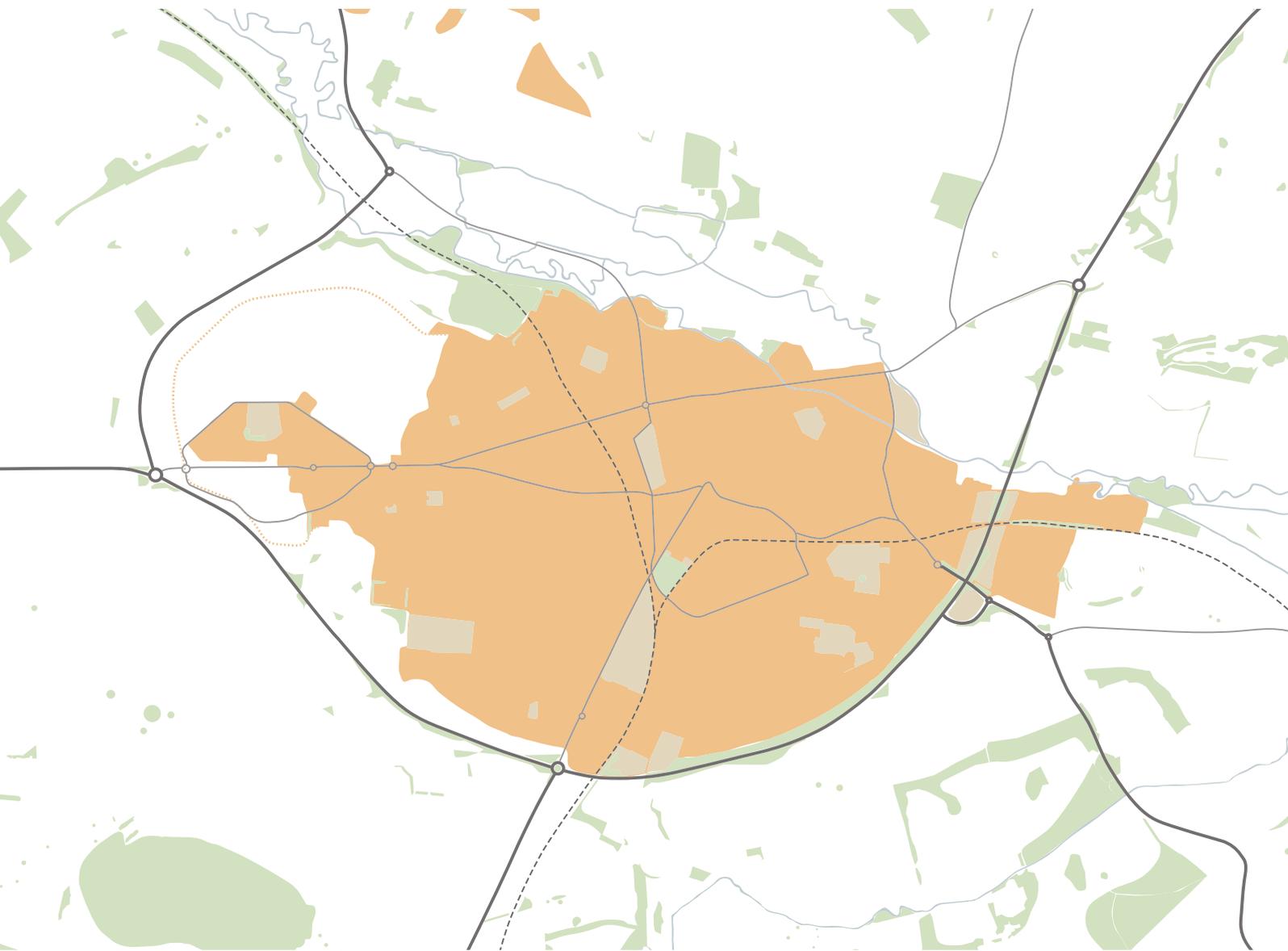


Dorchester Park + Ride

Stage 1 Report Feasibility Study

September 2010



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CC 028088 Stage One Report 01.doc

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author **Chris Catterall**

signature



date **24/09/2010**

approved **Tim Denton**

signature



date **24/09/2010**

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Appendix C - Network Rail Consultation 2010

Appendix D - Groundwater Source Protection Zones

Appendix E - Rendel Geotechnics Mapping of Ephemeral Stream

Appendix F – Transportation SATURN Model Results

1 Introduction

1.1 Project Overview

Dorset County Council commissioned a multidisciplinary design team including Buro Happold, Parsons Brinckerhoff and Lacey Hickie Caley (LHC) to undertake a study looking at opportunities for a permanent Park and Ride site in Dorchester.

An initial inception meeting was held on the 21st July 2010, where the structure of the project was agreed. The project is divided into two stages. The objectives for both stages are identified below:

- Stage 1: Identification of Preferred Option:
 - Review the need for a Dorchester Park and Ride;
 - High level appraisal of the potential Park and Ride sites (maximum 5 sites under consideration);
 - Identification of preferred site.
- Stage 2: Indicative Masterplan for preferred site:
 - Generate Masterplan layout options;
 - Identify strategies for mitigating the impact of the site;
 - Provide indicative infrastructure costing for the project.

The objectives for Stage 1 are met in this report, whilst Stage 2 is delivered as a separate report.

The Park and Ride site needs to meet the following basic criteria:

- Provide 950 car parking spaces;
- 20 coach parking spaces;
- 20 cycle lockers;
- Basic amenities such as waiting facilities;
- Opportunity to coordinate with a trunk road service area, if appropriate.

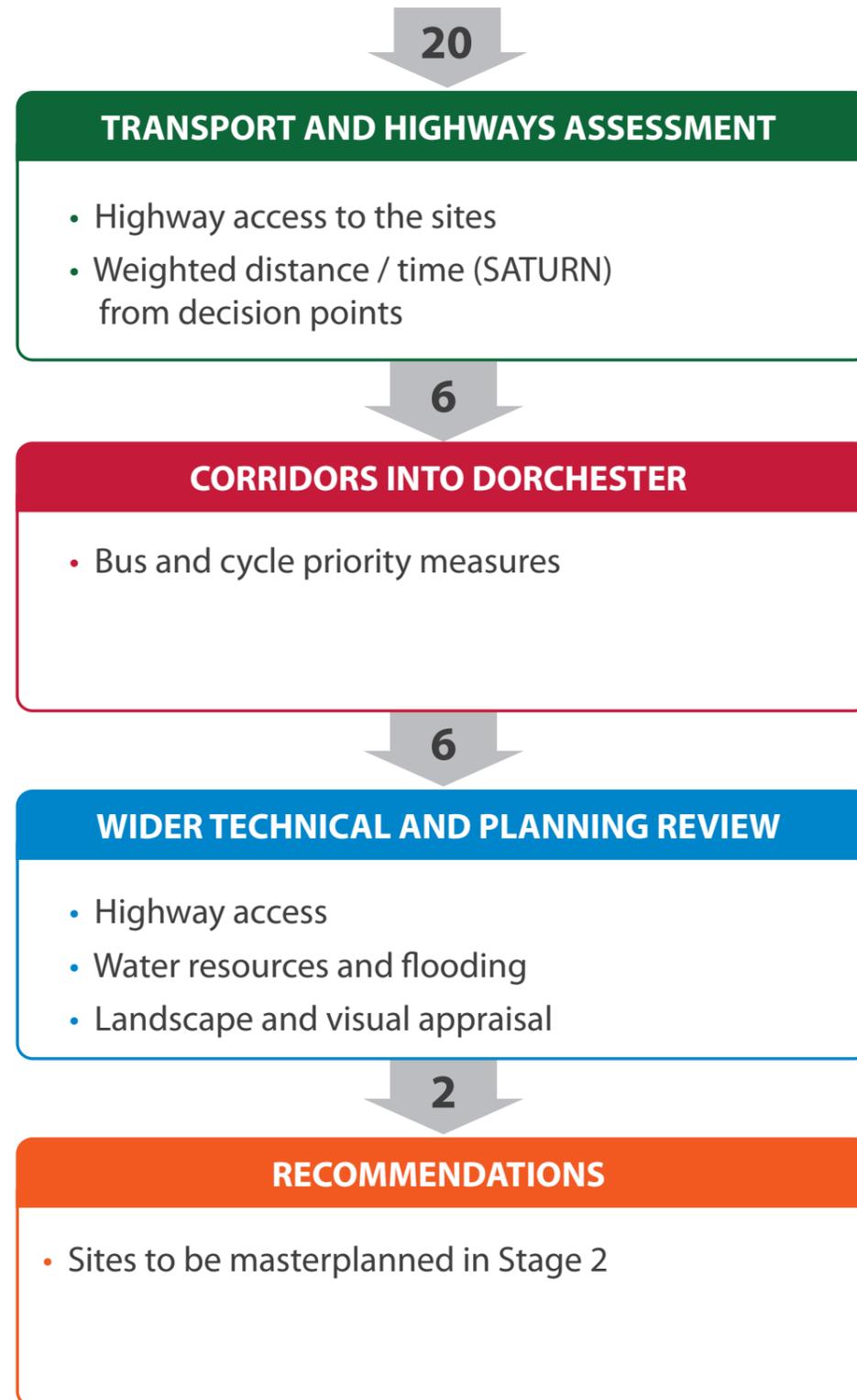
1.2 Methodology Synopsis

This report is structured to consider firstly the justification for Park and Ride in Dorchester which provides the basis for the study. The need for a Park and Ride site in Dorchester is embedded within West Dorset District Councils policy.

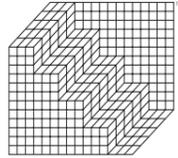
Twenty potential Park and Ride sites have been identified by West Dorset District Council, illustrated later in this report in Figure 4-1. In order to rationalise the list of sites for further assessment, an initial sifting exercise has been undertaken considering the transport and highways merits of each site. As the fundamental objective of the site is to provide an operational Park and Ride it is considered appropriate that only sites that can best fulfil this requirement be considered. On the basis of the transport and highways assessment six sites are identified for more detailed consideration.

An assessment of the corridors, and their suitability to be used for a Park and Ride bus route, is undertaken for each of the six sites. In addition, a detailed assessment focusing on landscape, ground and surface water, and more detailed highways and transport issues is undertaken. On this basis, it is recommended that two sites be masterplanned in Stage 2. The methodology described is illustrated in Figure 1—1.

DORCHESTER PARK & RIDE - STUDY APPROACH AND METHODOLOGY



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PROJECT
DORCHESTER PARK AND RIDE

DRG
**STUDY APPROACH AND
METHODOLOGY**

DRAWN BY	BH
DATE	07 SEP 2010
JOB NO.	0208088
DRG NO.	FIGURE 1-1

1.3 Structure of Report

The structure of this report is as follows:

- Chapter 2 – Justification, Reviews relevant local policy, census data and current travel patterns to confirm the need for a Park and Ride site.
- Chapter 3 – Previous Studies, Reviews past studies looking at the potential for Park and Ride and bus priority measures in Dorchester.
- Chapter 4- Initial Sift of Sites, Identifies the methodology used to rank the twenty sites in terms of the number of vehicle kilometres each site would generate on the road network and results of the SATURN modelling. In parallel, an assessment of access to each of the sites, and opportunities for bus priorities measures is made.
- Chapter 5 – Identification of Preferred Sites, Sets out six sites for further detailed assessment based on the outcome of the initial sift of sites in Chapter 3.
- Chapter 6 – Evaluation of Preferred Sites, Includes more detailed evaluation of the preferred sites focusing specifically on landscape, surface and ground water, and transport issues.
- Chapter 7 – Summary and Recommendations, Considers the findings of the previous chapters and makes a recommendation for Stage 2.

2 Justification

2.1 Introduction

This section considers relevant policy, national census data and existing travel patterns to review the need for a Park and Ride site in Dorchester.

2.2 Existing Park and Ride Service

A temporary Park and Ride service currently operates between Dorchester Town Football Club and County Hall. This provides 217 car parking spaces at present and the cost to use the service is £1 per car. Park and Ride buses operate between Monday and Friday except on bank holidays.

The service starts at Dorchester Town Football Club and is routed along Weymouth Avenue, Maumbury Road, Cornwall Road, Albert Road and The Grove, before dropping off near to the library at County Hall.

The first two buses depart the Football Club at 0715 and 0745. After this, there is a service every quarter of an hour until 1800. Return buses also operate on a 15 minute frequency, with the last bus leaving County Hall at 1815.

2.2.1 Dorchester Parking Strategy (2007)

West Dorset District Council adopted the Dorchester Parking Strategy in March 2007. This identified the existing and future supply and demand for Town Centre parking. The Parking Strategy was based on a modelling exercise using the transport model (SATURN) developed by Dorset Engineering Consultancy (DEC) for the Dorchester Transport and Environment Plan (DTEP) project and surveys undertaken in the summer of 2006. The model was used to establish the impact of high and low traffic growth on the town's road network and parking demand for the future year of 2017.

The details of the existing parking supply and survey work underpinning the Parking Strategy are set out below.

The scale of the existing public off-street parking supply in Dorchester Town Centre, including the temporary Park and Ride site located at The Football Ground is shown in Table 2—1.

Car Park	Market Day (Wednesday)				Non Market Days (Mon, Tue, Thu, Fri)			
	Short stay Spaces	Long Stay Spaces	Total Spaces	Coaches	Short stay Spaces	Long Stay Spaces	Total Spaces	Coaches
Top o' Town	20	205	225	10+4	20	205	225	10
Trinity Street	282	0	282	12+2	311	0	311	4
Fairfield	136	0	136		146	486	632	2
Charles Street	495	0	495		495	0	495	
Wollaston Field	12	155	167		12	155	167	
Durngate Street	0	50	50		0	50	50	
Park & Ride	0	217	217		0	0	0	
Total Spaces	945	627	1572	28	984	896	1880	16

Table 2—1 Current Town Centre Public, Off-street Parking Stock

There are an additional 136 On-street parking spaces that are controlled by Dorset County Council in Dorchester Town Centre.

To assess the current use of the off-street car parks, a parking survey has been undertaken. Table 2—2 summarises the results of the survey, these are expressed as number of empty spaces during the peak period.

Car Park	Market Day (Wednesday)				Non Market Days (Mon, Tue, Thu, Fri)			
	Short Stay Spaces	Long Stay Spaces	Total Spaces	Coaches	Short Stay Spaces	Long Stay Spaces	Total Spaces	Coaches
Top o' Town	0	0	0	1	3	1	4	6
Trinity Street	11		11	0	109		109	0
Fairfield	0	0	0		125	179	304	
Charles Street	24		24		66		66	
Wollaston Field	0	0	0		3	3	6	
Durngate Street		0	0			5	5	
Park and Ride		153	153					
Total Spaces	35	153	188	1	306	188	494	6

Table 2—2 Survey of Current Usage of Off Street Parking

Table 2—2 shows that on the non market day surveyed, there were 306 short stay and 188 long stay spaces not in use. On street parking charges have recently been introduced in Dorchester which anecdotally is believed to have caused a higher level of usage of spaces at the Fairfield car park.

The predicted level of demand for parking, given high and low traffic growth, in 2017 is shown in Table 2—3.

Scenario	2017 Predicted Car Parking Demand				
	Increase in Number of Spaces		Total Number of Spaces		
	Short Stay	Long Stay	Short Stay	Long Stay	Total
Low Growth	311	88	1257	715	1971
High Growth	595	168	1540	796	2335
Average Growth	454	128	1398	756	2154

Table 2—3 Traffic Modelling Results

Table 2—3 shows the additional spaces required to meet the predicted demand in 2017 on market days ranges from 311 to 595 short stay spaces, and 88 to 168 long stay spaces.

On non market days, assuming that the same pattern applies, the additional demand for spaces shown in Table 2—3 reduces because of the spare parking capacity shown in Table 2—2. Therefore the demand for short stay spaces on non market days is between 6 and 289, whilst demand for long stay spaces is between 19 and 100 spaces.

The Parking Strategy encourages measures that will maximise the use of centrally located car parks for short stay shopper parking, encouraging those staying in town all day for work to use less central long stay spaces, Park and Ride, or other transport modes. A Park and Ride site of between 600 and 750 spaces is identified as a key requirement for helping to achieve the objectives set out in the Parking Strategy.

2.2.2 2001 Census – Travel to Work Areas

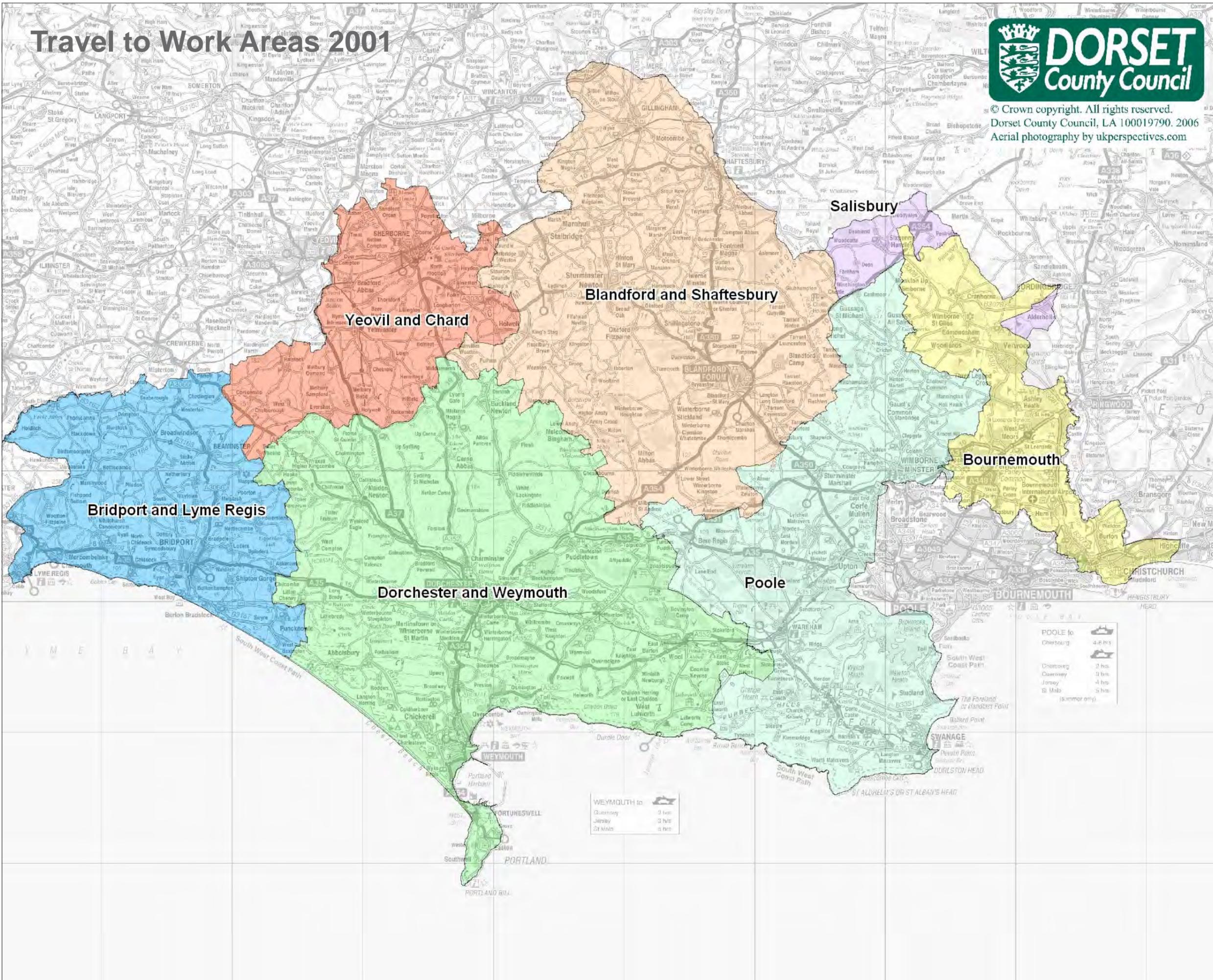
Dorchester is a service centre with a wide geographical catchment. Dorset is a predominantly rural county with a dispersed population. This means that people travel significant distances from the surrounding local area to access employment opportunities and a range of amenities in Dorchester. It is not possible to offer public transport to such a wide catchment (as exists for Dorchester) and therefore there is a need to provide adequate parking.

The extent of the catchment is illustrated by the Dorchester and Weymouth Travel to Work Area. A Travel to Work area is defined as a collection of wards, within which at least 75% of those who work, also live within the same area; and vice versa. The extent of the Dorchester and Weymouth Travel to Work Area, extracted from the Census 2001 is shown in Figure 2—1. It incorporates many rural villages to the north including Maiden Newton and Puddletown.

Travel to Work Areas 2001



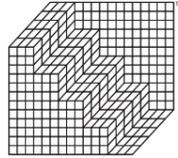
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 Dorset County Council, LA 100019790. 2006
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POOLE to	Travel Time
Cherbourg	4-6 hrs
Cherbourg	3 hrs
Queney	4 hrs
Jersey	4 hrs
St. Malo	5 hrs

(Summer only)

WEYMOUTH to	Travel Time
Guernsey	3 hrs
Jersey	3 hrs
St. Malo	4 hrs



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PROJECT
DORCHESTER PARK AND RIDE

DRG
TRAVEL TO WORK AREAS 2001

DRAWN BY **DCC**

DATE **07 SEP 2010**

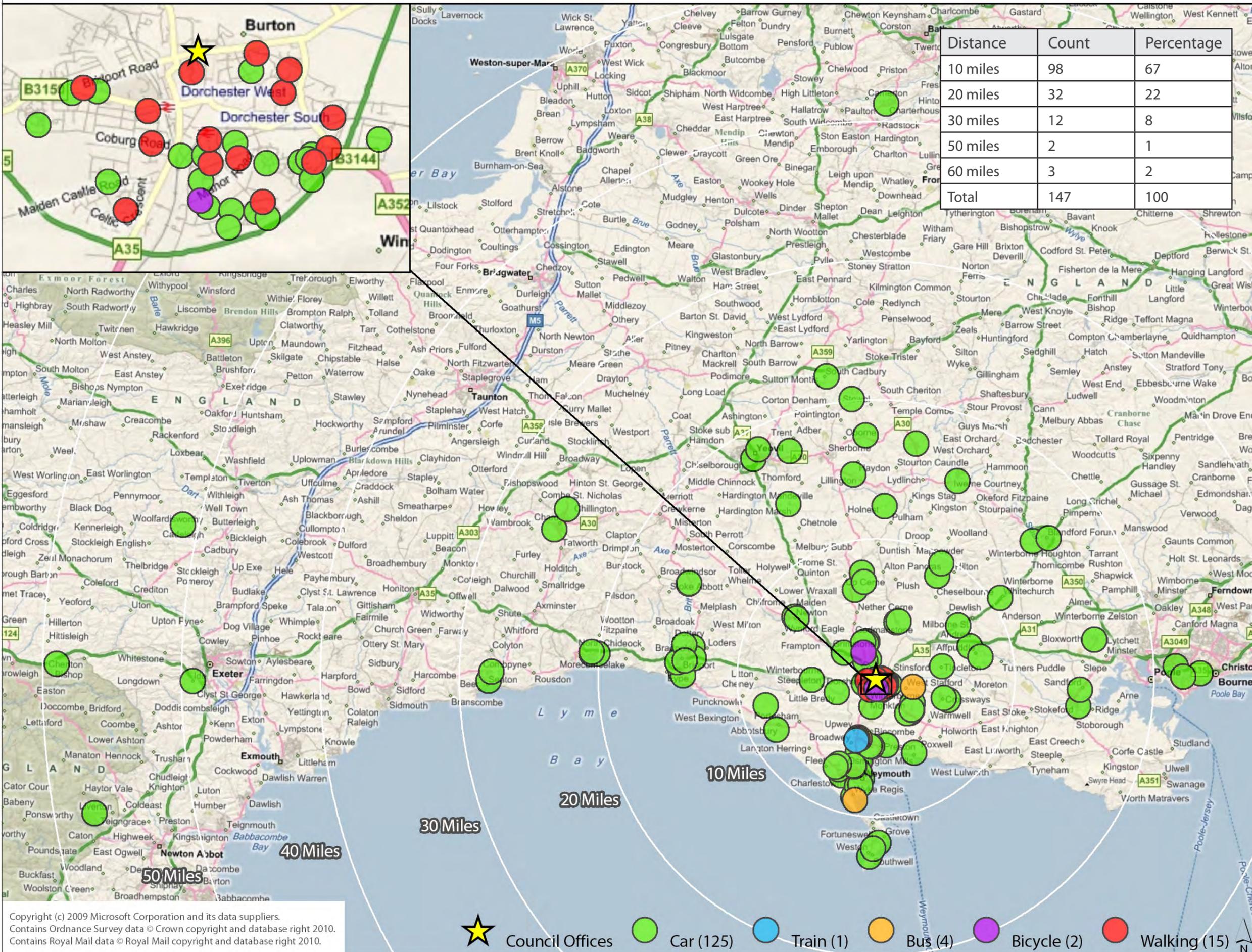
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DRG NO. **FIGURE 2-1**

2.2.3 Existing Employers – Travel Survey Data

Travel surveys for Dorset County Council (based at County Hall) and West Dorset District Council (based at Stratton House) staff, undertaken to support their Travel Plans, were obtained from Dorset County Council. The distribution of origins of employee trips to County Hall and Stratton House is identified in Figure 2-2 and Figure 2-3 respectively. The data shows that 32% of the employees who were surveyed working at Dorset County Council live between 10 and 30 miles from County Hall, and that 30% of West Dorset District Council employees who were surveyed travel the same distance.

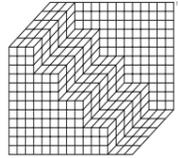
The observed patterns further supports the need for conveniently located long stay parking, and given that a significant proportion of journey's are generated from outside Dorchester, a Park and Ride site on the periphery of the Town, could capture many of these trips.



Distance	Count	Percentage
10 miles	98	67
20 miles	32	22
30 miles	12	8
50 miles	2	1
60 miles	3	2
Total	147	100

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★ Council Offices ● Car (125) ● Train (1) ● Bus (4) ● Bicycle (2) ● Walking (15)



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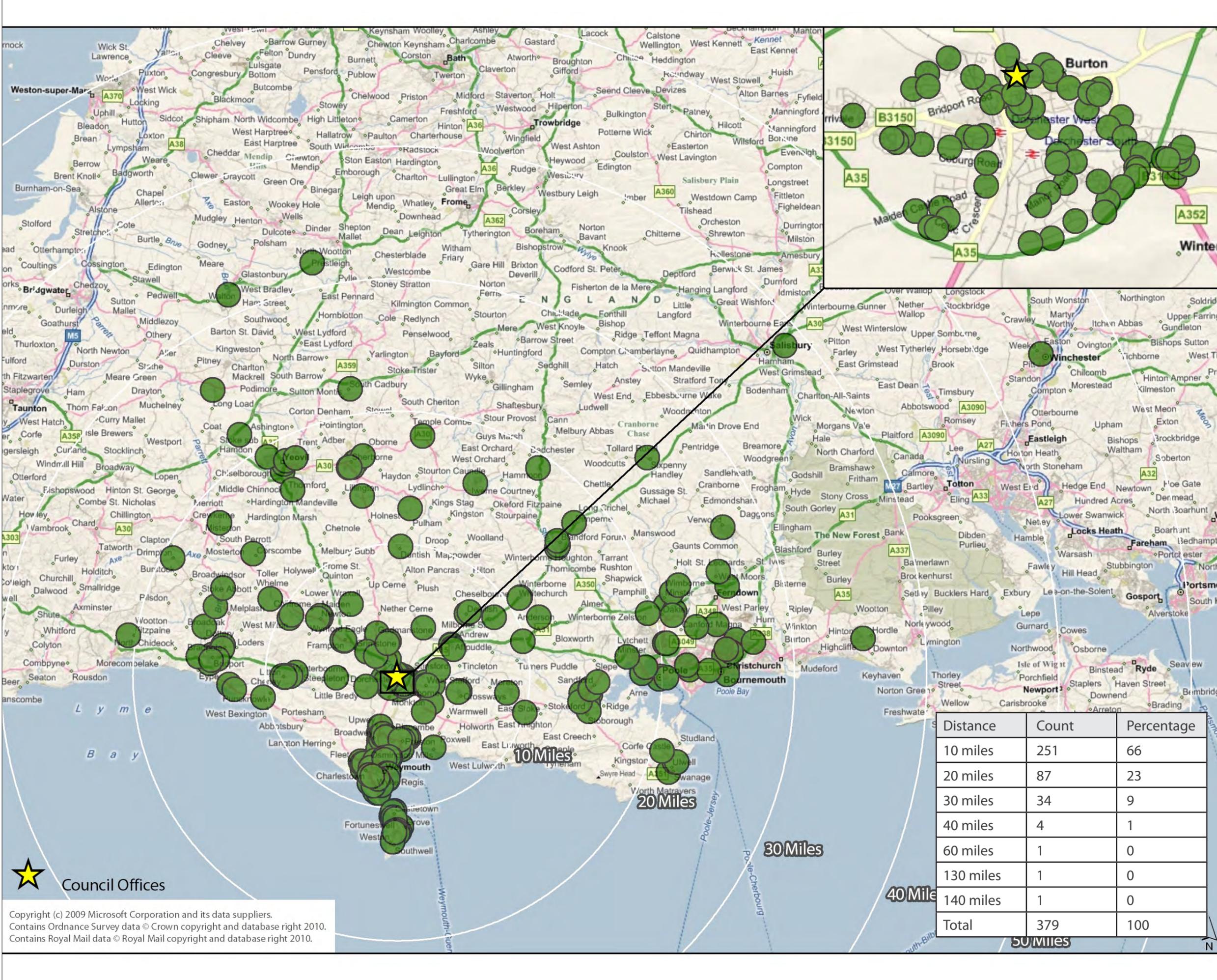
DRG
ORIGINS OF EMPLOYEES
TRIPS TO DORSET COUNTY
COUNCIL, COUNTY HALL

DRAWN BY **JM (BH)**

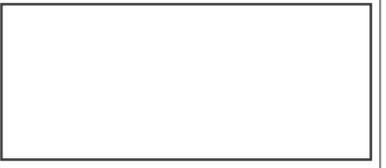
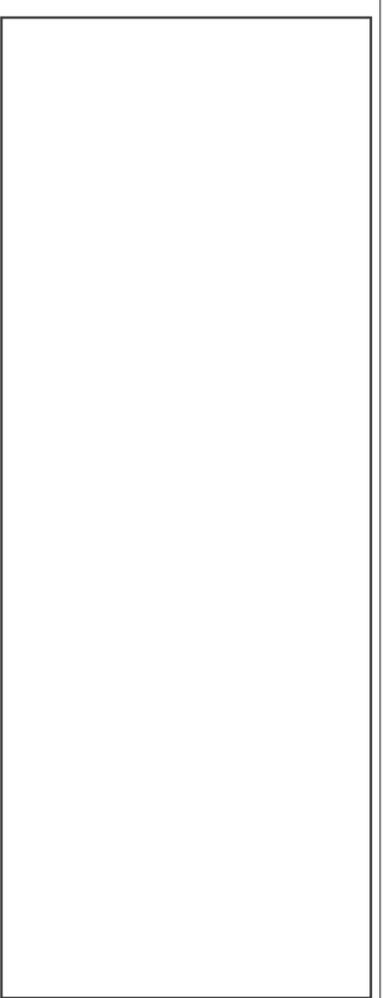
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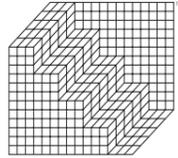
DRG NO. **FIGURE 2-2**



Distance	Count	Percentage
10 miles	251	66
20 miles	87	23
30 miles	34	9
40 miles	4	1
60 miles	1	0
130 miles	1	0
140 miles	1	0
Total	379	100



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PROJECT
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DRG
**ORIGINS OF EMPLOYEES
TRIPS TO WEST DORSET
DISTRICT COUNCIL, STRATTON
HOUSE**

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DATE **07 SEP 2010**

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DRG NO. **FIGURE 2-3**

 Council Offices

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3 Previous Studies

3.1 Introduction

This section reviews the work previously undertaken by DEC looking at opportunities for Park and Ride and bus priority measures in Dorchester.

3.2 Dorset Engineering Consultancy Reports

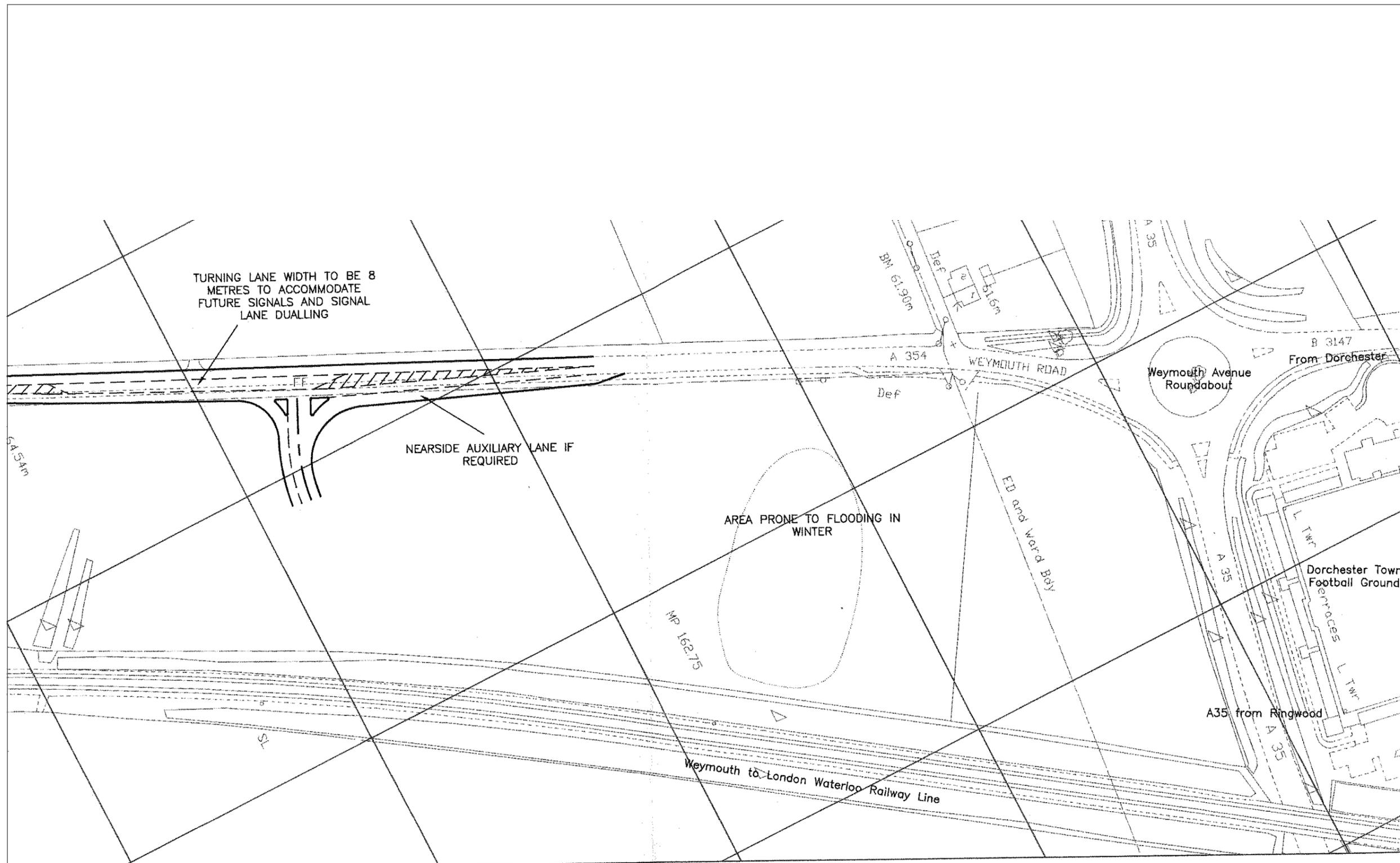
In 1999 DEC undertook a study Feasibility Study, commission by Dorset County Council to assess the opportunity for achieving highway access to potential Park and Ride sites located on the A354, immediately to the south of Stadium Roundabout. The location of these sites correspond with sites J and K identified later in Figure 4-1.

The reports state that given the vehicular flows using the Park and Ride, the most suitable design for an access junction would be a roundabout. However, there is insufficient room to accommodate a roundabout. On this basis, priority junctions for sites to the south of Stadium Roundabout, both to the east and west of the A354 were modelled using PICADY.

Based on the results of the modelling the Park and Ride site to the east of the A354 was identified as being more favourable. This is because turning movements into the site to the east of the A354 linked well with the bias in traffic flows in the AM peak period. For example in the morning peak, traffic travelling north towards Dorchester on the A354 would be expected to cross a lower flow of traffic travelling south towards Weymouth. In the PM peak, traffic bound for Weymouth will exit the site via a left turn. By contrast a Park and Ride site located to the west of the A354 would require vehicles exiting the Park and Ride, bound for Weymouth in the PM peak to cross the dominant flow of traffic towards Dorchester.

The results of the PICADY model validated these observations. It was found that queues for the Park and Ride facility located to the east of the A354 were slightly shorter than the predicated level of queuing for an equivalent site to the west of the A354.

The recommended form of the priority junction for the site to the east of the A354, as identified in the DEC study is shown in Figure 3-1. This includes a ghost island to protect right turning traffic entering the Park and Ride site via the north bound carriageway on the A354. The form of the priority junction identified in Figure 3-1 provides adequate space for providing a signalised junction in future years, if vehicle flows on the A354 are significantly increased.

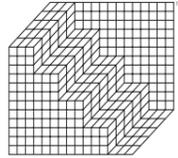


TURNING LANE WIDTH TO BE 8 METRES TO ACCOMMODATE FUTURE SIGNALS AND SIGNAL LANE DUALLING

NEAR SIDE AUXILIARY LANE IF REQUIRED

AREA PRONE TO FLOODING IN WINTER

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PROJECT
DORCHESTER PARK AND RIDE

DRG
DEC PARK AND RIDE
FEASIBILITY STUDY – ACCESS
JUNCTION (SITE TO EAST OF
THE A354)

DRAWN BY **DEC**

DATE **07 SEP 2010**

JOB NO. **0208088**

DRG NO. **FIGURE 3-1**

In 2000 DEC produced a Feasibility Study into the provision of a bus lane on Weymouth Road. The study identified an opportunity to widen the carriageway of the B3147, Weymouth Road to provide a 3.5m wide bus lane. Two options were presented.

- Option 1 identified a 370m length of bus lane, starting immediately north of the access roundabout to Tesco on Weymouth Road. This extends to a location approximately 120m south of the junction between Weymouth Road and Maiden Castle Road. At this point buses and other traffic merge into one lane.
- Option 2 consists of a 600m long bus lane, starting at the exit from the Stadium Roundabout, bypassing the Tesco Roundabout and terminating with Option 1.

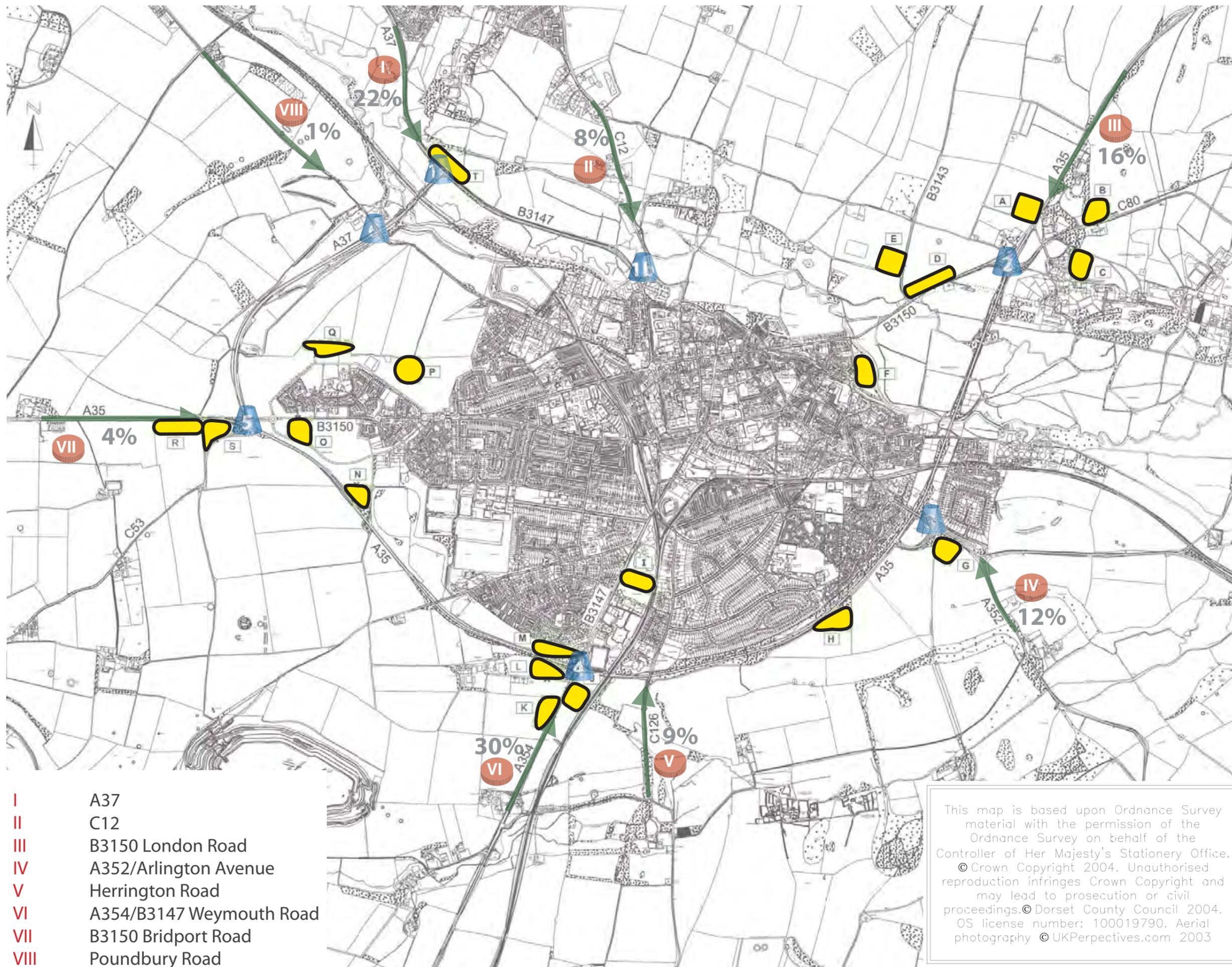
In the report it was also stated that it could be feasible to install a bus gate near the junction between Weymouth Road and Maiden Castle Road. This would be provided in conjunction with the signalisation of the junction, which in turn could be linked with the Maumbury Road traffic signals to maximise efficiency. The benefit of installing the bus gate, and signalising the junction would be to extend the bus lane by approximately 100m.

4 Initial Sift of Sites

4.1 Methodology

West Dorset District Council has identified twenty potential sites, the suitability of which for Park and Ride has yet to be determined. The twenty potential sites are illustrated in Figure 4-1

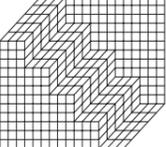
Providing a single Park and Ride site is considered most practical, as this confines bus operating costs to one service. Operating multiple Park and Ride sites would mean operating several bus services, each at an additional cost, without any significant increase in patronage and consequently revenue.



- I A37
- II C12
- III B3150 London Road
- IV A352/Arlington Avenue
- V Herrington Road
- VI A354/B3147 Weymouth Road
- VII B3150 Bridport Road
- VIII Poundbury Road

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PROJECT
DORCHESTER PARK AND RIDE

DRG
**SITES IDENTIFIED BY WEST
DORSET DISTRICT COUNCIL
FOR ASSESSMENT**

DRAWN BY	LB (BH)
DATE	07 SEP 2010
JOB NO.	0208088
DRG NO.	FIGURE 4-1

Similar studies that have assessed the suitability of sites for Park and Ride have used a mode choice traffic model that estimates the decision between driving directly or using a Park and Ride service to access a Town Centre. The most generally used model is the 'logit' model

The inputs to the 'logit' model include:

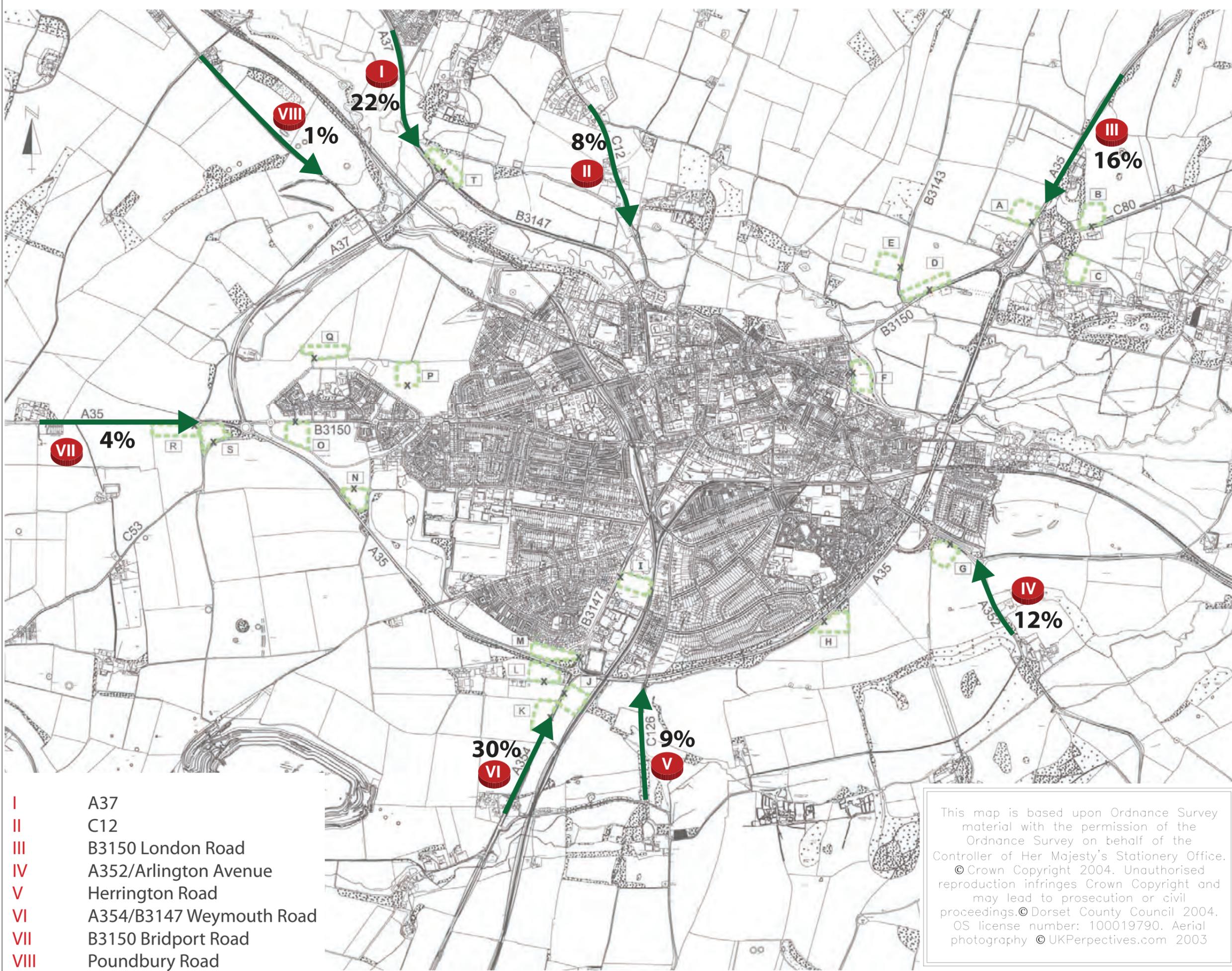
- The walk times to access either the car or bus at both ends of the trip;
- Journey distance;
- Mean traffic speed;
- Mean car occupancy;
- Mean car operating costs per km
- Value of time per person in pence per minute;
- Mean car parking cost.

Critically, the logit model compares the price differential of parking costs between using the private car and a Park and Ride service. Yet, as the Dorchester Parking Strategy sets out, there will be reduced long stay parking provided in the centre of Dorchester. This will be relocated to the periphery, and the planned Park and Ride site. Drivers accessing Dorchester will therefore not readily be able to find long stay parking in the centre. Additionally workplace parking will be controlled (as is currently the case for Dorset County Council). On this basis, the binomial logit model has not been used to assess the suitability of the sites.

A more appropriate method has been used that estimates the potential for each site to capture traffic travelling into Dorchester from the surrounding areas. It considers the distance and travel time between the each decision point and each site. The main advantage of the method used is that it identifies the sites that will reduce the number of vehicle kilometres generated by vehicles using the Park and Ride.

Survey data has been obtained from West Dorset District Council and has been used to determine the directional distribution of trips into Dorchester. These are shown in Figure 4-2 The proportional traffic flows are derived from the DTEP SATURN model that underpins the predicted demand for Town Centre parking in 2017, as set out in the Dorchester Parking Strategy.

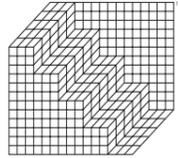
The distribution of traffic approaching Dorchester has been estimated based on the existing road network. If significant changes to the road network are brought forward, the distribution of traffic would change, and the ranking of sites altered.



- I A37
- II C12
- III B3150 London Road
- IV A352/Arlington Avenue
- V Herrington Road
- VI A354/B3147 Weymouth Road
- VII B3150 Bridport Road
- VIII Poundbury Road

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PROJECT
DORCHESTER PARK AND RIDE

DRG
DISTRIBUTION OF ARRIVALS

DRAWN BY	LB (BH)
DATE	07 SEP 2010
JOB NO.	0208088
DRG NO.	FIGURE 4-2

The survey work undertaken by West Dorset District Council estimates that 30% of trips approach the town from the North using the B3147, The Grove. For this assessment, the 30% has been further split into 22% and 8% in recognition that some drivers will approach this part of the network from the A37, whilst others will use the C12. The proportions attributed to these routes have been determined using Traffic Survey Data provided by Dorset County Council.

In addition, it is understood that the majority of traffic approaching from the South will use the A354, and will only divert onto Herrington Road at the junction immediately to the south of the A35. Therefore for the purpose of establishing the potential catchment for a Park and Ride located to the south of Dorchester it is assumed that the 30% and 9% using the A354 and Herrington Road respectively can be summed, a catchment of 39%.

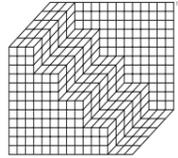
Seven junctions on the network have been identified as decision points. At these locations drivers will either continue to drive into the Town Centre, or divert towards the Park and Ride sites. The distance between the decision points and the Park and Ride sites have been measured. The locations of each of the decision points is identified in Figure 4-3.



- I A37
- II C12
- III B3150 London Road
- IV A352/Arlington Avenue
- V Herrington Road
- VI A354/B3147 Weymouth Road
- VII B3150 Bridport Road
- VIII Poundbury Road

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PROJECT
DORCHESTER PARK AND RIDE

DRG
DECISION POINTS

DRAWN BY	LB (BH)
DATE	07 SEP 2010
JOB NO.	0208088
DRG NO.	FIGURE 4-3

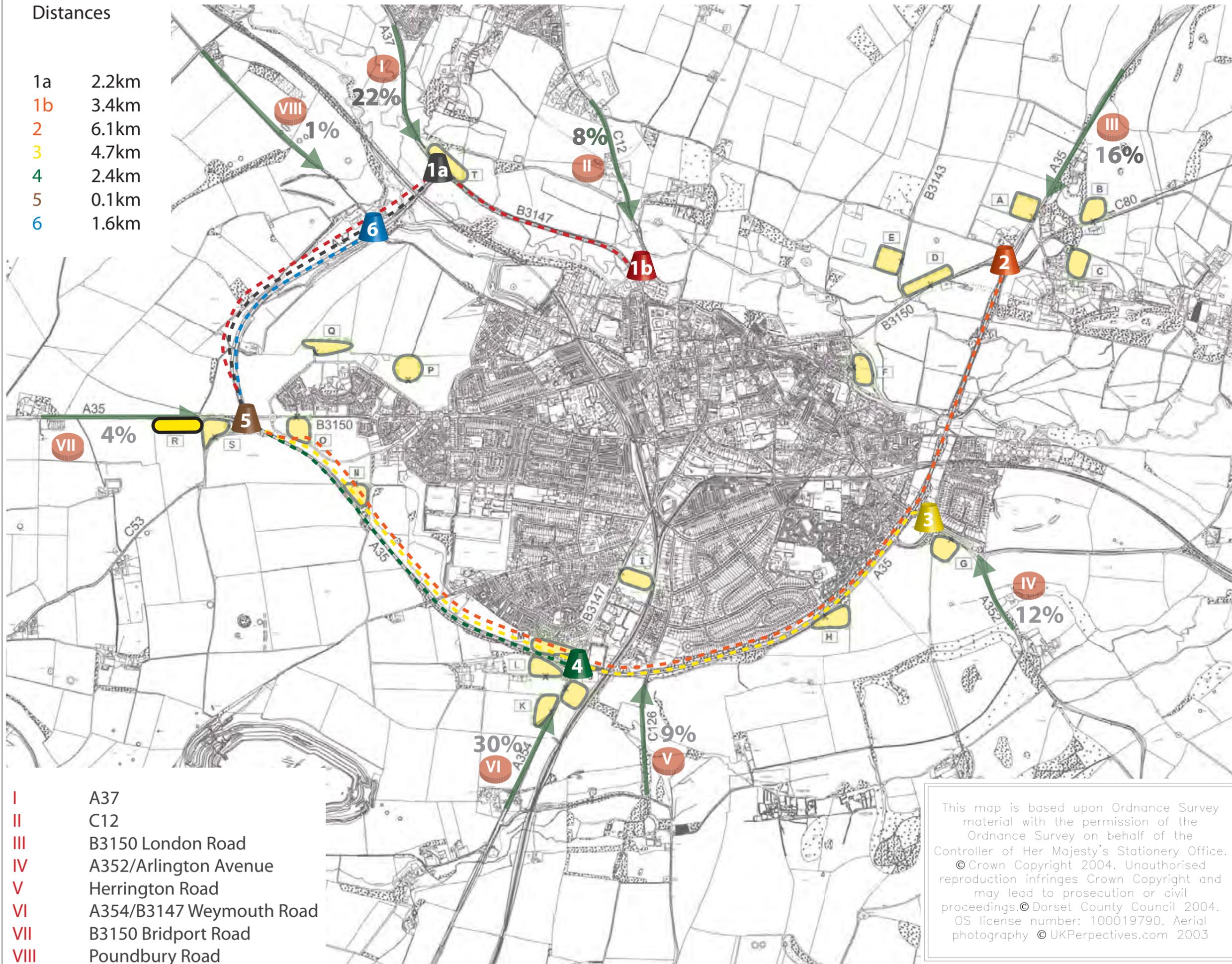
The decision points identified in Figure 4-3 are the following junctions:

- 1a - Roundabout between A37 and B3147;
- 1b - Priority junction between C12 and B3147;
- 2 - Roundabout between A35, B3150 and C80 at Stinsford;
- 3 - Roundabout between A352, B3144 and the slip road for the A35;
- 4 - Stadium Roundabout between A354, A35 and B3147;
- 5 - Roundabout between the A37, A35, and the B3150;
- 6 - Priority junction between the A37 and Poundbury Road.

The assessment has assumed that traffic diverting to the Park and Ride sites will use arterial routes, avoiding the Town Centre, and of a high enough quality to accommodate significant volumes of traffic. On this basis none of the routes between decision points and Park and Ride sites go through the Town Centre, or use the network of minor, rural roads directly to the north of Dorchester. An example showing the distances that have been measured for traffic diverting to Site R (to the West or Dorchester) is illustrated in Figure 4-4

Distances

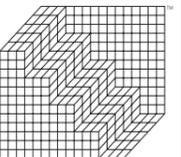
- 1a 2.2km
- 1b 3.4km
- 2 6.1km
- 3 4.7km
- 4 2.4km
- 5 0.1km
- 6 1.6km



- I A37
- II C12
- III B3150 London Road
- IV A352/Arlington Avenue
- V Herrington Road
- VI A354/B3147 Weymouth Road
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- VIII Poundbury Road

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PROJECT
DORCHESTER PARK AND RIDE

DRG
ROUTE OF DIVERSION
FOR SITE R (WEST OF
DORCHESTER)

DRAWN BY LB (BH)

DATE 07 SEP 2010

JOB NO. 0208088

DRG NO. FIGURE 4-4

