

**Manchester Airport  
Developments (MADL)**

**Bournemouth International  
Airport**

**Transport and Infrastructure Study**

**Volume 1: Text**

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# 1 Executive Summary

## 1.1 Introduction

- 1.1.1 This is an Executive Summary of a report prepared by Peter Brett Associates LLP (PBA) on behalf of our clients Manchester Airport Developments (MADL). The report assesses the likely Transport and Infrastructure requirements mainly arising from the future development of Bournemouth International Airport and the associated Aviation Business Park. The report also investigates the transport impacts relating to future residential development in the vicinity of Parley Cross.
- 1.1.2 The report builds on previous traffic and highway studies undertaken by PBA. The purpose is to identify the level of potential industrial and airport development that can be accommodated with highway access provided from the existing B3073 Parley Lane. It identifies where highway or junction improvements and infrastructure are required and explores the potential options for improvement and how much further development might be supported by these improvements. The report provides a land use and infrastructure strategy that can be adopted for development control purposes.
- 1.1.3 Of particular concern to Dorset County Council (DCC) is the cumulative transport impact of future development at the Airport and Aviation Business Park together with the proposed MBT Waste Facility, the recently opened Gravel Works and major future housing development at Parley Cross. The report takes account of these committed and future developments in addition to the planned expansion of Bournemouth International Airport and Aviation Business Park.
- 1.1.4 The report covers the following key aspects:
- Introduction and Previous studies (**Section 2**);
  - Study Tasks (**Section 3**);
  - Update of Traffic Model (**Section 4**);
  - Review of Travel Planning (**Section 5**);
  - Future Traffic Predictions (**Section 6**);
  - Review of Highway Network (**Section 7**);
  - Assessment of Infrastructure Costs (**Section 8**);
  - B3073 Junction Capacity Assessments and Determination of Development Potential (**Section 9**);
  - Transport Strategy (**Section 10**); and
  - Conclusions and Summary (**Section 11**).

### Previous Studies

- 1.1.5 Various transport studies have been undertaken by PBA for MADL between September 2006 and late 2007 mainly supporting planning applications for the expansion of Bournemouth International Airport and Aviation Business Park.

### Update of the Traffic Model

- 1.1.6 A spreadsheet traffic model has been created for the study, with the support and approval of Dorset County Council in order to determine and assess the traffic impact of various development scenarios. The traffic model has a base year of 2006 and forecast years of 2020 and 2030.

### Travel Plan Measures

- 1.1.7 The study has considered the beneficial effects that the implementation of travel plan measures would have on reducing travel demand and the use of the private car. The measures have been considered as applying equally to residential and commercial sites with an average reduction of 10% on car trips. Assessments have been undertaken both with and without the effect of the travel plan measures.

### Bournemouth International Airport – Development

- 1.1.8 Bournemouth International Airport comprises two main areas of activity. Firstly the Airport Terminal and associated activities accessed off the main entrance access road and secondly Aviation Business Park split into two areas - Aviation Business Park accessed off the Chapel Gate Roundabout and, Aviation Business Park East accessed off Matchams Lane. The two areas are not currently linked by internal roads as the site is divided by the north/south taxiway.
- 1.1.9 Other land uses in close vicinity of the Airport are:
- Gravel Works to the south of the Airport main access road;
  - the proposed MBT/RDF Waste Facility to the west of Aviation Business Park; and
  - potential Housing sites at Parley Cross to the west of the Airport.
- 1.1.10 In respect of Bournemouth International Airport this currently serves around 1 million passengers per annum (mppa) with planning permission to expand to 3 mppa by 2015 and with proposals to increase throughput to 4.5 mppa by 2030 based on the 'Future of Transport: a network for 2030 White Paper' (July 2003).
- 1.1.11 Aviation Business Park has around 1,500,000ft<sup>2</sup> (139,355m<sup>2</sup>) of existing floor space split between B1, B2 and B8 uses. This includes areas not under the control of MADL such as the Business Park at the entrance to Aviation Business Park and, European Hangers to the north of the Park.
- 1.1.12 Planning permission has been granted between 2003 and 2007 for additional development totalling 105,533ft<sup>2</sup> (9,793m<sup>2</sup>) on Aviation Business Park (referred to as the Aim Industrial Development and areas of B1-B8 developments) which would increase the overall floor space to 1,605,533ft<sup>2</sup> (149,159m<sup>2</sup>). This is referred to in the PBA report as the base and committed development or Scenario B.
- 1.1.13 Further development is planned. A development mix referred to as Option 4 development would provide for an additional 452,084ft<sup>2</sup> (42,000m<sup>2</sup>) of B1, B2 and B8 development.

1.1.14 This report has considered the effects of both the committed development and Option 4 development.

#### **Development Scenarios and Design Years**

1.1.15 In assessing the development proposals and infrastructure requirements, a series of development scenarios were adopted and agreed with MADL and DCC along with appropriate design years. The various development scenarios are set out in Table1.

1.1.16 These can be summarised as:

- 2006 Base Year including the Basepoint office and workshop units and the Gravel Works.
- 2020 and 2030 forecast year with Basepoint, Gravel Works, Aim industrial development, MBT Waste Treatment Plant and Airport Terminal throughput of 3 million passengers per annum.
- It should be noted that whilst a sensitivity has been provided for 2020 with an airport terminal throughput of 4.5 mppa, this is not based on the forecast or likely throughput at that point in time.
- Addition of Option 4 development at Aviation Business Park.
- Additional Airport Terminal throughput of 1.5 mppa (giving 4.5 mppa).
- 900 new houses at land at Parley Cross.

1.1.17 The following development scenarios (as set out within the Technical Report, Volumes 1 and 2) have been adopted for testing:

- **Scenario A** 2006 base year (with Basepoint and Gravel Works developments)
- **Scenario B** 2020 forecast year with all committed developments, described as '2020 base case' (includes Basepoint, Aim, B1 - B8, Gravel Works, MBT and 3 million passengers (mppa))
- **Scenario C** 2020 base case plus additional 1.5 million passengers (mppa)
- **Scenario D** 2020 base case plus 1.5 mppa and Option 4 Aviation Business Park development
- **Scenario E** 2020 base case plus Parley Cross housing
- **Scenario F** 2020 base case plus 1.5 mppa, the Option 4 development at Aviation Business Park and Parley Cross housing
- **Scenario G** 2030 forecast year with all committed developments, described as '2030 base case' (includes Basepoint, Aim, B1 - B8, Gravel Works, MBT and 3 million passengers (mppa))
- **Scenario H** 2030 base case plus additional 1.5 million passengers (mppa)
- **Scenario I** 2030 base case plus 1.5 mppa and Option 4 development at Aviation Business Park

- **Scenario J** 2030 base case plus Parley Cross housing
- **Scenario K** 2030 base case plus 1.5 mppa, the Option 4 development at Aviation Business Park and Parley Cross housing

1.1.18 The development scenarios are summarised in Table 1 below and include reference to 'Assessment Options' which are referred to in the Technical Report **Appendix 1 – Junction Capacity Results**.

Table 1: Summary of Development Scenarios

Development Scenario (Assessment Option)	Year	BASE CASE WITH COMMITTED DEVELOPMENT						Airport Additional 1.5 mppa	Option 4 Development at Aviation Business Park	Parley Cross Housing
		Basepoint	Gravel Works	Aim	B1 – B8	MBT	Airport 3 mppa			
A (740/741)	2006	√	√							
B (781/782)	2020	√	√	√	√	√	√			
C (790/791)	2020	√	√	√	√	√	√	√		
D (793/794)	2020	√	√	√	√	√	√	√	√	
E (784/785)	2020	√	√	√	√	√	√			√
F (796/797)	2020	√	√	√	√	√	√	√	√	√
G (853/854)	2030	√	√	√	√	√	√			
H (862/863)	2030	√	√	√	√	√	√	√		
I (793/794)	2030	√	√	√	√	√	√	√	√	
J (784/785)	2030	√	√	√	√	√	√			√
K (868/869)	2030	√	√	√	√	√	√	√	√	√

### Commentary on Development Scenarios

- 1.1.19 With reference to **Table 1** above, the study uses the development scenarios in order to assess the impact of traffic on the junctions in the local network.
- 1.1.20 Development Scenario B includes the base case with committed development in the forecast year 2020.
- 1.1.21 Scenario C adds to Scenario B with an additional 1.5 million airport passengers per annum (mppa) giving a total of 4.5 mppa.
- 1.1.22 Scenario D adds the Option 4 development at Aviation Business Park to Scenario C.
- 1.1.23 Scenario E adds housing development at Parley Cross to Scenario B
- 1.1.24 Scenario F adds housing development at Parley Cross to Scenario D.

- 1.1.25 With the exception of Scenario E (which shows the impact of Parley Housing) each new scenario effectively increases the potential traffic generation over the former and therefore increases the impact on the highway network.
- 1.1.26 Scenarios G to K are the same as B to F but consider the future year 2030 rather than 2020.
- 1.1.27 Within the assessment of the Airport Terminal expansion account has been taken of non-airport related industrial traffic which presently uses the main access road into the airport. Paragraph 4.7.9 of the Technical Report indicates that 75% of the occupiers will be transferred to Aviation Business Park by 2015. These occupiers are all tenants of the Airport with leases that will expire in this time period.
- 1.1.28 Some development could therefore take place on Aviation Business Park, with no detrimental effect on the highway network.

### B3073 Parley Lane and Key Junctions

- 1.1.29 The B3073 is a single carriageway County Distributor road joining the A338 Blackwater interchange to the east to the A347 at Parley Cross to the west. The route runs parallel and to the north of the A3060 Castle Lane and tends to act as an unofficial ring road providing an alternative east/west route to the A3060. As a result the B road is suffering from increasing congestion in the peak periods. The B road is the only means of access to the Airport and Aviation Business Park.
- 1.1.30 The report identifies the key impact of existing and future traffic movements at junctions along the B3073 Parley Lane. It goes on to show how each junction performs in capacity and safety terms at present, and what form of improvements might be feasible in the longer term. **Table 2** below identifies the 5 key junctions along the B3073 where the development of the airport and associated activities will have the greatest impact in traffic terms. These comprise:
- Parley Cross signalled crossroads;
  - Chapel Gate roundabout;
  - Airport Access T-junction;
  - Hurn Village Roundabout; and
  - Blackwater Interchange (partial cloverleaf with signalled T-junctions).
- 1.1.31 Possible improvements to the existing junctions are identified in **Table 2** as tested in the study. The necessity for any improvements will be discussed more fully with DCC.

Table 2: B3073 Summary of Existing and Proposed Junction Layouts

Junction Location	Existing Junction Layout	Junction Arrangements Considered
<b>Parley Cross</b>	Signalled cross roads with slip east to west	Signalised gyratory
<b>Chapel Gate</b>	3 arm roundabout with slip lane	Larger roundabout
<b>Airport Access</b>	Staggered T-junction with Hurn Court Lane	Signalised staggered T-junction with additional signalled T-junction to the west
<b>Hurn Village</b>	3 arm roundabout	Larger off-line roundabout
<b>Blackwater Interchange West</b>	Partial cloverleaf with signalised T-junction	Signalised T-junction with additional lane or roundabout
<b>Blackwater Interchange East</b>	Partial cloverleaf with signalised T-junction	Signalised T-junction with additional ahead lane and two eastbound exit lanes

## 1.2 Summary of Findings

### Parley Cross Junction

- 1.2.1 The existing junction at Parley Cross located to the west of the airport, is a signalised crossroads, which from the assessments is shown to be nearing capacity at the base year of 2006 with RFC's (ratio of flow to capacity) in excess of 100%. Discussions with DCC support this assessment and confirm that even with a MOVA controller employed at the junction it has very much reached capacity. Physical improvements are required at the junction before any further development can come forward in the immediate local area.
- 1.2.2 However, in granting planning consent for the expanded airport terminal (3 mppa) DCC have accepted that the junction will in its current form, probably run at levels well above current capacity. No improvements to this junction are required as part of this permission. Consequently, the junction will be taking the development traffic associated with Scenario B – Committed Development identified within **Table 1**. This provides for an increase of 105,533 ft<sup>2</sup> at Aviation Business Park over existing development. Clearly there are issues of land use mix which would have an impact on this figure.
- 1.2.3 Any development beyond scenario B shows the existing junction exceeding capacity and an improvement will therefore be required.
- 1.2.4 A junction improvement such as a gyratory has been tested as set out in **Table 2** and would provide sufficient capacity to deal with all development scenarios identified in **Table 1**.

### Chapel Gate Junction

- 1.2.5 The existing Chapel Gate roundabout junction is located to the west of the airport and is the main access to Aviation Business Park. The roundabout has a dedicated west to east slip lane towards Aviation Business Park.
- 1.2.6 The assessments demonstrate that the existing roundabout arrangement currently operates well within capacity at the base year 2006.
- 1.2.7 The existing junction also has sufficient capacity to deal with all the development options set out within **Table 1** with the exception, however, of Scenario F when the proposed housing development at Parley Cross is added in. Scenario F is the worse case development scenario as it has the highest level of combined traffic generation.
- 1.2.8 In order to accommodate Parley Cross housing, a revised roundabout solution would be required. **Table 2** indicates that the dedicated slip lane would be removed providing a larger more conventional roundabout with greater capacity.

### Airport Entrance Junction

- 1.2.9 The existing staggered T-junction at the Airport Entrance provides access to the Airport Terminal, passenger car parking and other land uses. This junction currently runs at capacity at peak times.
- 1.2.10 The existing entrance junction will be replaced by a signalised junction as part of the planning permission for the Airport Terminal expansion to 3 mppa. This also includes a new signalised T-junction further to the west to serve a proposed car park.
- 1.2.11 The proposed junction improvement has been shown by the assessments to provide sufficient capacity to accommodate all of the development scenarios set out in **Table 1**.

### Hurn Roundabout Junction

- 1.2.12 The current Hurn Roundabout junction to the east of the airport is running at capacity during peak times in the base year 2006.
- 1.2.13 The County Council have plans to build a new roundabout junction to the east of the current roundabout with contributions from Section 106 agreements. This would use land to the east of the roundabout and is referred to as an 'offline' solution.
- 1.2.14 This offline roundabout junction would provide sufficient capacity in order to deal with all of the development scenarios as set out in **Table 1**.

### Blackwater Interchange

- 1.2.15 The Blackwater Interchange located further east of the Hurn Roundabout, is a grade separated junction known as a 'modified partial cloverleaf' design, modified to avoid the River Stour to the south.
- 1.2.16 In the original design the junction would have operated with give-way T-junctions to the west and east of the main north-south route the A338 on the secondary route the B3073. The western and eastern T-junctions have been signalised in order to increase capacity with additional lanes added to the approaches to the signal junction where feasible.

### Western Junction

- 1.2.17 DCC have recently altered the western junction to remove one of two eastbound approach lanes and have effectively reduced practical capacity.
- 1.2.18 The assessments of this junction in the base year with the lane removed shows that the junction is operating over capacity in the base year 2006 with RFC's of close to and in excess of 100% on certain links in both peak hours.
- 1.2.19 The current junction layout tested with Scenario B development in 2020 shows the junction operating with RFC's in excess of 105% in both peaks. However, we understand that no improvements to this junction are required as part of the Airport Terminal application permission. Consequently the existing junction will effectively be taking the development traffic associated with Scenario B – Committed Development, identified within **Table 1**.
- 1.2.20 If the additional eastbound lane were to be reinstated on the Western Junction and appropriate measures agreed with DCC to deal with safety issues, then this junction could accommodate all development scenarios in **Table 1**.
- 1.2.21 Parallel improvements to the Eastern Blackwater junction would be required to deal with eastbound traffic queues backing into the Western junction. This would require two effective discharge lanes eastbound at the Eastern junction and assumes that appropriate travel plan measures would be in place on both residential and commercial sites.
- 1.2.22 As an alternative option, a roundabout solution has been investigated to replace the western junction. The assessments show that substitution of a roundabout junction in place of the current signals could provide additional capacity sufficient to cater for all of the development scenarios tested and set out in **Table 1**. A roundabout solution together with improvement of the Eastern junction would have some spare capacity beyond the **Table 1** scenarios.

### Eastern Junction

- 1.2.23 The assessments of this junction in the base year shows that the junction is operating over capacity in the base year 2006 with RFC's of in excess of 90% on one link in both peak hours.
- 1.2.24 The current junction layout tested with Scenario B development in 2020 shows the junction operating with RFC's in excess of 90% in both peaks. No improvements to this junction are required as part of the Airport Terminal application permission. Consequently the existing junction will effectively be taking the development traffic associated with Scenario B – Committed Development, identified within **Table 1**.
- 1.2.25 If an additional eastbound approach lane can be provided on the Eastern junction together with a similar improvement to the Western junction then the interchange could cater for all development scenarios in **Table 1**.
- 1.2.26 The combination of a new roundabout at the Western junction linked with an additional eastbound approach lane on the Eastern signalised T-junction has been shown to be sufficient to accommodate all of the development scenarios as set out in **Table 1**. As already mentioned this option may allow a slight increase in development above the **Table 1** scenarios.
- 1.2.27 The proposals for additional approach lanes at both the western and eastern Blackwater Interchange junctions would need to be discussed and agreed with DCC.

### 1.3 Phasing of Junction Improvements

- 1.3.1 The detailed assessment of junction capacity indicates that junction highway improvements will be required at certain stages through the development process. The study has taken account of a possible expansion of Aviation Business Park using an 'Option 4' development mix consisting of 12,000m<sup>2</sup> of B1, 20,000m<sup>2</sup> of B2 and 10,000m<sup>2</sup> of B8, ie, 42,000m<sup>2</sup> in total. It has also considered the effects of a further expansion in passenger numbers at the airport by 1.5 mppa per annum to a total of 4.5 mppa.
- 1.3.2 As mentioned in paragraphs 1.1.27 and 28 it would be possible to allow further development on Aviation Business Park based on an equivalent closure of similar industrial development presently located adjacent to the airport terminal and accessed off the airport entrance junction. This type of development strategy would not impact on the highway network.
- 1.3.3 Two tables have been produced as shown below indicating the likely junction highway improvements related to particular levels of development. The tables show the junction improvements required by 2020 and confirm that the same junction improvements would also work satisfactorily at the future year of 2030.

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Table 2A: Comparison of Development Scenario and Junction Requirements at 2020

Development Potential as Assessed within the Report for Each Development Scenario (A to K)					Proposed Improvement to Junctions along the B3073 Parley Lane Associated with Each Development Scenario (G to K)					
Development Scenario (Table 1)	Committed Development (Table 1)	4.5 mppa at Airport	Option 4 Development	Parley Cross Housing	Parley Cross Junction	Chapel Gate Junction	Airport Entrance Junction	Hurn Roundabout Junction	Blackwater Interchange Junction	
									Western Side	Eastern Side
<b>A</b>					Existing signalised x-roads	Existing roundabout with slip	Staggered priority T-junction	Existing roundabout	Existing signalised T-junction	Existing signalised T-junction
<b>B</b>	√				ditto	ditto	Staggered signalised T-junction	New roundabout junction	Existing signalised T-junction and Option 1 (see notes)	ditto
<b>C</b>	√	√			New signalised gyratory	ditto	ditto	ditto	Option 1 or Option 2 (see notes)	Option 3 (see notes)
<b>D</b>	√	√	√		ditto	ditto	ditto	ditto	Option 1 or Option 2 (see notes)	Option 3
<b>E</b>	√			√	ditto	ditto	ditto	ditto	Option 1 or Option 2 (see notes)	ditto
<b>F</b>	√	√	√	√	ditto	Revised conventional roundabout	ditto	ditto	Option 1 or Option 2 (see notes)	ditto

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Table 2B: Comparison of Development Scenario and Junction Requirements at 2030

Development Potential As Assessed within the Report For each Development Scenario (A to K)					Proposed Improvements to Junctions Along the B3073 Parley Lane Associated with Each Development Scenario (G to K)					
Development Scenario (Table 1)	Committed Development (Table 1)	4.5 mppa at Airport	Option 4 Development	Parley Cross Housing	Parley Cross Junction	Chapel Gate Junction	Airport Entrance Junction	Hurn Roundabout Junction	Blackwater Interchange Junction	
									Western Side	Eastern Side
<b>G</b>	√				Existing signalised x-roads	Existing roundabout with slip	Staggered signalised T-junction	New roundabout junction	Existing signalised T-junction & Option 1 (see notes)	Existing signalised T-junction
<b>H</b>	√	√			New signalised gyratory	ditto	ditto	ditto	Option 1 or Option 2 (see notes)	Option 3 (see notes)
<b>I</b>	√	√	√		ditto	ditto	ditto	ditto	Option 1 or Option 2 (see notes)	Option 3
<b>J</b>	√			√	ditto	ditto	ditto	ditto	Option 1 or Option 2 (see notes)	ditto
<b>K</b>	√	√	√	√	ditto	Revised conventional roundabout	ditto	ditto	Option 1 or Option 2 (see notes)	ditto

Notes: Option 1 - Existing signalised junction layout with additional eastbound lane reintroduced  
Option 2 - Roundabout junction  
Option 3 - Existing signalised junction layout with additional eastbound lane introduced

## 1.4 Infrastructure Costs

- 1.4.1 In assessing potential junction improvements, consideration has been given to the potential infrastructure investment required in order to support development.
- 1.4.2 The table below summarises the headline estimates of the costs associated with each of the junction improvements identified within the report. The costs include an allowance for preliminaries, contingencies, design fees and an Optimism Bias of 32% based on DfT guidance.
- 1.4.3 The total cost of the improvements based on the estimates is £5,238,356.

Table 2C: B3073 Junction Improvement Costs

Junction	Estimated Improvement Cost
Parley Cross Gyrotory	£3,210,292
Chapel Gate Improved Roundabout	£385,819
Blackwater West New Roundabout	£493,714
Blackwater East Additional Lane & Improved Signalised Layout	£1,148,532
<b>TOTAL</b>	<b>£5,238,356</b>

## 1.5 Conclusions and Summary

- 1.5.1 A thorough technical assessment has been undertaken of the transport and traffic impacts arising from development at Bournemouth International Airport, Aviation Business Park, other local development and proposals for new housing development in the Parley Cross area.
- 1.5.2 The study has investigated the potential impact of traffic on the key junctions along the B3073 Parley Lane given different development scenarios, identifying where improvements would be required and the type of improvement which would accommodate the development proposed.
- 1.5.3 Junction improvements at Parley Cross, Chapel Gate, the Airport Entrance Access, Hurn Roundabout and the Blackwater Interchange have been identified and are capable of accommodating all the development scenarios tested by the study and set out in **Table 1**. Table 2A and 2B identify potential junction improvements for each development scenario.
- 1.5.4 The estimated cost of the proposed junction improvements is set out in **Table 2C** at around £5.2 million.

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- 1.5.5 It has been established that the Scenario B development, which comprises the base case committed development, can be accommodated at Parley Cross, Chapel Gate, Airport Access (with proposed new signals), and Hurn Roundabout (proposed new roundabout) junctions either through using spare capacity from existing infrastructure or by using capacity created from identified and agreed improvements. The Blackwater Interchange is reaching capacity at peak times but the County Council have not requested improvements to the Blackwater Interchange as part of the Scenario B development which includes current permission for 3 mppa at the Airport
- 1.5.6 The study in assessing Scenario D development, which builds on Scenario B by adding on 1.5 mppa at the airport terminal and Option 4 development, identifies the need to improve the Parley Cross junction and the Blackwater Interchange and these are summarised in **Tables 2A and 2B**.
- 1.5.7 It has also been established that further development of additional industrial development could be provided on Aviation Business Park based on an equivalent closure of similar industrial development presently located adjacent to the airport terminal. This type of development strategy would not impact on the highway network as the associated traffic generation is already on the road network.
- 1.5.8 The study provides guidance as to the quantity of overall development that might be supported at the Airport and Business Park and the future transport infrastructure requirements and how these major employment sites can be brought forward in conjunction with other land uses in the area including proposed major housing allocation at Parley Cross.
- 1.5.9 The study enables both the planning and highway authorities to consider the policy implications for the emerging Local Development Frameworks (LDF's) and RSS, and can act as a comprehensive brief to guide decisions, especially in terms of infrastructure requirements, development commitments, possible constraints and development priorities, phasing and funding implications.
- 1.5.10 Clarity is provided as to the capacity of the existing highway network, where capacity should be reserved for committed development, where pressures exist and the likely scale and cost of improvement solutions.
- 1.5.11 All the above provides the basis for discussions between land owners, developers and the local authorities and enables certainty for development to proceed on this key employment site.

## 2 Introduction

### 2.1 Background

- 2.1.1 This report is prepared by Peter Brett Associates LLP (PBA) on behalf of our clients Manchester Airport Developments (MADL) and provides a detailed analysis of the Transport and Infrastructure requirements resulting mainly arising from the future development of Bournemouth International Airport. The report also investigates the transport impacts relating to future residential development in the vicinity of Parley Cross.
- 2.1.2 The Bournemouth International Airport and associated Aviation Business Park is one of the most important employment locations in south east Dorset and is of strategic importance to the local economy. It is already home to 140 companies, supporting around 2,500 jobs. The occupancy rate is consistently high, averaging in excess of 95%.
- 2.1.3 There is potential for further development to deliver substantial direct and indirect economic benefits for south east Dorset and further afield. The prospects for further growth are excellent, particularly in the light of the sustained high levels of demand for employment accommodation, the constrained level of land supply elsewhere in the Bournemouth-Poole-Christchurch conurbation and, the strong economic and planning policy support for the development of the Business Park as an economic hub for the sub region.
- 2.1.4 In 2006, MADL instructed Drivers Jonas, working alongside PBA, and EKOS Consulting to review the commercial and planning strategy for the Business Park, to update the key findings of the masterplan study led by EDAW in 2003. RPS Burks Green has also prepared a visual masterplan for the western sector to articulate the planning and commercial strategy into a spatial vision.
- 2.1.5 The combined planning and spatial strategy aims to provide a clear and deliverable approach to bringing forward the next stages of employment development at the Business Park, prioritising new development and redevelopment in the western sector. It is anticipated that the strategy will inform the Council's Local Development Framework and can act as a comprehensive brief to guide decisions on major new development and redevelopment at the Business Park in advance of the completion of the Core Strategy and Action Area Plan.
- 2.1.6 This transport and infrastructure study is an important component of the overall strategy. In particular, conclusions will quantify the amount of additional employment floor space able to be supported in highways terms based on the implementation of certain local junction and capacity improvements.
- 2.1.7 The report builds on previous traffic and highway studies undertaken by PBA which in 2007 related to the planning application for the extension of the Airport Terminal and a planning application for a B1/B8 site on Aviation Business Park.
- 2.1.8 As part of the B1/B8 planning application process, a presentation was made to SWRDA and the SED authorities on the 1 November 2007 concerning the Spatial Framework for Bournemouth Aviation Business Park. A response (dated 21 December 2007), was received from Dorset County Council which has raised a number of issues in relation to the capacity of the highway network. The letter indicates that a strategy must be developed considering the development potential of the Airport site as a whole and it must identify critical transport interventions (including link and junction improvements to the B3073) based on a phased release of development land and provide a mechanism for ensuring the interventions can be provided and funded at appropriate trigger points.

2.1.9 The report investigates these issues and is set out as follows:

- history of previous studies;
- update of traffic model from 2004 to 2006;
- review of travel planning;
- future traffic predictions in 2020 and 2030;
- review of highway network including junction capacity assessment;
- B3073 junction capacity assessments and determination of development potential;
- assessment of infrastructure costs;
- transport strategy; and
- conclusions.

## 2.2 Previous Studies

2.2.1 A brief review of previous studies undertaken is set out below:

### **Transport Assessment of Airport Expansion – September 2006**

2.2.2 This report was prepared to deal with the transport implications of increasing passenger numbers from 500,000 in 2004 to 4.5 million by 2030 to assist in the preparation of the Bournemouth International Airport Master Plan. The report addressed the following topics:

- forecasts of future traffic relating to Aviation Business Park and the Airport expansion;
- infrastructure requirements along the B3073; and
- likely costs of junction improvements.

### **Transport Strategy for Development of Aviation Business Park – October 2006**

2.2.3 This report dealt with the transport implications of the redevelopment of Aviation Business Park following the allocation of a site for an MBT and RDF Waste Treatment site on the western edge of Aviation Business Park. A previous planning application by MADL had proposed a 20,000m<sup>2</sup> office development on this site. The report determined possible alternative development mixes that would generate similar traffic flows to the 20,000m<sup>2</sup> office development.

### **Passenger Terminal Extension and Refurbishment – January 2007**

2.2.4 This report dealt with the transport implications arising from proposals to increase passenger numbers at Bournemouth International Airport from 500,000 per annum in 2004 to 3 million per annum by 2015. In addition the basis of the impact had been examined in relation to a passenger throughput of 1.25 million per annum, which was the level anticipated when the planning application for the new stand alone terminal was submitted in 2000.

2.2.5 The report considered the proposed extension of the existing passenger terminal at Bournemouth International Airport in conjunction with committed development around the airport.

**B1/B8 Development – Transport Statement – August 2007**

- 2.2.6 This was produced in support of a B1/B8 planning application for the redevelopment of land at Aviation Business Park.

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### 3 Study Tasks

- 3.1. In order to ensure that this study would be acceptable to Dorset County Council detailed discussions took place with Paul Willis who is Group Manager, Transport Planning and Development.
- 3.2. Based on a number of e-mails and telephone conversations it was agreed that the study tasks should be as follows:
- Update the existing 2004 'spreadsheet' traffic model to June 2006 levels. This will provide an up-to-date picture of traffic flows in the area of the airport which can be used to assess the capacity of the highway network along the B3073 Parley Lane.
  - Traffic data will be obtained from Dorset CC for June 2006 for the Parley Cross junction and for Hurn junction. Other count data is also available. Based on discussions with Paul Willis of DCC, the study area will be extended to include the trunk road to the west and north and various junctions to the north of Bournemouth. (Paul Willis has agreed that Dorset County Council will fund the supply of traffic data in Dorset. Other data will be supplied by Bournemouth Council for an administrative cost).
  - Discussions with the County have concluded that three major developments should be assessed at 2030 namely:
    - By 2030 it is predicted that 4.5m passengers would be using the airport. The first test will therefore assess the impact of increasing passenger numbers from the approved 3m to 4.5 passengers, i.e. an additional 1.5m passengers.
    - The Option 4 Masterplan Development - prepared by RPS Burks Green for Aviation Business Park. This would incorporate the Basepoint and Aim developments, the latest B1/B8 application, the MBT and Gravel Works and Airport Expansion up to 3m passengers. A base opening year of 2020 would be assumed with a future year assessment in 2030.
    - The emerging RSS indicates a possible 900 new dwellings in the vicinity of Parley Cross. Paul Willis has requested this test in order to understand the "crunch problems" that could result along the B3073, especially at Parley Cross and the Blackwater Interchange. The distribution of traffic from these houses would be based on the 2001 census 'home to work' data. **Figure 2.1** shows the boundary of Bournemouth International Airport and the three developments described above.
- Note: The predictions assess the three developments in isolation and also in combination.*
- Assess the beneficial effects of a Personalised Travel Planning marketing campaign for residents who travel through junctions on the B3073. Data from similar studies around the country suggests that trips from households can be reduced by about 10% in the peak periods. Any traffic removed from the highway network by this means would add to the development potential of Aviation Business Park.
  - Review employee Travel Plans from national studies showing the effectiveness of particular measures. Apply a (probable) 10% reduction in employee trips (to and from the airport) based on these studies.

- In the 2030 prediction, account will be taken of the percentage reduction in employee traffic arising from an effective Airport Travel Plan and the additional impact of a Personalised Travel Plan Initiative in Ferndown and West Parley. Figures with and without the effect will highlight the additional development that could be achieved with successful Travel Plans.
- The Sept 2006 'Transport Assessment of Airport Expansion' report indicated various highway improvements to junctions along the B3073. This showed potential improvements at Parley Cross, Chapel Gate and the Blackwater Interchange in addition to those presently being designed at the Airport entrance and at Hurn Roundabout. The suitability of these junction improvements will be reviewed in conjunction with DCC. Account will be taken of utility diversions, physical constraints and 'buildability'. A site visit will be necessary in conjunction with officers from DCC. The designs will be discussed with DCC Highways department in order to get 'in principle' sign off to the concept plans.
- Estimated costs of the junction improvements along the B3073 will be based on the latest Dorset CC rates. This would take account of the 'optimism bias factor', which would for the Hurn roundabout estimate add 32% to the overall construction cost. Views would be obtained from utility companies of service diversion costs.
- The ultimate traffic capacity of each improved junction would be determined and related to the maximum potential development that could be achieved on Aviation Business Park. The junction with the lowest capacity will obviously be the determining factor in limiting future development.
- The study will not take account of the construction of the A338 Link as DCC have agreed this is not a viable option as it is unlikely to be brought forward within the development horizons considered in this report.

## 4 Update of Traffic Model

### 4.1 Modelling Methodology

- 4.1.1 The detailed assessment of forecast traffic has been undertaken in consultation with the County Council. The discussions indicated that the use of a full multi modal modelling process was the preferred method for obtaining reliable estimates of travel by car, bus and rail. However, as this is a future major commission funded by the Local Authorities and Highways Agency a model is unlikely to be available for at least two years. The County therefore accepted that a spreadsheet model would provide an acceptable means for determining the traffic impact of the various development options.
- 4.1.2 In previous reports the study area extended from Parley Cross to the west to the Blackwater Interchange to the east and included the Matchams Lane and Avon Causeway routes. For this more detailed assessment the County Council suggested that the study area should be extended in all directions so that the impact could be determined on the trunk road network and on the urban areas of Ferndown, Christchurch and Bournemouth. The extent of the study area is shown in **Figure 3.1**.
- 4.1.3 The analysis builds on previous studies undertaken over the past few years for the Airport and Aviation Business Park and is based on data collected in 2004 and 2005. Reference has also been made to traffic flow data obtained from Dorset County Council, the Highways Agency and Bournemouth Council relating mainly to surveys undertaken in 2006. The method that has been used has entailed the following steps:
- Commissioning of 12 hour traffic turning counts at all major junctions in the study area undertaken in June 2004;
  - Commissioning of 12 hour turning counts at all internal junctions along the main airport access road undertaken on 28 July 2005;
  - Calculation of traffic growth over a 9 year period for three hours in the morning and three hours in the evening based on automatic traffic count data supplied by the County Council; and
  - Preparation of a 12 x 12 matrix of traffic movements for all roads entering the study area. This was initially based on the AM and PM peak periods in 2004 but was updated to 2006 traffic levels based on data supplied by the County Council.
- 4.1.4 The airport entrance data was further analysed to allow assessment of the different types of traffic entering the site. The traffic consists of the following:
- NATS college;
  - industry not related to the operational airport;
  - passengers using long stay car parks;
  - drop-off by friends and relatives;
  - use of car hire;
  - taxis;
  - airport staff; and

- buses.
- 4.1.5 Estimation of airport staff numbers in the future based on data provided by York Aviation and the airport.
- 4.1.6 A model of airport passenger traffic flows entering the airport entrance was produced based on 'check in' data in the terminal building. The model based on July 2005 data was then used to predict airport entrance traffic flows in the future. Predictions were based on both the proportional increase in passengers and on 'design hour' passenger 'check-ins'.
- 4.1.7 Trip generation for the other developments on Aviation Business Park and the Gravel Works were either based on information from the TRICS database or from information supplied by the County Council. Trip generation for the proposed housing at Parley Cross was based on TRICS.
- 4.1.8 The distribution of passenger trips was based on data provided by the airport relating to the home addresses of Thompsonfly passengers. These represent a high proportion of total passengers and are considered to represent a reliable picture of passenger origins.
- 4.1.9 Distribution of employment trips was based on postcode information obtained from Travel Plan questionnaires returned from Airport staff in 2007. Over 335 valid responses were received which give a good indication of the proportion of staff travelling in each direction to and from the Airport.
- 4.1.10 Distribution of trips from the Parley Cross housing area was based on a detailed analysis of the 'Home to Work' data from the 2001 Census.
- 4.1.11 In order to understand the relative impacts of the committed developments and the impact resulting from increased passenger numbers predictions are made for each individual element of traffic. This includes the increased traffic resulting from the growth in passenger numbers to 4.5m passengers which is expected by 2030.

## 4.2 Design Year

- 4.2.1 From discussions with MADL and Dorset CC, it was considered that an assumed 'opening year' of 2020 would be appropriate with a 'design year' of 2030. As the existing Airport planning permission restricts the use to 3m passengers by 2015, it was considered that the 2020 assessment should assume that a 'new permission' for up to 4.5m passengers would exist by 2020. Junction capacity assessments have therefore been undertaken at 2030 for the following situations:
- The first test assesses the impact of increasing passenger numbers from the approved 3m to 4.5m passengers, i.e. an additional 1.5m passengers;
  - The Option 4 Masterplan development prepared by RPS Burks Green for Aviation Business Park. This would incorporate the Basepoint and Aim developments, the latest B1/B8 application, the MBT and Gravel Works and Airport Expansion up to 3m passengers;
  - The emerging RSS indicates a possible 900 new dwellings in the vicinity of Parley Cross. Paul Willis has requested this test in order to understand the 'crunch problems' that could result along the B3073, especially at Parley Cross and the Blackwater Interchange. The Local Development Framework (LDF) provides an initial horizon for development of 2016. Clearly not all of the 900 dwellings will be completed within that timescale given build out rates; and

- Finally all three development options are considered together.

4.2.2 The percentage traffic impact resulting from the various scenarios will be shown diagrammatically and will clearly indicate the relative impacts of the developments.

4.2.3 The assessment of junction capacity has been undertaken at Parley Cross, Chapel Gate, the Airport entrance, Hurn Roundabout and Blackwater Interchange. The impact of the additional development traffic at other junctions in the study area is shown on the percentage traffic impact diagrams described above.

### 4.3 Traffic Survey Data

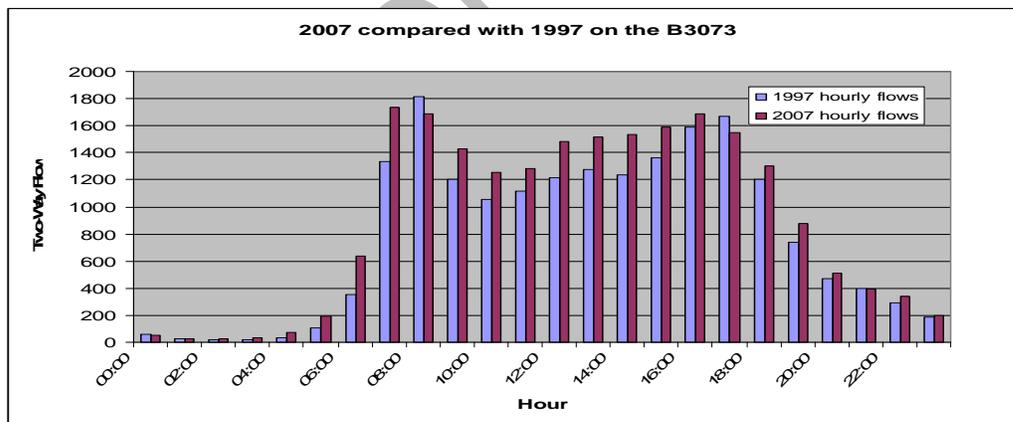
4.3.1 In order to assess the impact of various developments within Bournemouth International Airport, counts were commissioned by PBA and undertaken by Sky High Traffic Data Collection in June 2004 at all major junctions between Parley Cross and Blackwater. An additional survey was also undertaken in 2005 at the entrance to the Airport and at all internal junctions feeding from the Airport access road. The latter survey was commissioned to obtain data on the split of access traffic to the Airport, i.e., between passenger traffic, airport staff, taxis, non airport industrial traffic and the Air Training College.

4.3.2 In order to extend the study area, turning and link count data has been obtained for 2006 from Dorset CC, Bournemouth Council and the Highways Agency (via use of the TRADS web site). **Figure 3.1** shows the extent of the expanded study area.

### 4.4 Traffic Growth

4.4.1 Data has been obtained from the County Council from an Automatic Traffic Count site on the B3073 to the east of Parley Cross. Information has been supplied for the years between 1997 and 2007 and **Table 3** shows the changing travel patterns over this time.

Table 3: 2007 Compared with 1997 on the B3073



4.4.2 Comparison of the hourly 2-way flows indicates that there has been a slight reduction in traffic in the AM peak (08.00 - 09.00) and PM peak (17.00 - 18.00) hours. However, traffic is spreading out into the adjacent shoulders of the peaks or 'peak spreading'. This effect is tending to occur in all urban areas and results from drivers changing their travel time in an attempt to avoid congestion.

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- 4.4.3 As growth in the peak periods has been below the National Road Traffic Forecast (NRTF) 'low growth' predictions as set out in **Table 4**, it was agreed with the County Council that only 50% of NRTF forecasts would be appropriate for the assessment of future traffic flows.
- 4.4.4 Traffic predictions have been undertaken for the following years using 50% of NRTF 'urban growth' in the peak periods. The data was obtained from the DfT web site and applies to urban roads.

Table 4: Traffic Growth

Year	NRTF Urban Growth	50% of NRTF
2004	1.000	1.000
2006	1.014	1.007
2015	1.077	1.039
2020	1.105	1.053
2030	1.134	1.067

## 4.5 Traffic Model using 2004, 2005 and 2006 Survey Data

- 4.5.1 As with previous assessments, the traffic analysis has produced an AM and PM peak 12 x 12 matrix of traffic movements at 2004 levels (a Zone Plan is shown at **Figure 3.7**). This was based on the turning counts undertaken at all major junctions and produced trip matrices of traffic movements between each of the roads entering the study area. The number of trips is just over 10,000 vehicle movements in each of the peak hours with 470 two-way movements in and out of the airport in the morning peak and 350 two-way movements in the evening peak.
- 4.5.2 The 2005 airport entrance survey has allowed assessment of the various types of traffic using the access road. It is clear that a large proportion of the traffic is not directly related to the operation of the Airport. This is particularly evident in the morning peak hour where 77% (45% + 32%) of inbound traffic is related to the NATS College and 'other industry' (not related to operational requirements). In the evening peak, 60% of outbound traffic is unrelated to the operation of the Airport.
- 4.5.3 As a proportion of total inbound traffic, passengers account for 7% and staff 16% in the morning peak. In the evening peak outbound flows consist of 16% passengers and 24% staff.

## 4.6 Estimate of Airport Staff Employment

- 4.6.1 A predictive model of operational airport staff numbers was developed for the Airport Terminal Extension planning application. This has been checked against data provided by York Aviation and provides an accurate assessment of future staff numbers.
- 4.6.2 **Table 5** below indicates the 'direct' operational airport employment predictions for the future years of 2010, 2015 and 2030 using the model:

Table 5: Airport Operational Staff

Year	Operational Airport Staff	York Aviation Prediction
2004	262	
2005	434	430
2010	731	
2015	1058	1060
2030	1151	

4.6.3 In comparison to 2004, some 469 additional operational staff are predicted by 2010, 796 by 2015 and 889 by 2030 within the confines of the airport.

#### 4.7 Prediction of Airport Passenger and Staff Traffic Flows

4.7.1 In order to assess the impact of the airport growth on staff and passenger traffic movements along the airport access road it was necessary to create a model that would accurately predict future flows.

4.7.2 The model was produced based on the number of passengers checking in at the terminal departure lounge and used data provided by the airport for all hours of the day on the 28 July 2005. The data was collected between the hours of 07.00 - 18.00.

4.7.3 The traffic flows for 'Cars and HGVS' related to passenger and airport staff and have been compared with the 'check in data'. By use of linear regression analysis a model has been produced using 3 hours of check in data as shown below:

- Cars inbound (hour 1) =  $0.6225*(B*0.77 + C*0.23) + 13.256$
- Cars outbound (hour 1) =  $0.449*(A*0.36 + B*0.64) + 22.681$
- Passenger check in numbers (hour -1, i.e., 1 hour prior to hour 1) = A
- Passenger check in numbers (hour 1) = B
- Passenger check in numbers (hour 2, i.e., 1 hour after to hour 1) = C

4.7.4 The comparison of the modelled predictions and the observed survey data is set out in **Table 6**.

Table 6: Total Cars and HGV's using Airport Entrance, Model versus Observed – 2005 Weekday

2005 Airport Entrance	Airport Car Parks & Taxis (Passengers) Cars & HGV's		Modelled Flows Based on Check-in Data Cars & HGV's		Model - Observed	
	In	Out	In	Out	In	Out
Time						
07:00:00	10	5	13	39	3	34
08:00:00	35	19	32	23	-3	4
09:00:00	117	65	132	61	15	-4
10:00:00	236	140	230	154	-6	14
11:00:00	122	150	126	152	4	2
Time						
12:00:00	40	75	24	61	-16	-14
13:00:00	63	45	65	43	2	-2
14:00:00	107	100	85	69	-22	-31
15:00:00	79	93	67	71	-12	-22
16:00:00	37	30	45	51	8	21
17:00:00	27	51	55	52	28	1

4.7.5 For the inbound predictions the correlation coefficient is 95% and for the outbound 85%. As a 'perfect fit' is represented by 100% the model can produce good predictions of future traffic flows based on the expected pattern of flights in the future.

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4.7.6 The model was used to assess the likely airport passenger and airport staff traffic flows for the peak hour of operation of the airport using the profiles of passenger check in data shown below. The survey data for the 28 July 2005 is set out in **Table 7**.

Table 7: Passenger and Airport Staff Traffic Flows (excludes all other traffic movements)

Airport Entrance	28 July 2005 1,018,350 pass			Total in 2015 3.0 million pass			Total in 2030 4.5 million pass		
	Check In Pass	In	Out	Check In Pass	In	Out	Check In Pass	In	Out
04:00:00	125			226			350		
05:00:00	161			820			1000		
06:00:00	102			403			650		
07:00:00	0	13	39	327	183	182	500	282	271
08:00:00	0	32	23	92	103	102	200	176	161
09:00:00	134	132	61	316	238	128	470	334	190
10:00:00	382	230	154	512	345	221	670	446	291
11:00:00	235	126	152	603	335	279	780	439	355
12:00:00	1	24	61	228	150	186	360	232	252
13:00:00	71	65	43	190	164	114	320	248	173
14:00:00	121	85	69	414	269	172	570	358	238
15:00:00	99	67	71	398	222	204	500	286	258
16:00:00	43	45	51	128	97	124	230	159	170
17:00:00	77	55	52	155	102	88	250	155	132
18:00:00	32	29	44	101	62	77	150	85	106
<b>Total</b>	<b>1583</b>	<b>903</b>	<b>820</b>	<b>4913</b>	<b>2269</b>	<b>1876</b>	<b>7000</b>	<b>3200</b>	<b>2598</b>

4.7.7 The model was then used to derive airport entrance traffic flows for the future years of 2015 and 2030 based on the 1.8m and 4.5m passengers expected by these dates as set out in **Table 8**.

4.7.8 The flows have been derived based on the assumption that 40% of the existing non-airport industrial traffic will be transferred to Aviation Business Park by 2015 and 40% by 2030 (these figures were previously agreed with the County Council). It has been assumed that the NATS College traffic will continue to use the main airport access road. Although a Travel Plan is in operation the following figures ignore the beneficial effects.

Table 8: Predicted Total Cars and HGV's using Airport Entrance in 2005, 2015 and 2030

Airport Entrance	Total in 2005 1 million pass			Total in 2015 3.0 million pass			Total in 2030 4.5 million pass		
	In	Out	Two-Way	In	Out	Two-Way	In	Out	Two-Way
07:00:00	185	38	222	342	209	551	441	299	741
08:00:00	467	56	523	500	133	633	576	192	768
09:00:00	287	127	414	392	178	570	490	240	730
10:00:00	344	177	522	460	268	728	563	339	903
11:00:00	243	376	619	431	450	881	536	528	1064
12:00:00	193	288	480	273	365	638	356	433	789
13:00:00	226	160	387	310	222	532	396	282	679
14:00:00	219	250	469	364	295	659	454	362	816
15:00:00	152	324	476	281	404	685	345	461	805
16:00:00	105	344	449	153	412	565	216	459	675
17:00:00	82	322	403	150	316	466	203	362	565
18:00:00	81	160	241	102	177	279	126	208	334
<b>Total</b>	<b>2583</b>	<b>2622</b>	<b>5205</b>	<b>3758</b>	<b>3430</b>	<b>7188</b>	<b>4703</b>	<b>4167</b>	<b>8870</b>

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4.7.9 Previous discussions with the Airport suggests that the amount of non-airport related industrial traffic served from the airport access road will be cut by 75% (rather than 40%) by 2015, with the affected occupiers being moved to Aviation Business Park. It is also considered reasonable to assume that the Area Wide Travel Plan will achieve at least a 10% reduction in both staff and passenger traffic movements in the future. If these more realistic assumptions are taken into account the predicted flows in and out of the airport are set out in **Table 9**.

Table 9: Predicted Total Cars and HGV's using Airport Entrance in 2005, 2015 and 2030

(Based on 75% non-airport traffic moved to Aviation Business Park and 10% Travel Plan effect)

Airport Entrance Time	Total in 2005 1 million pass			Total in 2015 3.0 million pass			Total in 2030 4.5 million pass		
	In	Out	Two-Way	In	Out	Two-Way	In	Out	Two-Way
07:00:00	185	38	222	319	202	521	418	292	710
08:00:00	467	56	523	447	124	571	524	183	707
09:00:00	287	127	414	360	163	523	459	225	684
10:00:00	344	177	522	448	267	715	551	338	889
11:00:00	243	376	619	401	391	792	505	469	974
12:00:00	193	288	480	240	320	561	323	389	712
13:00:00	226	160	387	282	201	483	368	261	629
14:00:00	219	250	469	339	259	598	429	326	756
15:00:00	152	324	476	262	363	625	326	419	746
16:00:00	105	344	449	138	378	516	201	425	626
17:00:00	82	322	403	138	255	393	191	302	493
18:00:00	81	160	241	89	155	244	113	186	299
<b>Total</b>	<b>2583</b>	<b>2622</b>	<b>5205</b>	<b>3464</b>	<b>3078</b>	<b>6542</b>	<b>4409</b>	<b>3815</b>	<b>8224</b>

4.7.10 The results in the second table show the following increases in peak hour two-way flows:

**AM Peak**

2005 to 2015 9%  
2005 to 2030 35%

**PM Peak**

2005 to 2015 -3%  
2005 to 2030 22%

4.7.11 The results of the prediction indicate that both am and pm peak hour flows will be affected by the expansion of the Airport from the existing 1m to 4.5m passengers. The morning increase is 35% compared to a lower 22% in the evening. The effects are much lower than the proportional increase from 1 to 4.5m due to the changing profile of passenger arrivals.

4.7.12 In the mid morning peak hour (for the airport) of 10.00 – 11.00 the prediction of future traffic flows shows a substantial increase of:

**10.00 – 11.00**

2005 to 2015 +37%  
2005 to 2030 +71%

## 4.8 Base Traffic Flows

- 4.8.1 The assessment of peak period traffic flows is based on two models of the study area, namely the 'inner area', as studied in previous PBA reports, and a surrounding 'outer area' which is based on traffic count data supplied by the County Council, Bournemouth Council and the Highways Agency.
- 4.8.2 The 'inner area' predictions are based on a 2005 matrix produced using the predicted 2005 airport entrance peak hour flows. Growth was also applied to non-development related traffic to allow for the main road traffic growth occurring between 2004 and 2005. To allow comparison with the latest 2006 'outer area' counts this matrix has been adjusted to take account of a further years traffic growth and the construction of the Basepoint office development on Aviation Business Park and the opening of the Gravel Works located opposite the Airport entrance.
- 4.8.3 The 'outer area' is based on the recently supplied traffic count data which in the main consists of counts undertaken in 2006. Diagrams shown in **Figures (3.8a and 3.9a)** and **(3.8b and 3.9b)** indicate the comparison of the predicted 'inner area' 2006 AM and PM peak traffic model and the 'outer area' 2006 AM and PM counts. Where predictions correspond in location it can be seen that the 'inner area' predictions closely match recent 2006 counts. It has therefore not been necessary to adjust the original traffic model and the 2005 'inner area' survey data is considered 'fit for purpose' for the prediction of future flows.
- 4.8.4 For the assessment of future peak period traffic flows in the 'inner area' a base year 2005 matrix was produced using the predicted 2005 airport entrance peak hour flows shown in **Section 4.7**. Growth was also applied to non-development related traffic to allow for the main road traffic growth occurring between 2004 and 2005.
- 4.8.5 The 2005 matrices for the morning and evening peaks are set out in **Tables 10 and 11** and have been used as the base situation for the prediction of future year flows (the zones are shown in **Figure 3.7**).

Table 10: AM Peak (08.00 – 09.00) 2005

<b>Zone</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>Total</b>
<b>A347 South 1</b>	0	204	530	80	37	0	9	32	17	52	115	14	<b>1093</b>
<b>B3073 West of Parley Cross 2</b>	276	0	14	114	47	0	9	89	18	95	109	20	<b>791</b>
<b>A347 North 3</b>	319	11	0	65	29	0	0	45	1	58	78	11	<b>618</b>
<b>Chapel Gate Entrance 4</b>	24	33	21	0	0	0	7	14	2	29	24	0	<b>155</b>
<b>Airport Entrance 5</b>	8	8	6	0	0	0	2	4	9	10	10	0	<b>56</b>
<b>New Car Park Entrance 6</b>	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Matchams Lane 7</b>	23	29	0	18	25	0	0	50	0	29	46	63	<b>282</b>
<b>Causeway 8</b>	56	72	61	58	82	0	28	0	1	101	168	36	<b>663</b>
<b>A338 North 9</b>	6	22	0	6	25	0	0	18	0	251	2428	2	<b>2757</b>
<b>B3073 Christchurch 10</b>	39	75	66	74	107	0	24	99	230	0	526	27	<b>1268</b>
<b>A338 South 11</b>	98	102	65	77	115	0	26	41	1781	315	0	28	<b>2648</b>
<b>River Gate 12</b>	3	3	2	0	0	0	5	5	0	4	3	0	<b>25</b>
<b>Total</b>	<b>851</b>	<b>558</b>	<b>766</b>	<b>492</b>	<b>467</b>	<b>0</b>	<b>110</b>	<b>396</b>	<b>2060</b>	<b>945</b>	<b>3507</b>	<b>203</b>	<b>10356</b>

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Table 11: PM Peak (17.00 – 18.00) 2005

Zone	1	2	3	4	5	6	7	8	9	10	11	12	Total
<b>A347 South 1</b>	0	250	497	13	12	0	7	11	6	44	87	2	<b>929</b>
<b>B3073 West of Parley Cross 2</b>	396	0	24	27	17	0	15	106	27	55	106	4	<b>777</b>
<b>A347 North 3</b>	509	19	0	11	8	0	0	43	0	28	49	2	<b>669</b>
<b>Chapel Gate Entrance 4</b>	122	137	81	0	0	0	25	54	13	105	52	0	<b>590</b>
<b>Airport Entrance 5</b>	21	18	13	0	0	0	23	50	36	102	58	0	<b>322</b>
<b>New Car Park Entrance 6</b>	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Matchams Lane 7</b>	18	17	0	7	3	0	0	22	0	20	38	7	<b>132</b>
<b>Causeway 8</b>	76	81	34	13	6	0	51	0	18	96	78	4	<b>457</b>
<b>A338 North 9</b>	5	11	1	1	12	0	0	1	0	373	1752	0	<b>2156</b>
<b>B3073 Christchurch 10</b>	105	83	68	21	11	0	65	127	176	0	453	5	<b>1113</b>
<b>A338 South 11</b>	64	110	75	20	14	0	82	112	1919	491	0	5	<b>2891</b>
<b>River Gate 12</b>	16	17	10	0	0	0	50	21	5	35	17	0	<b>172</b>
<b>Total</b>	<b>1333</b>	<b>745</b>	<b>804</b>	<b>113</b>	<b>82</b>	<b>0</b>	<b>318</b>	<b>547</b>	<b>2200</b>	<b>1349</b>	<b>2690</b>	<b>28</b>	<b>10207</b>

DRAFT

## 5 Travel Planning

### 5.1 Introduction

- 5.1.1 As part of this study, the importance of Travel Planning as it relates to employment, residential and, visitor trip making has been considered. In particular the effect that travel planning can have on reducing the level of trip making and the mode switch from the private car to other more sustainable modes. The Airport has appointed a Travel Plan Coordinator to manage and implement appropriate measures.
- 5.1.2 In broad terms, travel planning has been aimed at trips with a home / residential based origin and trips with a work based destination.
- 5.1.3 In the context of this study, the major initiatives will be 'softer' measures or 'smarter choices', involving for example car sharing schemes, travel clubs and provision of travel information. The description 'softer measures' is used to distinguish those initiatives that are not described as 'hard measures', such as physical improvements to transport infrastructure and traffic engineering.

### 5.2 Travel Plan

- 5.2.1 Congestion on the roads is caused principally by rising car ownership and a heavy reliance on the car for journeys. Nearly three quarters of all journeys are less than five miles and many of these trips can be made by walking, cycling or public transport and can be affected by changes in behaviour. It is considered that there is scope for affecting mode switch in these key areas by implementation of a site Travel Plan.

### 5.3 Effectiveness of Measures

#### Personal

- 5.3.1 Personal Travel Planning (PTP) has a beneficial effect by reducing car driver trips per person per year by an average of 10%. Reported evidence to date (DfT, 2004) suggests that PTP can lead to a 7 – 15% reduction in car driver trips amongst the targeted populations in large urban areas. In smaller urban and rural areas the reduction in car driver trips is more modest at around 2 – 6%.
- 5.3.2 Examples of the effectiveness of PTPs are shown in **Table 12**, and suggest that a 10% reduction in peak hour traffic movements should be achievable in the urban areas close to the Airport.

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Table 12: Source – DfT Making Personal Travel Planning Work: Case Studies (Dec 2007)

Relative Change	
<b>Worcester</b>	
Walking	+17%
Cycling	+36%
Car as driver	-12%
Public Transport	+22%
<b>Darlington</b>	
Walking	+24%
Cycling	+100%
Car as driver	-12%
Public Transport	0%
<b>Peterborough</b>	
Walking	+21%
Cycling	+25%
Car as driver	-13%
Public Transport	+13%
<b>Brighton in Hove</b>	
Walking	+39%
Cycling	+122%
Car as driver	-6%
Public Transport	-
<b>Nottingham</b>	
Walking	+23%
Cycling	+16%
Car as driver	-5%
Public Transport	+13%

5.3.3 As quoted in DfT Making Personal Travel Planning Work Summary Report (2007), PTP programmes typically cost between £20 and £38 per targeted household, or in the order of £0.02 to £0.13 for each vehicle kilometre travelled reduced in the first year. International experience of cost-benefit analysis of PTP has demonstrated that, over a 10-year period, PTP offers a £30 return for every £1 invested. Increasing the scale of a project makes it more cost-effective.

### Employee

5.3.4 Workplace travel planning has a beneficial effect by substantially reducing car driver trips per person per year. Examples of the effectiveness of Travel Plans are shown below in **Table 13** and suggest that a 10% reduction in peak hour traffic movements should be achievable within the Area Wide Airport Travel Plan.

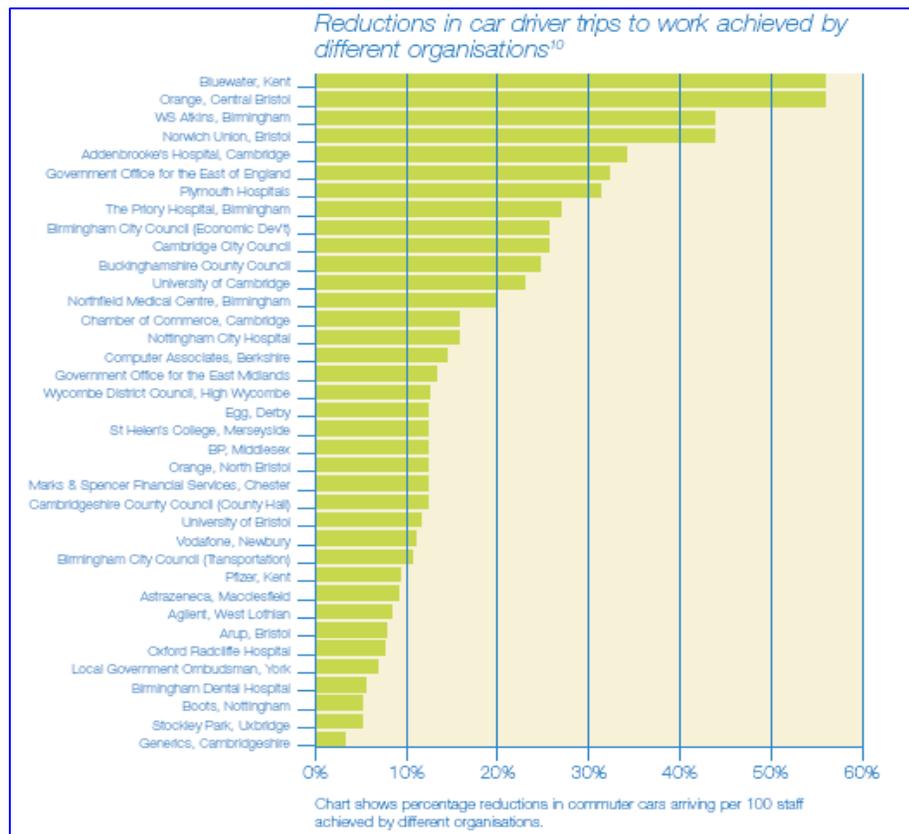
Table 13: Source – Scottish and English Guidance

<b>Dunbia, Llanybydder - Travel Plan 2003 / 04</b>	Car use decreased from 89% to 80% of total travel. <b>Relative Change of -9% per annum</b>
<b>Addenbrooke's Hospital - Travel Plan 1993 - 2003</b>	Car use fell from 74% to 42%. <b>Relative Change of -2.8% per annum</b>

5.3.5 For further comparison purposes the following graph (**Table 14**) illustrates successful reductions in car driver trips to work by different organisations. The range of relative change shown is between 4 - 55% however, consideration needs to be given to the directly comparable elements.

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Table 14: Reductions in Car Driver Trips to Work Achieved by Different Organisations



## 6 Future Traffic Predictions

### 6.1 Committed and Proposed Developments

- 6.1.1 Bournemouth International Airport comprises two main areas of activity. Firstly the Airport Terminal and associated activities accessed off the main entrance access road and secondly Aviation Business Park split into two areas - Aviation Business Park accessed off the western Chapel Gate Roundabout junction and Aviation Business Park East accessed off Matchams Lane. The two areas are not currently linked by internal roads as the site is divided by the north/south taxiway.
- 6.1.2 Other land uses in close vicinity of the Airport are:
- Gravel Works to the south of the Airport main access road;
  - the proposed MBT/RDF Waste Facility to the west of Aviation Business Park; and
  - potential Housing sites at Parley Cross to the west of the Airport.
- 6.1.3 In respect of Bournemouth International Airport this currently serves around 1 million passengers per annum (mppa) with planning permission to expand to 3 mppa by 2015 and with proposals to increase throughput to 4.5 mppa by 2030 based on the 'Future of Transport: a network for 2030 White Paper' (July 2003).
- 6.1.4 Aviation Business Park has around 1,500,000ft<sup>2</sup> (139,355m<sup>2</sup>) of existing floor space split between B1, B2 and B8 uses. This includes areas not under the control of MADL such as the Business Park at the entrance to Aviation Business Park and, European Hangers to the north of the Park.
- 6.1.5 Planning permission has been granted for additional development which would increase the overall floor space to 1,605,533ft<sup>2</sup> (149,159m<sup>2</sup>). This is referred to in the PBA report as the base and committed development or Scenario B.
- 6.1.6 Further development is planned in order to replace land allocated for the MBT Waste Treatment Plant. A development mix referred to as Option 4 development would provide for an additional 452,084ft<sup>2</sup> (42,000m<sup>2</sup>) of B1, B2 and B8 development. These development proposals are discussed in more detail below.

#### **Airport Development Already Constructed on Aviation Business Park**

- 6.1.7 The Basepoint office and workshop development has been completed and occupied since the 2004 traffic surveys. The development consists of 3,054m<sup>2</sup> office and 827m<sup>2</sup> of industrial workshops.

#### **Airport Development with Planning Permission or Under Consideration**

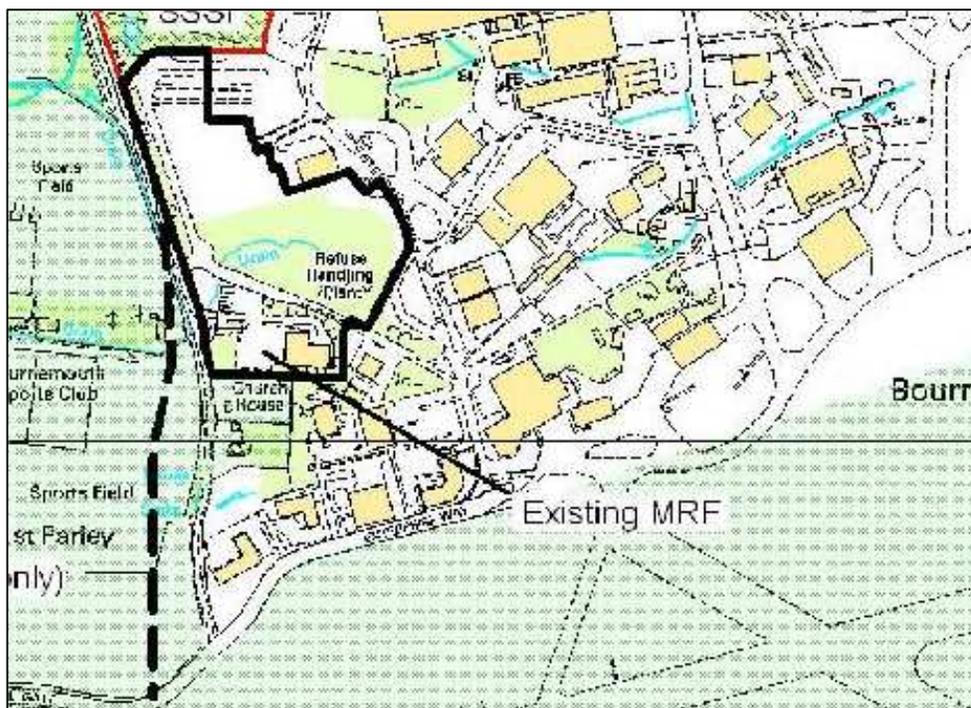
- 6.1.8 Applications between 2003 and 2007:
- **Aim Industrial Development** - has planning permission but has not yet been constructed. It consists of 2,035m<sup>2</sup> office, 4,542m<sup>2</sup> industrial and 1,780m<sup>2</sup> storage;
  - **Airport Terminal Extension** - expansion from the existing 1m passengers to 3m passengers by 2015. Approved in 2007; and

- **B1 and B8 land uses** - gross floor area of 2,267m<sup>2</sup> on Aviation Business Park including demolition of building 450 which consists of 625m<sup>2</sup> of B1 and 195m<sup>2</sup> of B8. Approved 2008 subject to completion of S106 Agreement.

### Bournemouth, Dorset and Poole Waste Local Plan

- 6.1.9 A site for a Mechanical Biological Treatment and Refuse Derived Fuel waste treatment plant was allocated in the 2006 Waste Local Plan and is located within Aviation Business Park as shown in **Picture 1** below.

Picture 1: Site of Treatment Plant



### Bournemouth International Airport Spatial Strategy

- 6.1.10 Drivers Jonas and RPS Burkes Green are appointed by MADL to develop a Planning and Spatial Strategy for the development of Aviation Business Park. The intention is to develop a phased and coordinated strategy that will accord with the aspirations of SWRDA, Christchurch Council and MADL for Aviation Business Park as a strategic employment site. Previous studies have indicated that full redevelopment of the eastern and western sections of Aviation Business Park is likely to require the construction of a new link road to the A338 Bournemouth Spur. It is necessary to determine whether a more limited development of Aviation Business Park is possible with highway improvements restricted to the B3073, given that the timescale to fully develop out the park would take over 20 years.

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6.1.11 In 2005 a planning application was submitted for the development of 20,000m<sup>2</sup> of office development on a site known as Area A. This site has now been allocated for the MBT waste treatment plant and cannot therefore be developed for office use. Following the assessment of future potential development the strategy was to provide a mixture of new development that would generate a similar volume of traffic to that originally predicted for Area A. **Table 15** shows a number of alternative scenarios ranging from Mix 1 consisting of 20,000m<sup>2</sup> of B1 to Mix 7 with 5,000m<sup>2</sup> B1, 40,000m<sup>2</sup> B2 and 30,000m<sup>2</sup> of B8. For this study Development Option 4 has been assessed, representing a mid range mix of employment uses. A possible phasing as suggested by RPS Burks Green is shown in **Picture 2**.

Picture 2: Possible Phasing

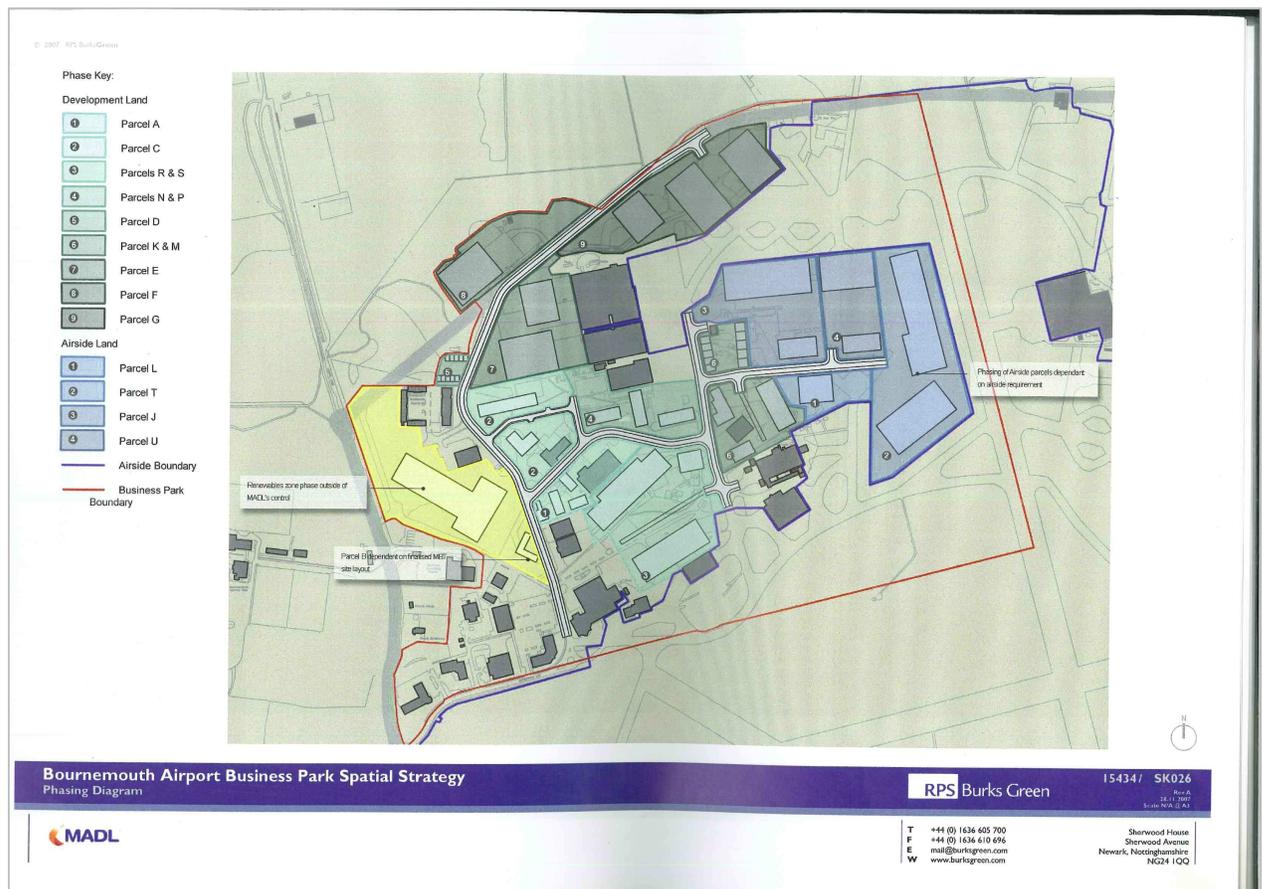


Table 15: Aviation Business Park Spatial Development Options

Alternative Development Mixes Generating Similar Traffic Flows to Area A										
	B1 m <sup>2</sup>	B2 m <sup>2</sup>	B8 m <sup>2</sup>	Total GFA	AM Peak Trips In	AM Peak Trips Out	AM Two-Way	PM Peak Trips In	PM Peak Trips Out	PM Two-Way
<b>Dev Mix 1</b>	20000 100%	0 0%	0 0%	20000	306	38	344	36	244	280
<b>Dev Mix 2</b>	16000 50%	10000 31%	6000 19%	32000	287	44	331	41	239	280
<b>Dev Mix 3</b>	15000 43%	10000 29%	10000 29%	35000	279	46	324	43	233	276
<b>Dev Mix 4</b>	12000 29%	20000 48%	10000 24%	42000	265	49	313	44	230	274
<b>Dev Mix 5</b>	13000 25%	15000 29%	24000 46%	52000	288	57	345	56	248	304
<b>Dev Mix 6</b>	10000 17%	20000 33%	30000 50%	60000	268	61	329	60	238	298
<b>Dev Mix 7</b>	5000 7%	40000 53%	30000 40%	75000	256	70	325	63	245	308

#### Bournemouth International Airport Passenger Expansion

- 6.1.12 Based on the 'Future of Transport: a Network for 2030 White Paper, July 2003', it is likely that the Airport will expand to 4.5m passengers per year by 2030. At the present time the airport has permission for 3m passengers per year which is expected to be reached by 2015. The number of passengers per year in 2006 was approximately 1m passengers.
- 6.1.13 This report considers both the expansion to 3m and the further expansion to 4.5m passengers by 2030.

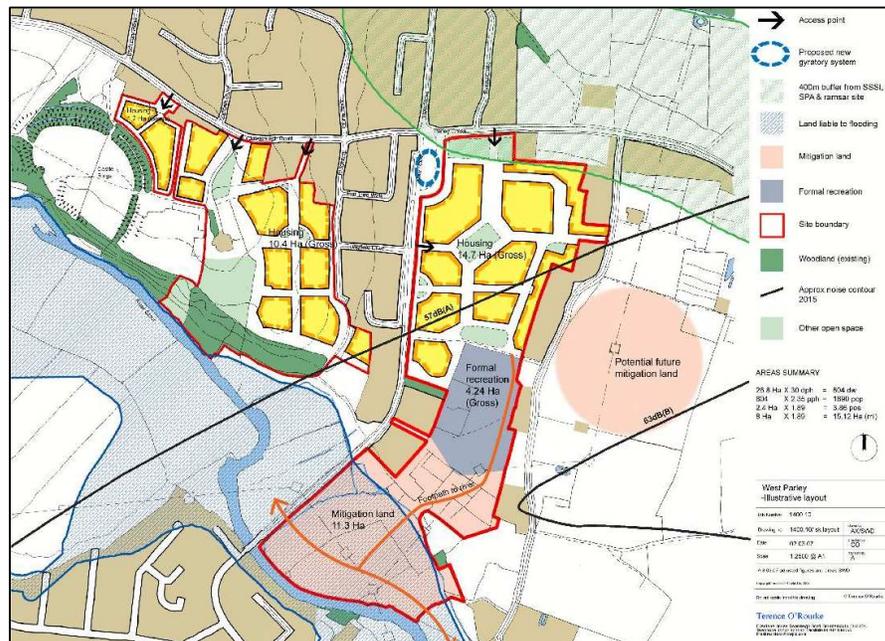
#### Non Airport Development - New Milton Sand & Ballast

- 6.1.14 This is new gravel workings on land opposite the Airport entrance and was opened in 2006. A new access road was provided and forms a staggered crossroads with the Airport entrance. There has been a further 30 acres allocated but not assessed as part of this study. The study has used a default value for traffic using the southern arm of the Airport entrance junction which assumes a traffic generation of 10 vehicles per hour compared with the predicted 4 gravel vehicles per hour quoted in the planning application.

#### Non Airport Development - Parley Cross Housing

- 6.1.15 As part of the consultation process for the South West Regional Spatial Strategy, Terence O'Rourke prepared a plan showing potential housing sites at West Parley (**Picture 3**). The Panel Report suggests that these sites could be allocated in the emerging Local Development Framework for East Dorset in the LDF period up to 2016.

Picture 3: Potential Housing Sites at West Parley



6.1.16 In discussion with the County Council, it was agreed that 300 houses should be assessed on the site to the west of Parley Cross and 600 houses on the site to the east. Based on research of the proportion of affordable housing required in East Dorset and the likely requirement for one bed flats the following conservative assumptions have been made:

- 30% affordable housing; and
- 10% flats.

6.1.17 The net numbers of dwellings used in the assessment are set out in **Table 16**:

Table 16: Net Numbers of Dwellings

Private		Social	
Houses	Flats	Houses	Flats
567	63	243	27

## 6.2 Prediction of Development Traffic Flows

### Trip Rates

6.2.1 Traffic flows generated in the peak hours from the various airport and non-airport developments have mainly been produced using the TRICS Trip Generation database. In two cases, namely the MBT waste treatment site and the Gravel Works, data has been provided by Dorset County Council.

6.2.2 As the generation data used in the previous studies was based on earlier versions of the TRICS database the study has updated the analysis by use of the TRICS 2008a release of the program.

6.2.3 The trip rates in the following 'INDUSTRIAL' (**Table 17**) and 'RESIDENTIAL' (**Table 18**) tables represent data surveyed over the past 10 years.

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Table 17: Vehicle Trip Rates from the TRICS 2008a Database – Industrial Weekday

Vehicle Trip Rates from the TRICS 2008a Database - Weekday				
Land Use - Industrial	Time Range	Arrivals Per 100m <sup>2</sup> Trip Rate	Departures per 100m <sup>2</sup> Trip Rate	Totals Trip Rate
B1 (a) & (b) Office & Research Business Park	08:00 - 09:00	1.35	0.19	1.54
	17:00 - 18:00	0.16	1.09	1.25
	24 hr	5.25	5.14	10.39
Industrial Estate & Industrial Units B1 (c)	08:00 - 09:00	0.47	0.17	0.64
	17:00 - 18:00	0.10	0.39	0.49
	24 hr	3.12	3.10	6.22
B2 Industrial	08:00 - 09:00	0.31	0.12	0.43
	17:00 - 18:00	0.09	0.28	0.37
	24 hr	2.12	2.18	4.30
B8 Distribution	08:00 - 09:00	0.27	0.12	0.39
	17:00 - 18:00	0.15	0.27	0.41
	24 hr	3.40	3.40	6.80
B1 (a) & (b) Office & Research Business Park	08:00 - 09:00	1.35	0.19	1.54
	17:00 - 18:00	0.16	1.09	1.25
	24 hr	5.25	5.14	10.39
Industrial Estate & Industrial Units B1 (c)	08:00 - 09:00	0.47	0.17	0.64
	17:00 - 18:00	0.10	0.39	0.49
	24 hr	3.12	3.10	6.22
B2 Industrial	08:00 - 09:00	0.31	0.12	0.43
	17:00 - 18:00	0.09	0.28	0.37
	24 hr	2.12	2.18	4.30

Table 18: Vehicle Trip Rates from the TRICS 2008a Database – Residential Weekday

Vehicle Trip Rates from the TRICS 2008a Database - Weekday				
Land Use - Residential	Time Range	Arrivals Per 100m <sup>2</sup> Trip Rate	Departures per 100m <sup>2</sup> Trip Rate	Totals Trip Rate
Houses Private	08:00 - 09:00	0.12	0.43	0.54
	17:00 - 18:00	0.40	0.20	0.60
	24 hr	3.15	3.14	6.29
Houses for Rent (assumed to apply to Social Housing)	08:00 - 09:00	0.13	0.23	0.36
	17:00 - 18:00	0.30	0.20	0.50
	24 hr	2.63	2.45	5.08
Flats Private	08:00 - 09:00	0.04	0.18	0.22
	17:00 - 18:00	0.17	0.09	0.26
	24 hr	0.98	1.12	2.09
Flats for Rent (assumed to apply to Social Housing)	08:00 - 09:00	0.06	0.12	0.19
	17:00 - 18:00	0.12	0.09	0.22
	24 hr	1.04	1.13	2.17

### Trip Generation of Airport Related Development

6.2.4 The trips that will be generated in the peak hours by the various airport developments described are shown in **Tables 19 to 25**.

Table 19: Basepoint Office and Workshop Units

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	45	7	52
17:00 – 18:00	6	36	42

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Table 20: Aim Industrial Development

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	46	11	57
17:00 – 18:00	10	39	49

Table 21: Airport Terminal Extension from 1m to 3m Passengers per Year

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	92	87	179
17:00 – 18:00	81	63	144

Table 22: B1 / B8 Industrial Development

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	22	3	25
17:00 – 18:00	2	17	19

Note: Generation takes account of the demolition of Building 450

Table 23: MBT / RDF Waste Treatment Facility

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	7	6	13
17:00 – 18:00	51	213	264

Table 24: Option 4 (Spatial Strategy) Industrial Development on Aviation Business Park

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	250	59	309
17:00 – 18:00	51	213	264

Table 25: Airport Expansion from 3m to 4.5m Passengers per Year

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	77	59	136
17:00 – 18:00	53	46	99

### Trip Generation of Non-Airport Related Development

6.2.5 The trips that will be generated in the peak hours by the two non-airport developments described are shown below in **Tables 26** to **28**.

Table 26: Gravel Works

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	4	4	8
17:00 – 18:00	4	4	8

Table 27: Parley Cross West – 300 Dwellings

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	34	105	139
17:00 – 18:00	104	56	160

Table 28: Parley Cross East – 600 Dwellings

Hour	Inbound Trips	Outbound Trips	Two-Way
08:00 – 09:00	68	209	277
17:00 – 18:00	208	112	319

## 6.3 Trip Distribution

6.3.1 As the study area has been increased in size compared with previous assessments, it has been necessary to determine the distribution of trips using a different technique. The previous assessments mainly based the distribution on the turning count data at the various junctions along the B3073. The exception was the distribution of Airport passenger traffic which used data on the postcodes of passengers.

6.3.2 In this assessment three separate distributions have been assessed as follows:

### Distribution of Aviation Business Park and Airport Staff Traffic

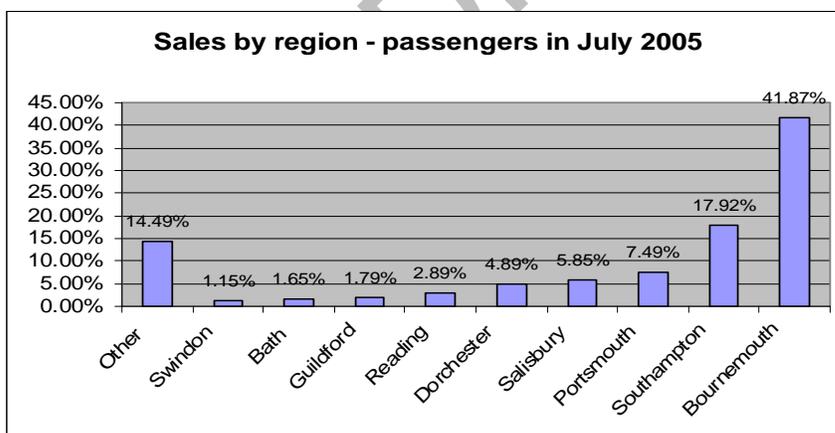
6.3.3 In 2007, a questionnaire was distributed to the majority of staff on Aviation Business Park (including non MADL land) and the Airport in connection with the Area Wide Travel Plan as agreed with DCC. This produced 335 replies which included the postcode of the individuals involved.

6.3.4 The data was then plotted using a GIS computer program and resulted in a spread of home addresses surrounding the Airport. Based on our knowledge of the local highway network it was possible to derive the most likely route that would be taken from home to work. **Figure 5.1** shows the resulting distribution which was based on 27 zones covering the 'outer area' of the study.

### Distribution of Airport Passenger Traffic

6.3.5 This was based on the same Thompsonfly data as used for the Terminal Extension planning application and adjusted using information from the staff travel survey to derive the proportion from each of the 27 zones. Passenger distribution data was county based and the staff data has been used to provide a more detailed distribution pattern in the local Bournemouth area. The Thompsonfly data is shown below in **Table 29** and the resulting detailed distribution in **Figure 5.2**.

Table 29: Thompsonfly Passenger Sales Data



### Distribution of Parley Cross Housing Traffic

6.3.6 The process used for this distribution was based on an analysis of the 'Home to Work' 2001 census data using a GIS system. This allowed the 5.9million National Records, based on census 'output areas', to be re-coded to the 27 study area zones. The resulting distribution is shown in **Figure 5.3** and has been used for the distribution of all housing traffic movements in the peak periods.

## 6.4 Development of Scenarios and Design Years

6.4.1 In assessing the development proposals and infrastructure requirements, a series of development scenarios were adopted and agreed with MADL and DCC along with appropriate design years.

6.4.2 These can be summarised as:

- 2006 Base Year including Basepoint office and workshop units and Gravel Works;
- 2020 and 2030 forecast year with Basepoint, Gravel Works, Aim industrial development, MBT Waste Treatment Plant and Airport Terminal throughput of 3 million passengers per annum;
- addition of Option 4 development at Aviation Business Park (includes non MADL land);
- additional Airport Terminal throughput of 1.5 mppa (giving 4.5 mppa); and
- 900 new houses at land at Parley Cross.

6.4.3 The following development scenarios (as set out in the technical report) have been adopted for testing. (The reference numbers are shown on the traffic diagrams and in the junction capacity results):

- **Scenario A** - 2006 base year with Basepoint and Gravel Works site (ref 740 & 741);
- **Scenario B** - 2020 forecast year with Basepoint, and Aim and B1 - B8 and, Gravel Works and MBT and, 3 million passengers (mppa) - called *base case with all committed development* (ref 781 & 782);
- **Scenario C** - 2020 forecast year with base case plus additional 1.5 million passengers (mppa) (ref 790 & 791);
- **Scenario D** - 2020 forecast year with base case plus 1.5 mppa and Option 4 development at Aviation Business Park (ref 793 & 794);
- **Scenario E** - 2020 forecast year with base case and Parley Cross housing (ref 784 & 785);
- **Scenario F** - 2020 forecast year with base case and 1.5 mppa and Option 4 development at Aviation Business Park and Parley Cross housing (ref 796 & 797);
- **Scenario G** - 2030 forecast year with Basepoint and Aim and B1- B8 and Gravel Works and MBT and 3 million passengers (mppa) - called *base case with all committed development* (ref 853 & 854);
- **Scenario H** - 2030 forecast year with base case plus additional 1.5 million passengers (mppa) (ref 862 & 863);
- **Scenario I** - 2030 forecast year with base case plus 1.5 mppa and Option 4 development at Aviation Business Park (ref 793 & 794);
- **Scenario J** - 2030 forecast year with base case and Parley Cross housing (ref 784 & 785); and

- **Scenario K** - 2030 forecast year with base case and 1.5 mppa and Option 4 development at Aviation Business Park and Parley Cross housing (ref 868 & 869).

## 6.5 Traffic Impact of Individual Developments

6.5.1 In order to show the impact of the individual development scenarios, a number of Figures have been produced using the trip generation data. The scale of additional traffic is shown on the 'outer area' study diagrams and takes no account of the potentially beneficial effects of employee and personalised travel plans.

6.5.2 The following Figures have been produced:

- Basepoint AM **Figure 5.4**
- Basepoint PM **Figure 5.5**
- Aim Industrial AM **Figure 5.6**
- Aim Industrial PM **Figure 5.7**
- Airport Expansion (additional 2m passengers) AM **Figure 5.8**
- Airport Expansion (additional 2m passengers) PM **Figure 5.9**
- B1/B8 Industrial Development AM **Figure 5.10**
- B1/B8 Industrial Development PM **Figure 5.11**
- MBT Waste Treatment Facility AM **Figure 5.12**
- MBT Waste Treatment Facility PM **Figure 5.13**
- Option 4 (Spatial Strategy) Industrial AM **Figure 5.14**
- Option 4 (Spatial Strategy) Industrial PM **Figure 5.15**
- Airport Expansion (additional 1.5m passengers) AM **Figure 5.16**
- Airport Expansion (additional 1.5m passengers) PM **Figure 5.17**
- Gravel Works AM and PM **Figure 5.18**
- Parley Cross East and West – 900 dwellings AM **Figure 5.19**
- Parley Cross East and West – 900 dwellings PM **Figure 5.20**

## 6.6 Assignment of Traffic Movements to the Highway Network

6.6.1 As previously mentioned, the study has assessed the impact of a number of individual and combined developments on the highway network either without the effect of a Travel Plan or based on a Travel Plan where development flows are reduced by 10%. Predictions for both situations have been undertaken for an assumed opening year of 2020 and the forecast year ten years after opening of 2030.

6.6.2 In order to show the effects graphically, the following traffic diagrams have been prepared for the ‘inner’ and ‘outer’ study areas. Diagrams are shown for 2020 without the effect of a Travel Plan and at 2030 with the 10% reduction effect of a Travel Plan. (The other two options of ‘2020 with a Travel Plan’ and ‘2030 without a Travel Plan’ are not shown but can be provided if required).

#### Base Case with Committed Developments Only

- 2006 AM & PM Base with Basepoint & Gravel Works Figs 3.8a/b & 3.9a/b
- 2020 AM & PM Base with Committed Developments and no Travel Plan Figs 5.21a/b & Figs 5.22a/b
- 2030 AM & PM Base with Committed Developments and with 10% Travel Plan effect Figs 5.31a/b & Figs 5.32a/b

#### Airport Expansion from 3m to 4.5m Passengers per Year, i.e. +1.5m Passengers

- 2020 AM & PM Base 1.5m passengers and no Travel Plan Figs 5.23a/b & Figs 5.24a/b
- 2030 AM & PM Base + 1.5m passengers and with 10% Travel Plan effect Figs 5.33a/b & Figs 5.34a/b

#### Airport Expansion from 3m to 4.5m Passengers per Year + Option 4 Aviation Business Park

- 2020 AM & PM Base +1.5m passengers + Option 4 Aviation Business Park with no Travel Plan Figs 5.25a/b & Figs 5.26a/b
- 2030 AM & PM Base + 1.5m passengers + Option 4 Aviation Business Park with 10% Travel Plan effect Figs 5.35a/b & Figs 5.36a/b

#### Parley Cross Housing – 900 Dwellings

- 2020 AM & PM Base + Parley Cross and no Travel Plan Figs 5.27a/b & Figs 5.28a/b
- 2030 AM & PM Base + Parley Cross and with 10% Travel Plan effect Figs 5.37a/b & Figs 5.38a/b

#### Airport Expansion + Option 4 Aviation Business Park + Parley Cross Housing

- 2020 AM & PM Base + 1.5m passengers + Option 4 Aviation Business Park + Parley Cross and no Travel Plan Figs 5.29a/b & Figs 5.30a/b
- 2030 AM & PM Base + 1.5m passengers + Option 4 Aviation Business Park + Parley Cross with 10% Travel Plan Figs 5.39a/b & Figs 5.40a/b

6.6.3 A considerable volume of data is provided in the traffic diagrams which can be used to determine the effects of the various developments over the whole of the inner and outer study areas. **Tables 30** and **31** show the main conclusions from these future traffic predictions indicating the percentage increase in flows through the junctions surrounding the Airport. The first indicates the am peak effect for the inner and outer study areas and the second the similar effects in the pm peak period. Both tables assume that effective Travel Plans will apply to all the development options.

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Table 30: Percentage AM Peak Increase in Traffic Resulting from the Development Options

<b>AM Peak % Increase Due to Development Options (assuming that effective Travel Plans are in place)</b>					
<b>Junctions Within the Inner Area</b>	<b>Base 2030</b>	<b>+ 1.5m</b>	<b>+1.5m, +Option 4</b>	<b>+ Parley Housing</b>	<b>+1.5m, +Option 4, + Parley Housing</b>
<b>Parley Cross</b>	3600	1.0%	5.0%	3.6%	8.7%
<b>Chapel Gate</b>	2585	1.4%	12.1%	1.2%	13.3%
<b>Airport Entrance</b>	2530	4.8%	10.1%	0.7%	10.8%
<b>Hurn Roundabout</b>	3010	2.9%	7.3%	0.6%	7.9%
<b>Blackwater West</b>	2891	3.0%	6.1%	0.5%	6.7%
<b>Blackwater East</b>	3059	1.7%	3.5%	0.5%	4.0%
<b>Junction/Links Within the Outer Area</b>	<b>Base 2030</b>	<b>+ 1.5m</b>	<b>+1.5m, +Option 4</b>	<b>+ Parley Housing</b>	<b>+1.5m, +Option 4, + Parley Housing</b>
<b>Canford Bottom Roundabout A31/B3073</b>	5573	0.1%	0.5%	0.5%	1.0%
<b>Bear Cross Roundabout</b>	3331	0.3%	2.4%	2.3%	4.7%
<b>B3073 Ham Lane, Longham</b>	3068	0.5%	2.5%	3.2%	5.7%
<b>Penny's Hill</b>	1994	0.3%	1.5%	5.1%	6.7%
<b>A31/A348 Roundabout</b>	4573	0.0%	0.4%	1.2%	1.6%
<b>Northbourne Roundabout</b>	3279	0.3%	3.0%	3.8%	6.8%
<b>A31/A338 Grade Separated</b>	4824	0.7%	0.9%	0.0%	0.9%
<b>Fairmile Road</b>	1999	0.6%	1.8%	0.6%	2.4%
<b>Barrack Road/ Iford Lane</b>	2492	0.2%	0.7%	0.3%	1.0%

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Table 31: Percentage PM Peak Increase in Traffic Resulting from the Development Options

PM Peak % Increase Due to Development Options (assuming that effective Travel Plans are in place)					
Junctions Within the Inner Area	Base 2030	+ 1.5m	+1.5m, +Option 4	+ Parley Housing	+1.5m, +Option 4, + Parley Housing
Parley Cross	3840	0.7%	4.1%	4.5%	8.6%
Chapel Gate	2458	1.0%	10.7%	1.5%	12.2%
Airport Entrance	2245	4.0%	8.7%	0.9%	9.6%
Hurn Roundabout	2891	2.2%	5.9%	0.7%	6.6%
Blackwater West	2948	2.2%	4.6%	0.6%	5.2%
Blackwater East	3178	1.2%	3.0%	0.5%	3.6%
Junction/Links Within the Outer Area	Base 2030	+ 1.5m	+1.5m, +Option 4	+ Parley Housing	+1.5m, +Option 4, + Parley Housing
Canford Bottom Roundabout A31/B3073	5491	0.1%	0.4%	0.5%	1.0%
Bear Cross Roundabout	3472	0.2%	1.9%	2.6%	4.5%
B3073 Ham Lane, Longham	3043	0.4%	2.1%	4.1%	6.2%
Penny's Hill	2245	0.2%	1.1%	5.3%	6.4%
A31/A348 Roundabout	4678	0.0%	0.3%	1.3%	1.7%
Northbourne Roundabout	4472	0.2%	2.3%	4.1%	6.4%
A31/A338 Grade Separated	3524	0.6%	0.9%	0.0%	0.9%
Fairmile Road	1978	0.4%	1.5%	0.6%	2.1%
Barrack Road/ Iford Lane	3480	0.1%	0.4%	0.2%	0.6%

6.6.4 Comments on the various tests are summarised below.

**Expansion of Airport to 4.5m Passengers (i.e. additional 1.5m)**

- Maximum impact occurs at the Airport Junction with increases of 4.8% in the AM and 4.0% in the PM peak.
- Between 3.0% and 2.2% increase on the Blackwater West junction in the AM and PM with a lesser effect on Blackwater East.

- 1% to 0.7% effect on the Parley Cross junction.
- Less than 1% effect on all junctions in the outer study area.

**Expansion of Airport to 4.5m Passengers, i.e., additional 1.5m plus additional effect of the Option 4 Industrial Development on Aviation Business Park**

- Maximum impact at the Chapel Gate Junction with increases of 12.1% in the AM and 10.7% in the PM peak.
- Between 10.1% and 8.7% increase at the Airport junction in the AM and PM with a lesser effect at Hurn roundabout.
- 5% am to 4.1% PM effect on the Parley Cross junction.
- Maximum impact on outer study area of 3.0% and 2.3% at Northbourne roundabout with only 0.5% and 0.4% at the A31 Canford Bottom roundabout.
- 0.9% in AM and PM peak at the A31 / A338 grade separated roundabout.

**Parley Cross Possible LDF Allocation of 900 Dwellings**

- Maximum impact on the B3073 at Parley Cross with 3.6% in the AM peak and 4.5% in the PM peak.
- Between 1.2% and 1.5% increase on the Chapel Gate roundabout with less than 1% on B3073 junctions to the east of Chapel Gate.
- Between 4% and 5% impact on immediate junctions to the north, west and south of Parley Cross.

**Combined Impact of Airport Expansion, Option 4 and Parley Housing**

- Maximum impact at the Chapel Gate Junction with increases of 13.3% in the AM and 12.2% in the PM peak.
- Between 9.6% and 10.8% increase at the Airport junction in the AM and PM peak.
- 8.6% to 8.7% effect on the Parley Cross junction.
- Between 3.6% AM to 7.7% PM increase on the Blackwater and Hurn junctions.
- Maximum impact on outer study area of 6.8% AM and 6.4% PM at Northbourne roundabout with only 1.0% AM and 1.0% PM at the A31 Canford Bottom roundabout.
- 0.9% in AM and PM peak at the A31 / A338 grade separated roundabout.

## 7 Highway Network Review

### 7.1 Introduction

7.1.1 The traffic predictions shown in **Section 6** suggest that the impact of the Airport Terminal expansion and Option 4 development at Aviation Business Park, is greatest on the junctions along the B3073. The impact on junctions in the outer study area is generally very low (3% or less) and is considered to be well within the day to day variations in traffic flow that would occur during an average week. Any junction improvements should therefore be limited to the section of the B3073 between Parley Cross in the west and the Blackwater Interchange in the east.

7.1.2 In previous studies potential highway improvements have been developed for the six junctions and are reviewed in **Table 32** below and within this section of the report. The table shows the description of the junction and the existing design layout along with proposed junction improvements tested as part of this study. The proposed junction improvements have generally been drawn up by PBA and in some instances are based on DCC designs and works which are indicated in this table.

Table 32: B3073 Summary of Existing and Proposed Junction Layouts

Junction Location	Existing Junction Layout	Junction Arrangements Considered
Parley Cross	Signalised cross roads with slip east to west	Signalised gyratory (PBA/DCC)
Chapel Gate	3 arm roundabout with slip lane	Larger roundabout (PBA)
Airport Access	Staggered T- junction with Hurn Court Lane	Signalised staggered T- junction with additional signalised T-junction to the west (PBA)
Hurn Village	3 arm roundabout	Larger off-line roundabout (DCC)
Blackwater Interchange West	Partial cloverleaf with signalised T-junction	Signalised T-junction with additional lane (DCC) or roundabout (PBA)
Blackwater Interchange East	Partial Cloverleaf with Signalised T-junction	Signalised T-junction with additional ahead lane and two eastbound exit lanes (PBA/DCC)

### 7.2 Parley Cross Junction

7.2.1 The existing Parley Cross junction is a signalised crossroads with a separate slip east to south. The junction operates over capacity during peak periods and Dorset CC has investigated ways of alleviating the problem by proposing two gyratory schemes on land to the south east of the junction. The concept of these schemes has now been taken further with the proposal of a gyratory scheme shown in **Figure 6.1**. This shows how vehicle stacking space can be achieved with all signalised 'intersections' configured as two stages each. This maximises 'green' time at each location. Whilst the proposed layout is somewhat 'innovative', good signing and use of signal phasing / staging will help to increase the through flow of traffic.

- 7.2.2 A review of the junction has been undertaken with key review comments as follows:
- Access/egress from the shop frontage access road will need to be managed. There are three entrances along the access that may be used for access to the shops. One is with the junction to Longfield Drive; the second is approximately 110m north of Longfield Drive; and the third towards the northern end of the access road. The second access will be blocked off due to the stop line at the northbound signals as there could be vehicle conflict at this location especially if vehicles are turning right out of the access road to travel south. A new right turn lane will be provided to gain access to both Longfield Drive and the shops access road.
  - Pedestrians from south side residences along Christchurch Road may need to cross to the old Petrol Station area north east of the main junction. There are no pedestrian facilities to aid this movement. A pedestrian crossing facility will need to be provided at the eastern signals. However, there will be a need to check operation of private driveways on north side residences.
  - The proposed pedestrian crossing facilities will need to be pedestrian controlled as there will not be a signal stage when an all red is available.
  - There will be a considerable length of carriageway edge that will need to be controlled against inappropriate parking. The whole of the gyratory system will have a TRO for 'No Waiting at Any Time'.

### 7.3 Chapel Gate Junction

7.3.1 Chapel Gate is an existing 3 arm roundabout with a dedicated left slip into Aviation Business Park from the Parley Cross direction. The proposals are to remove the dedicated slip and enlarge the roundabout junction with minor adjustments to entry widths, flares and a larger diameter. The proposed layout is shown in **Figure 6.4**.

7.3.2 A review of the proposals indicates that there are no particular issues with the potential operation of the roundabout in this form.

### 7.4 Airport Access and New Car Park Entrance Junctions

7.4.1 The Airport entrance at present is a priority T-junction and is part of a right/left stagger junction with Hurn Court Lane which has been realigned in conjunction with the gravel extraction operation immediately south of the airport access.

7.4.2 The proposals are to signalise the full staggered T-junction as shown in **Figure 6.7** as part of the Airport Terminal Expansion planning approval. PBA are preparing the detailed design of the junction and require Section 278 approval from the County Council.

7.4.3 In addition, a proposed entrance to a new car park will be located to the west of the Airport junction and will also be signalised. A review of the proposals indicates that there are no particular issues with the operation of the two signalised junctions.

### 7.5 Hurn Roundabout Junction

7.5.1 Hurn roundabout is a small 3 arm roundabout which currently operates at capacity in the peak hours. Consideration has been given to a number of design improvement options within the constraints of the public highway which alleviates capacity in the short term. **Figure 6.8** shows a PBA design which was submitted with the 2007 planning application for the Airport Terminal Extension.

- 7.5.2 Although this scheme significantly improves the capacity of the junction, the County Council have decided to construct a new offline roundabout to the east of the present junction. This will be promoted by the County Council based on Section 106 funding from the Terminal Extension planning application.

## 7.6 Blackwater Interchange

- 7.6.1 The Blackwater Interchange comprises a grade separated junction with the B3073 located on a bridge over the A338 Bournemouth Spur. The slips to and from the A338 are controlled by traffic signalled T-junctions to the west and east of the A338 Bournemouth Spur.

### Western Junction

- 7.6.2 The western junction had been improved by Dorset County Council with a 2 lane approach at the signals for eastbound traffic towards Christchurch, as shown in **Figure 6.11**. This considerably improved the capacity of the junction but resulted in a merging of the two lanes into a single lane before traffic crosses the bridge over the A338 Bournemouth Spur. As a result of safety concerns arising from the merging of the two lanes into one the County Council removed the second lane at the signals. This has reduced overall capacity at the junction although we feel that the reinstatement of the lane is achievable.

- 7.6.3 Due to the change in the layout of the junction it has been necessary to consider whether there are any other improvements that could be made to the western junction which would both improve capacity and be acceptable in safety terms. **Figure 6.12** shows a 40m diameter roundabout constructed in place of the existing traffic signal junction. Provision has also been made for a Toucan crossing of the slip road to allow for the cycle lane and pedestrian facilities that exist along the north side of Hurn Road (B3073). This design has not yet been discussed with the County Council.

### Eastern Junction

- 7.6.4 Based on previous PBA studies, the capacity of the existing eastern junction would be exceeded with any additional development (shown in **Figure 6.13**) resulting in queuing problems in the two peak periods.
- 7.6.5 The design in **Figure 6.14** shows a proposed improved layout. It provides an additional ahead lane for the eastbound approach and two eastbound exit lanes with a short merge into a single lane. This will require the relocation of the 'side road' traffic island, carriageway widening into the existing northern verge and adjustments to the existing private accesses either side of the slip road. Due to the different character of the merging section compared with the western junction it is considered that this form of improvement could be effective.

## 8 Assessment of Infrastructure Costs

- 8.1. In assessing potential junction improvements, consideration has been given to the costs of the junction improvements which provides an indication of the total infrastructure investment required to enable future development of the Airport and of the proposed housing area at Parley Cross.
- 8.2. A detailed re-assessment of likely construction and design costs has been made using data from our design work on the Airport entrance junction and also data obtained from the County Council. The likely impact on public utilities (particular fibre optic communication services) has also been made using recent data supplied by the Service Companies. HM Treasury (2003) notes that project appraisals tend to underestimate project costs. Present guidance from DfT provides empirically based optimism bias uplifts for selected classes of transport infrastructure projects. Established uplifts for roads at 80% percentile level are 32% as adopted in this study.
- 8.3. **Tables 33 to 37** provide summary estimates for each junction.

### Parley Cross Junction

- 8.4. A plan of the proposed gyratory layout is shown in **Figure 6.1** together with a services plan in **Figure 6.2** and an indication of the quantities of construction materials in **Figure 6.3**. **Table 33** below shows the estimated costs which take optimism bias into account, which the Government require to be added to junction estimates.

Table 33: Estimated Costs for Parley Cross Improvements

<b>Parley Cross – New Signalised System</b>		
<b>Items</b>		
<b>Road Works</b>		405910
<b>Footpaths</b>		18957
<b>Traffic Signals</b>		274300
<b>Landscaping</b>		23183
<b>Street Lighting</b>		56000
<b>Drainage</b>		72660
<b>Utility Services</b>		870000
<b>Traffic Management</b>		35000
<b>Signs</b>		75000
<b>Works Total</b>		<b>1831010</b>
<b>Preliminaries</b>	<b>15%</b>	<b>274651.50</b>
<b>Works + Prelims</b>		<b>2105661.50</b>
<b>Contingencies</b>	<b>10%</b>	<b>210566.15</b>
<b>Works + Prelims + Contingencies</b>		<b>2316227.65</b>
<b>Design Fees</b>	<b>5% (of works total)</b>	<b>115811.38</b>
<b>Total Construction Cost</b>		<b>2432039.03</b>
<b>Assumed Optimism Bias</b>	<b>32%</b>	<b>778252.49</b>
<b>Total Including Optimism Bias</b>		<b>£3,210,292</b>

### Chapel Gate Junction

- 8.5. A plan of the improved roundabout layout is shown in **Figure 6.4** together with a services plan in **Figure 6.5** and an indication of the quantities of construction materials in **Figure 6.6**. **Table 34** below shows the estimated costs which take optimism bias into account, which the Government require to be added to junction estimates.

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Table 34: Estimated Costs for Chapel Gate Improvements

<b>Chapel Gate – New Roundabout Layout</b>		
<b>Items</b>		
Road Works		82575
Footpaths		18957
Traffic Signals		0
Landscaping		2310
Street Lighting		10000
Drainage		16210
Utility Services		40000
Traffic Management		30000
Signs		10000
<b>Works Total</b>		<b>210052</b>
Preliminaries	15%	31507.80
<b>Works + Prelims</b>		<b>241559.80</b>
Contingencies	10%	24155.98
<b>Works + Prelims + Contingencies</b>		<b>265715.78</b>
Design Fees	10% (of works total)	26571.58
<b>Total Construction Cost</b>		<b>292287.36</b>
Assumed Optimism Bias	32%	93531.95
<b>Total Including Optimism Bias</b>		<b>£385,819</b>

**Blackwater West Junction**

- 8.6. A plan of the proposed roundabout is shown in **Figure 6.12**. **Table 35** shows the estimated costs which take optimism bias into account.

Table 35: Estimated Costs for Blackwater West Roundabout Improvements

<b>Blackwater West – Proposed Roundabout</b>		
<b>Items</b>		
Road Works		48793
Footpaths		5000
Traffic Signals		60000
Landscaping		5000
Street Lighting		15000
Drainage		25000
Utility Services		50000
Traffic Management		50000
Signs		10000
<b>Works Total</b>		<b>268793</b>
Preliminaries	15%	40318.95
<b>Works + Prelims</b>		<b>309111.95</b>
Contingencies	10%	30911.20
<b>Works + Prelims + Contingencies</b>		<b>340023.15</b>
Design Fees	10% (of works total)	34002.31
<b>Total Construction Cost</b>		<b>374025.46</b>
Assumed Optimism Bias	32%	119688.15
<b>Total Including Optimism Bias</b>		<b>£493,714</b>

### Blackwater East Junction

- 8.7. A plan of the improved signalised layout is shown in **Figure 6.14** together with a services plan in **Figure 6.15** and an indication of the quantities of construction materials in **Figure 6.16**. **Table 36** below shows the estimated costs which take optimism bias into account, which the Government require to be added to junction estimates.

Table 36: Estimated Costs for Blackwater East Additional Eastbound Ahead Lane

<b>Blackwater East – Improved Signalised Layout</b>		
<b>Items</b>		
<b>Road Works</b>		37259
<b>Footpaths</b>		400000
<b>Traffic Signals</b>		9909
<b>Landscaping</b>		15800
<b>Street Lighting</b>		10000
<b>Drainage</b>		20000
<b>Utility Services</b>		74860
<b>Traffic Management</b>		50000
<b>Signs</b>		15000
<b>Works Total</b>		<b>642828</b>
<b>Preliminaries</b>	15%	<b>96424.20</b>
<b>Works + Prelims</b>		<b>739252.20</b>
<b>Contingencies</b>	10%	<b>73925.22</b>
<b>Works + Prelims + Contingencies</b>		<b>813177.42</b>
<b>Design Fees</b>	7% (of works total)	<b>56922.42</b>
<b>Total Construction Cost</b>		<b>870099.84</b>
<b>Assumed Optimism Bias</b>	32%	<b>278431.95</b>
<b>Total Including Optimism Bias</b>		<b>£1,148,532</b>

**Combined Total Costs – Parley Cross, Chapel Gate and Blackwater**

8.8. The total costs based on the estimates provided in **Tables 33 to 36** are shown below in **Table 37**.

Table 37: Estimated Costs for Junction Improvements along the B3073 from Parley Cross to Blackwater

<b>B3073 Junction Improvement Costs</b>		
<b>Items</b>		
Road Works		574537
Retaining Wall		400000
Footpaths		52823
Traffic Signals		350100
Landscaping		40493
Street Lighting		101000
Drainage		188730
Utility Services		1010000
Traffic Management		130000
Signs		105000
<b>Works Total</b>		<b>2952689</b>
<b>Preliminaries</b>	<b>15%</b>	<b>442905.45</b>
<b>Works + Prelims</b>		<b>3395585.45</b>
<b>Contingencies</b>	<b>10%</b>	<b>339558.55</b>
<b>Works + Prelims + Contingencies</b>		<b>3735144</b>
<b>Design Fees</b>	<b>5% to 10% (of works total)</b>	<b>233307.69</b>
<b>Total Construction Cost</b>		<b>3968451.69</b>
<b>Assumed Optimism Bias</b>	<b>32%</b>	<b>1269904.54</b>
<b>Total Including Optimism Bias</b>		<b>£5,238,356</b>

## 9 B3073 Junction Capacity Assessments and Determination of Development Potential

- 9.1. Detailed assessment of the impact on the wider study area of the Airport expansion and Option 4 development on Aviation Business Park has confirmed that the main impacts are on the B3073 between the Parley Cross junction and Blackwater Interchange. Relatively small increases in flow of 0.5% and 0.9% respectively in the AM peak occur at the trunk road junction at Canford Bottom (A31/B3073) to the west and the A31/A338 to the north.
- 9.2. The study has therefore focused on considering the potential capacity limits of each of the junctions along the B3073 Parley Lane during weekday peak hours, in the following manner:
- Capacity of existing junctions by reference to the development scenarios set out in the table below.
  - Capacity of proposed junction improvements by reference to the development scenarios set out in the **Table 38** below.
- 9.3. **Table 1** in the **Executive Summary (Section 1)** summarises the different development scenarios assessed within the study and these are referred to and discussed further within this section of the report with regard to each junction.

### Parley Cross Junction - Existing Signals (Figure 3.2)

- 9.4. The existing junction at Parley Cross is a signalised crossroads which is nearing capacity. Some widening to both the south and east arms has been carried out over the years to improve capacity. Also the addition of pedestrian crossings has made the junction safer. There is little scope to improve the west and north arms of this junction further. Discussions with the County Council indicate that the junction is already controlled by the use of a MOVA control system and that further optimisation of the signal timings is unlikely to be possible.
- 9.5. The tests of the existing junction have been undertaken using the LINSIG program using the predicted base traffic flows in 2006 and 2020. The traffic predictions for 2020 include the effects of all committed developments, i.e. Basepoint, Aim, B1/B8, MBT, Gravel Works and the expansion of the Airport to 3m passengers but ignore the beneficial impact of Travel Plans. This is referred to as the development scenario B in **Table 1**. The 2020 test is therefore considered a 'worst case' assessment.
- 9.6. The results are shown in **Appendix 1** and confirm the problems that already exist at this junction with the following movements indicating overcapacity in the peak periods:

### 2020 Results

- |  |                  |
|--|------------------|
| ■ New Road North - ahead and right           | 8% over capacity |
| ■ New Road North - turning left              | 14% over         |
| ■ Christchurch Road East – ahead to the west | 15% over         |
| ■ New Road South – turning right             | 15% over         |
| ■ Christchurch Road West – turning right     | 6% over          |
| ■ Christchurch Road West – ahead and left    | 16% over         |

- 9.7. The results indicate maximum queue lengths of between 400 and 500 metres which would result in substantial delays to through traffic. However, in granting planning consent for the expanded Airport Terminal, DCC have accepted that the junction will in its current form probably run at levels well above current capacity. We understand that no improvements to this junction are required as part of this permission. Consequently the junction will be taking the development traffic associated with Scenario B – Committed Development identified within **Table 1**. This provides for a total of 1,605,533ft<sup>2</sup> (149,159m<sup>2</sup>) at Aviation Business Park. Clearly there are issues of land use mix which would have an impact on this figure.
- 9.8. Any development beyond Scenario B shows the existing junction exceeding capacity and an improvement will therefore be required.
- 9.9. There is therefore no scope for releasing any further development as part of the Option 4 development at Aviation Business Park until an improvement is put in place.
- 9.10. In considering improvements and possible contributions, the traffic using the Parley Cross junction has a wide variety of origins and destinations only some of which are related to the Airport and Aviation Business Park. Housing development at Parley Cross will have a significant local traffic impact and will require an improved junction.

#### **Parley Cross Junction Improvement (Figure 6.1)**

- 9.11. The gyratory improvement would operate satisfactorily under all modelled development scenarios either with or without the effect of a Travel Plan. Some spare capacity is available which would allow further development of Aviation Business Park.
- 9.12. A maximum queue length of 21 vehicles is predicted representing a length of approximately 125 metres. This traffic would then be released through the junction in one change of the signals. Pages 2 and 3 of **Appendix 1** show a series of results for the forecast year of 2030 either without the effects of a Travel Plan (page 2) or with the Travel Plan (page 3).

#### **Chapel Gate Existing Roundabout**

- 9.13. The existing roundabout junction has sufficient capacity to deal with all of the development scenarios with the exception of Option F which includes Parley Cross housing development.
- 9.14. Page 4 of **Appendix 1** shows the results of a number of development options applied to the existing roundabout layout. The assessment has been undertaken using the ARCADY6 program. The results for the 2020 base situation indicate that the Parley Lane West arm of the roundabout is at 90% of capacity in the AM peak period with a queue of 8 vehicles. The other two arms are well below capacity and no problems are apparent in the evening peak.
- 9.15. The 2030 situation has also been tested for the existing roundabout with the addition of the Airport expansion (4.5 mppa) and with Option 4 development on Aviation Business Park. The predictions which include the effects of an Area Wide Travel Plan indicate that the western arm of the junction will be at 94% of capacity in the AM peak and the Aviation Business Park arm will be at 91% of capacity in the evening peak. The predicted queue lengths are 14 vehicles and 9 vehicles respectively. Although the junction is slightly over the 'design capacity' of 85% in 2030 it is not considered that the predicted problems would warrant improvement. The analysis does however suggest that the situation should be monitored and that the successful implementation of an Area Wide Travel Plan could alleviate any predicted problems.

#### **Chapel Gate Improved Roundabout (Figure 6.4)**

- 9.16. An improved roundabout which removes the dedicated slip lane and provides a larger more conventional roundabout would provide greater capacity and deal with all the development scenarios.
- 9.17. In order to accommodate Parley Cross housing, this revised roundabout solution would be required.

#### **Airport Entrance Junction Signal Improvement (Figure 6.7)**

- 9.18. The existing staggered T-junction access to the Airport currently runs at capacity at peak times with the addition of peak departure of passengers from the Airport.
- 9.19. However, the existing junction will be replaced by a signalised junction as part of the planning permission for the Airport Terminal expansion to 3 mppa. This also includes a new signalised T-junction further to the west to serve a proposed car park.
- 9.20. The proposed junction improvement has been shown by the assessments to provide sufficient capacity to accommodate all of the development scenarios set out in **Table 1**.

#### **Hurn Village Existing Roundabout (Figure 3.5)**

- 9.21. The current Hurn Village Roundabout junction is running at capacity during peak times in the base year 2006.
- 9.22. The County Council have plans to build a new roundabout junction to the east of the current roundabout from S106 contributions related to the Airport Terminal extension. This would use land to the east of the roundabout and is referred to as an 'offline' solution.

#### **Hurn Village Offline Roundabout Scheme (Figure 6.8)**

- 9.23. This offline roundabout junction would provide sufficient capacity in order to deal with all of the development scenarios as set out in **Table 1**.

#### **Blackwater Interchange (Figures 3.6, 6.11, 6.12, 6.13 & 6.14)**

- 9.24. The Blackwater Interchange is a grade separated junction known as a 'modified partial cloverleaf' design, modified to avoid the River Stour to the south.
- 9.25. In the original design the junction would have operated with give-way T-junctions between the slips from the A338 and the secondary route the B3073. The western and eastern T-junctions have been signalised in order to increase capacity with additional lanes added to the approaches to the signal junction where feasible.

#### **Western Junction**

- 9.26. DCC have recently altered the western junction to remove one of two eastbound approach lanes and have effectively reduced practical capacity.
- 9.27. The assessments of this junction in the base year with the lane removed show that the junction is operating over capacity in the base year 2006 with RFC's of close to and in excess of 100% on certain links in both peak hours.

- 9.28. In the same form and with Scenario B development tested in 2020 the junction operates with RFC's in excess of 105% in both peaks. However, in granting planning consent for the expanded airport terminal DCC have accepted that the junction will in its current form probably run at levels well above current capacity. We understand that no improvements to this junction are required as part of this permission. Consequently the junction will be taking the development traffic associated with Scenario B – Committed Development, identified within **Table 1**. This provides for a total of 1,605,533ft<sup>2</sup> (149,159m<sup>2</sup>) at Aviation Business Park. Clearly there are issues of land use mix which would have an impact on this figure.
- 9.29. If the additional eastbound lane were to be reinstated on the Western Junction and appropriate measures agreed with DCC to deal with safety issues, then this junction could accommodate all development scenarios in **Table 1**.
- 9.30. Parallel improvements to the Eastern Blackwater junction would be required to deal with eastbound traffic queues backing into the Western junction. This would require two effective discharge lanes eastbound at the Eastern junction and assumes that appropriate travel plan measures would be in place on both residential and commercial sites.
- 9.31. As an alternative option, a roundabout solution has been investigated to replace the western junction. The assessments show that substitution of a roundabout junction in place of the current signals could provide additional capacity sufficient to cater for all of the development scenarios tested and set out in **Table 1**. A roundabout solution together with improvement of the Eastern junction would have some spare capacity beyond the **Table 1** scenarios.

#### Eastern Junction

- 9.32. The assessments of this junction in the base year shows that the junction is operating over capacity in the base year 2006 with RFC's of in excess of 90% on one link in both peak hours.
- 9.33. The current junction layout tested with Scenario B development in 2020 shows the junction operating with RFC's in excess of 90% in both peaks. No improvements to this junction are required as part of the Airport Terminal application permission. Consequently the existing junction will effectively be taking the development traffic associated with Scenario B – Committed Development, identified within **Table 1**.
- 9.34. If an additional eastbound approach lane can be provided on the Eastern junction together with a similar improvement to the Western junction then the interchange could cater for all development scenarios in **Table 1**.
- 9.35. The combination of a new roundabout at the Western junction linked with an additional eastbound approach lane on the Eastern signalised T-junction has been shown to be sufficient to accommodate all of the development scenarios as set out in **Table 1**. As already mentioned this option may allow a slight increase in development above the **Table 1** scenarios.
- 9.36. The proposals for additional approach lanes at both the western and eastern Blackwater Interchange junctions would need to be discussed and agreed with DCC.

### Summary and Phasing

- 9.37. The detailed assessment of junction capacity indicates that junction highway improvements will be required at certain stages through the development process. The study has taken account of a possible expansion of Aviation Business Park using an 'Option 4' development mix consisting of 12,000m<sup>2</sup> of B1, 20,000m<sup>2</sup> of B2 and 10,000m<sup>2</sup> of B8, ie, 42,000m<sup>2</sup> in total. It has also considered the effects of a further expansion in passenger numbers at the airport by 1.5 mppa per annum to a total of 4.5 mppa.
- 9.38. As mentioned in paragraphs 1.1.27 and 28 it would be possible to allow further development on Aviation Business Park based on an equivalent closure of similar industrial development presently located adjacent to the airport terminal and accessed off the airport entrance junction. This type of development strategy would not impact on the highway network.
- 9.39. Junction improvements at Parley Cross, Chapel Gate, the Airport Entrance Access, Hurn Roundabout and the Blackwater Interchange have been identified and are capable of accommodating all the development scenarios tested by the study and set out in **Table 1**. **Tables 2A and 2B** have been produced and show the likely junction highway improvements related to particular levels of development. The tables show the junction improvements required by 2020 and confirm that the same junction improvements would also work satisfactorily at the future year of 2030.
- 9.40. The estimated cost of the proposed junction improvements is set out in **Table 2C** and **Table 37** at around £5.2 million.
- 9.41. It has been established that the Scenario B development, which comprises the base case committed development, can be accommodated at Parley Cross, Chapel Gate, Airport Access (with proposed new signals), and Hurn Roundabout (proposed new roundabout) junctions either through using spare capacity, from existing infrastructure, or by using capacity created from identified and agreed improvements. The Blackwater Interchange is reaching capacity at peak times but the County Council have not requested improvements to the Blackwater Interchange as part of the Scenario B development which includes current permission for 3 mppa at the Airport.
- 9.42. The study in assessing Scenario D development, which builds on Scenario B by adding on 1.5 mppa at the airport terminal and Option 4 development, identifies the need to improve the Parley Cross junction and the Blackwater Interchange and these are summarised in Tables 2A and 2B.

## 10 Transport Strategy

### 10.1 Introduction

10.1.1 Dorset County Council in their letter dated 21 December 2007, indicated that a strategy must be developed considering the development potential of the Airport site as a whole. It must identify critical transport interventions (including link and junction improvements to the B3073) based on a phased release of development land and provide a mechanism for ensuring the interventions can be provided and funded at appropriate trigger points. Table 2A and 2B in the Executive Summary section of this report provide an overview of the infrastructure improvements necessary to accommodate the range of development scenarios considered.

10.1.2 In outlining a potential Transport Strategy consideration has been given to the following elements:

- walking and cycling;
- public transport and bus priority;
- personalised travel planning and travel plans;
- highway and junction improvements; and
- phasing and implementation.

#### Walking and Cycling

10.1.3 Walking and cycling facilities are included within the existing and proposed highway infrastructure along the B3073 aimed at encouraging the use of non car modes.

10.1.4 A walk cycle route is provided along the majority of the northern side of the B3073 and would be supplemented by construction of a cycle lane between Parley Cross and Chapel Gate as part of the Section 106 contribution for the B1/B8 application on Aviation Business Park. Also possible construction of a cycle route from Throop in Bournemouth to the Airport entrance via a new bridge across the River Stour would provide access from the urban area to the south. This is likely based on National funding of £50m which was secured in 2007 for Sustrans initiatives around the country.

#### Public Transport and Bus Priority

10.1.5 Discussion with Paul Willis at the County Council has suggested that improvement of public transport is key to the successful operation of a Travel Plan at the Airport and as part of this process consideration should be given to the introduction of sections of bus lane along the B3073 particularly on the approaches to Parley Cross, Chapel Gate and Blackwater Interchange. At present there are no stage services along Parley Lane and these sections of bus lane would obviously only be successful if new services were introduced. A brief review of this suggestion is given below.

10.1.6 A study of 2001 Census data for home to work based trips for those residents starting journeys in the West Parley area has indicated that only 8% of those trips are along Parley Lane (from Parley Cross in the direction of Christchurch). Of these, half or 4% have a destination in Aviation Business Park. Therefore, it would be most unlikely that any public transport operator would find that the provision of a service along Parley Lane towards Christchurch would be viable.

- 10.1.7 However, DCC have requested that a review is carried out and the following section of the report examines each location identified by DCC.

#### **Parley Cross – Westbound Approach**

- 10.1.8 The carriageway between Chapel Gate roundabout and Parley Cross is generally 7.3m wide with either a footway or verge. The approach to the proposed Parley Cross gyratory is single lane then diverging to two lanes into the gyratory where the bus lane would need to be curtailed in order to weave as required for the onward route in a southerly, westerly or northerly direction.
- 10.1.9 A bus lane could be provided between Church Lane and the gyratory by widening into the southern verge. Whilst this may be feasible, any widening would compromise a number of private accesses and also bring larger vehicles closer to the private dwellings. An additional issue would be the numerous Statutory Undertakers plant and apparatus that are within the verge. It may also be possible provide a bus lane to the east of Church Lane, however this could compromise the existing 'lay-by / service road' in front of the residential properties on the southern side of Parley Lane, again with utility services issues in the verge.
- 10.1.10 Overall it would be possible to provide a bus lane between Parley Cross and Chapel Gate, split into the individual approaches to Parley Cross and Chapel Gate

#### **Chapel Gate - Eastbound Approach**

- 10.1.11 The eastbound approach to the Chapel Gate roundabout has a dedicated left turn lane into Aviation Business Park. This is proposed to be removed in the realigned roundabout with all vehicles entering the roundabout conventionally. A bus lane could be accommodated on the northern verge – starting at the new school entrance gateway – and then use the dedicated left turn lane into the roundabout. However, the proposed roundabout has a two lane entry and only a single lane exit. This means that the bus would need to weave to the offside lane at the roundabout entry which may be difficult with possible safety issues due to the weaving.
- 10.1.12 The bus lane could be started before (to the west of) the school entrance. This would require carriageway widening on both sides of Parley Lane in the vicinity of the right turn lane facility for the school. Widening could then continue on the southern verge as it would compromise fewer accesses than the north side. For safety, the bus lane would have to be discontinued across the school entrance. There could be issues with forward visibility from the roundabout in a westerly direction.

#### **Blackwater West – Eastbound Approach**

- 10.1.13 The approach to the signals at Blackwater west is from a single lane into one ahead lane and one left turn lane. The flares from the single lane into the two lanes are produced over a distance of approximately 80m. The carriageway width is in the order of 7m with a narrow verge on the southern side and footway on the northern side. Widening would be required to accommodate a bus lane in the order of 3m. There is little scope to achieve widening without the use of third party land. As at Chapel Cross roundabout, buses would need to weave to the ahead lane which may compromise safety at the approach to the junction with a high level of left turning traffic.

#### **General**

- 10.1.14 Bus lanes would need to be seen to be providing a visible benefit to bus users over the use of the private car. As there are at present no stage bus services along this corridor, it may be worth considering the provision of combined bus and high occupancy vehicle (HOV) lanes. This could help to encourage car share and would result in a more efficient use of road space.

## Costs

10.1.15 An approximate estimate of construction costs are:

- **Parley Cross to Chapel Gate roundabout** - on the assumption that there would be a continuous lane over 1,500 metres the costs could be in the order of £0.75m to £1m.
- **Blackwater** - would depend on the availability of land for widening, but assuming a reasonable approach length of 500 metres then the costs would be in the order of £0.25m to £ 0.33m.

10.1.16 Therefore a total of between £1m and £1.33m could be expected. These costs would be exclusive of any third party land or utility service requirements which could be substantial due to the potential effect on fibre optic equipment. Rather than investing in this form of bus priority measure it is considered that funding would be better directed towards Personal Travel Plan measures.

## Bus Services

10.1.17 An improved bus service to the Airport was implemented at the end of 2007 as part of the Area Wide Travel Plan and connects with the rail station in Bournemouth and to the city centre. The operator has agreed to consider extension of this service into Aviation Business Park after 12 months and is likely to be more interested if a physical route is possible between the eastern and western sections of the industrial area.

10.1.18 The scope for improvement of stage services along Parley Lane between Parley Cross and Christchurch are considered to be limited based on the analysis of the census 'home to work' data. Discussions could be had with operators however in order to see whether some form of through route could be provided.

10.1.19 Paul Willis has previously indicated that the lack of any bus routes along the B3073 was a major hindrance to the sustainable development of the Airport. PBA suggested that it might be possible to shorten the length of the north / south taxiway so that a vehicle link could be provided between the eastern and western areas of Aviation Business Park. This would allow improved access and create the possibility for routeing a bus service through Aviation Business Park between the Chapel Gate roundabout and Matchams Lane. Although Matchams Lane is restricted in width it does provide the main means of access to the eastern part of Aviation Business Park and as such Paul Willis agreed that use as part of a new bus route would be possible.

## 10.2 Personalised Travel Planning and Travel Plans

10.2.1 Personal Travel Planning programmes typically cost between £20 and £38 per targeted household and could reduce household car use by 10%, with a consequent beneficial effect on highway capacity. If the funding for the bus/HOV lanes were directed into a comprehensive PTP programme for a substantial part of the Bournemouth and Poole conurbation, it would be possible to target up to 40,000 households with a consequent net reduction of approximately 5% in peak hour traffic flows in the urban area. This level of reduction would be experienced over a much wider area of the conurbation than would result from the introduction of bus lanes and could be the catalyst for developer funding of PTP programmes across the whole of the conurbation, covering the population of between 300,000 and 400,000.

10.2.2 A general conclusion from the review in this study is that the successful operation of a Travel Plan at the Airport and implementation of Personalised Travel Planning measures for the housing area at Parley Cross would result in removing trips from the network providing additional headroom for expansion of the Airport.

### 10.3 Highway and Junction Improvements

- 10.3.1 The study has considered in the previous chapter the impact of traffic generated by the Airport development over an area wider than considered in earlier reports and shows that the main effects will be felt locally along the length of the B3073 between Parley Cross and Blackwater Interchange. The net impact on the wider study area, and specifically at trunk road junctions, is quite small and does not warrant funding towards these junctions.
- 10.3.2 The base and committed developments (Development Scenario B) as covered by the existing planning permission can be accommodated at the various junctions on the B3073 Parley Lane, taking on board improvements at the Airport Entrance and Hurn Village junctions. The latest study has considered the effects either without or with Travel Plans and in the latter case has assumed that development and housing private car trips could be reduced by around 10% dependant on levels of intervention. In previous studies the County Council has considered that a 5% reduction could be achieved.
- 10.3.3 As already stressed it is considered essential that considerable emphasis is placed on effective Travel Plans in order that the capacity issues are reduced to the minimum. The main obvious benefit arising from this is that no physical infrastructure works are required. Even with these measures in place it will still be necessary to undertake junction improvements in order to meet development beyond the base and committed in development Scenario B.

### 10.4 Phasing and Implementation

#### Phasing Strategy

- 10.4.1 Phasing and implementation of infrastructure works and transport initiatives have been considered under three timescales, namely:
- Immediately.
  - Short Term (up to 5 years horizon).
  - Longer Term (5 to 15 year horizon).
- 10.4.2 It is proposed that the following transport issues should be considered, although the list is by no means exhaustive and may change:

#### Immediate

- Attend future meetings with SWRDA, Christchurch Council, Bournemouth Council and Dorset CC as appropriate to ensure that the 'needs' of the Airport are carefully considered. These meetings will allow emphasise to be given to the important employment potential of the site together with its use as a major regional airport.
- Consider the promotion of a 'Personalised Travel Planning' campaign in the Ferndown, Parley and North Bournemouth areas that could achieve significant reductions in peak hour traffic flows. Funding would be part of the agreed funding package for improvements to infrastructure along the B3073. County Council funding could be possible through the Local Transport Plan and/or through residential development proposals such as the Parley Cross sites.

- Discussions should be undertaken with bus operators (in conjunction with the County Council) in order to see whether bus services along the B3073 and possibly routed through either Aviation Business Park east and west could be a viable option. Other alternatives such as demand responsive or shuttle services could be considered (as suggested in previous reports).
- The Area Wide Travel Plan is seen as a priority commitment with MADL having now funded and appointed a Travel Plan Coordinator.

#### Short Term (Up to 5 Years Horizon)

- Improvement to Hurn Village roundabout by the County Council as part of the Section 106 contribution for the Airport Terminal Extension.
- Construction of a cycle lane between Parley Cross and Chapel Gate as part of the Section 106 contribution for the B1/B8 application on Aviation Business Park.
- Possible construction of a cycle route from Throop in Bournemouth to the Airport entrance via a new bridge across the River Stour. This is likely based on national funding of £50m which was secured in 2007 for Sustrans initiatives around the country.
- Signalisation of the entrance into the Airport as part of the Terminal Extension planning application.
- Consideration of a connection between the eastern and western sections of Aviation Business Park by a combined 'bus and staff only' highway link. This will facilitate a bus route through Aviation Business Park and minimise the use of a section of the B3073 from Chapel Gate to the Hurn roundabout by industrial staff.
- Master planning of Aviation Business Park should incorporate improvements to pedestrian and cycle routes to encourage these modes of travel and connect into off site facilities.
- Improved accessibility by public transport with adjustments to traffic calming measures on site and provision of bus shelters.

#### Longer Term (5 – 15 Years Horizon)

- The Blackwater Interchange could act as a constraint to future expansion given that capacity has been reduced as a result of measures introduced to improve safety. It is suggested that the reinstatement of this capacity may be achievable and longer term solutions to this junction might be examined.
- Solutions might comprise the construction of a roundabout on the western side in place of the existing signals or reverting to the two lane eastbound approach previously favoured by the County Council. The provision of improvements to the eastern junction have been identified and will require more detailed examination.
- The future improvement of the Chapel Gate roundabout may be required and operational performance needs to be monitored.

## 11 Conclusion and Summary

### 11.1 Aviation Business Park

- 11.1.1 MADL are progressing with a revised Masterplan for the development of Aviation Business Park as a strategic employment site. The intention is to develop a phased and coordinated strategy that will accord with the aspirations of SWRDA, Christchurch Council and Dorset County Council and inform the Local Development Framework, Core Strategy and Action Area Plan. Aviation Business Park has around 1,500,000ft<sup>2</sup> (139,355m<sup>2</sup>) of existing floor space split between B1, B2 and B8 uses. This includes areas not under the control of MADL such as the Business Park at the entrance to Aviation Business Park and, European Hangers to the north of the Park.
- 11.1.2 Planning permission has been granted between 2003 and 2007 for additional development totalling 105,533ft<sup>2</sup> (9,793m<sup>2</sup>) on Aviation Business Park (referred to as the Aim Industrial Development and areas of B1-B8 developments) which would increase the overall floor space to 1,605,533ft<sup>2</sup> (149,159m<sup>2</sup>). This is referred to as Committed Development.
- 11.1.3 Further development is planned to replace land allocated for the MBT Waste Treatment Plant with a development mix referred to as Option 4 development and totalling some 452,084ft<sup>2</sup> (42,000m<sup>2</sup>).

### 11.2 Bournemouth International Airport

- 11.2.1 At the same time there are plans for the expansion of passenger numbers at Bournemouth International Airport rising from current levels of 1 mppa to a permitted committed level of 3 mppa and then to 4.5m by 2030.

### 11.3 Parley Cross Housing

- 11.3.1 The study has also considered the impact of other local development including the potential allocation of 900 dwellings at Parley Cross to the west of the airport.

### 11.4 Purpose

- 11.4.1 The purpose of this report has been to identify an infrastructure strategy for dealing with the transport demands arising from development. A thorough technical assessment has been undertaken of the transport and traffic impacts arising from development at Bournemouth International Airport, Aviation Business Park, other local development and proposals for new housing development in the Parley Cross area.
- 11.4.2 The study has up-dated a number of previous studies using 2006 traffic counts supplied by Dorset CC, Bournemouth Council and the Highways Agency. The area considered was extended to the A31 trunk road to the west and north and now includes sections of the northern edge of Bournemouth. The intention of the extended study area was to determine whether the 'area of influence' of the Airport developments was greater than the previously assumed study limits of Parley Cross and Blackwater.

## 11.5 Study Assessment Findings

- 11.5.1 As detailed in the report the percentage impact calculated for the wider area confirms that the traffic effects disperse rapidly with increased distance from the Airport. The analysis does show impacts for the Parley housing area at junctions to the north, west and south of the Parley Cross junction but in relation to the Airport development itself indicates maximum junction increases in flow of only 3%. It is considered that this increase is low and well within the daily variations that will occur in peak hour flows.
- 11.5.2 The study has investigated the potential impact of traffic on the key junctions along the B3073 Parley Lane given different development scenarios, identifying where improvements would be required and the type of improvement which would accommodate the development proposed.
- 11.5.3 Thorough consideration has also been given to the benefits to be gained from Personalised Travel Planning and Staff Travel Plans as they relate to reducing private car use for commercial and residential areas.
- 11.5.4 Similarly consideration has been given to the measures and benefits arising from non-car modes such as walking, cycling and public transport.
- 11.5.5 An outline Transport Strategy has been identified which sets out three timescale horizons for intervention providing a basis for discussion with the County Council, Christchurch Council, the Highways Agency and SWRDA.
- 11.5.6 Preliminary costing of the infrastructure and transport initiatives has been undertaken and is included in the study.

## 11.6 Development Potential

- 11.6.1 Junction improvements at Parley Cross, Chapel Gate, the Airport Entrance Access, Hurn Roundabout and the Blackwater Interchange have been identified and are capable of accommodating all the development scenarios tested by the study and set out in **Table 1**. **Table 2A and 2B** identify potential junction improvements for each development scenario.
- 11.6.2 The estimated cost of the proposed junction improvements is set out in **Table 2C and Table 37** at around £5.2 million.
- 11.6.3 It has been established that the Scenario B development, which comprises the base case committed development, can be accommodated at Parley Cross, Chapel Gate, Airport Access (with proposed new signals), and Hurn Roundabout (proposed new roundabout) junctions either through using spare capacity, from existing infrastructure, or by using capacity created from identified and agreed improvements. The Blackwater Interchange is reaching capacity at peak times but the County Council have not requested improvements to the Blackwater Interchange as part of the Scenario B development which includes current permission for 3 mppa at the Airport
- 11.6.4 The study in assessing Scenario D development, which builds on Scenario B by adding on 1.5 mppa at the airport terminal and Option 4 development, identifies the need to improve the Parley Cross junction and the Blackwater Interchange and these are summarised in Tables 2A and 2B.

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- 11.6.5 It has also been established that additional industrial development could be provided on Aviation Business Park based on an equivalent closure of similar industrial development presently located adjacent to the airport terminal. This type of development strategy would not impact on the highway network as the associated traffic generation is already on the road network.
- 11.6.6 The study provides guidance as to the quantity of overall development that might be supported at the Airport and Business Park and the future transport infrastructure requirements and how these major employment sites can be brought forward in conjunction with other land uses in the area including proposed major housing allocation at Parley Cross.
- 11.6.7 The study enables both the planning and highway authorities to consider the policy implications for the emerging Local Development Frameworks (LDF's), and can act as a comprehensive brief to guide decisions, especially in terms of infrastructure requirements, development commitments, possible constraints and development priorities, phasing and funding implications.
- 11.6.8 Clarity is provided as to the capacity of the existing highway network, where capacity should be reserved for committed development, where pressures exist and the likely scale and cost of improvement solutions.
- 11.6.9 All the above provides the basis for discussions between land owners, developers and the local authorities and enables certainty for development to proceed on this key employment site.

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