential Site Allocations AM' | 07:45 | 08:45 | 01:00 | |
| 4: '2031 With Residential Site Allocations PM' | 17:00 | 18:00 | 01:00 | |
| 5: 'Sensitivity Test AM' | 07:45 | 08:45 | 01:00 | |
| 6: 'Sensitivity Test PM' | 17:00 | 18:00 | 01:00 | |
| 19: 'Sensitivity Test AM (1,500 dwellings)' | 07:45 | 08:45 | 01:00 | |
| 20: 'Sensitivity Test PM (1,500 dwellings)' | 17:00 | 18:00 | 01:00 | |

**Scenario 1: '2021 Base AM'** (FG1: '2021 Base AM', Plan 1: 'Network Control Plan 1')

## Signal Timings Diagram




## Traffic Flows, Desired

**Desired Flow :**

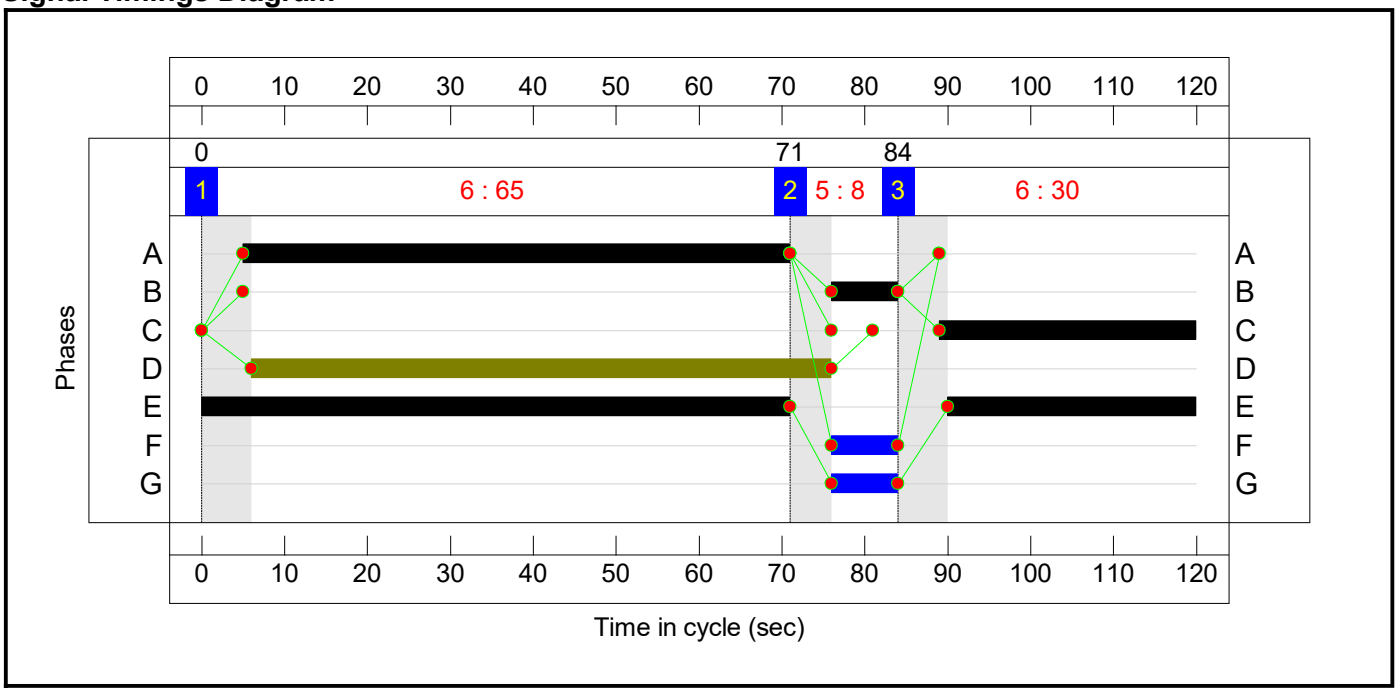
| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 116 | 86 | 396 | 598 |
| | B | 214 | 0 | 10 | 127 | 351 |
| | C | 0 | 0 | 0 | 0 | 0 |
| | D | 436 | 92 | 7 | 0 | 535 |
| | Tot. | 650 | 208 | 103 | 523 | 1484 |

## Lane Saturation Flows

| Junction: A1077/Holydyke/Hungate Signalised Junction Option | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **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 (A1077 (W)) | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 | 19.4 % | 1848 | 1848 |
| | | | | Arm 6 Ahead | Inf | 14.4 % | | |
| | | | | Arm 7 Right | 28.00 | 66.2 % | | |
| 2/1 (Holydyke) | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 | 2.8 % | 1861 | 1861 |
| | | | | Arm 7 Ahead | Inf | 36.2 % | | |
| | | | | Arm 8 Right | 12.90 | 61.0 % | | |
| 3/1 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 | 100.0 % | 1862 | 1862 |
| 3/2 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf | 92.9 % | 1934 | 1934 |
| | | | | Arm 6 Right | 6.65 | 7.1 % | | |
| 4/1 (A1077 (W) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 (Holydyke Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 6/1 (Hungate Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 7/1 (A1077 (E) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 8/1 (A1077 (W) Internal) | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 2015 | 2015 |

**Scenario 2: '2021 Base PM'** (FG2: '2021 Base PM', Plan 1: 'Network Control Plan 1')

## Signal Timings Diagram



## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 240 | 110 | 471 | 821 |
| | B | 219 | 0 | 4 | 166 | 389 |
| | C | 0 | 0 | 0 | 0 | 0 |
| | D | 540 | 98 | 11 | 0 | 649 |
| | Tot. | 759 | 338 | 125 | 637 | 1859 |

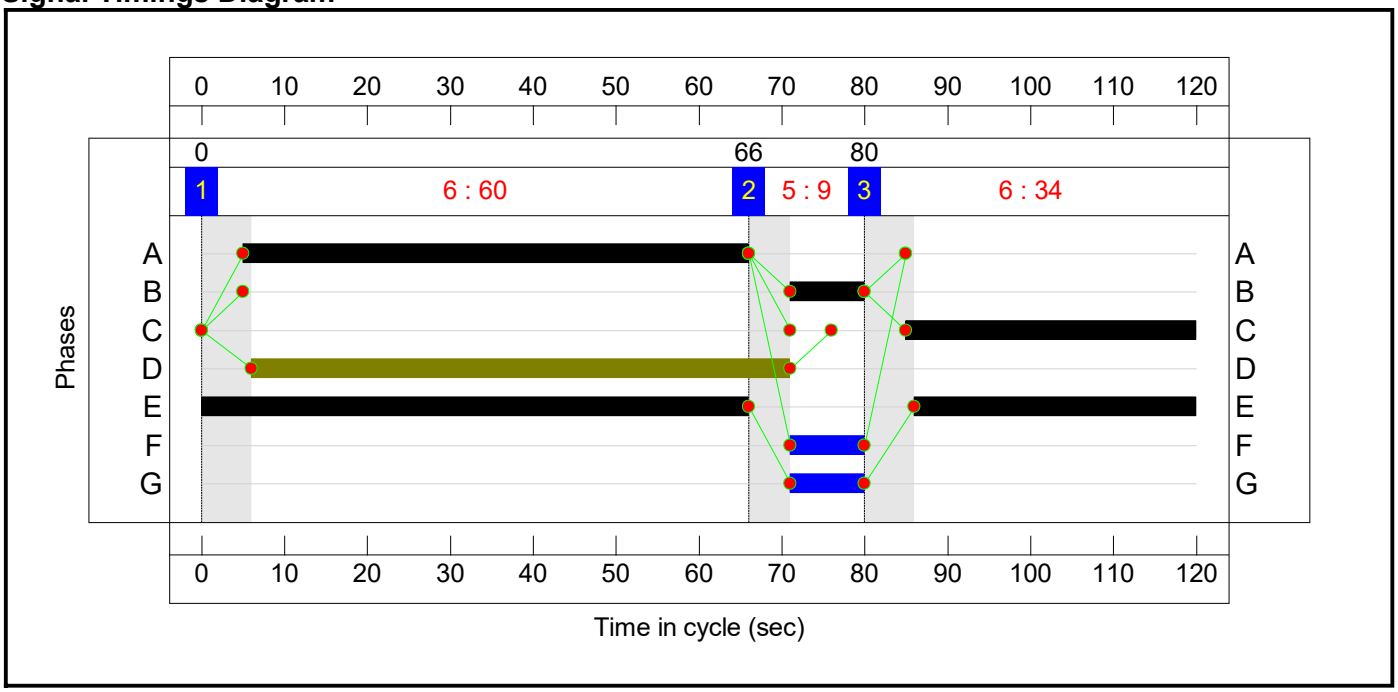
## Lane Saturation Flows

**Junction: A1077/Holydyke/Hungate Signalised Junction Option**

| 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 (A1077 (W)) | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 | 29.2 % | 1832 | 1832 |
| | | | | Arm 6 Ahead | Inf | 13.4 % | | |
| | | | | Arm 7 Right | 28.00 | 57.4 % | | |
| 2/1 (Holydyke) | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 | 1.0 % | 1875 | 1875 |
| | | | | Arm 7 Ahead | Inf | 42.7 % | | |
| | | | | Arm 8 Right | 12.90 | 56.3 % | | |
| 3/1 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 | 100.0 % | 1862 | 1862 |
| 3/2 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf | 89.9 % | 1921 | 1921 |
| | | | | Arm 6 Right | 6.65 | 10.1 % | | |
| 4/1 (A1077 (W) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 (Holydyke Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 6/1 (Hungate Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 7/1 (A1077 (E) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 8/1 (A1077 (W) Internal) | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 2015 | 2015 |

**Scenario 3: '2031 With Residential Allocation Sites AM'** (FG3: '2031 With Residential Site Allocations AM', Plan 1: 'Network Control Plan 1')

## Signal Timings Diagram




## Traffic Flows, Desired

**Desired Flow :**

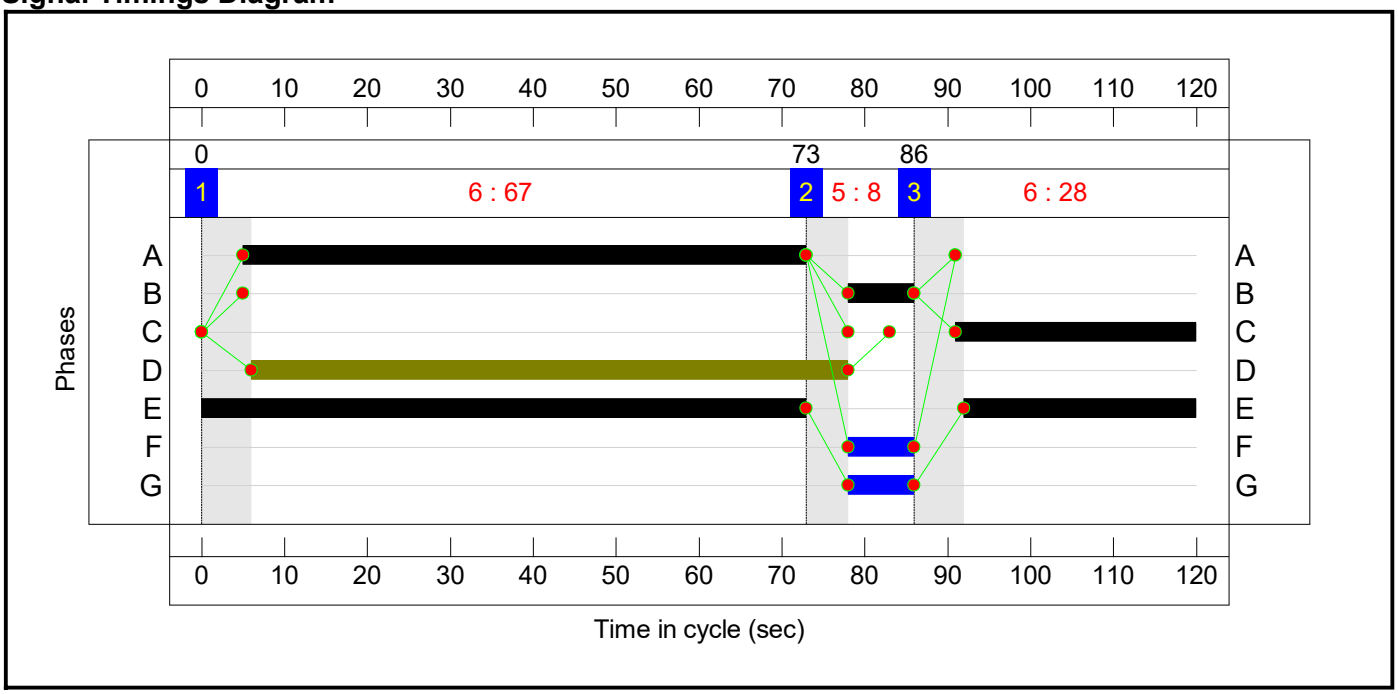
| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 123 | 90 | 427 | 640 |
| | B | 231 | 0 | 10 | 122 | 363 |
| | C | 0 | 0 | 0 | 0 | 0 |
| | D | 539 | 94 | 7 | 0 | 640 |
| | Tot. | 770 | 217 | 107 | 549 | 1643 |

## Lane Saturation Flows

| Junction: A1077/Holydyke/Hungate Signalised Junction Option | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **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 (A1077 (W)) | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 | 19.2 % | 1848 | 1848 |
| | | | | Arm 6 Ahead | Inf | 14.1 % | | |
| | | | | Arm 7 Right | 28.00 | 66.7 % | | |
| 2/1 (Holydyke) | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 | 2.8 % | 1856 | 1856 |
| | | | | Arm 7 Ahead | Inf | 33.6 % | | |
| | | | | Arm 8 Right | 12.90 | 63.6 % | | |
| 3/1 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 | 100.0 % | 1862 | 1862 |
| 3/2 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf | 93.1 % | 1935 | 1935 |
| | | | | Arm 6 Right | 6.65 | 6.9 % | | |
| 4/1 (A1077 (W) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 (Holydyke Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 6/1 (Hungate Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 7/1 (A1077 (E) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 8/1 (A1077 (W) Internal) | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 2015 | 2015 |

**Scenario 4: '2031 With Residential Allocation Sites PM'** (FG4: '2031 With Residential Site Allocations PM', Plan 1: 'Network Control Plan 1')

## Signal Timings Diagram



## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 254 | 118 | 524 | 896 |
| | B | 230 | 0 | 4 | 170 | 404 |
| | C | 0 | 0 | 0 | 0 | 0 |
| | D | 581 | 100 | 11 | 0 | 692 |
| | Tot. | 811 | 354 | 133 | 694 | 1992 |

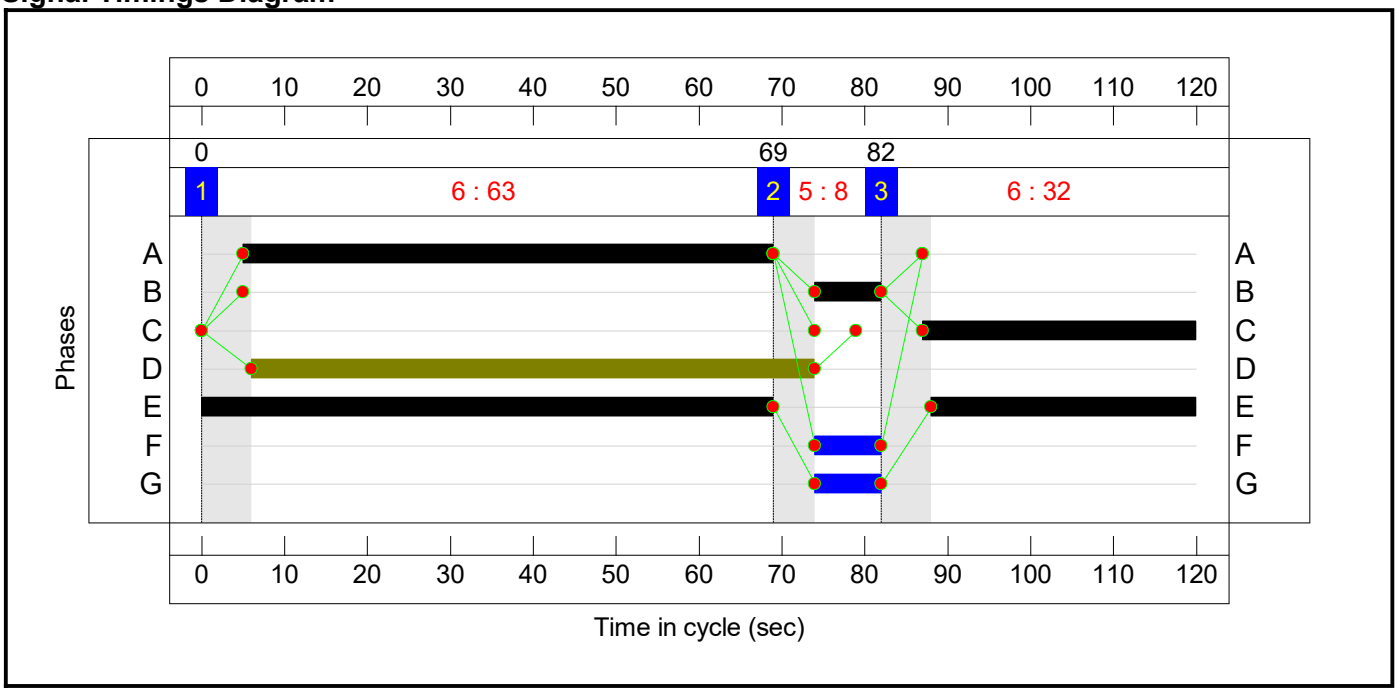
## Lane Saturation Flows

**Junction: A1077/Holydyke/Hungate Signalised Junction Option**

| 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 (A1077 (W)) | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 | 28.3 % | 1833 | 1833 |
| | | | | Arm 6 Ahead | Inf | 13.2 % | | |
| | | | | Arm 7 Right | 28.00 | 58.5 % | | |
| 2/1 (Holydyke) | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 | 1.0 % | 1874 | 1874 |
| | | | | Arm 7 Ahead | Inf | 42.1 % | | |
| | | | | Arm 8 Right | 12.90 | 56.9 % | | |
| 3/1 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 | 100.0 % | 1862 | 1862 |
| 3/2 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf | 90.1 % | 1922 | 1922 |
| | | | | Arm 6 Right | 6.65 | 9.9 % | | |
| 4/1 (A1077 (W) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 (Holydyke Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 6/1 (Hungate Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 7/1 (A1077 (E) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 8/1 (A1077 (W) Internal) | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 2015 | 2015 |

**Scenario 5: 'Sensitivity Test AM'** (FG5: 'Sensitivity Test AM', Plan 1: 'Network Control Plan 1')

## Signal Timings Diagram




## Traffic Flows, Desired

**Desired Flow :**

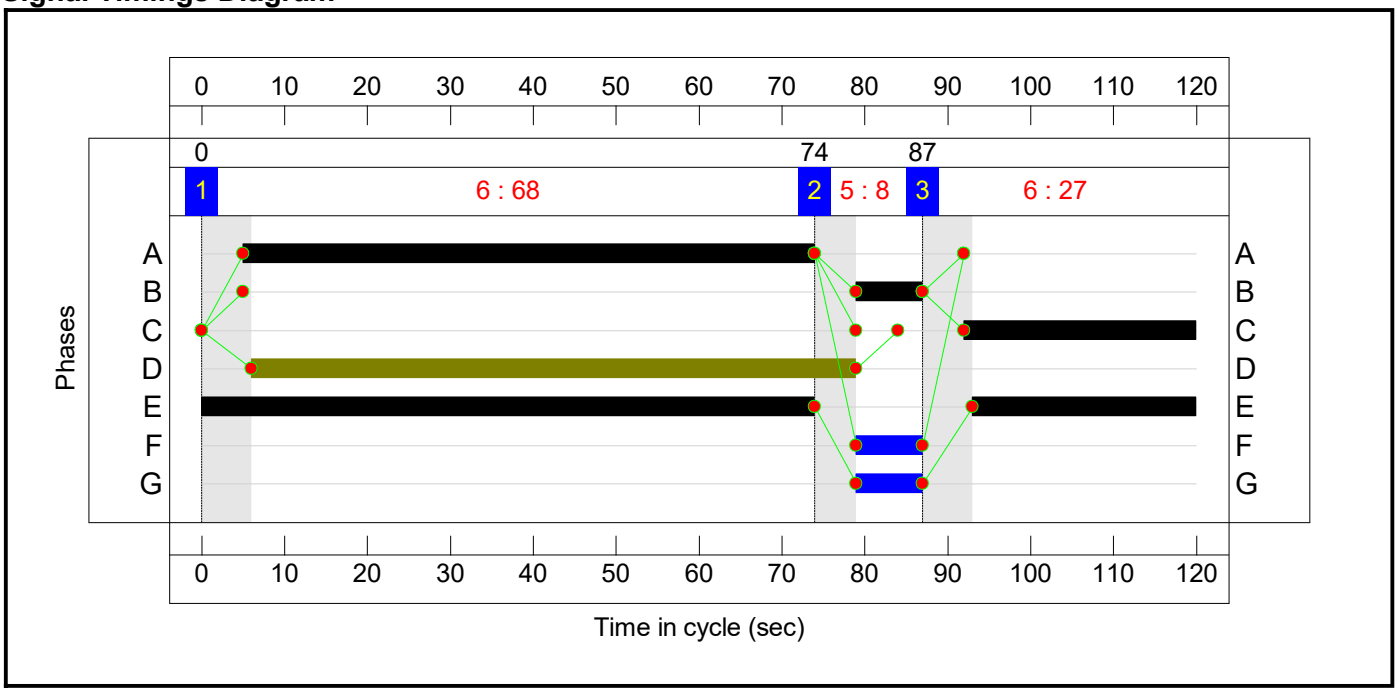
| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 126 | 93 | 488 | 707 |
| | B | 238 | 0 | 10 | 128 | 376 |
| | C | 0 | 0 | 0 | 0 | 0 |
| | D | 653 | 94 | 7 | 0 | 754 |
| | Tot. | 891 | 220 | 110 | 616 | 1837 |

## Lane Saturation Flows

| Junction: A1077/Holydyke/Hungate Signalised Junction Option | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **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 (A1077 (W)) | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 | 17.8 % | 1849 | 1849 |
| | | | | Arm 6 Ahead | Inf | 13.2 % | | |
| | | | | Arm 7 Right | 28.00 | 69.0 % | | |
| 2/1 (Holydyke) | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 | 2.7 % | 1857 | 1857 |
| | | | | Arm 7 Ahead | Inf | 34.0 % | | |
| | | | | Arm 8 Right | 12.90 | 63.3 % | | |
| 3/1 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 | 100.0 % | 1862 | 1862 |
| 3/2 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf | 93.1 % | 1935 | 1935 |
| | | | | Arm 6 Right | 6.65 | 6.9 % | | |
| 4/1 (A1077 (W) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 (Holydyke Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 6/1 (Hungate Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 7/1 (A1077 (E) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 8/1 (A1077 (W) Internal) | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 2015 | 2015 |

**Scenario 6: 'Sensitivity Test PM'** (FG6: 'Sensitivity Test PM', Plan 1: 'Network Control Plan 1')

## Signal Timings Diagram



## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 254 | 118 | 587 | 959 |
| | B | 230 | 0 | 4 | 171 | 405 |
| | C | 0 | 0 | 0 | 0 | 0 |
| | D | 626 | 103 | 12 | 0 | 741 |
| | Tot. | 856 | 357 | 134 | 758 | 2105 |

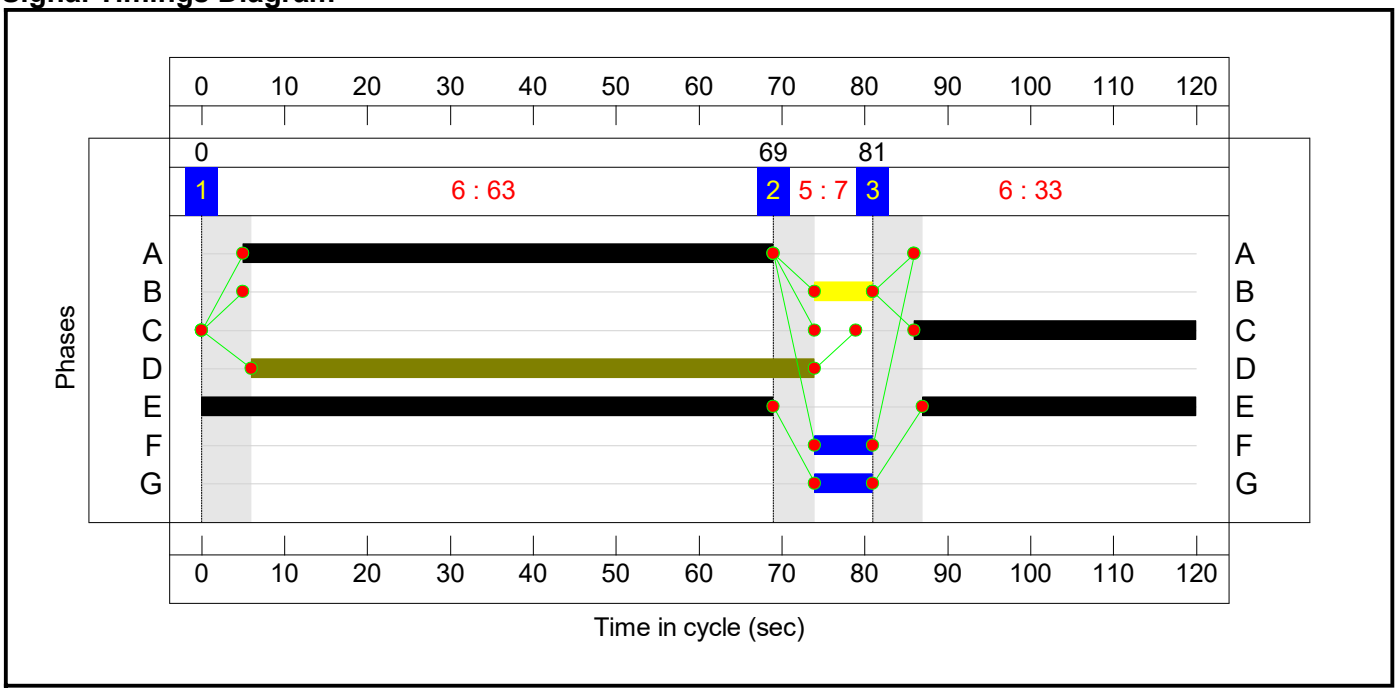
## Lane Saturation Flows

**Junction: A1077/Holydyke/Hungate Signalised Junction Option**

| 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 (A1077 (W)) | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 | 26.5 % | 1835 | 1835 |
| | | | | Arm 6 Ahead | Inf | 12.3 % | | |
| | | | | Arm 7 Right | 28.00 | 61.2 % | | |
| 2/1 (Holydyke) | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 | 1.0 % | 1874 | 1874 |
| | | | | Arm 7 Ahead | Inf | 42.2 % | | |
| | | | | Arm 8 Right | 12.90 | 56.8 % | | |
| 3/1 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 | 100.0 % | 1862 | 1862 |
| 3/2 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf | 89.6 % | 1920 | 1920 |
| | | | | Arm 6 Right | 6.65 | 10.4 % | | |
| 4/1 (A1077 (W) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 (Holydyke Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 6/1 (Hungate Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 7/1 (A1077 (E) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 8/1 (A1077 (W) Internal) | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 2015 | 2015 |

**Scenario 7: 'Sensitivity Test AM (1,500 dwellings)'** (FG19: 'Sensitivity Test AM (1,500 dwellings)', Plan 1: 'Network Control Plan 1')

## Signal Timings Diagram




## Traffic Flows, Desired

**Desired Flow :**

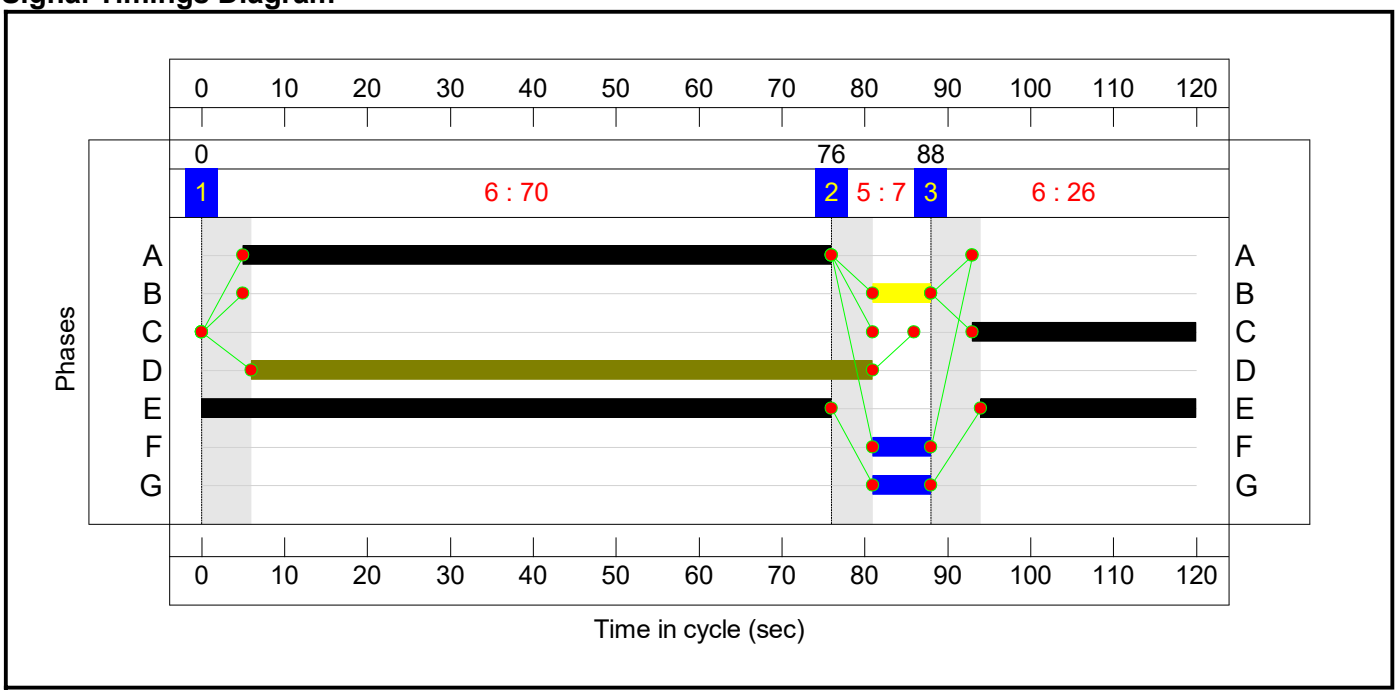
| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 126 | 93 | 570 | 789 |
| | B | 280 | 0 | 10 | 128 | 418 |
| | C | 0 | 0 | 0 | 0 | 0 |
| | D | 838 | 94 | 7 | 0 | 939 |
| | Tot. | 1118 | 220 | 110 | 698 | 2146 |

## Lane Saturation Flows

| Junction: A1077/Holydyke/Hungate Signalised Junction Option | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **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 (A1077 (W)) | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 | 16.0 % | 1851 | 1851 |
| | | | | Arm 6 Ahead | Inf | 11.8 % | | |
| | | | | Arm 7 Right | 28.00 | 72.2 % | | |
| 2/1 (Holydyke) | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 | 2.4 % | 1850 | 1850 |
| | | | | Arm 7 Ahead | Inf | 30.6 % | | |
| | | | | Arm 8 Right | 12.90 | 67.0 % | | |
| 3/1 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 | 100.0 % | 1862 | 1862 |
| 3/2 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf | 93.1 % | 1935 | 1935 |
| | | | | Arm 6 Right | 6.65 | 6.9 % | | |
| 4/1 (A1077 (W) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 (Holydyke Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 6/1 (Hungate Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 7/1 (A1077 (E) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 8/1 (A1077 (W) Internal) | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 2015 | 2015 |

**Scenario 8: 'Sensitivity Test PM (1,500 dwellings)'** (FG20: 'Sensitivity Test PM (1,500 dwellings)', Plan 1: 'Network Control Plan 1')

## Signal Timings Diagram



## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 254 | 118 | 803 | 1175 |
| | B | 280 | 0 | 4 | 171 | 455 |
| | C | 0 | 0 | 0 | 0 | 0 |
| | D | 677 | 103 | 12 | 0 | 792 |
| | Tot. | 957 | 357 | 134 | 974 | 2422 |

## Lane Saturation Flows

**Junction: A1077/Holydyke/Hungate Signalised Junction Option**

| 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 (A1077 (W)) | 3.50 | 0.00 | Y | Arm 5 Left | 10.41 | 21.6 % | 1840 | 1840 |
| | | | | Arm 6 Ahead | Inf | 10.0 % | | |
| | | | | Arm 7 Right | 28.00 | 68.3 % | | |
| 2/1 (Holydyke) | 3.85 | 0.00 | Y | Arm 6 Left | 12.00 | 0.9 % | 1865 | 1865 |
| | | | | Arm 7 Ahead | Inf | 37.6 % | | |
| | | | | Arm 8 Right | 12.90 | 61.5 % | | |
| 3/1 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 8 Left | 27.15 | 100.0 % | 1862 | 1862 |
| 3/2 (A1077 (E)) | 3.50 | 0.00 | Y | Arm 5 Ahead | Inf | 89.6 % | 1920 | 1920 |
| | | | | Arm 6 Right | 6.65 | 10.4 % | | |
| 4/1 (A1077 (W) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 (Holydyke Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 6/1 (Hungate Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 7/1 (A1077 (E) Lane 1) | Infinite Saturation Flow | | | | | | Inf | Inf |
| 8/1 (A1077 (W) Internal) | 4.00 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 2015 | 2015 |

## Network Results

**Scenario 1: '2021 Base AM'** (FG1: '2021 Base AM', Plan 1: 'Network Control Plan 1')

| Item | Lane Description | Lane Type | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **62.9%** | - | - | **0** | **0** | **0** | **12.8** | - | - |
| **A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **62.9%** | - | - | **0** | **0** | **0** | **12.8** | - | - |
| 1/1 | A1077 (W) Left Ahead Right | U | A | | 1 | 61 | - | 598 | 1848 | 955 | 62.6% | 598 | 598 | - | - | - | 4.3 | 25.7 | 15.0 |
| 2/1 | Holydyke Left Ahead Right | U | C | | 1 | 35 | - | 351 | 1861 | 558 | 62.9% | 351 | 351 | - | - | - | 4.4 | 44.9 | 10.9 |
| 3/1+3/2 | A1077 (E) Ahead Right Left | U | B | D | 1 | 74:9 | 65 | 535 | 1862:1934 | 710+161 | 61.4 : 61.4% | 535 | 535 | - | - | - | 3.6 | 24.1 | 8.1 |
| 8/1 | A1077 (W) Internal Ahead | U | E | | 1 | 100 | - | 650 | 2015 | 1696 | 38.3% | 650 | 650 | - | - | - | 0.5 | 2.8 | 2.2 |

C1 PRC for Signalled Lanes (%): 43.2 Total Delay for Signalled Lanes (pcuHr): 12.75 Cycle Time (s): 120

PRC Over All Lanes (%): 43.2 Total Delay Over All Lanes(pcuHr): 12.75

**Scenario 2: '2021 Base PM'** (FG2: '2021 Base PM', Plan 1: 'Network Control Plan 1')

| Item | Lane Description | Lane Type | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **80.3%** | - | - | **0** | **0** | **0** | **18.2** | - | - |
| **A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **80.3%** | - | - | **0** | **0** | **0** | **18.2** | - | - |
| 1/1 | A1077 (W) Left Ahead Right | U | A | | 1 | 66 | - | 821 | 1832 | 1023 | 80.3% | 821 | 821 | - | - | - | 6.8 | 30.0 | 23.9 |
| 2/1 | Holydyke Left Ahead Right | U | C | | 1 | 31 | - | 389 | 1875 | 500 | 77.8% | 389 | 389 | - | - | - | 6.1 | 56.4 | 13.7 |
| 3/1+3/2 | A1077 (E) Ahead Right Left | U | B | D | 1 | 78:8 | 70 | 649 | 1862:1921 | 714+144 | 75.7 : 75.7% | 649 | 649 | - | - | - | 4.7 | 25.9 | 10.8 |
| 8/1 | A1077 (W) Internal Ahead | U | E | | 1 | 101 | - | 759 | 2015 | 1713 | 44.3% | 759 | 759 | - | - | - | 0.6 | 3.0 | 2.7 |

C1 PRC for Signalled Lanes (%): 12.1 Total Delay for Signalled Lanes (pcuHr): 18.22 Cycle Time (s): 120
PRC Over All Lanes (%): 12.1 Total Delay Over All Lanes(pcuHr): 18.22

**Scenario 3: '2031 With Residential Allocation Sites AM'** (FG3: '2031 With Residential Site Allocations AM', Plan 1: 'Network Control Plan 1')

| Item | Lane Description | Lane Type | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A1077/Holydyke/Hungate Signalised Junction Option** | **-** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **67.0%** | **-** | **-** | **0** | **0** | **0** | **14.2** | **-** | **-** |
| **A1077/Holydyke/Hungate Signalised Junction Option** | **-** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **67.0%** | **-** | **-** | **0** | **0** | **0** | **14.2** | **-** | **-** |
| 1/1 | A1077 (W) Left Ahead Right | U | A | | 1 | 61 | - | 640 | 1848 | 955 | 67.0% | 640 | 640 | - | - | - | 4.8 | 27.1 | 16.7 |
| 2/1 | Holydyke Left Ahead Right | U | C | | 1 | 35 | - | 363 | 1856 | 557 | 65.2% | 363 | 363 | - | - | - | 4.6 | 45.8 | 11.4 |
| 3/1+3/2 | A1077 (E) Ahead Right Left | U | B | D | 1 | 74:9 | 65 | 640 | 1862:1935 | 861+161 | 62.6 : 62.6% | 640 | 640 | - | - | - | 4.1 | 23.1 | 11.1 |
| 8/1 | A1077 (W) Internal Ahead | U | E | | 1 | 100 | - | 770 | 2015 | 1696 | 45.4% | 770 | 770 | - | - | - | 0.7 | 3.1 | 2.9 |

C1 PRC for Signalled Lanes (%): 34.3 Total Delay for Signalled Lanes (pcuHr): 14.22 Cycle Time (s): 120
PRC Over All Lanes (%): 34.3 Total Delay Over All Lanes(pcuHr): 14.22

**Scenario 4: '2031 With Residential Allocation Sites PM'** (FG4: '2031 With Residential Site Allocations PM', Plan 1: 'Network Control Plan 1')

| Item | Lane Description | Lane Type | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **86.2%** | - | - | **0** | **0** | **0** | **21.2** | - | - |
| **A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **86.2%** | - | - | **0** | **0** | **0** | **21.2** | - | - |
| 1/1 | A1077 (W) Left Ahead Right | U | A | | 1 | 68 | - | 896 | 1833 | 1054 | 85.0% | 896 | 896 | - | - | - | 8.0 | 32.2 | 27.4 |
| 2/1 | Holydyke Left Ahead Right | U | C | | 1 | 29 | - | 404 | 1874 | 469 | 86.2% | 404 | 404 | - | - | - | 7.7 | 68.7 | 15.7 |
| 3/1+3/2 | A1077 (E) Ahead Right Left | U | B | D | 1 | 80:8 | 72 | 692 | 1862:1922 | 755+144 | 77.0 : 77.0% | 692 | 692 | - | - | - | 4.8 | 25.1 | 11.5 |
| 8/1 | A1077 (W) Internal Ahead | U | E | | 1 | 101 | - | 811 | 2015 | 1713 | 47.4% | 811 | 811 | - | - | - | 0.7 | 3.1 | 2.9 |

C1 PRC for Signalled Lanes (%): 4.4 Total Delay for Signalled Lanes (pcuHr): 21.24 Cycle Time (s): 120
PRC Over All Lanes (%): 4.4 Total Delay Over All Lanes(pcuHr): 21.24

**Scenario 5: 'Sensitivity Test AM'** (FG5: 'Sensitivity Test AM', Plan 1: 'Network Control Plan 1')

| Item | Lane Description | Lane Type | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **71.5%** | - | - | **0** | **0** | **0** | **16.1** | - | - |
| **A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **71.5%** | - | - | **0** | **0** | **0** | **16.1** | - | - |
| 1/1 | A1077 (W) Left Ahead Right | U | A | | 1 | 64 | - | 707 | 1849 | 1002 | 70.6% | 707 | 707 | - | - | - | 5.2 | 26.5 | 18.7 |
| 2/1 | Holydyke Left Ahead Right | U | C | | 1 | 33 | - | 376 | 1857 | 526 | 71.5% | 376 | 376 | - | - | - | 5.3 | 50.4 | 12.4 |
| 3/1+3/2 | A1077 (E) Ahead Right Left | U | B | D | 1 | 76:8 | 68 | 754 | 1862:1935 | 938+145 | 69.6 : 69.6% | 754 | 754 | - | - | - | 4.8 | 23.1 | 14.5 |
| 8/1 | A1077 (W) Internal Ahead | U | E | | 1 | 101 | - | 891 | 2015 | 1713 | 52.0% | 891 | 891 | - | - | - | 0.8 | 3.4 | 3.5 |

C1

PRC for Signalled Lanes (%): 25.9
PRC Over All Lanes (%): 25.9

Total Delay for Signalled Lanes (pcuHr): 16.13
Total Delay Over All Lanes(pcuHr): 16.13

Cycle Time (s): 120

**Scenario 6: 'Sensitivity Test PM'** (FG6: 'Sensitivity Test PM', Plan 1: 'Network Control Plan 1')

| Item | Lane Description | Lane Type | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **89.6%** | - | - | **0** | **0** | **0** | **24.5** | - | - |
| **A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **89.6%** | - | - | **0** | **0** | **0** | **24.5** | - | - |
| 1/1 | A1077 (W) Left Ahead Right | U | A | | 1 | 69 | - | 959 | 1835 | 1070 | 89.6% | 959 | 959 | - | - | - | 9.8 | 36.9 | 31.7 |
| 2/1 | Holydyke Left Ahead Right | U | C | | 1 | 28 | - | 405 | 1874 | 453 | 89.4% | 405 | 405 | - | - | - | 8.6 | 76.6 | 16.7 |
| 3/1+3/2 | A1077 (E) Ahead Right Left | U | B | D | 1 | 81:8 | 73 | 741 | 1862:1920 | 784+144 | 79.9 : 79.9% | 741 | 741 | - | - | - | 5.3 | 25.6 | 12.8 |
| 8/1 | A1077 (W) Internal Ahead | U | E | | 1 | 101 | - | 856 | 2015 | 1713 | 50.0% | 856 | 856 | - | - | - | 0.8 | 3.2 | 3.3 |

C1 PRC for Signalled Lanes (%): 0.5 Total Delay for Signalled Lanes (pcuHr): 24.49 Cycle Time (s): 120
PRC Over All Lanes (%): 0.5 Total Delay Over All Lanes(pcuHr): 24.49

**Scenario 7: 'Sensitivity Test AM (1,500 dwellings)'** (FG19: 'Sensitivity Test AM (1,500 dwellings)', Plan 1: 'Network Control Plan 1')

| Item | Lane Description | Lane Type | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **78.7%** | - | - | **0** | **0** | **0** | **20.9** | - | - |
| **A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **78.7%** | - | - | **0** | **0** | **0** | **20.9** | - | - |
| 1/1 | A1077 (W) Left Ahead Right | U | A | | 1 | 64 | - | 789 | 1851 | 1003 | 78.7% | 789 | 789 | - | - | - | 6.6 | 30.3 | 22.6 |
| 2/1 | Holydyke Left Ahead Right | U | C | | 1 | 34 | - | 418 | 1850 | 540 | 77.5% | 418 | 418 | - | - | - | 6.2 | 53.3 | 14.3 |
| 3/1+3/2 | A1077 (E) Ahead Right Left | U | B | D | 1 | 75:7 | 68 | 939 | 1862:1935 | 1081+129 | 77.5 : 78.3% | 939 | 939 | - | - | - | 6.8 | 26.1 | 22.9 |
| 8/1 | A1077 (W) Internal Ahead | U | E | | 1 | 102 | - | 1118 | 2015 | 1730 | 64.6% | 1118 | 1118 | - | - | - | 1.3 | 4.1 | 5.0 |

C1 PRC for Signalled Lanes (%): 14.4 Total Delay for Signalled Lanes (pcuHr): 20.88 Cycle Time (s): 120
PRC Over All Lanes (%): 14.4 Total Delay Over All Lanes(pcuHr): 20.88

**Scenario 8: 'Sensitivity Test PM (1,500 dwellings)'** (FG20: 'Sensitivity Test PM (1,500 dwellings)', Plan 1: 'Network Control Plan 1')

| Item | Lane Description | Lane Type | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **106.4%** | - | - | **0** | **0** | **0** | **86.5** | - | - |
| **A1077/Holydyke/Hungate Signalised Junction Option** | - | - | - | | - | - | - | - | - | - | **106.4%** | - | - | **0** | **0** | **0** | **86.5** | - | - |
| 1/1 | A1077 (W) Left Ahead Right | U | A | | 1 | 71 | - | 1175 | 1840 | 1104 | 106.4% | 1175 | 1104 | - | - | - | 54.2 | 165.9 | 84.0 |
| 2/1 | Holydyke Left Ahead Right | U | C | | 1 | 27 | - | 455 | 1865 | 435 | 104.6% | 455 | 435 | - | - | - | 23.9 | 189.3 | 32.8 |
| 3/1+3/2 | A1077 (E) Ahead Right Left | U | B | D | 1 | 82:7 | 75 | 792 | 1862:1920 | 754+128 | 89.8 : 89.8% | 792 | 792 | - | - | - | 7.5 | 34.3 | 16.3 |
| 8/1 | A1077 (W) Internal Ahead | U | E | | 1 | 102 | - | 957 | 2015 | 1730 | 54.6% | 945 | 945 | - | - | - | 0.9 | 3.3 | 3.5 |

C1 PRC for Signalled Lanes (%): -18.3 Total Delay for Signalled Lanes (pcuHr): 86.48 Cycle Time (s): 120
PRC Over All Lanes (%): -18.3 Total Delay Over All Lanes(pcuHr): 86.48

# Appendix 4 – J2 Existing Junction Modelling

# Junctions 9

## PICADY 9 - Priority Intersection Module



**Filename:** A1077 Falkland Way Existing Junction.j9
**Path:** Z:\Projects\3628 Barton Link Road\Data\Junction Capacity Modelling
**Report generation date:** 06/05/2021 13:19:39

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»Existing Layout - 2021 Base, AM
»Existing Layout - 2021 Base, PM
»Existing Layout - 2031 With Residential Site Allocations, AM
»Existing Layout - 2031 With Residential Site Allocations, PM

### Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Set ID | Queue (PCU) | Delay (s) | RFC | LOS |
| | Existing Layout - 2021 Base | | | | | | | | | |
| Stream B-C | D1 | 0.1 | 7.11 | 0.10 | A | D2 | 0.6 | 15.82 | 0.39 | C |
| Stream B-A | | 0.6 | 16.92 | 0.34 | C | | 3.1 | 41.54 | 0.77 | E |
| Stream C-AB | | 0.8 | 7.04 | 0.33 | A | | 0.4 | 6.19 | 0.22 | A |
| | Existing Layout - 2031 With Residential Site Allocations | | | | | | | | | |
| Stream B-C | D3 | 0.3 | 8.67 | 0.21 | A | D4 | 6.3 | 128.66 | 0.97 | F |
| Stream B-A | | 1.2 | 24.01 | 0.51 | C | | 9.2 | 108.80 | 0.95 | F |
| Stream C-AB | | 1.0 | 7.76 | 0.39 | A | | 0.9 | 7.69 | 0.37 | A |

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.*

### File summary

#### File Description

| | |
|---|---|
| **Title** | A1077/Falkland Way Junction |
| **Location** | Barton upon Humber, North Lincolnshire |
| **Site number** | |
| **Date** | 06/05/2021 |
| **Version** | |
| **Status** | |
| **Identifier** | |
| **Client** | NLC |
| **Jobnumber** | 3628 |
| **Enumerator** | LTP\MR |
| **Description** | |

### 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 | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|---|---|---|---|---|---|---|
| D1 | 2021 Base | AM | ONE HOUR | 07:30 | 09:00 | 15 |
| D2 | 2021 Base | PM | ONE HOUR | 16:45 | 18:15 | 15 |
| D3 | 2031 With Residential Site Allocations | AM | ONE HOUR | 07:30 | 09:00 | 15 |
| D4 | 2031 With Residential Site Allocations | PM | ONE HOUR | 16:45 | 18:15 | 15 |

## Analysis Set Details

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

# Existing Layout - 2021 Base, AM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way | T-Junction | Two-way | | 3.46 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | A1077 (W) | | Major |
| B | Falkland Way | | Minor |
| C | A1077 (E) | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|
| C - A1077 (E) | 6.50 | | | 180.0 | ✓ | 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 | Width at give-way (m) | Width at 5m (m) | Width at 10m (m) | Width at 15m (m) | Width at 20m (m) | Estimate flare length | Flare length (PCU) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| B - Falkland Way | One lane plus flare | 10.00 | 10.00 | 6.50 | 4.00 | 3.40 | | 3.00 | 38 | 71 |

### 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 | 597 | 0.106 | 0.269 | 0.169 | 0.384 |
| B-C | 736 | 0.110 | 0.279 | - | - |
| C-B | 678 | 0.257 | 0.257 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*

*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 | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|---|---|---|---|---|---|---|
| D1 | 2021 Base | AM | ONE HOUR | 07:30 | 09:00 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|
| A - A1077 (W) | | ✓ | 499 | 100.000 |
| B - Falkland Way | | ✓ | 171 | 100.000 |
| C - A1077 (E) | | ✓ | 456 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A - A1077 (W) | B - Falkland Way | C - A1077 (E) |
| From | A - A1077 (W) | 0 | 265 | 234 |
| | B - Falkland Way | 118 | 0 | 53 |
| | C - A1077 (E) | 328 | 128 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A - A1077 (W) | B - Falkland Way | C - A1077 (E) |
| From | A - A1077 (W) | 0 | 5 | 11 |
| | B - Falkland Way | 18 | 0 | 2 |
| | C - A1077 (E) | 5 | 2 | 0 |

## Results

### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-C | 0.10 | 7.11 | 0.1 | A |
| B-A | 0.34 | 16.92 | 0.6 | C |
| C-AB | 0.33 | 7.04 | 0.8 | A |
| C-A | | | | |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

#### 07:30 - 07:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 40 | 632 | 0.063 | 40 | 0.1 | 6.198 | A |
| B-A | 89 | 450 | 0.197 | 88 | 0.3 | 11.695 | B |
| C-AB | 144 | 749 | 0.192 | 142 | 0.3 | 6.107 | A |
| C-A | 200 | | | 200 | | | |
| A-B | 200 | | | 200 | | | |
| A-C | 176 | | | 176 | | | |

### 07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 48 | 609 | 0.078 | 48 | 0.1 | 6.542 | A |
| B-A | 106 | 421 | 0.252 | 106 | 0.4 | 13.461 | B |
| C-AB | 188 | 766 | 0.245 | 187 | 0.5 | 6.416 | A |
| C-A | 222 | | | 222 | | | |
| A-B | 238 | | | 238 | | | |
| A-C | 210 | | | 210 | | | |

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 58 | 575 | 0.101 | 58 | 0.1 | 7.103 | A |
| B-A | 130 | 381 | 0.341 | 129 | 0.6 | 16.799 | C |
| C-AB | 261 | 791 | 0.329 | 259 | 0.8 | 7.005 | A |
| C-A | 242 | | | 242 | | | |
| A-B | 292 | | | 292 | | | |
| A-C | 258 | | | 258 | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 58 | 574 | 0.102 | 58 | 0.1 | 7.113 | A |
| B-A | 130 | 381 | 0.341 | 130 | 0.6 | 16.919 | C |
| C-AB | 261 | 791 | 0.330 | 261 | 0.8 | 7.044 | A |
| C-A | 241 | | | 241 | | | |
| A-B | 292 | | | 292 | | | |
| A-C | 258 | | | 258 | | | |

### 08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 48 | 608 | 0.078 | 48 | 0.1 | 6.553 | A |
| B-A | 106 | 420 | 0.252 | 107 | 0.4 | 13.578 | B |
| C-AB | 188 | 767 | 0.246 | 189 | 0.5 | 6.472 | A |
| C-A | 222 | | | 222 | | | |
| A-B | 238 | | | 238 | | | |
| A-C | 210 | | | 210 | | | |

### 08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 40 | 631 | 0.063 | 40 | 0.1 | 6.214 | A |
| B-A | 89 | 449 | 0.198 | 89 | 0.3 | 11.811 | B |
| C-AB | 144 | 749 | 0.193 | 145 | 0.4 | 6.157 | A |
| C-A | 199 | | | 199 | | | |
| A-B | 200 | | | 200 | | | |
| A-C | 176 | | | 176 | | | |

# Existing Layout - 2021 Base, PM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way | T-Junction | Two-way | | 10.73 | B |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|---|---|---|---|---|---|---|
| D2 | 2021 Base | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|
| A - A1077 (W) | | ✓ | 521 | 100.000 |
| B - Falkland Way | | ✓ | 396 | 100.000 |
| C - A1077 (E) | | ✓ | 373 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A - A1077 (W) | B - Falkland Way | C - A1077 (E) |
| From | A - A1077 (W) | 0 | 138 | 383 |
| | B - Falkland Way | 261 | 0 | 135 |
| | C - A1077 (E) | 285 | 88 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A - A1077 (W) | B - Falkland Way | C - A1077 (E) |
| From | A - A1077 (W) | 0 | 7 | 2 |
| | B - Falkland Way | 3 | 0 | 2 |
| | C - A1077 (E) | 1 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-C | 0.39 | 15.82 | 0.6 | C |
| B-A | 0.77 | 41.54 | 3.1 | E |
| C-AB | 0.22 | 6.19 | 0.4 | A |
| C-A | | | | |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 102 | 570 | 0.178 | 101 | 0.2 | 7.815 | A |
| B-A | 196 | 445 | 0.441 | 193 | 0.8 | 14.551 | B |
| C-AB | 94 | 723 | 0.130 | 93 | 0.2 | 5.731 | A |
| C-A | 187 | | | 187 | | | |
| A-B | 104 | | | 104 | | | |
| A-C | 288 | | | 288 | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 121 | 517 | 0.235 | 121 | 0.3 | 9.256 | A |
| B-A | 235 | 416 | 0.565 | 233 | 1.3 | 20.054 | C |
| C-AB | 122 | 735 | 0.166 | 121 | 0.3 | 5.894 | A |
| C-A | 214 | | | 214 | | | |
| A-B | 124 | | | 124 | | | |
| A-C | 344 | | | 344 | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 149 | 394 | 0.377 | 147 | 0.6 | 14.832 | B |
| B-A | 287 | 374 | 0.769 | 281 | 2.9 | 37.395 | E |
| C-AB | 167 | 752 | 0.222 | 166 | 0.4 | 6.174 | A |
| C-A | 244 | | | 244 | | | |
| A-B | 152 | | | 152 | | | |
| A-C | 422 | | | 422 | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 149 | 380 | 0.391 | 148 | 0.6 | 15.818 | C |
| B-A | 287 | 374 | 0.769 | 287 | 3.1 | 41.543 | E |
| C-AB | 167 | 753 | 0.222 | 167 | 0.4 | 6.186 | A |
| C-A | 244 | | | 244 | | | |
| A-B | 152 | | | 152 | | | |
| A-C | 422 | | | 422 | | | |

### 17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 121 | 509 | 0.239 | 123 | 0.3 | 9.544 | A |
| B-A | 235 | 416 | 0.565 | 242 | 1.4 | 22.076 | C |
| C-AB | 122 | 735 | 0.166 | 123 | 0.3 | 5.913 | A |
| C-A | 213 | | | 213 | | | |
| A-B | 124 | | | 124 | | | |
| A-C | 344 | | | 344 | | | |

### 18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 102 | 566 | 0.179 | 102 | 0.2 | 7.915 | A |
| B-A | 196 | 445 | 0.442 | 199 | 0.8 | 15.193 | C |
| C-AB | 95 | 723 | 0.131 | 95 | 0.2 | 5.753 | A |
| C-A | 186 | | | 186 | | | |
| A-B | 104 | | | 104 | | | |
| A-C | 288 | | | 288 | | | |

# Existing Layout - 2031 With Residential Site Allocations, AM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way | T-Junction | Two-way | | 5.37 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|---|---|---|---|---|---|---|
| D3 | 2031 With Residential Site Allocations | AM | ONE HOUR | 07:30 | 09:00 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|
| A - A1077 (W) | | ✓ | 531 | 100.000 |
| B - Falkland Way | | ✓ | 271 | 100.000 |
| C - A1077 (E) | | ✓ | 485 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A - A1077 (W) | B - Falkland Way | C - A1077 (E) |
| From | A - A1077 (W) | 0 | 290 | 241 |
| | B - Falkland Way | 169 | 0 | 102 |
| | C - A1077 (E) | 337 | 148 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A - A1077 (W) | B - Falkland Way | C - A1077 (E) |
| From | A - A1077 (W) | 0 | 5 | 11 |
| | B - Falkland Way | 18 | 0 | 2 |
| | C - A1077 (E) | 5 | 2 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-C | 0.21 | 8.67 | 0.3 | A |
| B-A | 0.51 | 24.01 | 1.2 | C |
| C-AB | 0.39 | 7.76 | 1.0 | A |
| C-A | | | | |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 07:30 - 07:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 77 | 620 | 0.124 | 76 | 0.1 | 6.744 | A |
| B-A | 127 | 436 | 0.292 | 125 | 0.5 | 13.587 | B |
| C-AB | 169 | 748 | 0.225 | 167 | 0.4 | 6.373 | A |
| C-A | 197 | | | 197 | | | |
| A-B | 218 | | | 218 | | | |
| A-C | 181 | | | 181 | | | |

### 07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 92 | 590 | 0.156 | 92 | 0.2 | 7.370 | A |
| B-A | 152 | 405 | 0.375 | 151 | 0.7 | 16.654 | C |
| C-AB | 221 | 765 | 0.289 | 220 | 0.6 | 6.816 | A |
| C-A | 215 | | | 215 | | | |
| A-B | 261 | | | 261 | | | |
| A-C | 217 | | | 217 | | | |

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 112 | 538 | 0.209 | 112 | 0.3 | 8.620 | A |
| B-A | 186 | 363 | 0.513 | 184 | 1.2 | 23.497 | C |
| C-AB | 309 | 791 | 0.390 | 307 | 1.0 | 7.701 | A |
| C-A | 225 | | | 225 | | | |
| A-B | 319 | | | 319 | | | |
| A-C | 265 | | | 265 | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 112 | 536 | 0.210 | 112 | 0.3 | 8.671 | A |
| B-A | 186 | 363 | 0.513 | 186 | 1.2 | 24.010 | C |
| C-AB | 309 | 791 | 0.391 | 309 | 1.0 | 7.761 | A |
| C-A | 225 | | | 225 | | | |
| A-B | 319 | | | 319 | | | |
| A-C | 265 | | | 265 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 92 | 588 | 0.156 | 92 | 0.2 | 7.415 | A |
| B-A | 152 | 405 | 0.375 | 154 | 0.7 | 17.055 | C |
| C-AB | 222 | 766 | 0.289 | 223 | 0.6 | 6.893 | A |
| C-A | 214 | | | 214 | | | |
| A-B | 261 | | | 261 | | | |
| A-C | 217 | | | 217 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 77 | 618 | 0.124 | 77 | 0.1 | 6.783 | A |
| B-A | 127 | 436 | 0.292 | 128 | 0.5 | 13.861 | B |
| C-AB | 169 | 749 | 0.226 | 170 | 0.4 | 6.439 | A |
| C-A | 196 | | | 196 | | | |
| A-B | 218 | | | 218 | | | |
| A-C | 181 | | | 181 | | | |

# Existing Layout - 2031 With Residential Site Allocations, PM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way | T-Junction | Two-way | | 37.01 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|---|---|---|---|---|---|---|
| D4 | 2031 With Residential Site Allocations | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|
| A - A1077 (W) | | ✓ | 572 | 100.000 |
| B - Falkland Way | | ✓ | 450 | 100.000 |
| C - A1077 (E) | | ✓ | 433 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A - A1077 (W) | B - Falkland Way | C - A1077 (E) |
| From | A - A1077 (W) | 0 | 180 | 392 |
| | B - Falkland Way | 292 | 0 | 158 |
| | C - A1077 (E) | 292 | 141 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A - A1077 (W) | B - Falkland Way | C - A1077 (E) |
| From | A - A1077 (W) | 0 | 7 | 2 |
| | B - Falkland Way | 3 | 0 | 2 |
| | C - A1077 (E) | 1 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-C | 0.97 | 128.66 | 6.3 | F |
| B-A | 0.95 | 108.80 | 9.2 | F |
| C-AB | 0.37 | 7.69 | 0.9 | A |
| C-A | | | | |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 119 | 546 | 0.218 | 118 | 0.3 | 8.556 | A |
| B-A | 220 | 423 | 0.520 | 216 | 1.1 | 17.527 | C |
| C-AB | 153 | 718 | 0.213 | 152 | 0.4 | 6.367 | A |
| C-A | 173 | | | 173 | | | |
| A-B | 136 | | | 136 | | | |
| A-C | 295 | | | 295 | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 142 | 466 | 0.305 | 141 | 0.4 | 11.301 | B |
| B-A | 263 | 389 | 0.675 | 259 | 2.0 | 27.773 | D |
| C-AB | 199 | 729 | 0.272 | 198 | 0.5 | 6.807 | A |
| C-A | 191 | | | 191 | | | |
| A-B | 162 | | | 162 | | | |
| A-C | 352 | | | 352 | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 174 | 214 | 0.814 | 163 | 3.2 | 63.215 | F |
| B-A | 321 | 339 | 0.949 | 301 | 7.0 | 74.740 | F |
| C-AB | 274 | 746 | 0.367 | 273 | 0.8 | 7.647 | A |
| C-A | 203 | | | 203 | | | |
| A-B | 198 | | | 198 | | | |
| A-C | 432 | | | 432 | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 174 | 180 | 0.966 | 161 | 6.3 | 128.662 | F |
| B-A | 321 | 337 | 0.953 | 313 | 9.2 | 108.800 | F |
| C-AB | 275 | 747 | 0.368 | 274 | 0.9 | 7.690 | A |
| C-A | 202 | | | 202 | | | |
| A-B | 198 | | | 198 | | | |
| A-C | 432 | | | 432 | | | |

### 17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 142 | 417 | 0.341 | 165 | 0.5 | 15.918 | C |
| B-A | 263 | 387 | 0.679 | 290 | 2.4 | 45.529 | E |
| C-AB | 199 | 730 | 0.273 | 201 | 0.5 | 6.862 | A |
| C-A | 190 | | | 190 | | | |
| A-B | 162 | | | 162 | | | |
| A-C | 352 | | | 352 | | | |

### 18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-C | 119 | 538 | 0.221 | 120 | 0.3 | 8.801 | A |
| B-A | 220 | 423 | 0.520 | 225 | 1.2 | 19.181 | C |
| C-AB | 154 | 719 | 0.214 | 154 | 0.4 | 6.417 | A |
| C-A | 172 | | | 172 | | | |
| A-B | 136 | | | 136 | | | |
| A-C | 295 | | | 295 | | | |

# Appendix 5 – J2 Improvement Scheme Modelling

# Junctions 9

## ARCADY 9 - Roundabout Module



**Filename:** A1077 Falkland Way Roundabout.j9
**Path:** Z:\Projects\3628 Barton Link Road\Data\Junction Capacity Modelling
**Report generation date:** 21/12/2021 17:54:59

»Proposed Layout - 2021 Base, AM
»Proposed Layout - 2021 Base, PM
»Proposed Layout - 2031 With Residential Site Allocations, AM
»Proposed Layout - 2031 With Residential Site Allocations, PM
»Proposed Layout - Sensitivity Test, AM
»Proposed Layout - Sensitivity Test, PM
»Proposed Layout - Sensitivity Test (1,500 dwellings), AM
»Proposed Layout - Sensitivity Test (1,500 dwellings), PM

### Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Set ID | Queue (PCU) | Delay (s) | RFC | LOS |
| | Proposed Layout - 2021 Base | | | | | | | | | |
| 1 - Falkland Way | D1 | 0.1 | 2.67 | 0.11 | A | D2 | 0.4 | 3.48 | 0.28 | A |
| 2 - A1077 (E) | | 0.5 | 3.39 | 0.30 | A | | 0.4 | 3.38 | 0.26 | A |
| 3 - Southern Access | | 0.0 | 0.00 | 0.00 | A | | 0.0 | 0.00 | 0.00 | A |
| 4 - A1077 (W) | | 0.7 | 4.28 | 0.37 | A | | 0.7 | 4.28 | 0.38 | A |
| | Proposed Layout - 2031 With Residential Site Allocations | | | | | | | | | |
| 1 - Falkland Way | D3 | 0.2 | 2.90 | 0.18 | A | D4 | 0.5 | 3.69 | 0.32 | A |
| 2 - A1077 (E) | | 0.5 | 3.59 | 0.33 | A | | 0.5 | 3.65 | 0.31 | A |
| 3 - Southern Access | | 0.0 | 0.00 | 0.00 | A | | 0.0 | 0.00 | 0.00 | A |
| 4 - A1077 (W) | | 0.7 | 4.50 | 0.40 | A | | 0.8 | 4.72 | 0.43 | A |
| | Proposed Layout - Sensitivity Test | | | | | | | | | |
| 1 - Falkland Way | D5 | 0.4 | 3.24 | 0.25 | A | D6 | 0.5 | 3.82 | 0.33 | A |
| 2 - A1077 (E) | | 0.6 | 3.80 | 0.35 | A | | 0.6 | 3.94 | 0.35 | A |
| 3 - Southern Access | | 0.0 | 2.85 | 0.04 | A | | 0.0 | 2.84 | 0.02 | A |
| 4 - A1077 (W) | | 0.9 | 4.98 | 0.45 | A | | 0.9 | 5.09 | 0.46 | A |
| | Proposed Layout - Sensitivity Test (1,500 dwellings) | | | | | | | | | |
| 1 - Falkland Way | D7 | 0.4 | 3.41 | 0.27 | A | D8 | 0.6 | 4.31 | 0.37 | A |
| 2 - A1077 (E) | | 0.6 | 4.00 | 0.37 | A | | 0.7 | 4.51 | 0.39 | A |
| 3 - Southern Access | | 0.3 | 3.38 | 0.19 | A | | 0.1 | 3.06 | 0.09 | A |
| 4 - A1077 (W) | | 1.1 | 5.61 | 0.50 | A | | 1.4 | 6.38 | 0.57 | A |

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.*

## File summary

### File Description

| | |
|---|---|
| **Title** | A1077/Falkland Way/Southern Access Road Roundabout |
| **Location** | Barton upon Humber, North Lincolnshire |
| **Site number** | |
| **Date** | 19/02/2020 |
| **Version** | |
| **Status** | |
| **Identifier** | |
| **Client** | NLC |
| **Jobnumber** | 3928 |
| **Enumerator** | LTP\MR |
| **Description** | |

## 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

| Vehicle length (m) | Calculate Queue Percentiles | Calculate detailed queueing delay | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | | | | 0.85 | 36.00 | 20.00 |

## Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D1 | 2021 Base | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| D2 | 2021 Base | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |
| D3 | 2031 With Residential Site Allocations | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| D4 | 2031 With Residential Site Allocations | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |
| D5 | Sensitivity Test | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| D6 | Sensitivity Test | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |
| D7 | Sensitivity Test (1,500 dwellings) | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| D8 | Sensitivity Test (1,500 dwellings) | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

## Analysis Set Details

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

# Proposed Layout - 2021 Base, AM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way Roundabout | Standard Roundabout | | 1, 2, 3, 4 | 3.68 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| 1 | Falkland Way | |
| 2 | A1077 (E) | |
| 3 | Southern Access | |
| 4 | A1077 (W) | |

### Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit only |
|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 3.56 | 7.29 | 26.2 | 23.0 | 60.0 | 38.0 | |
| 2 - A1077 (E) | 3.15 | 7.28 | 28.6 | 20.0 | 60.0 | 41.0 | |
| 3 - Southern Access | 3.87 | 7.35 | 27.9 | 30.4 | 60.0 | 36.0 | |
| 4 - A1077 (W) | 3.40 | 6.42 | 16.1 | 20.7 | 60.0 | 40.0 | |

### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm | Final slope | Final intercept (PCU/hr) |
|---|---|---|
| 1 - Falkland Way | 0.571 | 1815 |
| 2 - A1077 (E) | 0.554 | 1741 |
| 3 - Southern Access | 0.594 | 1918 |
| 4 - A1077 (W) | 0.522 | 1549 |

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

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D1 | 2021 Base | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

| Default vehicle mix | Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|---|
| ✓ | ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - Falkland Way | | ONE HOUR | ✓ | 171 | 100.000 |
| 2 - A1077 (E) | | ONE HOUR | ✓ | 456 | 100.000 |
| 3 - Southern Access | | ONE HOUR | ✓ | 0 | 100.000 |
| 4 - A1077 (W) | | ONE HOUR | ✓ | 499 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 0 | 53 | 0 | 118 |
| | 2 - A1077 (E) | 128 | 0 | 0 | 328 |
| | 3 - Southern Access | 0 | 0 | 0 | 0 |
| | 4 - A1077 (W) | 265 | 234 | 0 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 10 | 10 | 10 | 10 |
| | 2 - A1077 (E) | 10 | 10 | 10 | 10 |
| | 3 - Southern Access | 10 | 10 | 10 | 10 |
| | 4 - A1077 (W) | 10 | 10 | 10 | 10 |

## Results

### Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - Falkland Way | 0.11 | 2.67 | 0.1 | A | 157 | 235 |
| 2 - A1077 (E) | 0.30 | 3.39 | 0.5 | A | 418 | 628 |
| 3 - Southern Access | 0.00 | 0.00 | 0.0 | A | 0 | 0 |
| 4 - A1077 (W) | 0.37 | 4.28 | 0.7 | A | 458 | 687 |

### Main Results for each time segment

#### 07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 129 | 32 | 175 | 1715 | 0.075 | 128 | 295 | 0.0 | 0.1 | 2.495 | A |
| 2 - A1077 (E) | 343 | 86 | 89 | 1692 | 0.203 | 342 | 215 | 0.0 | 0.3 | 2.931 | A |
| 3 - Southern Access | 0 | 0 | 431 | 1662 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 376 | 94 | 96 | 1499 | 0.251 | 374 | 335 | 0.0 | 0.4 | 3.517 | A |

### 08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 154 | 38 | 210 | 1695 | 0.091 | 154 | 353 | 0.1 | 0.1 | 2.568 | A |
| 2 - A1077 (E) | 410 | 102 | 106 | 1682 | 0.244 | 410 | 258 | 0.3 | 0.4 | 3.112 | A |
| 3 - Southern Access | 0 | 0 | 516 | 1612 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 449 | 112 | 115 | 1489 | 0.301 | 448 | 401 | 0.4 | 0.5 | 3.803 | A |

### 08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 188 | 47 | 257 | 1668 | 0.113 | 188 | 432 | 0.1 | 0.1 | 2.674 | A |
| 2 - A1077 (E) | 502 | 126 | 130 | 1669 | 0.301 | 502 | 316 | 0.4 | 0.5 | 3.390 | A |
| 3 - Southern Access | 0 | 0 | 631 | 1543 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 549 | 137 | 141 | 1475 | 0.372 | 549 | 491 | 0.5 | 0.6 | 4.271 | A |

### 08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 188 | 47 | 258 | 1668 | 0.113 | 188 | 433 | 0.1 | 0.1 | 2.675 | A |
| 2 - A1077 (E) | 502 | 126 | 130 | 1669 | 0.301 | 502 | 316 | 0.5 | 0.5 | 3.393 | A |
| 3 - Southern Access | 0 | 0 | 632 | 1543 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 549 | 137 | 141 | 1475 | 0.372 | 549 | 491 | 0.6 | 0.7 | 4.277 | A |

### 08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 154 | 38 | 211 | 1695 | 0.091 | 154 | 354 | 0.1 | 0.1 | 2.571 | A |
| 2 - A1077 (E) | 410 | 102 | 106 | 1682 | 0.244 | 410 | 258 | 0.5 | 0.4 | 3.117 | A |
| 3 - Southern Access | 0 | 0 | 517 | 1612 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 449 | 112 | 115 | 1489 | 0.301 | 449 | 401 | 0.7 | 0.5 | 3.811 | A |

### 09:00 - 09:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 129 | 32 | 176 | 1715 | 0.075 | 129 | 296 | 0.1 | 0.1 | 2.498 | A |
| 2 - A1077 (E) | 343 | 86 | 89 | 1692 | 0.203 | 344 | 216 | 0.4 | 0.3 | 2.940 | A |
| 3 - Southern Access | 0 | 0 | 432 | 1661 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 376 | 94 | 96 | 1498 | 0.251 | 376 | 336 | 0.5 | 0.4 | 3.531 | A |

# Proposed Layout - 2021 Base, PM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way Roundabout | Standard Roundabout | | 1, 2, 3, 4 | 3.77 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D2 | 2021 Base | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

| Default vehicle mix | Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|---|
| ✓ | ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - Falkland Way | | ONE HOUR | ✓ | 396 | 100.000 |
| 2 - A1077 (E) | | ONE HOUR | ✓ | 373 | 100.000 |
| 3 - Southern Access | | ONE HOUR | ✓ | 0 | 100.000 |
| 4 - A1077 (W) | | ONE HOUR | ✓ | 521 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 0 | 135 | 0 | 261 |
| | 2 - A1077 (E) | 88 | 0 | 0 | 285 |
| | 3 - Southern Access | 0 | 0 | 0 | 0 |
| | 4 - A1077 (W) | 138 | 383 | 0 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 10 | 10 | 10 | 10 |
| | 2 - A1077 (E) | 10 | 10 | 10 | 10 |
| | 3 - Southern Access | 10 | 10 | 10 | 10 |
| | 4 - A1077 (W) | 10 | 10 | 10 | 10 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - Falkland Way | 0.28 | 3.48 | 0.4 | A | 363 | 545 |
| 2 - A1077 (E) | 0.26 | 3.38 | 0.4 | A | 342 | 513 |
| 3 - Southern Access | 0.00 | 0.00 | 0.0 | A | 0 | 0 |
| 4 - A1077 (W) | 0.38 | 4.28 | 0.7 | A | 478 | 717 |

## Main Results for each time segment

### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 298 | 75 | 287 | 1651 | 0.181 | 297 | 170 | 0.0 | 0.2 | 2.923 | A |
| 2 - A1077 (E) | 281 | 70 | 196 | 1632 | 0.172 | 280 | 389 | 0.0 | 0.2 | 2.927 | A |
| 3 - Southern Access | 0 | 0 | 476 | 1636 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 392 | 98 | 66 | 1514 | 0.259 | 391 | 410 | 0.0 | 0.4 | 3.520 | A |

### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 356 | 89 | 344 | 1619 | 0.220 | 356 | 203 | 0.2 | 0.3 | 3.134 | A |
| 2 - A1077 (E) | 335 | 84 | 234 | 1611 | 0.208 | 335 | 465 | 0.2 | 0.3 | 3.103 | A |
| 3 - Southern Access | 0 | 0 | 570 | 1580 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 468 | 117 | 79 | 1508 | 0.311 | 468 | 490 | 0.4 | 0.5 | 3.806 | A |

### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 436 | 109 | 421 | 1575 | 0.277 | 436 | 249 | 0.3 | 0.4 | 3.476 | A |
| 2 - A1077 (E) | 411 | 103 | 287 | 1582 | 0.260 | 410 | 570 | 0.3 | 0.4 | 3.380 | A |
| 3 - Southern Access | 0 | 0 | 697 | 1504 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 574 | 143 | 97 | 1498 | 0.383 | 573 | 601 | 0.5 | 0.7 | 4.275 | A |

### 17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 436 | 109 | 422 | 1575 | 0.277 | 436 | 249 | 0.4 | 0.4 | 3.477 | A |
| 2 - A1077 (E) | 411 | 103 | 287 | 1582 | 0.260 | 411 | 570 | 0.4 | 0.4 | 3.381 | A |
| 3 - Southern Access | 0 | 0 | 698 | 1504 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 574 | 143 | 97 | 1498 | 0.383 | 574 | 601 | 0.7 | 0.7 | 4.282 | A |

### 17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 356 | 89 | 345 | 1618 | 0.220 | 356 | 203 | 0.4 | 0.3 | 3.138 | A |
| 2 - A1077 (E) | 335 | 84 | 235 | 1611 | 0.208 | 336 | 466 | 0.4 | 0.3 | 3.108 | A |
| 3 - Southern Access | 0 | 0 | 571 | 1579 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 468 | 117 | 79 | 1507 | 0.311 | 469 | 491 | 0.7 | 0.5 | 3.818 | A |

**18:00 - 18:15**

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1 - Falkland Way** | 298 | 75 | 289 | 1651 | 0.181 | 298 | 170 | 0.3 | 0.2 | 2.928 | A |
| **2 - A1077 (E)** | 281 | 70 | 197 | 1632 | 0.172 | 281 | 390 | 0.3 | 0.2 | 2.931 | A |
| **3 - Southern Access** | 0 | 0 | 478 | 1635 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| **4 - A1077 (W)** | 392 | 98 | 66 | 1514 | 0.259 | 393 | 411 | 0.5 | 0.4 | 3.531 | A |

# Proposed Layout - 2031 With Residential Site Allocations, AM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way Roundabout | Standard Roundabout | | 1, 2, 3, 4 | 3.82 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D3 | 2031 With Residential Site Allocations | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

| Default vehicle mix | Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|---|
| ✓ | ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - Falkland Way | | ONE HOUR | ✓ | 271 | 100.000 |
| 2 - A1077 (E) | | ONE HOUR | ✓ | 485 | 100.000 |
| 3 - Southern Access | | ONE HOUR | ✓ | 0 | 100.000 |
| 4 - A1077 (W) | | ONE HOUR | ✓ | 531 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 0 | 102 | 0 | 169 |
| | 2 - A1077 (E) | 148 | 0 | 0 | 337 |
| | 3 - Southern Access | 0 | 0 | 0 | 0 |
| | 4 - A1077 (W) | 290 | 241 | 0 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 10 | 10 | 10 | 10 |
| | 2 - A1077 (E) | 10 | 10 | 10 | 10 |
| | 3 - Southern Access | 10 | 10 | 10 | 10 |
| | 4 - A1077 (W) | 10 | 10 | 10 | 10 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - Falkland Way | 0.18 | 2.90 | 0.2 | A | 249 | 373 |
| 2 - A1077 (E) | 0.33 | 3.59 | 0.5 | A | 445 | 668 |
| 3 - Southern Access | 0.00 | 0.00 | 0.0 | A | 0 | 0 |
| 4 - A1077 (W) | 0.40 | 4.50 | 0.7 | A | 487 | 731 |

## Main Results for each time segment

### 07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 204 | 51 | 181 | 1712 | 0.119 | 203 | 328 | 0.0 | 0.1 | 2.623 | A |
| 2 - A1077 (E) | 365 | 91 | 127 | 1670 | 0.219 | 364 | 257 | 0.0 | 0.3 | 3.028 | A |
| 3 - Southern Access | 0 | 0 | 491 | 1627 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 400 | 100 | 111 | 1491 | 0.268 | 398 | 380 | 0.0 | 0.4 | 3.620 | A |

### 08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 244 | 61 | 216 | 1692 | 0.144 | 243 | 393 | 0.1 | 0.2 | 2.733 | A |
| 2 - A1077 (E) | 436 | 109 | 152 | 1657 | 0.263 | 436 | 308 | 0.3 | 0.4 | 3.243 | A |
| 3 - Southern Access | 0 | 0 | 588 | 1569 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 477 | 119 | 133 | 1479 | 0.323 | 477 | 455 | 0.4 | 0.5 | 3.948 | A |

### 08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 298 | 75 | 265 | 1664 | 0.179 | 298 | 482 | 0.2 | 0.2 | 2.899 | A |
| 2 - A1077 (E) | 534 | 133 | 186 | 1638 | 0.326 | 533 | 377 | 0.4 | 0.5 | 3.584 | A |
| 3 - Southern Access | 0 | 0 | 719 | 1491 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 585 | 146 | 163 | 1464 | 0.399 | 584 | 557 | 0.5 | 0.7 | 4.496 | A |

### 08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 298 | 75 | 265 | 1664 | 0.179 | 298 | 482 | 0.2 | 0.2 | 2.899 | A |
| 2 - A1077 (E) | 534 | 133 | 186 | 1638 | 0.326 | 534 | 378 | 0.5 | 0.5 | 3.587 | A |
| 3 - Southern Access | 0 | 0 | 720 | 1491 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 585 | 146 | 163 | 1464 | 0.399 | 585 | 557 | 0.7 | 0.7 | 4.504 | A |

### 08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 244 | 61 | 217 | 1691 | 0.144 | 244 | 394 | 0.2 | 0.2 | 2.737 | A |
| 2 - A1077 (E) | 436 | 109 | 152 | 1657 | 0.263 | 437 | 309 | 0.5 | 0.4 | 3.249 | A |
| 3 - Southern Access | 0 | 0 | 589 | 1569 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 477 | 119 | 133 | 1479 | 0.323 | 478 | 455 | 0.7 | 0.5 | 3.958 | A |

### 09:00 - 09:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 204 | 51 | 182 | 1712 | 0.119 | 204 | 330 | 0.2 | 0.1 | 2.628 | A |
| 2 - A1077 (E) | 365 | 91 | 127 | 1670 | 0.219 | 365 | 259 | 0.4 | 0.3 | 3.037 | A |
| 3 - Southern Access | 0 | 0 | 493 | 1626 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 400 | 100 | 112 | 1491 | 0.268 | 400 | 381 | 0.5 | 0.4 | 3.632 | A |

# Proposed Layout - 2031 With Residential Site Allocations, PM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way Roundabout | Standard Roundabout | | 1, 2, 3, 4 | 4.08 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D4 | 2031 With Residential Site Allocations | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

| Default vehicle mix | Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|---|
| ✓ | ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - Falkland Way | | ONE HOUR | ✓ | 450 | 100.000 |
| 2 - A1077 (E) | | ONE HOUR | ✓ | 433 | 100.000 |
| 3 - Southern Access | | ONE HOUR | ✓ | 0 | 100.000 |
| 4 - A1077 (W) | | ONE HOUR | ✓ | 572 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 0 | 158 | 0 | 292 |
| | 2 - A1077 (E) | 141 | 0 | 0 | 292 |
| | 3 - Southern Access | 0 | 0 | 0 | 0 |
| | 4 - A1077 (W) | 180 | 392 | 0 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 10 | 10 | 10 | 10 |
| | 2 - A1077 (E) | 10 | 10 | 10 | 10 |
| | 3 - Southern Access | 10 | 10 | 10 | 10 |
| | 4 - A1077 (W) | 10 | 10 | 10 | 10 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - Falkland Way | 0.32 | 3.69 | 0.5 | A | 413 | 619 |
| 2 - A1077 (E) | 0.31 | 3.65 | 0.5 | A | 397 | 596 |
| 3 - Southern Access | 0.00 | 0.00 | 0.0 | A | 0 | 0 |
| 4 - A1077 (W) | 0.43 | 4.72 | 0.8 | A | 525 | 787 |

## Main Results for each time segment

### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 339 | 85 | 294 | 1648 | 0.206 | 338 | 241 | 0.0 | 0.3 | 3.020 | A |
| 2 - A1077 (E) | 326 | 81 | 219 | 1619 | 0.201 | 325 | 412 | 0.0 | 0.3 | 3.056 | A |
| 3 - Southern Access | 0 | 0 | 544 | 1595 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 431 | 108 | 106 | 1494 | 0.288 | 429 | 438 | 0.0 | 0.4 | 3.712 | A |

### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 405 | 101 | 352 | 1614 | 0.251 | 404 | 288 | 0.3 | 0.4 | 3.272 | A |
| 2 - A1077 (E) | 389 | 97 | 262 | 1595 | 0.244 | 389 | 494 | 0.3 | 0.4 | 3.282 | A |
| 3 - Southern Access | 0 | 0 | 651 | 1532 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 514 | 129 | 127 | 1483 | 0.347 | 514 | 525 | 0.4 | 0.6 | 4.085 | A |

### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 495 | 124 | 431 | 1569 | 0.316 | 495 | 353 | 0.4 | 0.5 | 3.684 | A |
| 2 - A1077 (E) | 477 | 119 | 321 | 1563 | 0.305 | 476 | 605 | 0.4 | 0.5 | 3.642 | A |
| 3 - Southern Access | 0 | 0 | 797 | 1445 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 630 | 157 | 155 | 1468 | 0.429 | 629 | 642 | 0.6 | 0.8 | 4.715 | A |

### 17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 495 | 124 | 432 | 1569 | 0.316 | 495 | 353 | 0.5 | 0.5 | 3.688 | A |
| 2 - A1077 (E) | 477 | 119 | 321 | 1563 | 0.305 | 477 | 606 | 0.5 | 0.5 | 3.645 | A |
| 3 - Southern Access | 0 | 0 | 798 | 1444 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 630 | 157 | 155 | 1468 | 0.429 | 630 | 643 | 0.8 | 0.8 | 4.725 | A |

### 17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 405 | 101 | 353 | 1614 | 0.251 | 405 | 289 | 0.5 | 0.4 | 3.277 | A |
| 2 - A1077 (E) | 389 | 97 | 263 | 1595 | 0.244 | 390 | 495 | 0.5 | 0.4 | 3.288 | A |
| 3 - Southern Access | 0 | 0 | 653 | 1531 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 514 | 129 | 127 | 1483 | 0.347 | 515 | 526 | 0.8 | 0.6 | 4.098 | A |

### 18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 339 | 85 | 296 | 1647 | 0.206 | 339 | 242 | 0.4 | 0.3 | 3.028 | A |
| 2 - A1077 (E) | 326 | 81 | 220 | 1619 | 0.201 | 326 | 415 | 0.4 | 0.3 | 3.066 | A |
| 3 - Southern Access | 0 | 0 | 546 | 1594 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
| 4 - A1077 (W) | 431 | 108 | 106 | 1493 | 0.288 | 431 | 440 | 0.6 | 0.4 | 3.732 | A |

# Proposed Layout - Sensitivity Test, AM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way Roundabout | Standard Roundabout | | 1, 2, 3, 4 | 4.09 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D5 | Sensitivity Test | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

| Default vehicle mix | Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|---|
| ✓ | ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - Falkland Way | | ONE HOUR | ✓ | 373 | 100.000 |
| 2 - A1077 (E) | | ONE HOUR | ✓ | 507 | 100.000 |
| 3 - Southern Access | | ONE HOUR | ✓ | 54 | 100.000 |
| 4 - A1077 (W) | | ONE HOUR | ✓ | 590 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 0 | 154 | 3 | 216 |
| | 2 - A1077 (E) | 166 | 0 | 2 | 339 |
| | 3 - Southern Access | 7 | 9 | 0 | 38 |
| | 4 - A1077 (W) | 308 | 268 | 14 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 10 | 10 | 10 | 10 |
| | 2 - A1077 (E) | 10 | 10 | 10 | 10 |
| | 3 - Southern Access | 10 | 10 | 10 | 10 |
| | 4 - A1077 (W) | 10 | 10 | 10 | 10 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - Falkland Way | 0.25 | 3.24 | 0.4 | A | 342 | 513 |
| 2 - A1077 (E) | 0.35 | 3.80 | 0.6 | A | 465 | 698 |
| 3 - Southern Access | 0.04 | 2.85 | 0.0 | A | 50 | 74 |
| 4 - A1077 (W) | 0.45 | 4.98 | 0.9 | A | 541 | 812 |

## Main Results for each time segment

### 07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 281 | 70 | 218 | 1691 | 0.166 | 280 | 361 | 0.0 | 0.2 | 2.805 | A |
| 2 - A1077 (E) | 382 | 95 | 175 | 1644 | 0.232 | 380 | 323 | 0.0 | 0.3 | 3.131 | A |
| 3 - Southern Access | 41 | 10 | 541 | 1597 | 0.025 | 41 | 14 | 0.0 | 0.0 | 2.543 | A |
| 4 - A1077 (W) | 444 | 111 | 137 | 1477 | 0.301 | 442 | 445 | 0.0 | 0.5 | 3.819 | A |

### 08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 335 | 84 | 261 | 1666 | 0.201 | 335 | 432 | 0.2 | 0.3 | 2.974 | A |
| 2 - A1077 (E) | 456 | 114 | 209 | 1625 | 0.281 | 455 | 387 | 0.3 | 0.4 | 3.386 | A |
| 3 - Southern Access | 49 | 12 | 648 | 1534 | 0.032 | 49 | 17 | 0.0 | 0.0 | 2.665 | A |
| 4 - A1077 (W) | 530 | 133 | 163 | 1463 | 0.362 | 530 | 533 | 0.5 | 0.6 | 4.238 | A |

### 08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 411 | 103 | 320 | 1633 | 0.252 | 410 | 529 | 0.3 | 0.4 | 3.239 | A |
| 2 - A1077 (E) | 558 | 140 | 256 | 1599 | 0.349 | 558 | 474 | 0.4 | 0.6 | 3.801 | A |
| 3 - Southern Access | 59 | 15 | 793 | 1447 | 0.041 | 59 | 21 | 0.0 | 0.0 | 2.852 | A |
| 4 - A1077 (W) | 650 | 162 | 200 | 1444 | 0.450 | 649 | 652 | 0.6 | 0.9 | 4.969 | A |

### 08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 411 | 103 | 320 | 1632 | 0.252 | 411 | 530 | 0.4 | 0.4 | 3.240 | A |
| 2 - A1077 (E) | 558 | 140 | 257 | 1599 | 0.349 | 558 | 475 | 0.6 | 0.6 | 3.805 | A |
| 3 - Southern Access | 59 | 15 | 794 | 1447 | 0.041 | 59 | 21 | 0.0 | 0.0 | 2.853 | A |
| 4 - A1077 (W) | 650 | 162 | 200 | 1444 | 0.450 | 650 | 653 | 0.9 | 0.9 | 4.983 | A |

### 08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 335 | 84 | 262 | 1666 | 0.201 | 336 | 433 | 0.4 | 0.3 | 2.979 | A |
| 2 - A1077 (E) | 456 | 114 | 210 | 1625 | 0.281 | 456 | 388 | 0.6 | 0.4 | 3.393 | A |
| 3 - Southern Access | 49 | 12 | 649 | 1533 | 0.032 | 49 | 17 | 0.0 | 0.0 | 2.669 | A |
| 4 - A1077 (W) | 530 | 133 | 164 | 1463 | 0.362 | 531 | 534 | 0.9 | 0.6 | 4.256 | A |

**09:00 - 09:15**

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1 - Falkland Way** | 281 | 70 | 219 | 1690 | 0.166 | 281 | 363 | 0.3 | 0.2 | 2.812 | A |
| **2 - A1077 (E)** | 382 | 95 | 176 | 1643 | 0.232 | 382 | 325 | 0.4 | 0.3 | 3.139 | A |
| **3 - Southern Access** | 41 | 10 | 543 | 1596 | 0.025 | 41 | 14 | 0.0 | 0.0 | 2.546 | A |
| **4 - A1077 (W)** | 444 | 111 | 137 | 1477 | 0.301 | 445 | 447 | 0.6 | 0.5 | 3.837 | A |

# Proposed Layout - Sensitivity Test, PM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way Roundabout | Standard Roundabout | | 1, 2, 3, 4 | 4.33 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D6 | Sensitivity Test | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

| Default vehicle mix | Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|---|
| ✓ | ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - Falkland Way | | ONE HOUR | ✓ | 458 | 100.000 |
| 2 - A1077 (E) | | ONE HOUR | ✓ | 482 | 100.000 |
| 3 - Southern Access | | ONE HOUR | ✓ | 24 | 100.000 |
| 4 - A1077 (W) | | ONE HOUR | ✓ | 612 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 0 | 159 | 7 | 292 |
| | 2 - A1077 (E) | 161 | 0 | 9 | 312 |
| | 3 - Southern Access | 3 | 4 | 0 | 17 |
| | 4 - A1077 (W) | 180 | 396 | 36 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 10 | 10 | 10 | 10 |
| | 2 - A1077 (E) | 10 | 10 | 10 | 10 |
| | 3 - Southern Access | 10 | 10 | 10 | 10 |
| | 4 - A1077 (W) | 10 | 10 | 10 | 10 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - Falkland Way | 0.33 | 3.82 | 0.5 | A | 420 | 630 |
| 2 - A1077 (E) | 0.35 | 3.94 | 0.6 | A | 442 | 663 |
| 3 - Southern Access | 0.02 | 2.84 | 0.0 | A | 22 | 33 |
| 4 - A1077 (W) | 0.46 | 5.09 | 0.9 | A | 562 | 842 |

## Main Results for each time segment

### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 345 | 86 | 327 | 1629 | 0.212 | 344 | 258 | 0.0 | 0.3 | 3.078 | A |
| 2 - A1077 (E) | 363 | 91 | 251 | 1602 | 0.227 | 362 | 419 | 0.0 | 0.3 | 3.191 | A |
| 3 - Southern Access | 18 | 5 | 574 | 1577 | 0.011 | 18 | 39 | 0.0 | 0.0 | 2.538 | A |
| 4 - A1077 (W) | 461 | 115 | 126 | 1483 | 0.311 | 459 | 466 | 0.0 | 0.5 | 3.859 | A |

### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 412 | 103 | 392 | 1592 | 0.259 | 411 | 309 | 0.3 | 0.4 | 3.355 | A |
| 2 - A1077 (E) | 433 | 108 | 301 | 1574 | 0.275 | 433 | 502 | 0.3 | 0.4 | 3.470 | A |
| 3 - Southern Access | 22 | 5 | 687 | 1510 | 0.014 | 22 | 47 | 0.0 | 0.0 | 2.659 | A |
| 4 - A1077 (W) | 550 | 138 | 151 | 1470 | 0.374 | 550 | 558 | 0.5 | 0.7 | 4.299 | A |

### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 504 | 126 | 479 | 1542 | 0.327 | 504 | 378 | 0.4 | 0.5 | 3.813 | A |
| 2 - A1077 (E) | 531 | 133 | 368 | 1537 | 0.345 | 530 | 615 | 0.4 | 0.6 | 3.931 | A |
| 3 - Southern Access | 26 | 7 | 841 | 1419 | 0.019 | 26 | 57 | 0.0 | 0.0 | 2.843 | A |
| 4 - A1077 (W) | 674 | 168 | 185 | 1452 | 0.464 | 673 | 683 | 0.7 | 0.9 | 5.072 | A |

### 17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 504 | 126 | 480 | 1541 | 0.327 | 504 | 379 | 0.5 | 0.5 | 3.818 | A |
| 2 - A1077 (E) | 531 | 133 | 369 | 1536 | 0.345 | 531 | 615 | 0.6 | 0.6 | 3.937 | A |
| 3 - Southern Access | 26 | 7 | 842 | 1418 | 0.019 | 26 | 57 | 0.0 | 0.0 | 2.844 | A |
| 4 - A1077 (W) | 674 | 168 | 185 | 1452 | 0.464 | 674 | 684 | 0.9 | 0.9 | 5.086 | A |

### 17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 412 | 103 | 393 | 1591 | 0.259 | 412 | 310 | 0.5 | 0.4 | 3.363 | A |
| 2 - A1077 (E) | 433 | 108 | 302 | 1574 | 0.275 | 434 | 503 | 0.6 | 0.4 | 3.478 | A |
| 3 - Southern Access | 22 | 5 | 689 | 1509 | 0.014 | 22 | 47 | 0.0 | 0.0 | 2.663 | A |
| 4 - A1077 (W) | 550 | 138 | 151 | 1470 | 0.374 | 551 | 559 | 0.9 | 0.7 | 4.318 | A |

**18:00 - 18:15**

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1 - Falkland Way** | 345 | 86 | 329 | 1628 | 0.212 | 345 | 259 | 0.4 | 0.3 | 3.090 | A |
| **2 - A1077 (E)** | 363 | 91 | 252 | 1601 | 0.227 | 363 | 421 | 0.4 | 0.3 | 3.199 | A |
| **3 - Southern Access** | 18 | 5 | 577 | 1576 | 0.011 | 18 | 39 | 0.0 | 0.0 | 2.541 | A |
| **4 - A1077 (W)** | 461 | 115 | 127 | 1483 | 0.311 | 461 | 468 | 0.7 | 0.5 | 3.879 | A |

# Proposed Layout - Sensitivity Test (1,500 dwellings), AM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way Roundabout | Standard Roundabout | | 1, 2, 3, 4 | 4.36 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D7 | Sensitivity Test (1,500 dwellings) | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

| Default vehicle mix | Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|---|
| ✓ | ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - Falkland Way | | ONE HOUR | ✓ | 382 | 100.000 |
| 2 - A1077 (E) | | ONE HOUR | ✓ | 520 | 100.000 |
| 3 - Southern Access | | ONE HOUR | ✓ | 250 | 100.000 |
| 4 - A1077 (W) | | ONE HOUR | ✓ | 639 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 0 | 154 | 12 | 216 |
| | 2 - A1077 (E) | 166 | 0 | 15 | 339 |
| | 3 - Southern Access | 34 | 42 | 0 | 174 |
| | 4 - A1077 (W) | 308 | 268 | 63 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 10 | 10 | 10 | 10 |
| | 2 - A1077 (E) | 10 | 10 | 10 | 10 |
| | 3 - Southern Access | 10 | 10 | 10 | 10 |
| | 4 - A1077 (W) | 10 | 10 | 10 | 10 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - Falkland Way | 0.27 | 3.41 | 0.4 | A | 351 | 526 |
| 2 - A1077 (E) | 0.37 | 4.00 | 0.6 | A | 477 | 716 |
| 3 - Southern Access | 0.19 | 3.38 | 0.3 | A | 229 | 344 |
| 4 - A1077 (W) | 0.50 | 5.61 | 1.1 | A | 586 | 880 |

## Main Results for each time segment

### 07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 288 | 72 | 280 | 1656 | 0.174 | 287 | 381 | 0.0 | 0.2 | 2.891 | A |
| 2 - A1077 (E) | 391 | 98 | 218 | 1620 | 0.242 | 390 | 348 | 0.0 | 0.3 | 3.218 | A |
| 3 - Southern Access | 188 | 47 | 541 | 1597 | 0.118 | 188 | 67 | 0.0 | 0.1 | 2.808 | A |
| 4 - A1077 (W) | 481 | 120 | 182 | 1454 | 0.331 | 479 | 547 | 0.0 | 0.5 | 4.052 | A |

### 08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 343 | 86 | 335 | 1624 | 0.211 | 343 | 456 | 0.2 | 0.3 | 3.091 | A |
| 2 - A1077 (E) | 467 | 117 | 261 | 1596 | 0.293 | 467 | 417 | 0.3 | 0.5 | 3.508 | A |
| 3 - Southern Access | 225 | 56 | 648 | 1534 | 0.147 | 225 | 81 | 0.1 | 0.2 | 3.024 | A |
| 4 - A1077 (W) | 574 | 144 | 217 | 1435 | 0.400 | 574 | 655 | 0.5 | 0.7 | 4.592 | A |

### 08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 421 | 105 | 410 | 1581 | 0.266 | 420 | 558 | 0.3 | 0.4 | 3.411 | A |
| 2 - A1077 (E) | 573 | 143 | 320 | 1563 | 0.366 | 572 | 510 | 0.5 | 0.6 | 3.991 | A |
| 3 - Southern Access | 275 | 69 | 793 | 1447 | 0.190 | 275 | 99 | 0.2 | 0.3 | 3.377 | A |
| 4 - A1077 (W) | 704 | 176 | 266 | 1410 | 0.499 | 702 | 802 | 0.7 | 1.1 | 5.584 | A |

### 08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 421 | 105 | 411 | 1581 | 0.266 | 421 | 559 | 0.4 | 0.4 | 3.412 | A |
| 2 - A1077 (E) | 573 | 143 | 320 | 1563 | 0.366 | 573 | 511 | 0.6 | 0.6 | 3.996 | A |
| 3 - Southern Access | 275 | 69 | 794 | 1447 | 0.190 | 275 | 99 | 0.3 | 0.3 | 3.379 | A |
| 4 - A1077 (W) | 704 | 176 | 266 | 1410 | 0.499 | 704 | 803 | 1.1 | 1.1 | 5.607 | A |

### 08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 343 | 86 | 336 | 1623 | 0.212 | 344 | 458 | 0.4 | 0.3 | 3.097 | A |
| 2 - A1077 (E) | 467 | 117 | 262 | 1596 | 0.293 | 468 | 418 | 0.6 | 0.5 | 3.516 | A |
| 3 - Southern Access | 225 | 56 | 649 | 1533 | 0.147 | 225 | 81 | 0.3 | 0.2 | 3.030 | A |
| 4 - A1077 (W) | 574 | 144 | 218 | 1435 | 0.400 | 576 | 656 | 1.1 | 0.7 | 4.616 | A |

### 09:00 - 09:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 288 | 72 | 281 | 1655 | 0.174 | 288 | 383 | 0.3 | 0.2 | 2.899 | A |
| 2 - A1077 (E) | 391 | 98 | 219 | 1619 | 0.242 | 392 | 350 | 0.5 | 0.4 | 3.226 | A |
| 3 - Southern Access | 188 | 47 | 543 | 1596 | 0.118 | 188 | 68 | 0.2 | 0.1 | 2.813 | A |
| 4 - A1077 (W) | 481 | 120 | 182 | 1454 | 0.331 | 482 | 549 | 0.7 | 0.5 | 4.078 | A |

# Proposed Layout - Sensitivity Test (1,500 dwellings), PM

### Data Errors and Warnings

*No errors or warnings*

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | A1077/Falkland Way Roundabout | Standard Roundabout | | 1, 2, 3, 4 | 5.12 | A |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|
| D8 | Sensitivity Test (1,500 dwellings) | PM | ONE HOUR | 16:45 | 18:15 | 15 | ✓ |

| Default vehicle mix | Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---|---|---|---|---|
| ✓ | ✓ | ✓ | HV Percentages | 2.00 |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| 1 - Falkland Way | | ONE HOUR | ✓ | 483 | 100.000 |
| 2 - A1077 (E) | | ONE HOUR | ✓ | 512 | 100.000 |
| 3 - Southern Access | | ONE HOUR | ✓ | 112 | 100.000 |
| 4 - A1077 (W) | | ONE HOUR | ✓ | 741 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 0 | 159 | 32 | 292 |
| | 2 - A1077 (E) | 161 | 0 | 39 | 312 |
| | 3 - Southern Access | 15 | 19 | 0 | 78 |
| | 4 - A1077 (W) | 180 | 396 | 165 | 0 |

## Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 - Falkland Way | 2 - A1077 (E) | 3 - Southern Access | 4 - A1077 (W) |
| From | 1 - Falkland Way | 10 | 10 | 10 | 10 |
| | 2 - A1077 (E) | 10 | 10 | 10 | 10 |
| | 3 - Southern Access | 10 | 10 | 10 | 10 |
| | 4 - A1077 (W) | 10 | 10 | 10 | 10 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|
| 1 - Falkland Way | 0.37 | 4.31 | 0.6 | A | 443 | 665 |
| 2 - A1077 (E) | 0.39 | 4.51 | 0.7 | A | 470 | 705 |
| 3 - Southern Access | 0.09 | 3.06 | 0.1 | A | 103 | 154 |
| 4 - A1077 (W) | 0.57 | 6.38 | 1.4 | A | 680 | 1020 |

## Main Results for each time segment

### 16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 364 | 91 | 435 | 1567 | 0.232 | 362 | 267 | 0.0 | 0.3 | 3.284 | A |
| 2 - A1077 (E) | 385 | 96 | 367 | 1538 | 0.251 | 384 | 430 | 0.0 | 0.4 | 3.428 | A |
| 3 - Southern Access | 84 | 21 | 574 | 1578 | 0.053 | 84 | 177 | 0.0 | 0.1 | 2.651 | A |
| 4 - A1077 (W) | 558 | 139 | 146 | 1472 | 0.379 | 555 | 512 | 0.0 | 0.7 | 4.305 | A |

### 17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 434 | 109 | 521 | 1518 | 0.286 | 434 | 320 | 0.3 | 0.4 | 3.650 | A |
| 2 - A1077 (E) | 460 | 115 | 439 | 1497 | 0.307 | 460 | 515 | 0.4 | 0.5 | 3.813 | A |
| 3 - Southern Access | 101 | 25 | 687 | 1510 | 0.067 | 101 | 212 | 0.1 | 0.1 | 2.808 | A |
| 4 - A1077 (W) | 666 | 167 | 175 | 1457 | 0.457 | 665 | 613 | 0.7 | 0.9 | 4.992 | A |

### 17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 532 | 133 | 637 | 1451 | 0.366 | 531 | 391 | 0.4 | 0.6 | 4.298 | A |
| 2 - A1077 (E) | 564 | 141 | 537 | 1443 | 0.391 | 563 | 631 | 0.5 | 0.7 | 4.494 | A |
| 3 - Southern Access | 123 | 31 | 841 | 1419 | 0.087 | 123 | 259 | 0.1 | 0.1 | 3.055 | A |
| 4 - A1077 (W) | 816 | 204 | 214 | 1437 | 0.568 | 814 | 750 | 0.9 | 1.4 | 6.336 | A |

### 17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 532 | 133 | 639 | 1451 | 0.367 | 532 | 392 | 0.6 | 0.6 | 4.309 | A |
| 2 - A1077 (E) | 564 | 141 | 538 | 1442 | 0.391 | 564 | 632 | 0.7 | 0.7 | 4.506 | A |
| 3 - Southern Access | 123 | 31 | 842 | 1418 | 0.087 | 123 | 260 | 0.1 | 0.1 | 3.057 | A |
| 4 - A1077 (W) | 816 | 204 | 215 | 1437 | 0.568 | 816 | 751 | 1.4 | 1.4 | 6.377 | A |

### 17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 434 | 109 | 523 | 1517 | 0.286 | 435 | 321 | 0.6 | 0.4 | 3.662 | A |
| 2 - A1077 (E) | 460 | 115 | 441 | 1497 | 0.308 | 461 | 517 | 0.7 | 0.5 | 3.829 | A |
| 3 - Southern Access | 101 | 25 | 689 | 1509 | 0.067 | 101 | 213 | 0.1 | 0.1 | 2.813 | A |
| 4 - A1077 (W) | 666 | 167 | 176 | 1457 | 0.457 | 668 | 614 | 1.4 | 0.9 | 5.033 | A |

### 18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Throughput (exit side) (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Falkland Way | 364 | 91 | 437 | 1565 | 0.232 | 364 | 268 | 0.4 | 0.3 | 3.296 | A |
| 2 - A1077 (E) | 385 | 96 | 369 | 1537 | 0.251 | 386 | 433 | 0.5 | 0.4 | 3.445 | A |
| 3 - Southern Access | 84 | 21 | 577 | 1576 | 0.054 | 84 | 178 | 0.1 | 0.1 | 2.656 | A |
| 4 - A1077 (W) | 558 | 139 | 147 | 1472 | 0.379 | 559 | 514 | 0.9 | 0.7 | 4.341 | A |