

WIMBORNE TRANSPORT MODEL

SATURN MODEL

OPTION TESTING
NON-TECHNICAL REPORT

CONTENTS

	CHAPTER	PAGE
1.0	INTRODUCTION	3
2.0	OPTION TESTING RESULTS	
	Area wide impacts and traffic growth	4
	Local Impacts	5
3.0	CONCLUSIONS	7

APPENDICES

Appendix A - Wimborne SATURN model study area.

Appendix B - Wimborne SATURN model. Option testing scenarios

Appendix C - Wimborne PARAMICS model study area

Detailed reports relating to the Wimborne SATURN model

Wimborne Transport a Model – Local Model Validation Report (Doc Ref. DC5182_J003_01Rev0)

Wimborne Transport a Model – Option Testing Summary Report (Doc Ref. DC5182_J006_01Rev0)

1.0 Introduction.

1.1 In 2010 Dorset Engineering Consultancy produced a traffic model of the Wimborne area for a base year of 2008. The study area is shown in Appendix A. A series of tests were undertaken on this model analysing the impact of a range of development scenarios to support the development of the Christchurch and East Dorset Core Strategy. The impacts were analysed for future years of 2016 and 2026 and the results were fully reported in the Option Testing Summary Report. This Non-Technical Report summarises the outcomes of that work.

1.2 Ten development option scenarios, reflecting the emerging Core Strategy were examined. These options are outlined below and shown on the location map in Appendix B:

Option A - considers general background growth based upon TEMPRO growth factors and information provided by East Dorset District Council regarding committed developments and expected in-fill developments in the future years.

Option B - Option A plus 250 dwellings at Cuthbury allotments.

Option C - Option B plus 700 dwellings split between Wimborne North sites A and B.

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

Option E - Option C plus 250 dwellings south of Leigh Road.

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

Option G - Option E plus 150 dwellings south of Colehill.

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.

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

1.3 The above options were incrementally applied to the model with the earlier options being those considered likely to come forward sooner.

1.4 For the purposes of this report the AM and PM Peaks for 2026 were considered, thus giving the worst case impact on specific routes and junctions within the model

Area wide impacts and traffic growth

- 2.1 Initially the impact of anticipated background growth was assessed (Option A). The background growth was based upon Government Projections and known committed developments approved by East Dorset District Council.
- 2.2 The Option A model suggests that 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
- 2.3 Traffic for the proposed development options (B to I) was then placed on the general growth model. Traffic incrementally increases up to the maximum impact scenario of Option I, which was used to assess the global impacts for this report.
- 2.4 The Option I model suggests that full development will increase traffic, over and above the background growth, throughout the study area. The level of traffic increases significantly in close proximity to the development sites before dispersing as it reaches the outer extents of Wimborne, with only minor increases of traffic on the Wimborne By-Pass. Increases in excess of ten vehicles in the peak hour were observed on:
- (numbers in brackets indicate increase in vehicle numbers)
- Leigh Road (45) / Wimborne Road West (120)
 - Ferndown (90) and Wimborne (30) By-Passes, A31
 - Julian's Road (160)
 - Rowlands Hill (55)
 - Northleigh Lane (55)
 - Burt's Hill (150)
 - Middlehill Road (75)
 - Uddens Drive (65)
 - Ham Lane (60)
 - Allenvie Road (100)
 - Town Centre Area (35)
 - St.Margaret's Hill/Victoria Road (170)
 - Stone Lane (50)
 - West Borough/Cranborne Road (105)
 - Furzehill (30)

- Poole Road/Oakley Hill (85)
- 2.5 The development scenarios were then tested with Canford Bottom Roundabout being altered to a Hamburger Configuration as proposed by the Highways Agency. The worst case development scenario with Hamburger arrangement, Option J, was used to assess the global impacts.
- 2.6 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 when compared with Option I. The provision of the Hamburger improved the throughput of the Trunk Road traffic although delays to local traffic wanting to utilise this junction meant that traffic was shown to re-route.
- 2.7 The intention is to examine the impact of the Canford Bottom improvements in the second half of 2012 following completion of the works and the Olympic/Paralympic events.

Localised Impacts

- 2.8 This section reports on traffic impacts at specific junctions within the model. Junctions shown as approaching theoretical capacity are identified. It should be noted that these modelled RFC flows are based upon the SATURN rather than through specific junction assessment tools such as ARCADY and PICADY which may, in some instances result in an underestimation of the impact. It is suggested that detailed junction modelling is undertaken when individual developments are considered in greater detail.
- 2.9 Junctions where there is some concern regarding capacity for the base year and Option A, background growth are;

Base Year

- Merley Roundabout (A31 T)
- Pye Corner (mini-roundabout)
- Hanham Road/Allenvie Road (mini-roundabout)

Option A

- Leigh Road/Brook Road (signals)
- Merley Roundabout (A31 T)
- Lake Gates Roundabout (A31 T)
- Canford Bottom Roundabout (A31 T)
- Pye Corner (mini-roundabout)
- Hanham Road/Allenvie Road (mini-roundabout)
- Waitrose (mini-roundabout)
- Middlehill Road/Hayes Lane
- Leigh Road/Parmiter Drive
- Ferndown By-Pass/Uddens Drive (right turn lane) (A31 T)
- Oakley Roundabout
- Hanham Road/Crown Mead (mini-roundabout)
- West Borough/Priors Walk
- Quaterjack Roundabout
- Leigh Road/Northleigh Lane

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

2.10 The following sections outline the impacts of development options in addition to those junctions identified

Option B

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.

Option C

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 slightly.

Option D

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. Slight improvements were predicated at Leigh Road/Ham Lane, Leigh Road/Northleigh Lane, Middlehill Road/Hayes Lane and Leigh Road/Parmiter Drive. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road.

Option E

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.

Option F

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 junction. However, the junctions at Middlehill Road/Hayes Lane and Leigh Road/Parmiter Drive show slight improvement. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road.

Option G

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.

Option H

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 junction. However, the junctions at Middlehill Road/Hayes Lane, Leigh Road/Northleigh Lane, Wimborne Road West/Ham Lane and Leigh Road/Parmiter Drive improve. These improvements are due to the reduction of traffic travelling on Middle Hill and Wimborne Road West/Leigh Road.

Option I

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

Option J

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.

Conclusions

- 3.0 Options D, F, H and J, which include the Canford Bottom improvements, show a significantly different pattern of traffic impact when compared with Options C, E, G and I which show the same development scenarios without the Canford Bottom Improvements. Further examination of the Canford Bottom roundabout, currently being constructed, is likely to be required. This work is likely to be undertaken in the later half of 2012 following completion of the roundabout and after the Olympic / Paralympic period.
- 3.1 When this update of the model is undertaken it will also be possible to update the development sites tested to reflect the current draft Core Strategy. It is considered that the current pattern of proposed development within the Core Strategy is not significantly different from that modelled and that the results of

the existing modelling work can therefore provide some useful guidance as to the likely major points of impact.

- 3.2 Notwithstanding the above comments, it is clear that traffic from proposed development sites within and around Wimborne will impact on several key junctions within the town. These junctions will require further analysis as development proposals are advanced and, if necessary, mitigation packages will need to be secured to overcome the detrimental traffic impact of development.
- 3.3 In addition to the SATURN model of the Wimborne area, a PARAMICS micro-simulation model was produced for one of the major corridors within the town (Appendix C). This model will enable a better picture of traffic impact on this corridor to be obtained although no development scenarios have yet been analysed.

Appendix A
Wimborne SATURN model study area.



FIGURE 1 - Wimborne Study Area

Ref:
Date: 06/11/2009
Scale: 1:36136
Drawn By: NSR
Cent X: 401585
Cent Y: 100607

GEOGRAPHICAL INFORMATION SYSTEMS

DORSET
County Council

© UK Perspectives.com 2002 & © Getmapping.com 2005
 © Crown Copyright 2009. OS License Number: 100019790

Appendix B
Wimborne SATURN model
Option testing scenarios

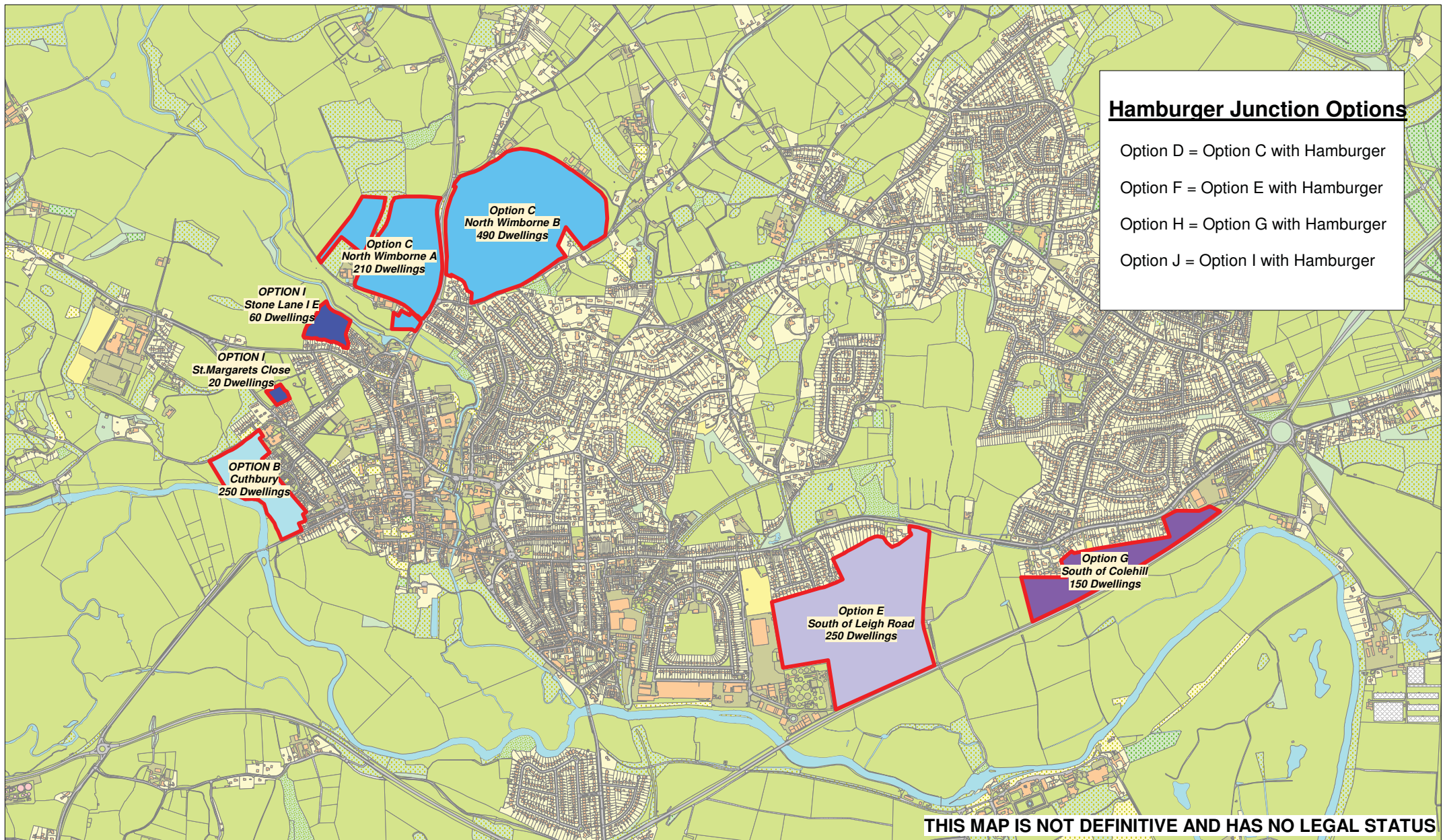



Figure 2 - Option Testing Scenarios

Ref:
Date: Fri 22/10/2010
Scale: 1:20000
Drawn By:
Cent X: 402178
Cent Y: 100346

GEOGRAPHICAL INFORMATION SYSTEMS



DORSET
County Council

© UK Perspectives.com 2002 & © Getmapping.com 2005
 © Crown Copyright 2010. OS License Number: 100019790

Appendix C
Wimborne PARAMICS model study area

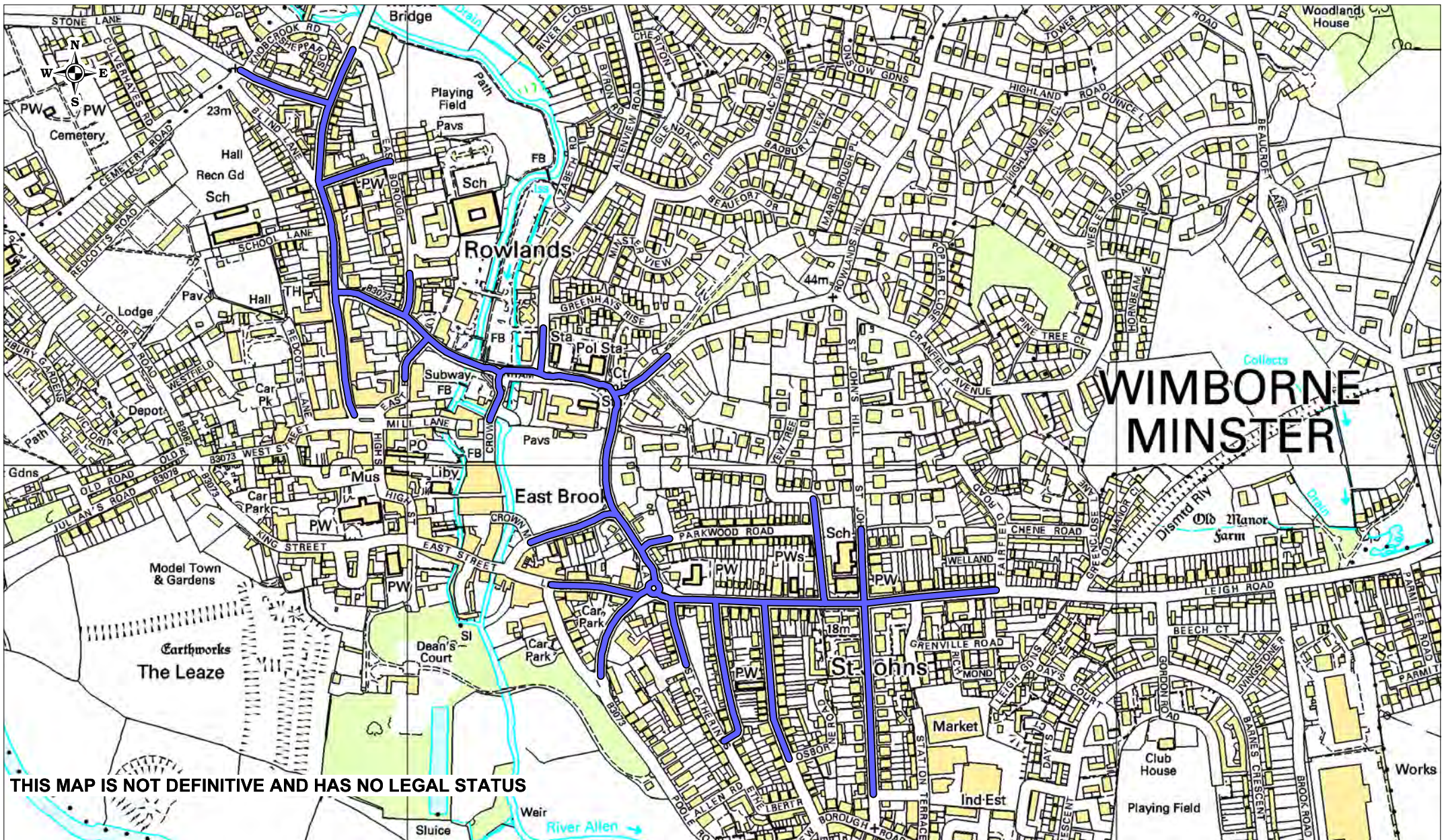


Figure 3 : Wimborne Paramics Network

Ref:
Date: 12/01/2010
Scale : NTS
Drawn By: MGM
Cent X: 401444
Cent Y: 100059

GEOGRAPHICAL INFORMATION SYSTEMS

DORSET
 County Council

© UK Perspectives.com 2002 & © Getmapping.com 2005
 © Crown Copyright 2010. OS License Number: 100019790