

# WIMBORNE TRANSPORT MODEL

## SATURN MODEL

### OPTION TESTING NON-TECHNICAL REPORT

Michael Winter  
Consultancy Manager  
Pullman Court  
Station Approach  
Weymouth Avenue  
Dorchester  
DT1 1GA

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Author	<b>DEC - Nick Rabbets</b>		
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**RECIPIENTS \*\***

<b>Date</b>	<b>Name/Organisation</b>
<b>Jan-'11</b>	<b>Steve Williams – Local Transport Plan Manager</b>
<b>Jan-'11</b>	<b>Kate Tunks – Principal Transport Planner</b>
<b>Jan-'11</b>	<b>Wayne Sayers – Development Control Engineer</b>

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## REFERENCES

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## 1.0 INTRODUCTION

### 1.1 Background

1.1.1 Dorset Engineering Consultancy (DEC), have recently produced a fully calibrated and validated traffic model of the Wimborne area for a base year of 2008. This work has been fully reported in the Local Model Validation Report (Reference 1).

1.1.2 Dorset Engineering Consultancy (DEC) received a brief from Kate Tunks of Dorset County Council (DCC) on the 03 September 2010 to undertake a number of development tests using the existing Wimborne Transport Model. This work produced future year networks, matrices and the assignment traffic flows for a number of development scenarios for the forecast future years of 2016 and 2026 using the Wimborne Transport Model 2008. The forecasting has been fully reported in the Option Testing Summary Report (Reference 2). This Non-Technical Report summarises the outcomes of that work, if further detailed information is required it is suggested that the Option Testing Summary Report is referred to . The study area is shown in **Figure 1**.

1.1.3 Ten Option scenarios have been considered within this report and are outlined below and shown in **Figure 2**:

*Option A - considers general growth based upon TEMPRO (Reference 3) growth factors and information provided by East Dorset District Council upon committed developments and expected in-fill developments in the future years.*

*Option B - Option A plus 250 dwellings at Cuthbury; mixed private and non-private housing.*

*Option C - Option B plus 700 dwellings split between Wimborne North sites A and B; mixed private and non-private housing.*

*Option D - Option C with Highways Agency alterations to Canford Bottom Roundabout.*

*Option E - Option C plus 250 dwellings south of Leigh Road; mixed private and non-private housing.*

*Option F - Option E with Highways Agency alterations to Canford Bottom Roundabout.*

*Option G - Option E plus 150 dwellings south of Colehill; mixed private and non-private housing.*

*Option H - Option G with Highways Agency alterations to Canford Bottom Roundabout.*

*Option I - Option G plus 60 dwellings at Stone Lane Industrial Estate & 20 dwellings at St.Margaret's Close; mixed private and non-private housing.*

*Option J - Option I with Highways Agency alterations to Canford Bottom Roundabout.*

## 2.0 OPTION TESTING RESULTS

### 2.1 Global Impacts

#### 2.1.1 General Explanation

2.1.1.1 The Global Impacts section examines the pivotal Options tested and comments upon the routing of traffic throughout the model and how this increases traffic upon the roads within the model. The impacts upon specific junctions are considered below within the Local Impacts section of the report.

2.1.1.2 For the purposes of this report the AM and PM Peaks for 2026 were considered, thus giving the worst case for the routing and junction impacts within the model.

#### 2.1.2 Background Growth

2.1.2.1 As a first stage of investigation of the impact of future development within Wimborne, anticipated background growth was assessed. The background growth was based upon Government Projections and known committed developments received and approved by East Dorset District Council.

2.1.2.2 The Option A model suggests that the background growth will increase traffic generally throughout the study area with specific large increases to the flow, over 200 vehicles in one direction, in one of the assessment peaks, to:

- Leigh Road/Wimborne Road West
- Ferndown and Wimborne By-Passes (A31 T)
- Julian's Road
- Rowlands Hill
- Northleigh Lane
- Burt's Hill
- Ham Lane
- The Avenue/New Borough Road/Station Road
- Poole Road/Oakley Hill
- Middlehill Road (in the vicinity of Colehill Lane)
- Uddens Drive
- King Street/East Street
- Town Centre Area

These impacted routes can be seen within **Figure 3**. The routes shown are those with a marked increase in traffic to that shown within the 2008 Base Model.

2.1.3 Future Development

2.1.3.1 Traffic for the proposed development options was then placed upon the general growth model. Traffic incrementally increases up to the worst case scenario of Option I, which was used to assess the global impacts for this report.

2.1.3.2 The Option I model suggests that full development will increase traffic, over and above the background growth, in a minor way throughout the study area with increases of over 10 vehicles in one direction, in one of the assessment peaks, to:

- Leigh Road/Wimborne Road West
- Ferndown and Wimborne By-Passes (A31 T)
- Julian's Road
- Rowlands Hill
- Northleigh Lane
- Burt's Hill
- Middlehill Road
- Uddens Drive
- Ham Lane
- Allenview Road
- Town Centre Area
- St.Margaret's Hill/Victoria Road
- Stone Lane
- West Borough/Cranborne Road
- Furzehill
- Poole Road/Oakley Hill

These impacted routes can be seen within **Figure 4**.

2.1.3.3 In summary, the implementation of the developments within Option I would increase the level of traffic significantly in close proximity to the development sites; this then disperses as it reaches the outer extents of Wimborne, with only minor increases of traffic on the Wimborne By-Pass.

2.1.4 Canford Bottom Hamburger Junction

2.1.4.1 The development scenarios were then tested with Canford Bottom Roundabout being altered to a Hamburger Configuration, design as proposed by the Highways Agency. The worst case development scenario with Hamburger arrangement, Option J, was used to assess the global impacts for this report.

2.1.4.2 The Option J model suggests that a Hamburger Junction at Canford Bottom, with full development will result in significant traffic re-assignment throughout the model, compared to that of Option I.

This results in a decrease of over 10 vehicles in one direction, in one of the assessment peaks, to:

- Wimborne Road West/Leigh Road (*240 two-way decrease*)
- Wimborne By-Pass (A31 T) (*285 two-way decrease*)
- Ham Lane (*230 two-way decrease*)
- Middlehill Road/Smugglers Lane (*225 two-way decrease*)
- Burt's Hill (*70 two-way decrease*)
- Wimborne Road (*120 two-way decrease*)

And an increase of over 10 vehicles in one direction, in one of the assessment peaks, to:

- Ferndown By-Pass (A31 T) (*655 two-way increase*)
- Poole Road/Oakley Hill (*235 two-way increase*)
- Julian's Road (*125 two-way increase*)
- Stone Lane (*15 two-way increase*)
- King Street/East Street (*70 two-way increase*)
- Uddens Drive/Lonnen Road/Colehill Lane (*390 two-way increase*)
- Rowlands Hill/Wimborne Road. (*270 two-way increase*)
- Allenvie Road (*60 two-way increase*)
- Town Centre Area (*150 two-way increase*)

These impacted routes can be seen within **Figure 5**.

2.1.4.3 In summary, the provision of the Hamburger improves the throughput of the Trunk Road traffic, this results in delays to local traffic wanting to utilise this junction; therefore, people utilise different routes to avoid delays at the Hamburger junction.

It would appear that some of the additional traffic on Uddens Drive is associated with traffic travelling to/from areas north of the model and the Town Centre, previously more of these vehicles were using Leigh Road and Middlehill Road. The additional traffic on Julian's Road is associated with traffic in the Colehill area no longer using Canford Bottom to gain access to the major highway network, instead they travel along Leigh Road and Julian's Road to utilise Weirs Roundabout.



## 2.2 Local Impacts

### 2.2.1 General Explanation

2.2.1.1 The Local Impacts section examines each Option tested and comments upon the specific impacts observed within the SATURN Model. As a point of reference, junctions with a Ratio of Flow/Capacity (RFC) greater than 60 will be commented upon. Each of the separate links into each junction has been assessed, the worst arm is taken as the junctions score.

The transportation industry recognises that a RFC or Volume/Capacity (V/C) value of below 85% suggests there is spare capacity and minimal congestion problems; whereas one between 85% and 100% would cause concern as the junction or link is approaching capacity; anything over 100% reflects a junction or link that is operating over capacity. However, other aspects such as general safety, especially with non-vehicular modes of transport, should also be considered when looking at congestion of the highway network and certain vulnerable users might be considered over and above improvement of vehicular traffic congestion.

It should be noted that these modelled RFC flows are based upon the SATURN model and are a result for the full hour, whereas specific junction assessment tools such as ARCADY and PICADY break the assessment period down into smaller time periods, thus giving RFC's for the peak of the peak. Tests have been undertaken to compare the SATURN figures of the Canford Bottom Roundabout to those of ARCADY, the conclusion of which is that SATURN figures closely represent the average figures taken for the 90 minute figures output by ARCADY. Therefore, the SATURN figures shown do not represent the worst case scenario (peak of the peak) considered by the transportation industry. It is suggested that detailed junction modelling is undertaken when the developments are considered in greater detail.

2.2.1.2 The specific junctions analysed within this report are shown in **Figure 6**.

2.2.2 Base – 2008

2.2.2.1 To understand the current position of junction capacities within the model, the Base year RFC's were assessed and are shown within **Figure 7**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- West Borough/Priors Walk
- Hanham Road/Crown Mead (mini-roundabout)
- Rowlands Hill/Park Lane
- Quaterjack Roundabout
- Middlehill Road/Hayes Lane
- Leigh Road/Brook Road (signals)
- Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- Lake Gates Roundabout (A31 T)
- Oakley Roundabout

***RFC 75% - 85%***

- Pye Corner (mini-roundabout)
- Hanham Road/Allenvie Road (mini-roundabout)

***RFC 100% +***

- Merley Roundabout (A31 T)

2.2.2.2 The SATURN model calculates that Canford Bottom Roundabout has an RFC of less than 60%, local knowledge suggests that this is not the case. However, as stated in paragraph 2.2.1.1 above, SATURN does not calculate the peak of the peak with regard to RFC's. It is suggested that when detailed junction analysis is undertaken to assess development impacts the 2008 Base flows are also assessed for comparison purposes.

2.2.3 Option A – 2026

2.2.3.1 The Option A model consists of background growth, as suggested by Government, and planning permissions already approved by East Dorset District Council. It should be noted that changes had to be made to improve Pye Corner to enable the model to adequately run in the future year scenarios. Advice upon this matter is given within the Design Manual for Roads and Bridges, and advises that amendments to the forecast model can be made to replicate future junction alterations that may occur. The changes to Pye Corner include an increase in capacity of the King Street arm, is for modelling purposes only and is contained within highway land.

2.2.3.2 The 2026 Option A RFC's were assessed and are shown within **Figure 8**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- Hanham Road/Rowlands Hill (mini-roundabout)
- East Borough/Priors Walk
- Leigh Road/St.John's Hill (signals)
- Wimborne Road West/Hayes Lane

***RFC 75% - 85%***

- Hanham Road/Crown Mead (mini-roundabout)
- West Borough/Priors Walk
- Quaterjack Roundabout
- Leigh Road/Northleigh Lane
- Rowlands Hill/St.John's Hill (mini-roundabout)

***RFC 85% - 90%***

- Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- Oakley Roundabout

***RFC 90% - 95%***

- Pye Corner (mini-roundabout)
- Hanham Road/Allenvie Road (mini-roundabout)
- Waitrose (mini-roundabout)
- Middlehill Road/Hayes Lane
- Leigh Road/Parmiter Drive

***RFC 95% - 100%***

- Leigh Road/Brook Road (signals)
- Merley Roundabout (A31 T)
- Lake Gates Roundabout (A31 T)
- Canford Bottom Roundabout (A31 T)

2.2.3.3 Even with model adjustments to Pye Corner the RFC has risen from 83% in the Base to 92% in the 2026 Option A PM Peak.

Merley Roundabout has slightly improved in the future year from 101% in the Base to 97% in the 2026 Option A AM Peak. This is probably due to a more even distribution of traffic within the junction, thus improving the working of the roundabout.

2.2.4 Option B – 2026

2.2.4.1 The Option B model consists of an additional 250 dwellings at Cuthbury, on top of the Option A background growth. The RFC's were assessed and are shown within **Figure 9**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane

***RFC 75% - 85%***

- = West Borough/Priors Walk
- = Quaterjack Roundabout
- = Leigh Road/Northleigh Lane
- = Rowlands Hill/St.John's Hill (mini-roundabout)

***RFC 85% - 90%***

- Hanham Road/Crown Mead (mini-roundabout)
- = Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- = Oakley Roundabout

***RFC 90% - 95%***

- = Hanham Road/Allenvie Road (mini-roundabout)
- = Waitrose (mini-roundabout)
- = Middlehill Road/Hayes Lane
- = Leigh Road/Parmiter Drive

***RFC 95% - 100%***

- Pye Corner (mini-roundabout)
- = Leigh Road/Brook Road (signals)
- = Merley Roundabout (A31 T)
- = Lake Gates Roundabout (A31 T)

***RFC 100% +***

- Canford Bottom Roundabout (A31 T)

2.2.4.2 Provision of the additional dwellings reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Pye Corner and pushes Canford Bottom Roundabout over capacity.

2.2.5 Option C – 2026

2.2.5.1 The Option C model consists of an additional 700 dwellings North of Wimborne, on top of the Option B development and background growth. The RFC's were assessed and are shown within **Figure 10**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane
- = Wimborne Road West/Ham Lane

***RFC 75% - 85%***

- = Hanham Road/Crown Mead (mini-roundabout)
- = Quaterjack Roundabout
- = Leigh Road/Northleigh Lane
- = Rowlands Hill/St.John's Hill (mini-roundabout)

***RFC 85% - 90%***

- = West Borough/Priors Walk
- = Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- = Oakley Roundabout

***RFC 90% - 95%***

- = Hanham Road/Allenvie Road (mini-roundabout)
- = Waitrose (mini-roundabout)
- = Leigh Road/Parmiter Drive

***RFC 95% - 100%***

- = Pye Corner (mini-roundabout)
- = Leigh Road/Brook Road (signals)
- = Middlehill Road/Hayes Lane
- = Merley Roundabout (A31 T)
- = Lake Gates Roundabout (A31 T)

***RFC 100% +***

- = Canford Bottom Roundabout (A31 T)

2.2.5.2 Provision of the additional dwellings reduces the amount of available capacity at the Wimborne Road West/Ham Lane, Middlehill Road/Hayes Lane and the signalised junction of West Borough/Priors Walk. However, the mini-roundabout at Hanham Road/Crown Mead improves.

2.2.6 Option D – 2026

2.2.6.1 The Option D model consists of the proposed junction alteration proposed by the Highways Agency to convert the existing roundabout to a Hamburger Design Junction with the Option C development and background growth. The RFC's were assessed and are shown within **Figure 11**. This shows that the following junctions are of concern:

**RFC 60% - 75%**

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane
- Leigh Road/Northleigh Lane

**RFC 75% - 85%**

- = Quaterjack Roundabout
- = Rowlands Hill/St.John's Hill (mini-roundabout)

**RFC 85% - 90%**

- Hanham Road/Crown Mead (mini-roundabout)
- = West Borough/Priors Walk
- Middlehill Road/Hayes Lane
- Leigh Road/Parmiter Drive

**RFC 90% - 95%**

- = Hanham Road/Allenview Road (mini-roundabout)
- Oakley Roundabout

**RFC 95% - 100%**

- = Pye Corner (mini-roundabout)
- = Leigh Road/Brook Road (signals)
- Waitrose (mini-roundabout)
- Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- = Lake Gates Roundabout (A31 T)

**RFC 100% +**

- Merley Roundabout (A31 T)
- = Canford Bottom Roundabout (A31 T)

2.2.6.2 Provision of the Hamburger Junction compared to current layout Canford Bottom, with the additional dwellings in Option C, reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Waitrose, the right turn lane junction at Ferndown By-Pass/Uddens Drive and the Oakley and Merley Roundabouts. Even with the improvements the Canford Bottom and Merley Roundabouts are over capacity. However, the junctions at Leigh Road/Ham Lane, Leigh Road/Northleigh Lane, Middlehill Road/Hayes Lane and Leigh Road/Parmiter Drive improves. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road.

2.2.7 Option E – 2026

2.2.7.1 The Option E model consists of an additional 250 dwellings South of Parmiter Drive, on top of the Option C development and background growth. The RFC's were assessed and are shown within **Figure 12**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane

***RFC 75% - 85%***

- = Hanham Road/Crown Mead (mini-roundabout)
- = Quaterjack Roundabout
- = Leigh Road/Northleigh Lane

***RFC 85% - 90%***

- = West Borough/Priors Walk
- = Rowlands Hill/St.John's Hill (mini-roundabout)
- = Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- = Oakley Roundabout

***RFC 90% - 95%***

- = Waitrose (mini-roundabout)

***RFC 95% - 100%***

- = Pye Corner (mini-roundabout)
- = Hanham Road/Allenview Road (mini-roundabout)
- = Leigh Road/Parmiter Drive
- = Leigh Road/Brook Road (signals)
- = Middlehill Road/Hayes Lane
- = Merley Roundabout (A31 T)
- = Lake Gates Roundabout (A31 T)

***RFC 100% +***

- = Canford Bottom Roundabout (A31 T)

2.2.7.2 Provision of the additional dwellings compared to those within Option C reduces the amount of available capacity at the mini-roundabouts at Rowlands Hill/St.John's Hill and Hanham Road/Allenview Road and at the junction of Leigh Road/Parmiter Drive. However, the Wimborne Road West/Ham Lane junction improves.

2.2.8 Option F – 2026

2.2.8.1 The Option F model consists of the proposed junction alteration proposed by the Highways Agency to convert the existing roundabout to a Hamburger Design Junction with the Option E development and background growth. The RFC's were assessed and are shown within **Figure 13**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane

***RFC 75% - 85%***

- = Leigh Road/Northleigh Lane
- = Quaterjack Roundabout

***RFC 85% - 90%***

- = Rowlands Hill/St.John's Hill (mini-roundabout)
- Hanham Road/Crown Mead (mini-roundabout)
- = West Borough/Priors Walk
- Middlehill Road/Hayes Lane
- Leigh Road/Parmiter Drive

***RFC 90% - 95%***

- Oakley Roundabout

***RFC 95% - 100%***

- = Pye Corner (mini-roundabout)
- = Hanham Road/Allenvie Road (mini-roundabout)
- Waitrose (mini-roundabout)
- Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- = Lake Gates Roundabout (A31 T)

***RFC 100% +***

- Leigh Road/Brook Road (signals)
- Merley Roundabout (A31 T)
- = Canford Bottom Roundabout (A31 T)

2.2.8.2 Provision of the Hamburger Junction compared to current layout Canford Bottom, with the additional dwellings in Option E, reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Waitrose, the right turn lane junction at Ferndown By-Pass/Uddens Drive, the Leigh Road/Brook Road signals and the Oakley and Merley Roundabouts. Even with the improvements the Canford Bottom and Merley Roundabouts are over capacity, as is the Leigh Road/Brook Road signals. However, the junctions at Middlehill Road/Hayes Lane and Leigh Road/Parmiter Drive improves. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road.



2.2.9 Option G – 2026

2.2.9.1 The Option G model consists of an additional 150 dwellings South of Wimborne Road West, accessed of Ham Lane, on top of the Option E development and background growth. The RFC's were assessed and are shown within **Figure 14**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane
- = Wimborne Road West/Ham Lane

***RFC 75% - 85%***

- = Hanham Road/Crown Mead (mini-roundabout)
- = Quaterjack Roundabout

***RFC 85% - 90%***

- = Leigh Road/Northleigh Lane
- = West Borough/Priors Walk
- = Rowlands Hill/St.John's Hill (mini-roundabout)
- = Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- = Oakley Roundabout

***RFC 90% - 95%***

- = Waitrose (mini-roundabout)

***RFC 95% - 100%***

- = Pye Corner (mini-roundabout)
- = Hanham Road/Allenvie Road (mini-roundabout)
- = Leigh Road/Parmiter Drive
- = Leigh Road/Brook Road (signals)
- = Middlehill Road/Hayes Lane
- = Merley Roundabout (A31 T)
- = Lake Gates Roundabout (A31 T)

***RFC 100% +***

- = Canford Bottom Roundabout (A31 T)

2.2.9.2 Provision of the additional dwellings compared to those within Option E reduces the amount of available capacity at the junctions of Leigh Road/Northleigh Lane and Wimborne Road West/Ham Lane.

2.2.10 Option H – 2026

2.2.10.1 The Option H model consists of the proposed junction alteration proposed by the Highways Agency to convert the existing roundabout to a Hamburger Design Junction with the Option G development and background growth. The RFC's were assessed and are shown within **Figure 15**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane
- Leigh Road/Northleigh Lane

***RFC 75% - 85%***

- = Quaterjack Roundabout

***RFC 85% - 90%***

- = Rowlands Hill/St.John's Hill (mini-roundabout)
- Hanham Road/Crown Mead (mini-roundabout)
- = West Borough/Priors Walk
- Middlehill Road/Hayes Lane
- Leigh Road/Parmiter Drive

***RFC 90% - 95%***

- Oakley Roundabout

***RFC 95% - 100%***

- = Pye Corner (mini-roundabout)
- = Hanham Road/Allenvie Road (mini-roundabout)
- Waitrose (mini-roundabout)
- Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- = Lake Gates Roundabout (A31 T)

***RFC 100% +***

- Leigh Road/Brook Road (signals)
- Merley Roundabout (A31 T)
- = Canford Bottom Roundabout (A31 T)

2.2.10.2 Provision of the Hamburger Junction compared to current layout Canford Bottom, with the additional dwellings in Option G, reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Waitrose, the right turn lane junction at Ferndown By-Pass/Uddens Drive, the Leigh Road/Brook Road signals and the Oakley and Merley Roundabouts. Even with the improvements the Canford Bottom and Merley Roundabouts are over capacity, as is the Leigh Road/Brook Road signals. However, the junctions at Middlehill Road/Hayes Lane, Leigh Road/Northleigh Lane, Wimborne Road West/Ham Lane and Leigh Road/Parmiter Drive improves. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road.

2.2.11 Option I – 2026

2.2.11.1 The Option I model consists of an additional 60 dwellings on the site of Stone Lane Industrial Estate and 20 dwellings of St.Margarets Close, on top of the Option G development and background growth. The RFC's were assessed and are shown within **Figure 16**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane
- = Wimborne Road West/Ham Lane

***RFC 75% - 85%***

- = Hanham Road/Crown Mead (mini-roundabout)
- = Quaterjack Roundabout

***RFC 85% - 90%***

- = Leigh Road/Northleigh Lane
- = West Borough/Priors Walk
- = Rowlands Hill/St.John's Hill (mini-roundabout)
- = Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- = Oakley Roundabout

***RFC 90% - 95%***

- = Waitrose (mini-roundabout)

***RFC 95% - 100%***

- = Pye Corner (mini-roundabout)
- = Hanham Road/Allenvie Road (mini-roundabout)
- = Leigh Road/Parmiter Drive
- = Leigh Road/Brook Road (signals)
- = Middlehill Road/Hayes Lane
- = Lake Gates Roundabout (A31 T)

***RFC 100% +***

- = Merley Roundabout (A31 T)
- = Canford Bottom Roundabout (A31 T)

2.2.11.2 Provision of the additional dwellings compared to those within Option G pushes Merley Roundabout over capacity.

2.2.12 Option J – 2026

2.2.12.1 The Option J model consists of the proposed junction alteration proposed by the Highways Agency to convert the existing roundabout to a Hamburger Design Junction with the Option I development and background growth. The RFC's were assessed and are shown within **Figure 17**. This shows that the following junctions are of concern:

***RFC 60% - 75%***

- = Rowlands Hill/Park Lane
- = Hanham Road/Rowlands Hill (mini-roundabout)
- = East Borough/Priors Walk
- = Leigh Road/St.John's Hill (signals)
- = Wimborne Road West/Hayes Lane
- Leigh Road/Northleigh Lane

***RFC 75% - 85%***

- = Quaterjack Roundabout

***RFC 85% - 90%***

- = Rowlands Hill/St.John's Hill (mini-roundabout)
- Hanham Road/Crown Mead (mini-roundabout)
- = West Borough/Priors Walk
- Middlehill Road/Hayes Lane
- Leigh Road/Parmiter Drive

***RFC 90% - 95%***

- Oakley Roundabout
- Lake Gates Roundabout (A31 T)

***RFC 95% - 100%***

- = Pye Corner (mini-roundabout)
- = Hanham Road/Allenvie Road (mini-roundabout)
- Waitrose (mini-roundabout)
- Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)

***RFC 100% +***

- Leigh Road/Brook Road (signals)
- = Merley Roundabout (A31 T)
- = Canford Bottom Roundabout (A31 T)

2.2.12.2 Provision of the Hamburger Junction compared to current layout Canford Bottom, with the additional dwellings in Option J, reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Waitrose, the right turn lane junction at Ferndown By-Pass/Uddens Drive, the Leigh Road/Brook Road signals and Oakley Roundabout. Even with the improvements the Canford Bottom and Merley Roundabouts are over capacity, as is the Leigh Road/Brook Road signals. However, the junctions at Middlehill Road/Hayes Lane, Leigh Road/Northleigh Lane, Wimborne Road West/Ham Lane, Leigh Road/Parmiter Drive and lake Gate Roundabout improves. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road.

### 3.0 CONCLUSIONS

#### 3.1 TRAFFIC RESULTS

- 3.1.1 The production of forecast year traffic flows within the Wimborne area has been carried out using the most up to date information and adherence to current DfT/Highways Agency advice and guidance.
- 3.1.2 The results set out in this report are robust and form a good estimate of the likely traffic flows given the wide area of the model.
- 3.1.3 Throughout all the testing scenarios undertaken Pye Corner mini-roundabout, the Uddens Drive right turn lane with the Ferndown By-Pass and the Leigh Road/Brook Road signals have been either approaching or are over capacity. It is suggested that further investigation/design work is undertaken upon these junctions to rectify the problems associated with the additional traffic anticipated in the future.
- 3.1.4 Due to the sensitivity of the Town Centre Corridor and Canford Bottom it is suggested that detailed modelling work is undertaken using a Microsimulation Model. An existing Paramics model of the Town Centre Corridor already exists, whereas a junction specific Canford Bottom Model would have to be specially constructed to analyse the existing roundabout and proposed Hamburger Junction alterations. The proposed Canford Bottom alterations are being proposed by the Highways Agency and detailed assessment of its impacts may have already been undertaken by them.
- 3.1.5 Other sensitive junctions such as Middlehill Road/Hayes Lane, the mini-roundabout at Rowlands Hill/St.John's Hill and the Lake Gates, Merley and Oakley Roundabouts should also be tested in greater detail with specific junction analysis tools or Microsimulation models.
- 3.1.6 The Leigh Road/Parmiter Drive junction would only need to be assessed further if it were used as an access into the proposed development site tested under Option E. The model used this junction to gain access to the development for ease of assessment. However, I understand that a new junction may be proposed direct of Leigh Road, therefore, the impact modelled would be unlikely to occur.
- 3.1.7 I suggest that more detailed examination of the surrounding highway network be undertaken when development proposals come forward outlining detailed access proposals and design.
- 3.1.8 To enable each junction's RFC to be compared between the different development scenario options **Charts 1 to 3** below track the changes throughout the modelled scenarios. It can be seen that the most significant change is due to background growth, with the RFC's gradually worsening as development increases; the provision of the Canford Bottom Hamburger junction creates peaks and troughs in the RFC figures.

## 3.2 OPTION SUMMARIES

### 3.2.1 Base 2008

Pye Corner and Hanham Road/Allenview Road mini-roundabouts are approaching capacity, Merley Roundabout (A31T) is over capacity. The SATURN model calculates that Canford Bottom Roundabout has an RFC of less than 60%, local knowledge suggests that this is not the case. However, as stated in paragraph 2.2.1.1 above, SATURN does not calculate the peak of the peak with regard to RFC's. It is suggested that when detailed junction analysis is undertaken to assess development impacts the 2008 Base flows are also assessed for comparison purposes.

### 3.2.2 Option A – 2026

Background growth based upon Government Projections and known committed developments received and approved by East Dorset District Council raises traffic levels within the model. This significantly increases traffic travelling along the major routes within the model, as shown in **Figure 3**.

Adjustments had to be made to Pye Corner to enable the future year model to converge. Even with model adjustments to Pye Corner the RFC has risen from 83% in the Base to 92% in the 2026 Option A PM Peak. Merley Roundabout slightly improved in the future year from 101% in the Base to 97% in the 2026 Option A AM Peak. This is probably due to a more even distribution of traffic within the junction, thus improving the working of the roundabout. However, the number of junctions with RFC's over 75% increases from 3 in the 2008 Base to 16 in 2026, as shown in **Figure 8**.

### 3.2.3 Option B – 2026

The 250 dwellings at Cuthbury increases the traffic in the vicinity of the development site. Traffic generally only slightly increases on the wider network, similar to that experienced with Option I development, as shown in **Figure 4**.

Provision of the additional dwellings reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Pye Corner and pushes Canford Bottom Roundabout over capacity. The number of junctions with RFC's over 75% remains at 16 in 2026, however, Canford Bottom Roundabout goes over capacity, as shown in **Figure 8**.

### 3.2.4 Option C – 2026

The 700 dwellings North of Wimborne increase the traffic in the vicinity of the development site. Traffic generally only slightly increases on the wider network, similar to that experienced with Option I development, as shown in **Figure 4**.

Provision of the additional dwellings reduces the amount of available capacity at the Wimborne Road West/Ham Lane, Middlehill Road/Hayes Lane and the signalised junction of West Borough/Priors Walk. However, the mini-roundabout at Hanham Road/Crown Mead improves. The number of junctions with RFC's over 75% remains at 16 in 2026, as shown in **Figure 9**.

### 3.2.5 Option D – 2026

The provision of the Hamburger designed junction at Canford Bottom with the Option C development has wide ranging implications on traffic routes within Wimborne. The main roads off Canford Bottom decrease in flow; whereas the roads bypassing the roundabout increase in flow, with significant increases to Uddens Drive, Wimborne Road Hamham Road and Poole Road. Traffic distribution is generally similar to that experienced with Option J, as shown in **Figure 5**.

Provision of the amended junction reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Waitrose, the right turn lane junction at Ferndown By-Pass/Uddens Drive and the Oakley and Merley Roundabouts. Even with the improvements the Canford Bottom and Merley Roundabouts are over capacity. However, the junctions at Leigh Road/Ham Lane, Leigh Road/Northleigh Lane, Middlehill Road/Hayes Lane and Leigh Road/Parmiter Drive improves. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road. The number of junctions with RFC's over 75% reduces to 15 in 2026, however, Canford Bottom and Merley Roundabouts go over capacity, as shown in **Figure 10**.

### 3.2.6 Option E – 2026

The 250 dwellings South of Leigh Road increases the traffic in the vicinity of the development site. Traffic generally only slightly increases on the wider network, similar to that experienced with Option I development, as shown in **Figure 4**.

Provision of the additional dwellings compared to those within Option C reduces the amount of available capacity at the mini-roundabouts at Rowlands Hill/St.John's Hill and Hanham Road/Allenview Road and at the junction of Leigh Road/Parmiter Drive. However, the Wimborne Road West/Ham Lane junction improves. The number of junctions with RFC's over 75% remains at 16 in 2026, as shown in **Figure 11**.

### 3.2.7 Option F – 2026

The provision of the Hamburger designed junction at Canford Bottom with the Option E development has wide ranging implications on traffic routes within Wimborne. The main roads off Canford Bottom decrease in flow; whereas the roads bypassing the roundabout increase in flow, with significant increases to Uddens Drive, Wimborne Road Hanham Road and Poole Road. Traffic distribution is generally similar to that experienced with Option J, as shown in **Figure 5**.

Provision of the amended junction reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Waitrose, the right turn lane junction at Ferndown By-Pass/Uddens Drive, the Leigh Road/Brook Road signals and the Oakley and Merley Roundabouts. Even with the improvements the Canford Bottom and Merley Roundabouts are over capacity, as is the Leigh Road/Brook Road signals. However, the junctions at Middlehill Road/Hayes Lane and Leigh Road/Parmiter Drive improves. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road.. The number of junctions with RFC's over 75% remains at 16 in 2026, however, Canford Bottom and Merley Roundabouts and the signals at Leigh Road/Brook Road go over capacity, as shown in **Figure 12**.

3.2.8 Option G – 2026

The 150 dwellings South of Wimborne Road West increases the traffic in the vicinity of the development site. Traffic generally only slightly increases on the wider network, similar to that experienced with Option I development, as shown in **Figure 4**.

Provision of the additional dwellings compared to those within Option E reduces the amount of available capacity at the junctions of Leigh Road/Northleigh Lane and Wimborne Road West/Ham Lane. The number of junctions with RFC's over 75% remains at 16 in 2026, as shown in **Figure 13**.

3.2.9 Option H – 2026

The provision of the Hamburger designed junction at Canford Bottom with the Option G development has wide ranging implications on traffic routes within Wimborne. The main roads off Canford Bottom decrease in flow; whereas the roads bypassing the roundabout increase in flow, with significant increases to Uddens Drive, Wimborne Road Hanham Road and Poole Road. Traffic distribution is generally similar to that experienced with Option J, as shown in **Figure 5**.

Provision of the amended junction reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Waitrose, the right turn lane junction at Ferndown By-Pass/Uddens Drive, the Leigh Road/Brook Road signals and the Oakley and Merley Roundabouts. Even with the improvements the Canford Bottom and Merley Roundabouts are over capacity, as is the Leigh Road/Brook Road signals. However, the junctions at Middlehill Road/Hayes Lane, Leigh Road/Northleigh Lane, Wimborne Road West/Ham Lane and Leigh Road/Parmiter Drive improves. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road. The number of junctions with RFC's over 75% reduces to 15 in 2026, however, Canford Bottom and Merley Roundabouts and the signals at Leigh Road/Brook Road go over capacity, as shown in **Figure 14**.

3.2.10 Option I – 2026

The 60 dwellings on Stone Lane Industrial Estate and 20 dwellings at St.Margaret's Close increases the traffic in the vicinity of the development site. Traffic generally only slightly increases on the wider network, as shown in **Figure 4**.

Provision of the additional dwellings compared to those within Option G pushes Merley Roundabout over capacity. The number of junctions with RFC's over 75% increases to 16 in 2026, as shown in **Figure 15**.



3.2.11 Option J – 2026

The provision of the Hamburger designed junction at Canford Bottom with the Option I development has wide ranging implications on traffic routes within Wimborne. The main roads off Canford Bottom decrease in flow; whereas the roads bypassing the roundabout increase in flow, with significant increases to Uddens Drive, Wimborne Road Hanham Road and Poole Road, as shown in **Figure 5**.

Provision of the amended junction reduces the amount of available capacity at the mini-roundabouts at Hanham Road/Crown Mead, Waitrose, the right turn lane junction at Ferndown By-Pass/Uddens Drive, the Leigh Road/Brook Road signals and Oakley Roundabout. Even with the improvements the Canford Bottom and Merley Roundabouts are over capacity, as is the Leigh Road/Brook Road signals. However, the junctions at Middlehill Road/Hayes Lane, Leigh Road/Northleigh Lane, Wimborne Road West/Ham Lane, Leigh Road/Parmiter Drive and Lake Gate Roundabout improves. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road. The number of junctions with RFC's over 75% reduces to 15 in 2026, however, Canford Bottom and Merley Roundabouts and the signals at Leigh Road/Brook Road go over capacity, as shown in **Figure 16**.

# FIGURES



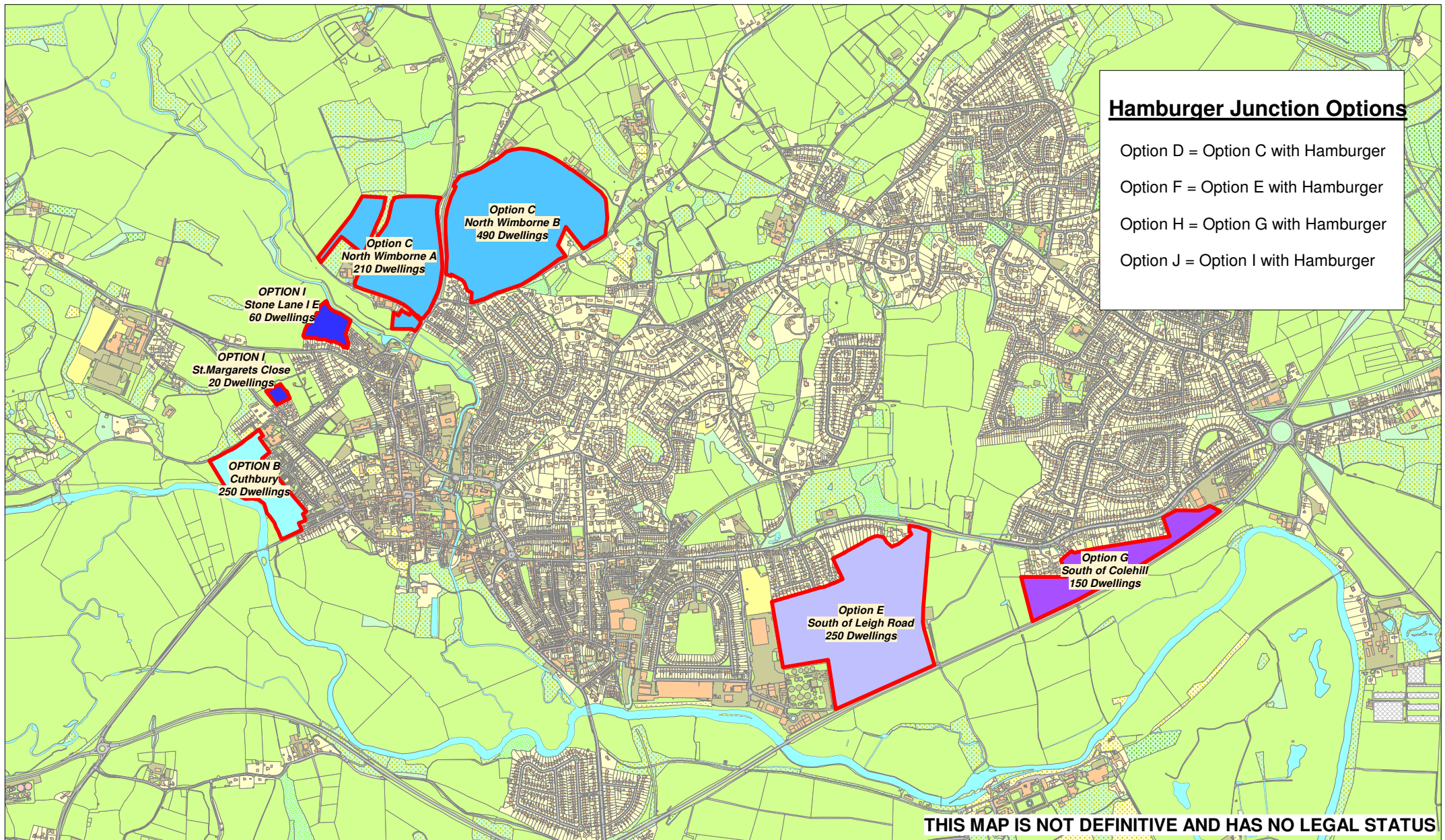
**FIGURE 1 - Wimborne Study Area**

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**Figure 2 - Option Testing Scenarios**

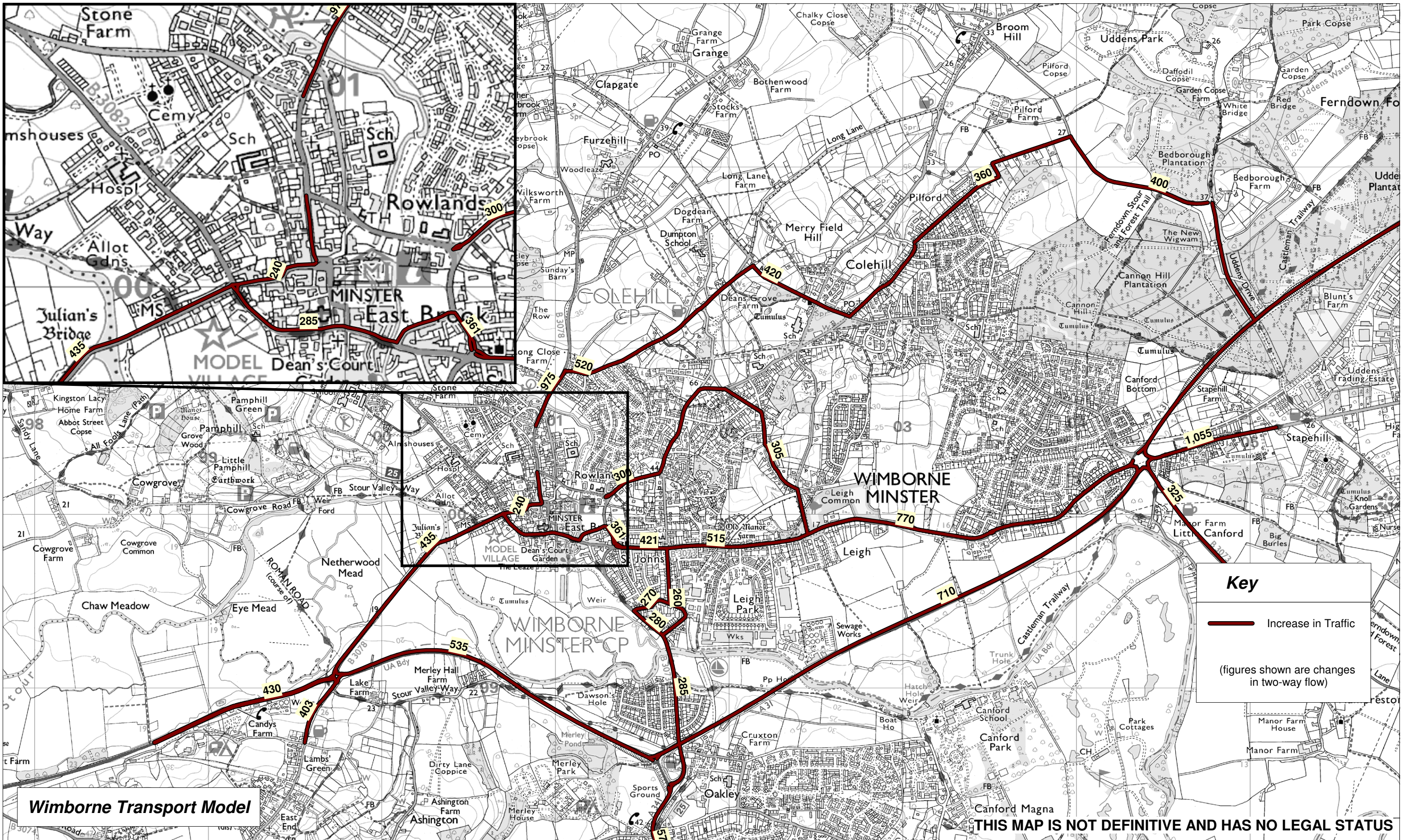
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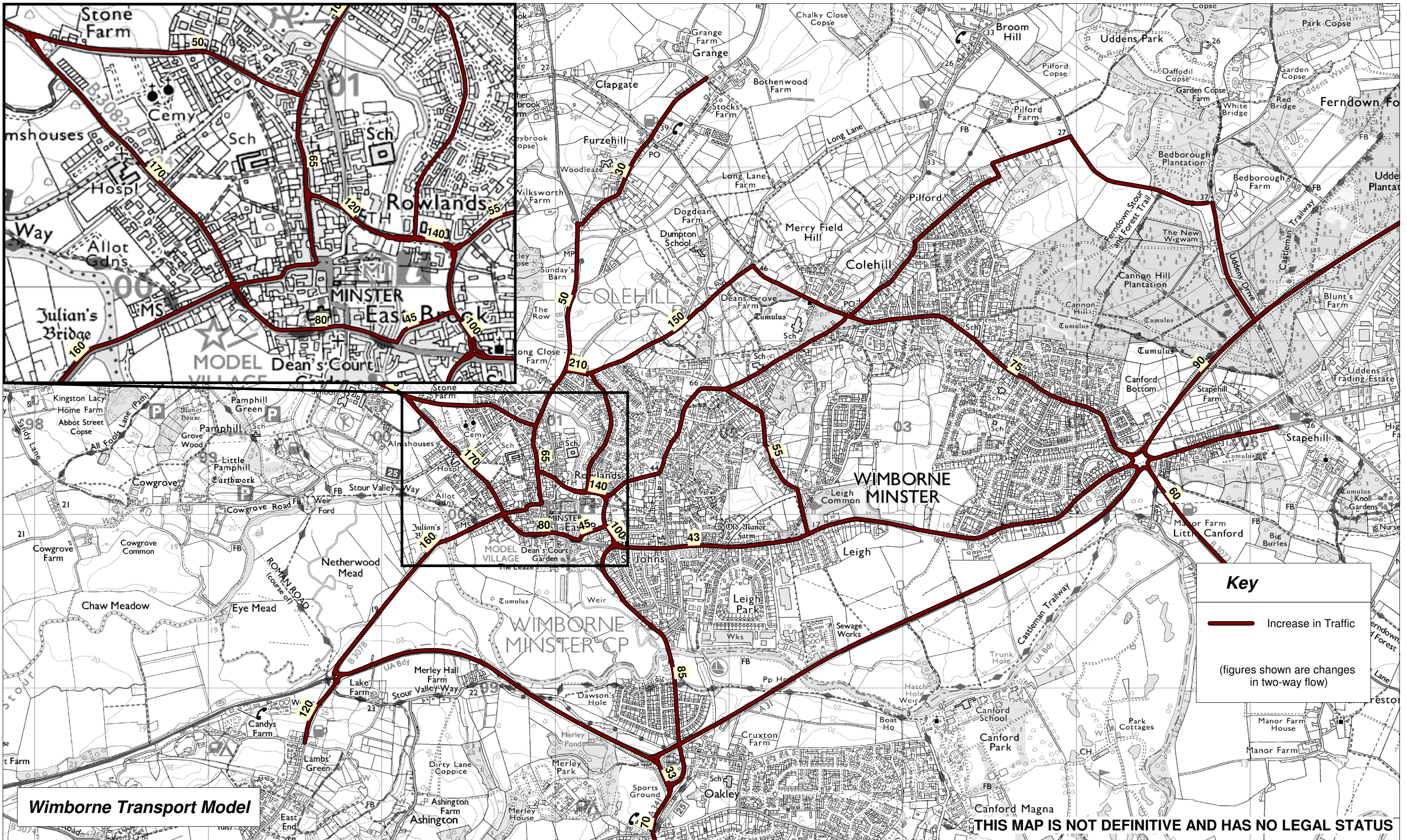
**Figure 3 - Peak Hour Traffic Flow Changes (2026 Option A - compared to 2008 Base)**  
**Routes with an increase greater than 200 vehicles in either direction shown**

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**Wimborne Transport Model**

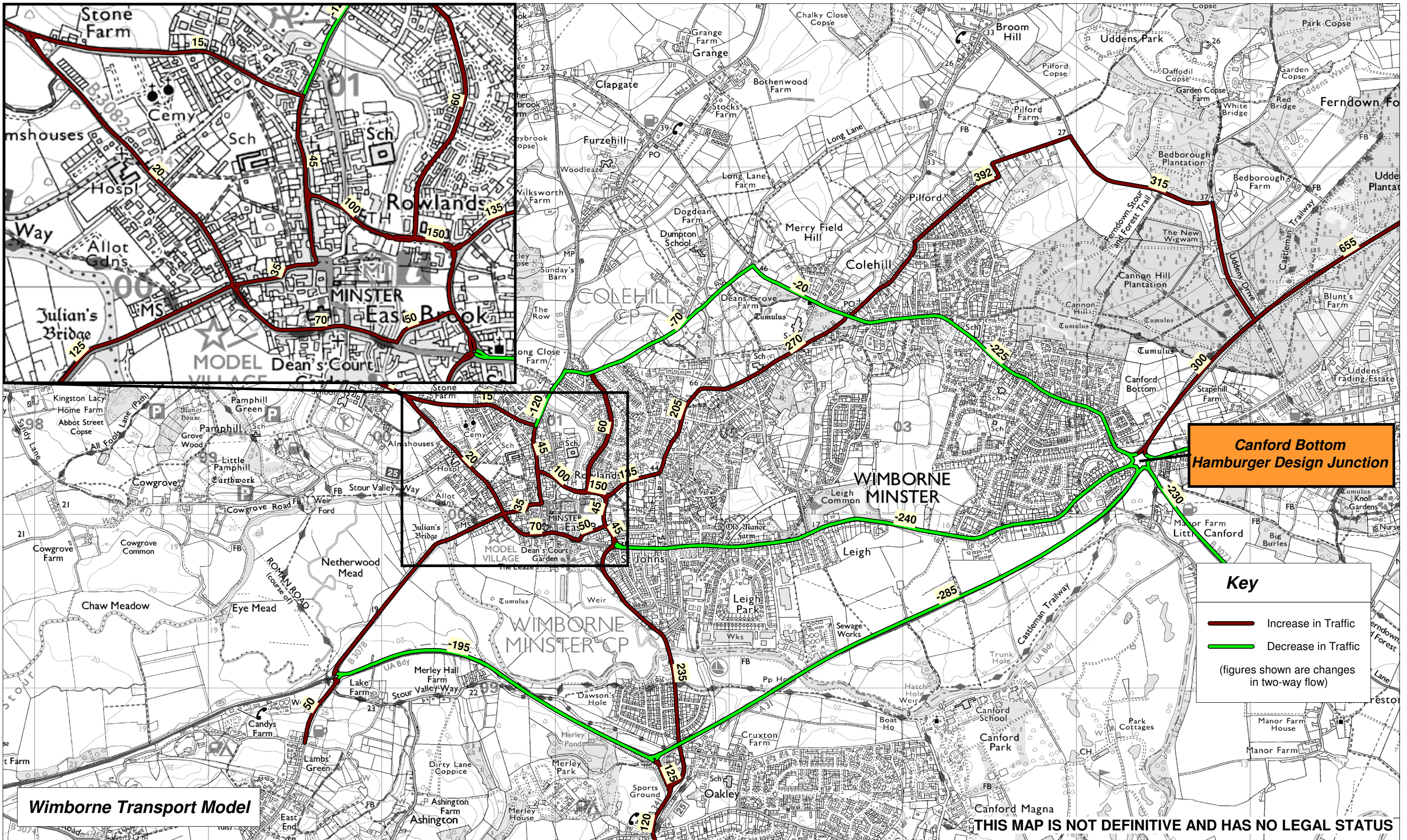
**Figure 4 - Peak Hour Traffic Flow Changes (2026 Option I - compared to Option A)**

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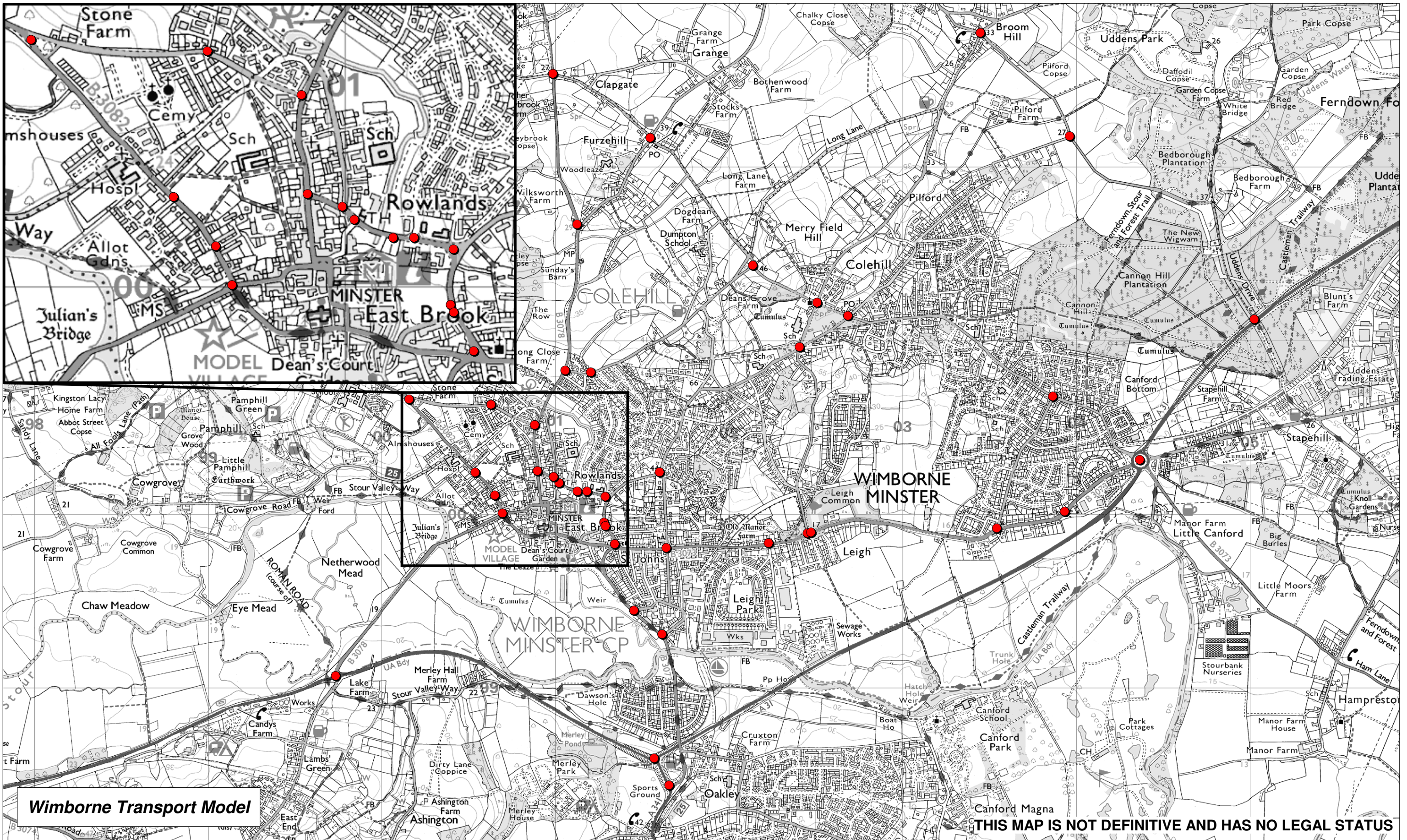
**Figure 5 - Peak Hour Traffic Flow Changes (2026 Option J - compared to Option I)**

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**Figure 6 - Analysed Junction Locations**

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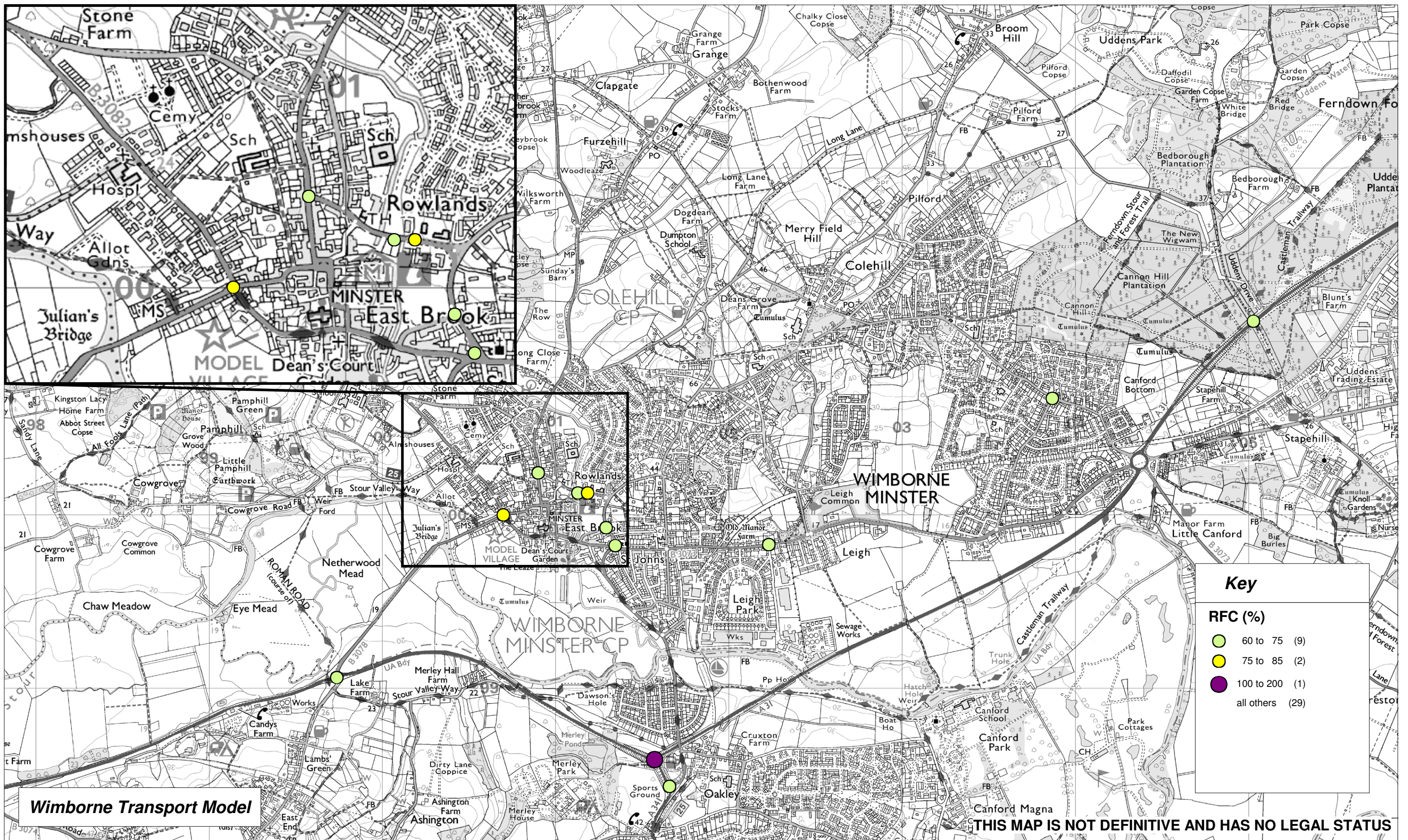
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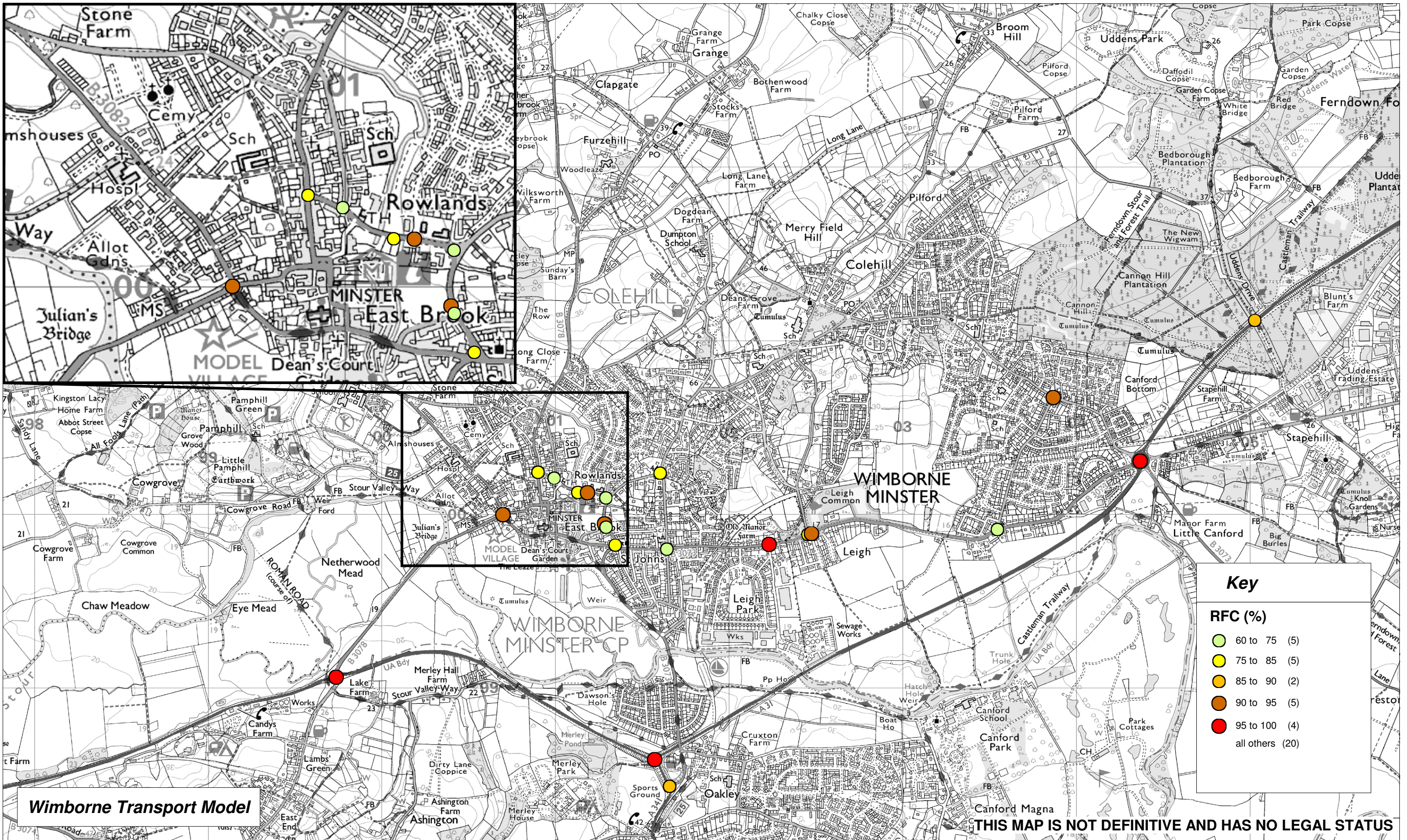
**Figure 7 - Junction Ratio Flow/Capacity (2008 Base)**

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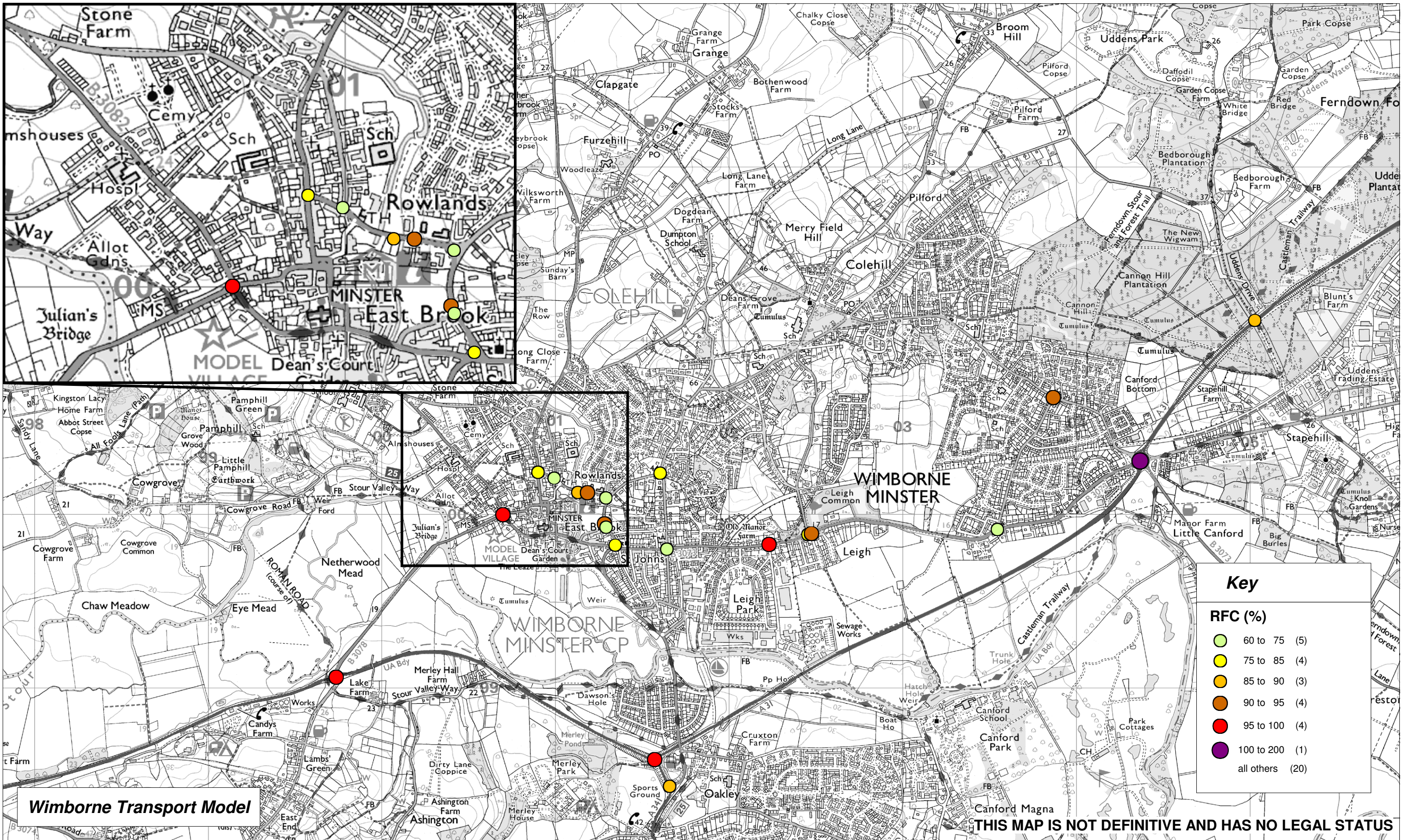
**Figure 8 - Junction Ratio Flow/Capacity (2026 Option A)**

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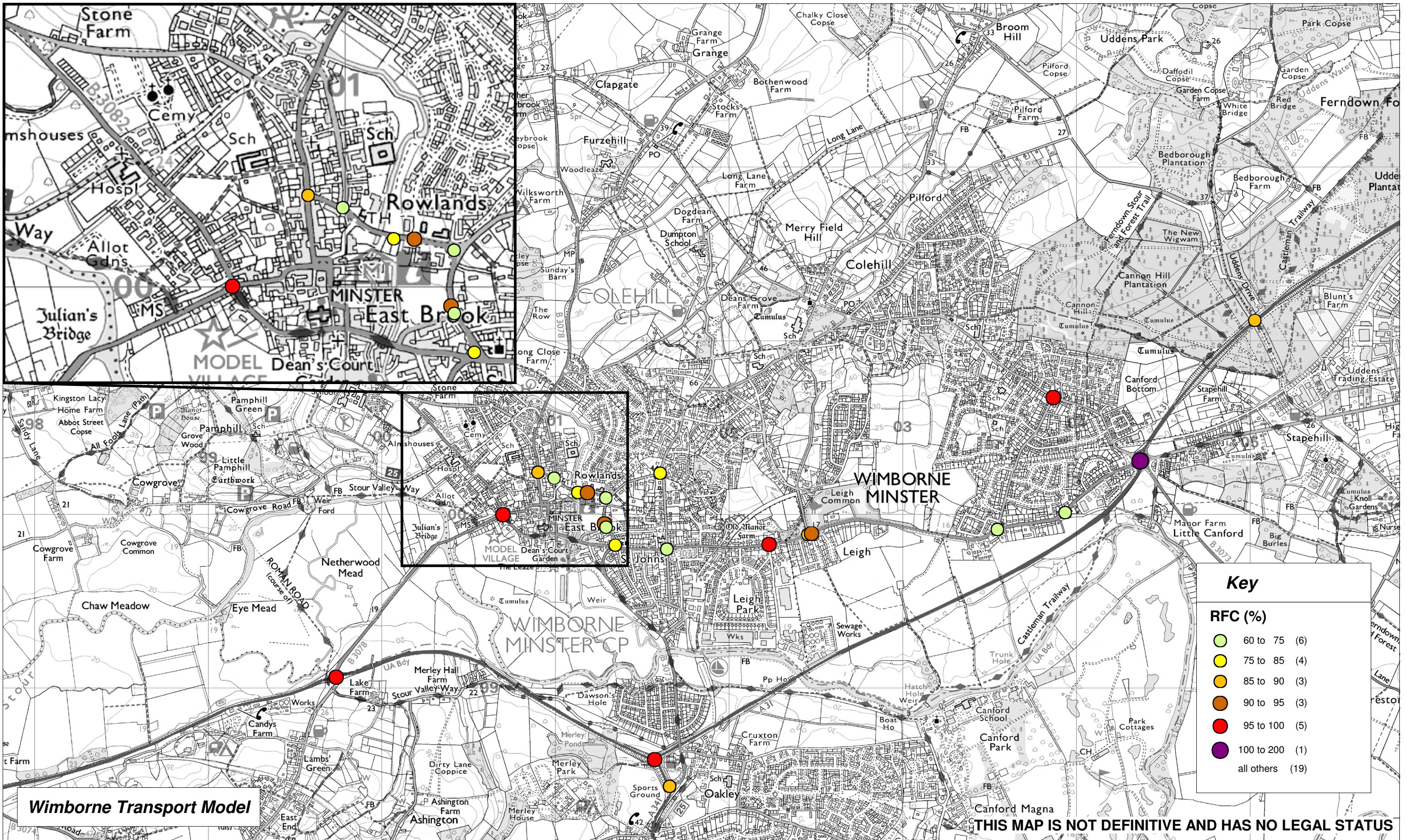
**Figure 9 - Junction Ratio Flow/Capacity (2026 Option B)**

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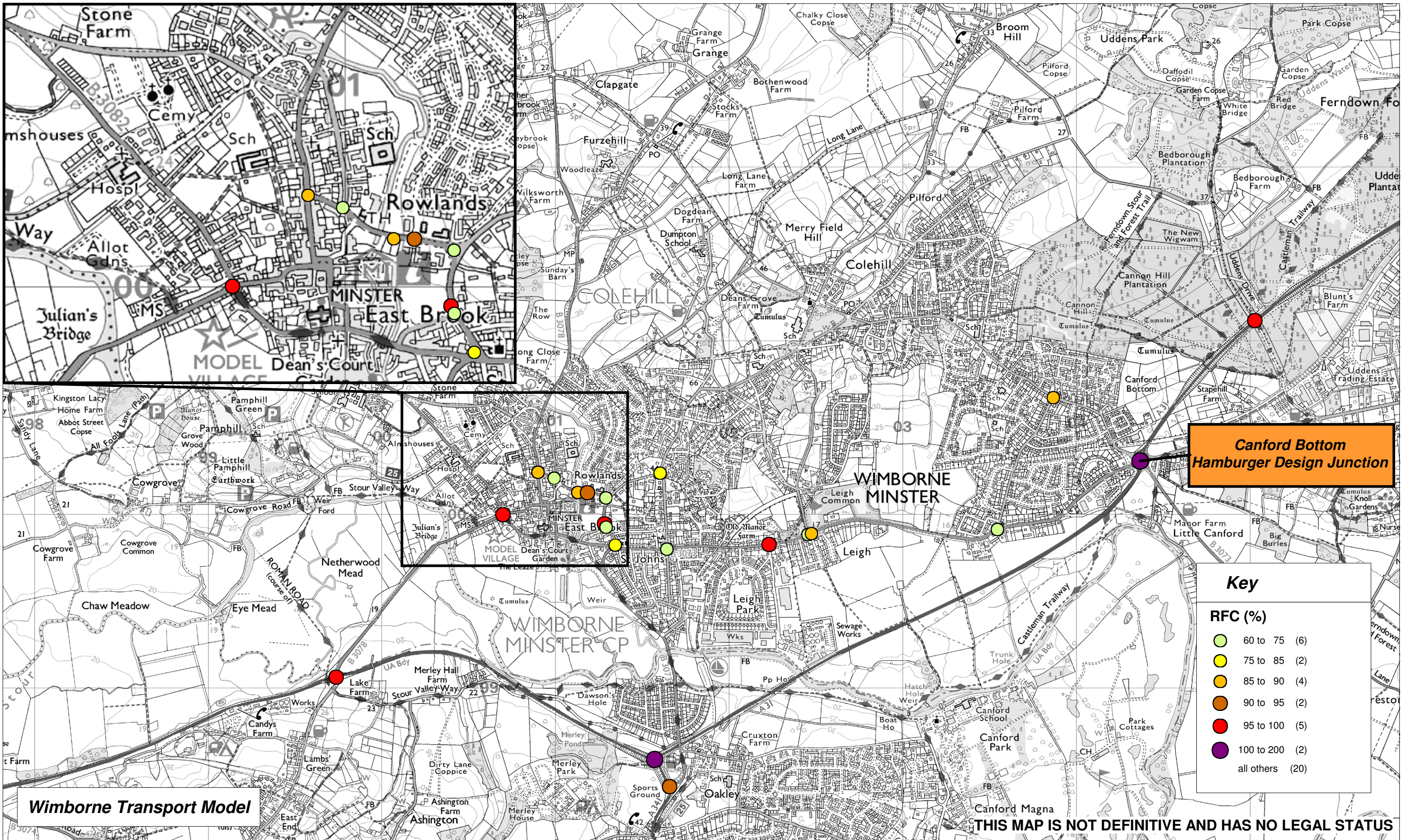
**Figure 10 - Junction Ratio Flow/Capacity (2026 Option C)**

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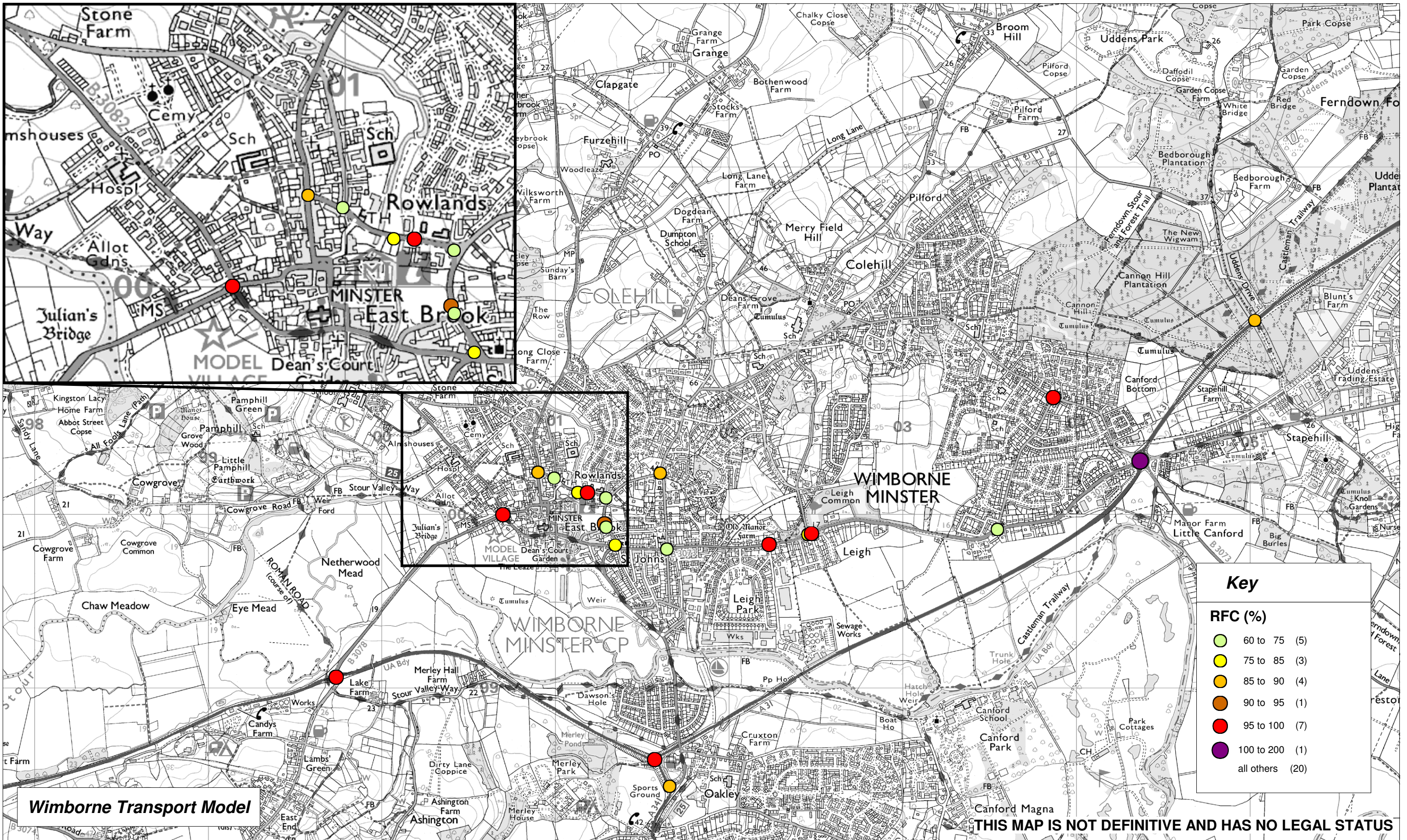
**Figure 11 - Junction Ratio Flow/Capacity (2026 Option D)**

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Wimborne Transport Model

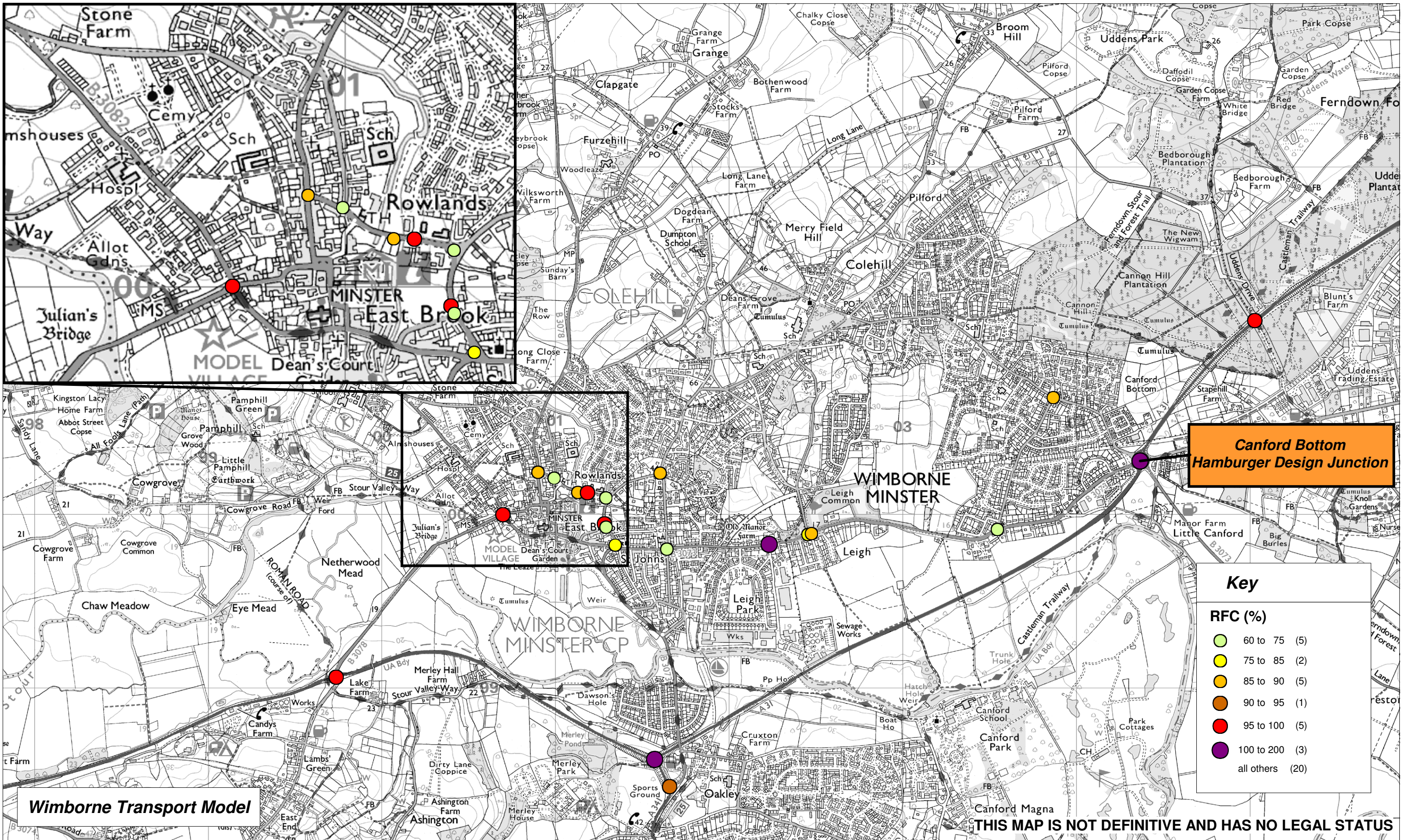
Figure 12 - Junction Ratio Flow/Capacity (2026 Option E)

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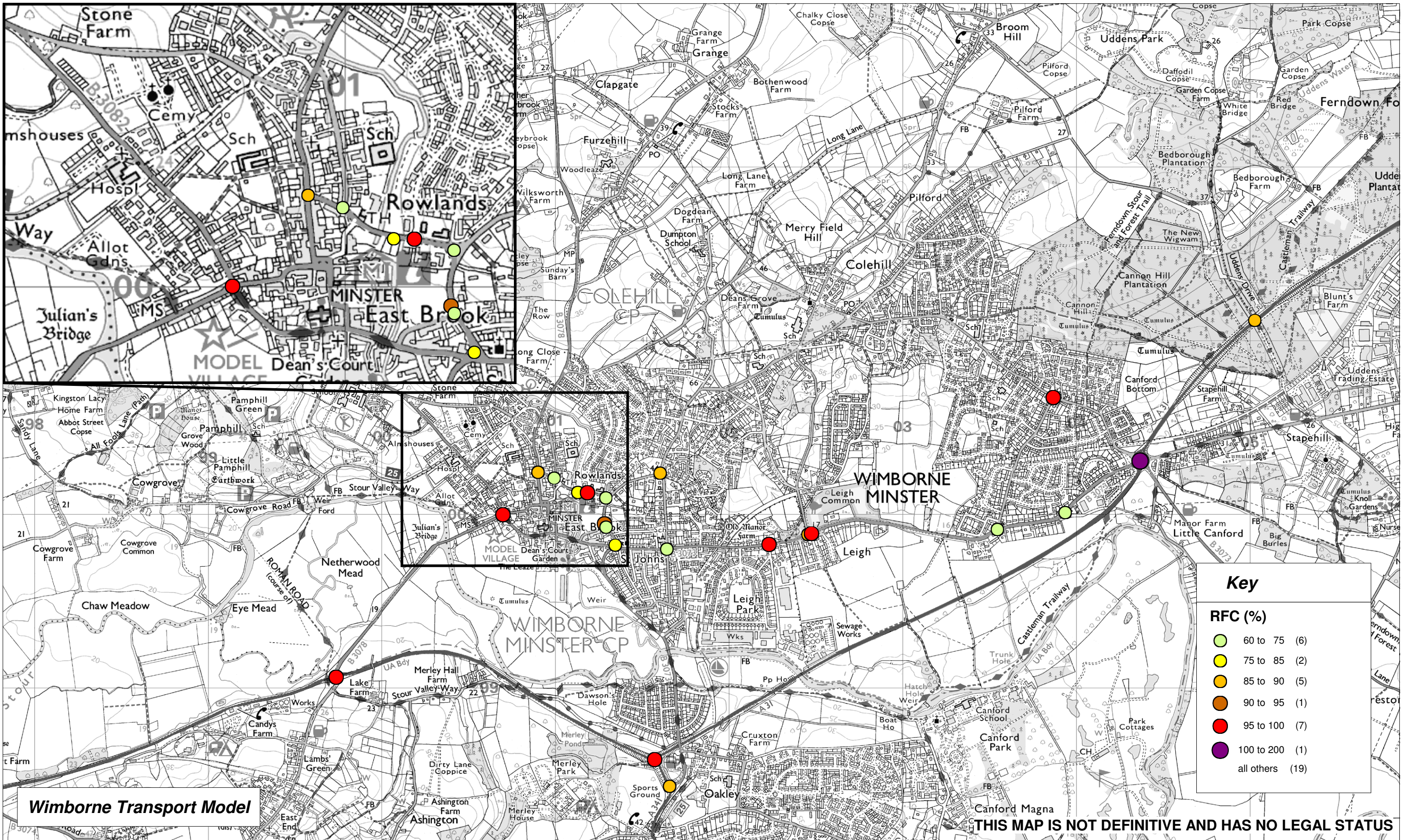
**Figure 13 - Junction Ratio Flow/Capacity (2026 Option F)**

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**Figure 14 - Junction Ratio Flow/Capacity (2026 Option G)**

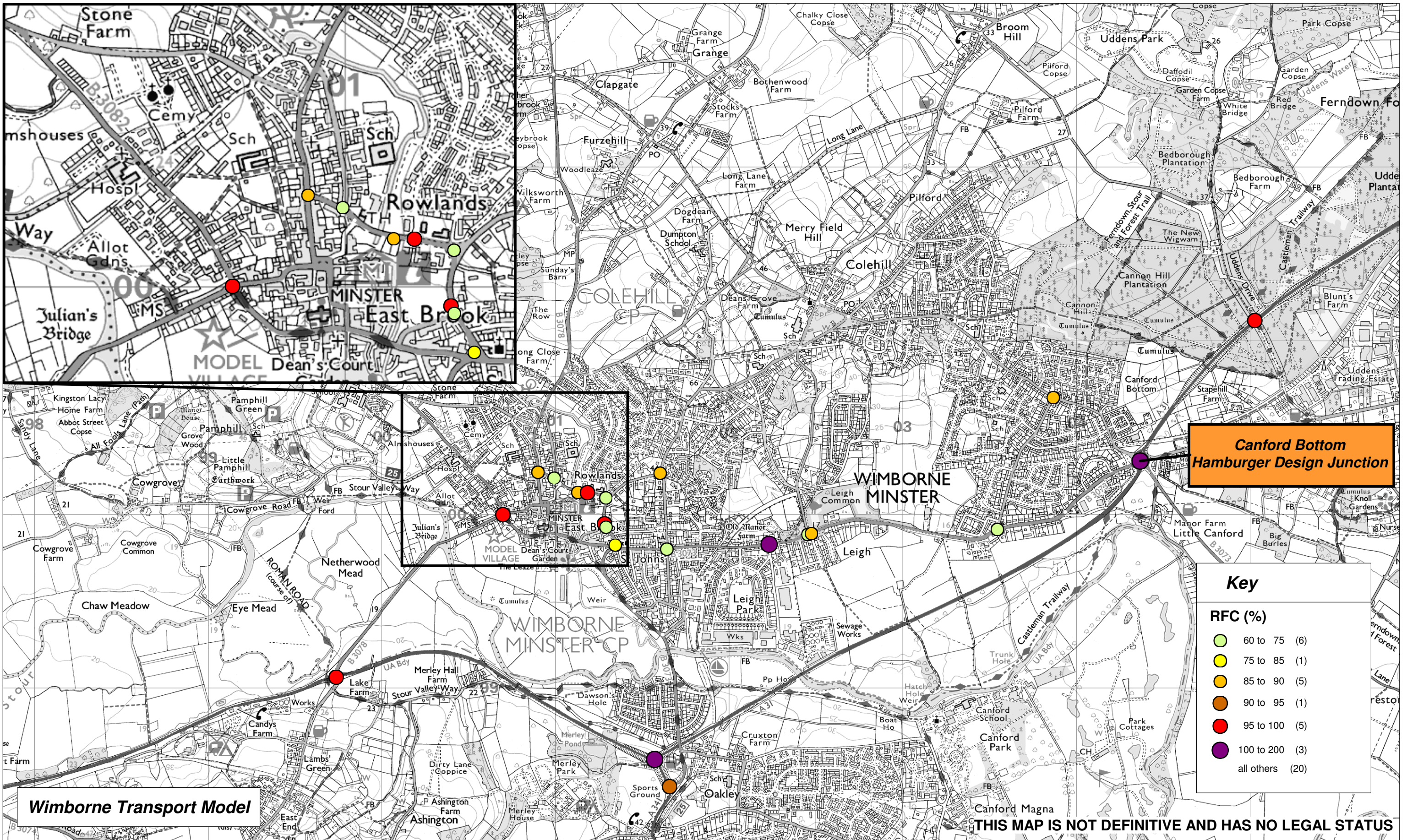
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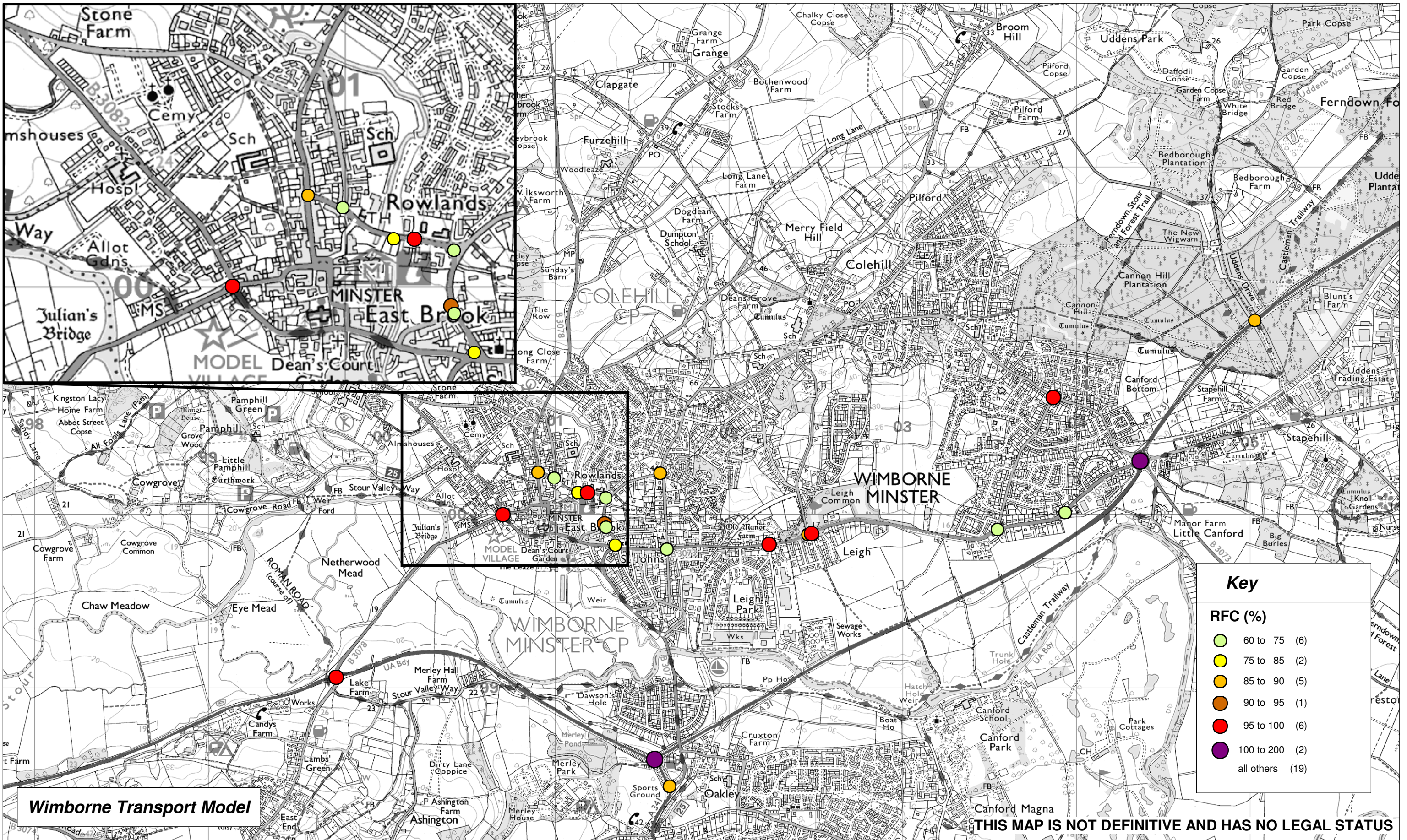
**Figure 15 - Junction Ratio Flow/Capacity (2026 Option H)**

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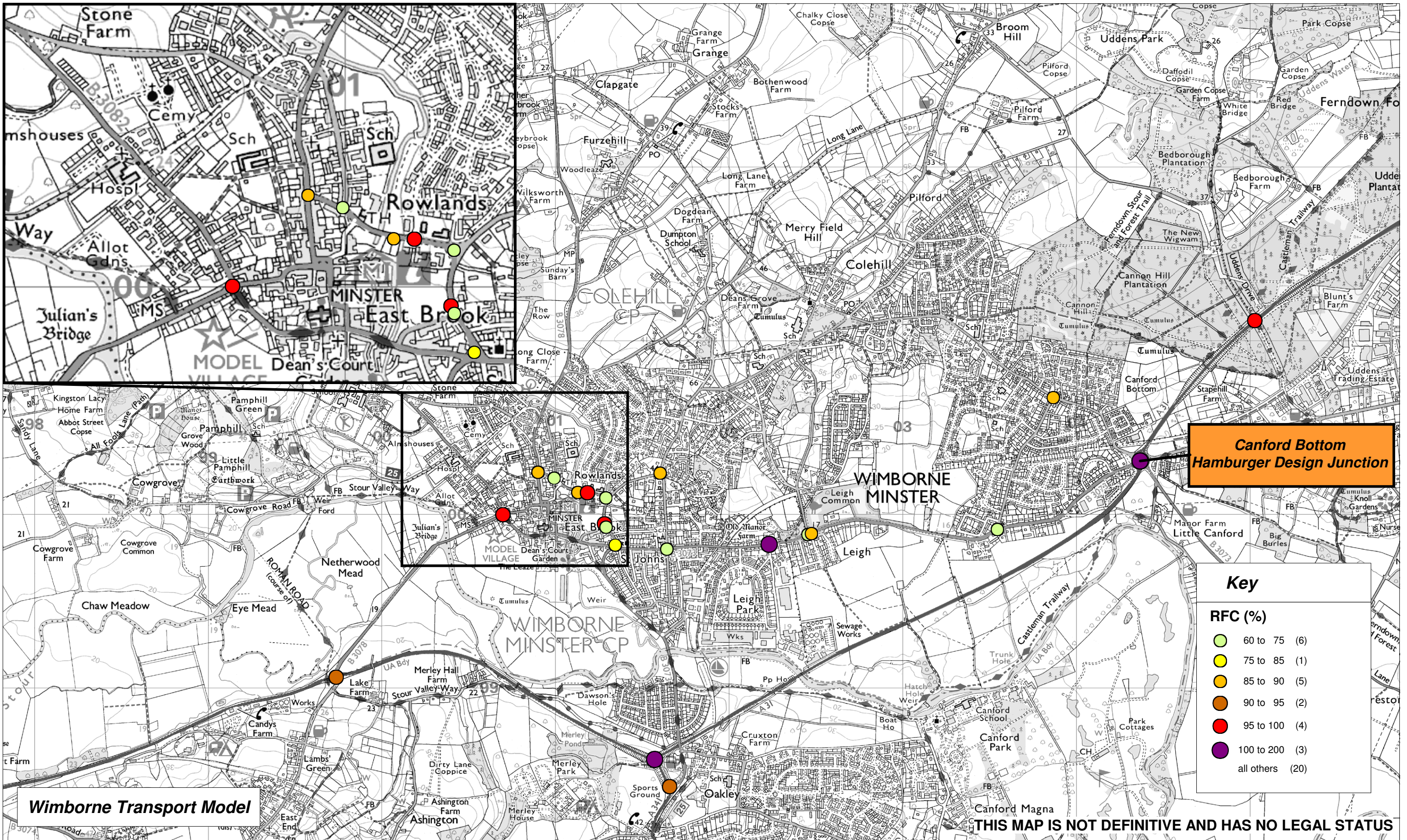
**Figure 16 - Junction Ratio Flow/Capacity (2026 Option I)**

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**Figure 17 - Junction Ratio Flow/Capacity (2026 Option J)**

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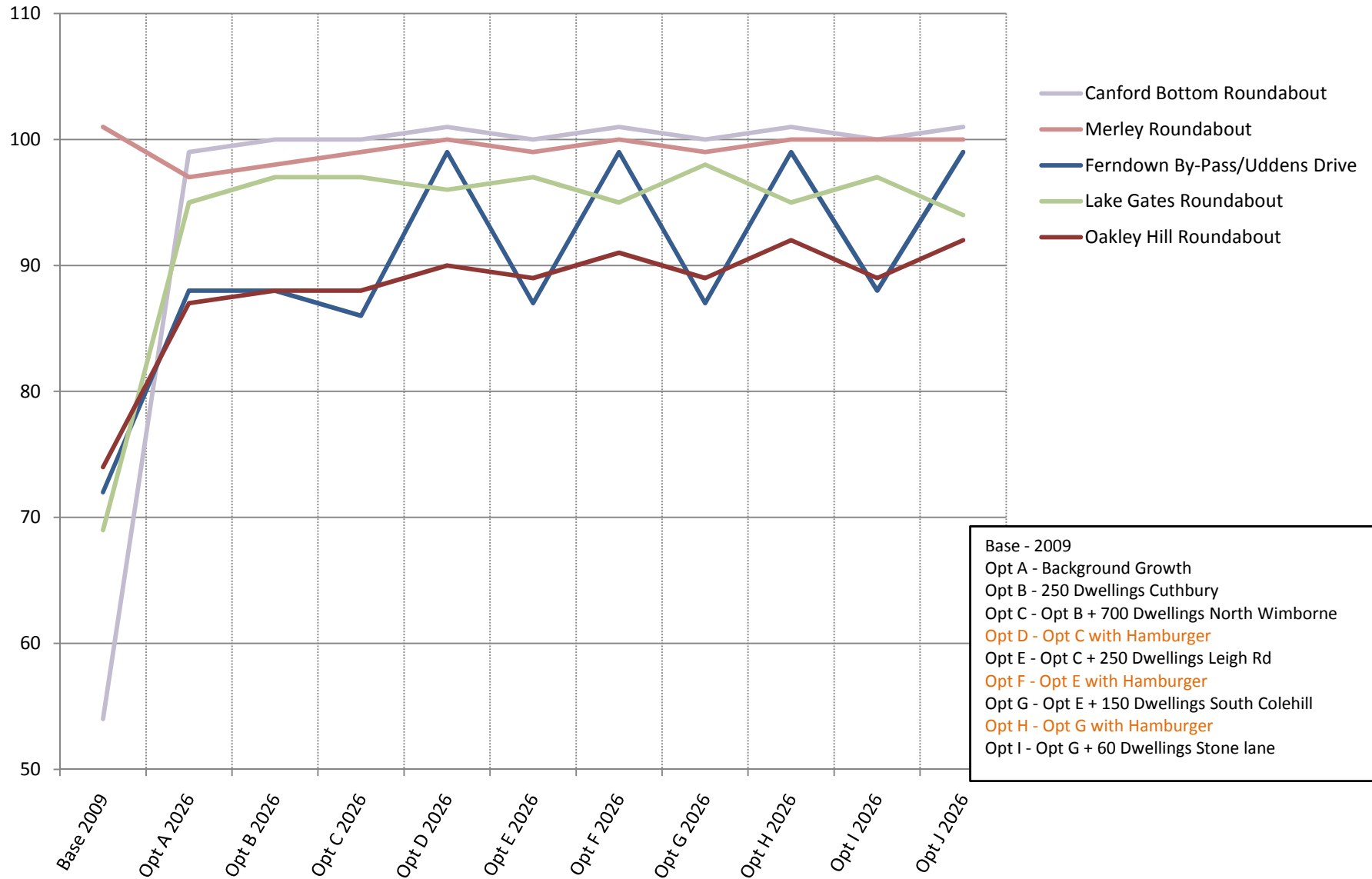
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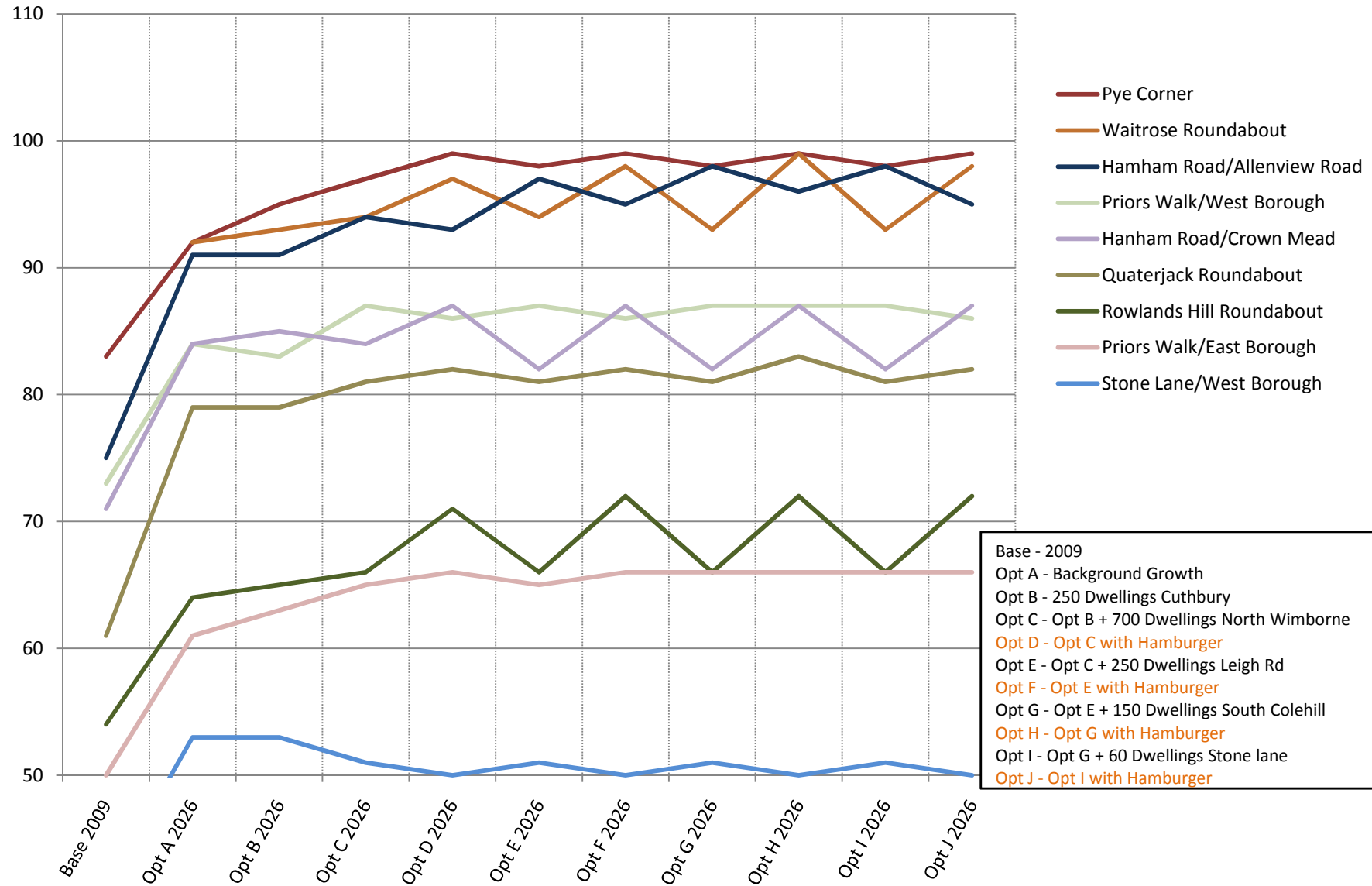
# CHARTS

**Chart 1 : A31 Trunk Road - Junction RFC's**



Base - 2009  
 Opt A - Background Growth  
 Opt B - 250 Dwellings Cuthbury  
 Opt C - Opt B + 700 Dwellings North Wimborne  
 Opt D - Opt C with Hamburger  
 Opt E - Opt C + 250 Dwellings Leigh Rd  
 Opt F - Opt E with Hamburger  
 Opt G - Opt E + 150 Dwellings South Colehill  
 Opt H - Opt G with Hamburger  
 Opt I - Opt G + 60 Dwellings Stone lane

**Chart 2 : Wimborne Town Centre - Junction RFC's**



**Chart 3 : Wimborne Suburbs- Junction RFC's**

