

West Berkshire LDF Core Strategy Transport Assessment

West Berkshire Council

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1 Introduction

1.1 BACKGROUND

1.1.1 All Planning Authorities in England have to produce a Local Development Framework (LDF) as a statutory requirement; this is in place of the previous Local Plan adoption process. The objective of the process is to enable engagement with the community and stakeholders prior to the adoption of a Core Strategy, which establishes the locations for future development.

1.1.2 The LDF process is all encompassing, including not just transportation issues but also issues associated with the ability to deliver development sites. One of the component documents of the LDF is a 'Core Strategy'. This is a wide ranging document that summarises the issues associated with development across a planning district area. In consideration of each site the principal concern is delivery of robust evidence to justify both the Core Strategy and site selection. Following an Examination in Public (EIP), which confirms the Core Strategy, individual sites are selected for development.

1.1.3 The West Berkshire Local Development Framework (LDF) comprises a number of documents, commissioned and produced by West Berkshire Council, which outline the spatial planning strategy for the local area. This new planning system will assist in the management of how development will take place in towns and the countryside, which in combination with the Regional Spatial Strategy (RSS), will determine how the planning system shapes communities in West Berkshire.


1.1.4 To this end, WSP has been commissioned to assist in the investigation of the transport related impacts of delivering the Local Development Framework housing target for West Berkshire Council. The investigation is to be conducted in two phases. Firstly, a review of the potential impact of potential residential development locations, which is summarised in this report and in Phase 2 a more detailed review of potential sites selected on the basis of transport and other key determining criteria. Phase 2 will include a more detailed assessment of the specific impact of each potential development location and the range of mitigation measures associated with the proposals.

1.2 CONTEXT OF ASSESSMENT

1.2.1 This study is intended as a strategic exercise to enable assessment of potential development clusters within the district that will be used in conjunction with other studies and evidence to make judgements on the most sustainable locations for development. The transport assessment has been prepared with due consideration of the relevant policies in the emerging Regional Spatial Strategy (the South East Plan) as applicable to West Berkshire.

1.2.2 West Berkshire Council has been set a target, as recommended in the Secretary of State's Proposed Changes to the South East Plan (July 2008), for the delivery of at least 10,500 new dwellings within the district by 2026. Accommodating this level of new development will have implications for the local and strategic highway network, the level of investment in travel demand management and, potentially, new infrastructure that may be required to mitigate the effects of new development.

1.2.3 For purposes of clarity, it is stressed that identification of a potential location for development does not inherently mean it will be allocated for development through the LDF. In addition, any assessment of potential development locations within the document is based largely on their accessibility and/or impact on the strategic and local



road network. Additional studies will be carried out to create a fuller picture for final allocations for development within the LDF. In particular, Stage 2 of the study will consider the effects of specific mitigation measures as part of the Local Transport Plan programme.

1.2.4 Potential housing numbers for each cluster are derived by combining a number of potential development areas and are not intended to imply that all (or any) of the 'potential' numbers are appropriate in other respects.

1.2.5 Finally, this study only looks at the situation within West Berkshire, and not the traffic impact of developments in neighbouring authority areas. There is an obligation for all districts to undertake their own LDF assessment, and this is being undertaken within bordering local authorities. It is beyond the scope of this study to combine neighbouring assessments at this stage, given the nature of the Core Strategy and the fact that a number of broad development options will be consulted upon. However, this study will examine any significant traffic impacts outside West Berkshire caused by developments within the study area.

1.3 STUDY OBJECTIVES

1.3.1 The objective of this study is to assess the impact of new residential developments on the transport network in West Berkshire. This will require identification and assessment of potentially appropriate cluster areas for residential development within the district, in accordance with Government policy and sustainable development principles. Locations for new housing are considered against the principal evaluation criteria of congestion, accessibility, sustainable transport and the impact on key routes. The chosen study area and the principal highway network are shown in Figure 1.

1.3.2 A sequential approach has been adopted for the study that takes into account:

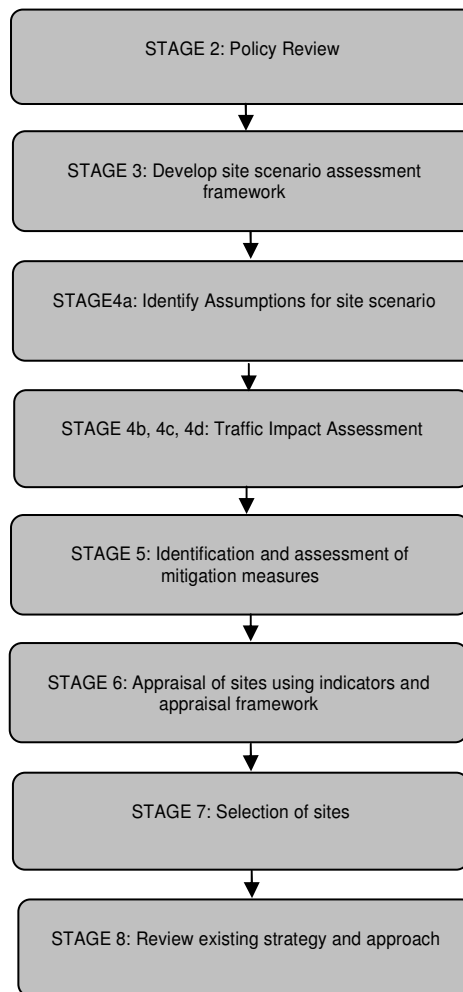
- Amalgamation of potential residential development areas into a series of clusters
- Existing conditions in the AM peak hour on key routes and at key junctions
- Trip making characteristics associated with residents at each cluster site for the AM peak hour
- Consideration of Local Transport Plan policies and infrastructure projects
- Study work previously undertaken by West Berkshire Council
- Previous consideration of major development areas in the district
- A qualitative assessment of transport infrastructure and local amenities by residential cluster location
- Overall impact on Strategic Highway Network

1.3.3 In terms of junction assessment within the study, a broad analysis has been undertaken to quantify the amount of additional AM peak traffic created at key junctions from each of the potential residential development clusters through the use of journey time analysis on key routes. This has been to quantify the potential impact but not to carry out a detailed assessment of operational impact, which is likely to occur as development locations are firmed up and locations agreed for development through the Core Strategy and subsequent Development Plan Documents.



1.3.4 The final output of the study is a scoring of cluster areas to enable determination of appropriate locations, in transport terms, for which new housing can be considered. A sequential approach has been adopted for the study, illustrated by the process shown in Figure 1.1.

Figure 1.1 – Project Stages



1.4 REPORT STRUCTURE

1.4.1 The remainder of this report provides details on how the study has been progressed, it includes:

- Chapter 2 – Outlines the methodology employed in this study;
- Chapter 3 – Includes a review of relevant policy and guidance;
- Chapter 4 – Identification of Clusters;
- Chapter 5 – Trip Generation and Distribution; discusses the assumptions upon which the trip generation and distribution of sites was determined;



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- Chapter 6 – Quantitative Assessment; a discussion of assumptions made for carrying out traffic modelling work and discussion of the appraisal methodology used to assess the results;
 - Chapter 7 – Quantitative Scoring of Clusters;
 - Chapter 8 – Assessment of Clusters’ potential for sustainable transport using indicators devised within an assessment framework;
 - Chapter 9 – Qualitative Cluster Scoring; the sites are appraised and ranked using indicators for sustainable travel modes developed within the assessment framework in Chapter 8;
 - Chapter 10 – Analysis of results; a discussion of results is given based on assessments in Chapters 7 and 9, upon which preferred development sites are identified;
 - Chapter 11 – Summary and conclusions of the study are given in this section.



2 Study Methodology

2.1 INTRODUCTION

2.1.1 This section briefly outlines the approach adopted in undertaking the study, with more detailed descriptions of each stage provided in subsequent sections of the report.

STAGE 1 – IDENTIFICATION OF KEY ROUTES AND DATA COLLECTION

2.1.2 To enable an assessment of the impact of potential residential development it has first been necessary to establish those parts of the highway network most likely to be affected. Key routes in the district have been identified and agreed with the West Berkshire Council as the basis for assessment.

2.1.3 The existing Newbury and Thatcham SATURN Traffic Model was used to assess the traffic impact of each development cluster. As part of the development of this model, a 'Do Minimum' scenario for the 2016 AM peak was created. This provides baseline data with which to compare traffic impacts of each development cluster. The AM peak only has been used as the basis of assessment as trips from residential developments are more concentrated in their time of occurrence than return trips within this time window.

STAGE 2 – IDENTIFICATION OF POTENTIAL DEVELOPMENT CLUSTERS

2.1.4 The objective of the study is to assess the impact of new housing developments within a variety of locations in West Berkshire. To assist this process, potential development areas have been grouped into a series of clusters to enable assessment of a wider location rather than particular potential and the impact on the highway network. This approach also allows for the merits of the location as a whole to be assessed against the impact on the highway network and in relation to policy compliance.

2.1.5 West Berkshire Council officers provided a list of potential sites for residential development. These sites were then amalgamated into a series of clusters based on their geographic locations and proximity to likely transport corridors.

STAGE 3 – ASSESSMENT OF TRIP GENERATION AND DISTRIBUTION FOR EACH CLUSTER

2.1.6 To determine the impact of potential new housing within cluster areas a review was undertaken of expected trip generation from the clusters. This has been based on similar known developments using the TRICS (2008a) database, which takes into account mode share splits. Trip distribution has been determined through analysis of Travel to Work census data from 2001 and existing distributions in the traffic model derived from Roadside Interview Surveys. This is the latest available full dataset and therefore provides the most robust approach.

2.1.7 From this stage of the study it has been possible to determine the quantum of car based trips from potential new housing and the destination of trips in the AM peak period.



STAGE 4 – ASSESSMENT OF THE POTENTIAL IMPACT OF EACH CLUSTER ON KEY ROUTES AND JUNCTIONS

2.1.8 To undertake this assessment a series of indicators generated by the Newbury and Thatcham traffic model were analysed. These are described in more detail in Chapter 6. This analysis provided an indication of the effects of each cluster on the surrounding road network. This study has not looked in detail at mitigating this impact with demand management and softer measures.

2.1.9 Phase 2 will look at the combined impact of the Preferred Option clusters and impact of a number of potential transport improvement schemes.

STAGE 5 – QUALITATIVE ASSESSMENT OF CLUSTERS IN TERMS OF WIDER TRANSPORT OBJECTIVES

2.1.10 This stage of the study seeks to analyse development clusters more qualitatively, in relation to the wider transport objectives set within the West Berkshire Local Transport Plan (2006 – 2011), as listed below:

- To increase accessibility to services;
- To reduce impact and effect of congestion;
- To widen travel choice to essential services by means other than the car;
- To improve public transport.

2.1.11 A set of indicators was derived for the above objectives, against which each cluster was scored. This is discussed in more detail within Chapters 8 and 9.

STAGE 6 – RANKING OF CLUSTERS IN TERMS OF CONGESTION, ACCESSIBILITY, SUSTAINABLE TRANSPORT, AND IMPACT ON KEY ROUTES AND JUNCTIONS

2.1.12 The final stage of the study scores each cluster in terms of the following factors:

- Impact on network congestion and at key junctions;
- Accessibility to goods and services;
- Potential to support and encourage use of sustainable transport.

2.1.13 To assist in determining the impact of potential developments on key routes and junctions, an assessment framework has been developed that takes into account key factors associated with trip generation, transport policy compliance and known transport improvements. This has included use of existing ACCESSION¹ analysis on major and district centres for the West Berkshire area, as well as other information provided in West Berkshire's Local Transport Plan (LTP) and other transport strategies.

¹. *Accession is a transport software package developed on behalf of Department for Transport, which measures accessibility to and through a multi-modal transport system. It provides a robust tool for detailed analysis of public transport accessibility for new and existing developments*



2.1.14 Since this study was first commissioned, the Secretary of State has proposed to delete the South Reading Strategic Development Area (which was widely taken to be Kennet Valley Park) from the South East Plan. The study continues to include this development option as a possibility in order to assess the cumulative impact of such a development on the strategic highway network.



3 Policy Review

3.1 INTRODUCTION

3.1.1 National, regional and local planning and policy guidance are all important in setting the context of the West Berkshire LDF Transport Assessment. The guidance available at all tiers of government provides the wider context for ensuring that new housing developments comply with sustainable transport and development policies. This study has thus been undertaken with due regard to all relevant guidance.

3.2 NATIONAL POLICY

THE FUTURE OF TRANSPORT – A NETWORK FOR 2030 (GOVERNMENT WHITE PAPER, JULY 2004)

3.2.1 The government's framework for strategic UK transport policy is set out in this document, which outlines the vision for transport in the UK over the next 30 years. The paper looks at the various factors that will shape travel and transport over this period and sets out how the government will respond to the increasing demand for travel, whilst maximising the benefits of transport and minimising the negative impact on people and the environment. The document emphasises the government's five key objectives for transport, namely: environment, safety, economy, accessibility and integration.

PLANNING POLICY GUIDANCE 13: TRANSPORT

3.2.2 Planning Policy Guidance Note 13 (PPG 13), published in March 2001, outlines central government's key objectives for transport. PPG13 advocates that local authorities should promote land use policies and transport programmes that promote accessibility by more sustainable modes of travel including public transport, walking and cycling.

3.2.3 Key policies within PPG13 that are relevant to the development clusters include:

- Promoting more sustainable transport choices;
- Reducing the need to travel, especially by car; and
- Locating residential development where it can be demonstrated that "additional housing will support local services, such as schools or shops, which could become unviable without some modest growth".

3.2.4 PPG13 advocates that proposals to develop, expand or redevelop existing sites should improve access by public transport, walking and cycling.

3.2.5 Where developments are significant in scale PPG13 recommends that a Transport Assessment is undertaken to assess the level of accessibility to local facilities. This Transport Assessment is in line with the parameters set out in PPG13.



PLANNING POLICY STATEMENT 3: HOUSING

3.2.6 Planning Policy Statement 3 (PPS3), adopted in November 2006, sets out the government's strategic policy objectives for the development of housing. The two key objectives of PPS3 relevant to this study are:

- Promotion of a mix of housing, both market and affordable, particularly in terms of tenure and price, to support a wide variety of households in all areas;
- Provision of housing in suitable locations, which offers a good range of community facilities and with good access to jobs, key services and infrastructure.

3.2.7 As part of an assessment for new housing developments, local authorities are advised to consider "the current and future levels and capacity of infrastructure" and "the current and future levels of accessibility, particularly public transport accessibility".

PLANNING POLICY STATEMENT 12: LOCAL SPATIAL PLANNING (DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT, JUNE 2008)

3.2.8 Planning Policy Statement 12 (PPS12) sets out the Government's policy on Local Development Frameworks, which play a central role in the overall task of shaping places and delivering land uses and associated activities.

3.2.9 The document explains local spatial planning and how it benefits communities. It also details the key elements of local spatial plans and the key policy framework within which they are prepared. It should be taken into account by local planning authorities in preparing development plan documents and other local development documents.

3.2.10 The key aims of local spatial planning are listed as follows:

- Produce a vision for the future of places that responds to the local challenges and opportunities, this is to be based on evidence, a sense of local distinctiveness and community derived objectives, within the overall framework of national policy and regional strategies;
- Translate this vision into a set of priorities, programmes, policies and land allocations together with the public sector resources to deliver them;
- Create a framework for private investment and regeneration that promotes economic, environmental and social well being for the area;
- Coordinate and deliver the public sector components of this vision with other agencies and processes (e.g. LAAs);
- Create a positive framework for action on climate change; and
- Contribute to the achievement of Sustainable Development.

3.2.11 The policy requires Local Authorities to pay heed to the guidance, as well as other relevant policy documents, in preparing their LDFs.



TOWARDS A SUSTAINABLE TRANSPORT STRATEGY (TaSTS) – OCTOBER 2007

3.2.12 TaSTS sets out the Government's transport investment and policy plans to 2014. It also sets out proposals for a new approach to strategic transport planning for the period beyond 2014 that would implement the recommendations of the Eddington transport study and reflect the Stern Review of the economics of climate change.

3.2.13 TaSTS contains five goals, which are:

- Maximising the overall competitiveness and productivity of the national economy, so as to achieve a sustained high level of GDP growth.
- Reducing transport's emissions of CO₂ and other greenhouse gases, with the desired outcome of avoiding dangerous climate change.
- Contributing to better health and longer life-expectancy through reducing the risk of death, injury or illness arising from transport, and promoting travel modes that are beneficial to health.
- Improving quality of life for transport users and non-transport users, including through a healthy natural environment, with the desired outcome of improved well-being for all.
- Promoting greater equality of transport opportunity

3.2.14 In the autumn, the Government will publish a formal consultation on the goals, challenges and the proposed approach to the remainder of the TaSTS process, particularly the details of how option generation will be carried out.

3.2.15 West Berkshire Transport Policy and scheme determination will reflect recommendations of TaSTS as they become applicable.

REGIONAL PLANNING GUIDANCE 9

3.2.16 Regional Planning Guidance 9 (RPG9) was adopted in March 2001, and sets out the regional vision for the development of the South East until 2016. Chapter 9, published in July 2004, advocates the region's strategy for the development of transport and associated transport infrastructure during the plan's lifespan. However, it should be noted that the Regional Spatial Strategy (RSS) for the South East (the Draft South East Plan) will supersede RPG9 once it is adopted.

REGIONAL SPATIAL STRATEGY (RSS) FOR THE SOUTH EAST – THE SOUTH EAST PLAN

3.2.17 The RSS provides the overall spatial vision for the entire region, identifying the broad locations for growth, often by identification of sub-regions, and major infrastructure requirements, together with the housing numbers to be provided for in Local Development Documents. The RSS is a product of effective engagement with local authorities and others. Therefore it provides the regional framework against which local participation in creating Sustainable Community Strategies and Core Strategies takes place.

3.2.18 Key principles for the development of transport in the South East include:

- Promoting management of and investment in the system, fully utilising existing transport capacity before justifying investment in additional capacity; and
- Re-balancing the structure and use of the transport system in favour of more sustainable modes.

3.2.19 Overarching policies of relevance to the proposed development includes **Policies T1 and T2**, which promotes the management of the existing transport system to encourage an overall reduction in the environmental impact of movement and an enhancement of the overall level of safety.

3.3 LOCAL POLICY

BERKSHIRE STRUCTURE PLAN: SAVED POLICIES (AMENDED JUNE 2008)

3.3.1 The adopted Berkshire Structure Plan (BSP) 2001-2016 sets out the core strategies of the six unitary authorities within Berkshire. The document states the overall vision for Berkshire as:

'sustainable development and the creation of diverse, sustainable urban and rural communities'.

3.3.2 The objectives of the Structure Plan for transport revolve around creation of sustainable communities where “people will have easy access to work, leisure, education, retail, health and to each other”.

3.3.3 The document also advocates the need for reduced travel, as a result of “careful choices being made as to the location of commercial, leisure and residential development, as well as education”, to ensure the key objectives of the plan are met. In delivering growth, the BSP advocates that the impacts of growth on the local environment are to be minimised and that the maximum use of existing resources, such as previously developed land and the local labour force, should be made.

3.3.4 The following policies are considered especially relevant to this study:

- **Policy T1** encourages councils to use their powers to reduce the need to travel, especially by car; to promote alternative modes of travel to the car and to increase the safety of travel, in a manner compatible with the principles of sustainable development.
- With regard to traffic impact, **Policy T4** states that all development should take appropriate measures to offset any adverse effects it has on the transport network.

WEST BERKSHIRE DISTRICT LOCAL PLAN 1991 – 2006: SAVED POLICIES (AMENDED SEPTEMBER 2007)

3.3.5 The West Berkshire District Local Plan (WBDLP) was adopted in June 2002 and sets out the objectives for development in West Berkshire. The overall strategy of the WBDLP is to ensure sustainable development, which meets West Berkshire’s social and economic needs.

3.3.6 In accordance with the Planning and Compulsory Purchase Act 2004, in March 2007, the Government required all Local Planning Authorities (LPAs) to submit a schedule of policies to be saved beyond the expiry date until such time that a Core Strategy or relevant Development Plan Document is adopted to replace them through the Local Development Framework. As such, all existing Local Plan policies were 'saved' until 27 September 2007, unless expressly replaced by 'new' policies. After this date the policies would expire and no longer have weight in planning decisions, unless they had been extended by the Secretary of State.

3.3.7 As a result of this process, the West Berkshire District Local Plan 1991- 2006, was edited to reflect the recent changes in policy. The policies set out in this document provide the basis for planning decisions within West Berkshire until they are replaced by the Local Development Documents.


3.3.8 The Current policies relevant to this study are as follows:

- **Part (g) of Policy OVS.2** – requires all development proposals to accord with other policies of the Plan, including 'complying with highway standards in respect of access, parking, pedestrian movement including where appropriate links to adjoining land';
- **Policy OVS3** – requires satisfactory provision of amenities, services and infrastructure to be made for developments, including:
 - (c) Improved access for pedestrians, cyclist and people with disabilities; and/or
 - (d) Public transport facilities and services, public car parking, provision for services vehicles or other highway improvements; and/or
 - (e) Green travel plans where major developments are proposed; and/or,
 - (f) The implementation of measures enabling the use of sustainable transport modes, such as walking, cycling and public transport;
- **Policy ENV20** – encourages development in sustainable locations, which it defines as areas which:
 - (a) Will minimise the need for travel and be accessible by alternative means of transport other than the private car;
 - (b) Are well related to the existing settlement pattern;
 - (c) Will not cause material harm to the natural resources and character of the area;
 - (d) Will contribute towards a balanced local community in terms of the provision of homes, jobs and services

3.3.9 In addition to the WBDLP, West Berkshire adopted Supplementary Planning Guidance in September 2004 on 'Delivering Investment from Sustainable Development' sets out guidance on developer contributions and outlines potential contributions for a number of topics, including transport.

WEST BERKSHIRE LOCAL TRANSPORT PLAN 2

3.3.10 West Berkshire Local Transport Plan for 2006 – 2011 (LTP2) covers the period from April 2006 to March 2011. The overarching vision of the LTP2 is to '*develop sustainable transport solutions for all*'. The key objectives set to meet this vision are as follows:

- 
-
- To improve travel choice and encourage sustainable travel;
 - To make the best use of and, wherever possible, enhance our transport networks;
 - To improve access to services and leisure opportunities;
 - To improve and promote opportunities for healthy and safe travel;
 - To minimise the impact of all forms of travel on the environment.

3.3.11 In order to achieve the above objectives LTP2 includes a walking strategy, cycling strategy and travel plan strategy.

COMMUNITY VISIONS

3.3.12 A number of Community Visions have been prepared by the Council, which aim to establish potential long term social, economic and transport improvements in West Berkshire's communities. Notable among these are:

- **Newbury Vision 2025** – which sets out the council's long-term Vision for Newbury and the role that it has to play in supporting the surrounding villages and rural area. The Vision focuses on meeting the needs and aspirations of the current generation but also works towards creating the sort of environment in which future generations will want to live and work.
- **Thatcham Vision** – this is a locally driven Vision that provides residents with the opportunity to voice their opinions on how Thatcham will be developed in the future, especially with regard to economic and transport improvements in the area.
- **Kennet and Thames Vision** – this document sets out the council's long term vision for the Kennet and Thames area and the role the council and members play in supporting the development of the area and its residents. The vision focuses on three main themes namely: enhancing community facilities, improving transportation, and providing adequate housing and social care.

SUMMARY

3.3.13 This chapter has set out the context for policy and guidance considered relevant to inform the objectives and purposes of this study. The recurrent theme in all the policy and guidance documents reviewed is the need to reduce reliance on the private car for everyday trips by locating new development in sustainable locations, close to public transport services, employment, leisure, retail and other facilities. The selection of appropriate development clusters will be underpinned by this theme, in order to ensure that the proposed future residential development is located in appropriate locations.

4 Identification of Clusters

4.1 INTRODUCTION

4.1.1 A preliminary stage of the agreed study methodology for the West Berkshire LDF Transport Assessment (this includes a Strategic Highway Assessment as required by the Highways Agency) was identification of a method for the clustering of potential development locations. This chapter outlines the proposed cluster methodology used and details the locations and quantum of potential developments that have been identified.

4.2 IDENTIFICATION OF POTENTIAL DEVELOPMENT AREAS AND CLUSTER GROUP APPROACH TO TRANSPORT CONSIDERATIONS

4.2.1 West Berkshire Council officers have, through consultation, identified a list of sites that present the opportunity for delivery of the Council's strategic residential development target.

4.2.2 A cluster group approach was used within this strategic study to group potential housing sites based on their geographic locations and their proximity to likely transport corridors and local infrastructure.

4.2.3 The individual locations identified using the above sources were grouped together into 16 'cluster groups'. Each 'cluster group' comprised development areas within each town/village and in some cases, these towns/villages were further grouped with neighbouring settlements. The rationale behind the grouping of the potential development locations was threefold. The clusters were formed by:

- Locations that were in close proximity to each other within the District;
- Locations that could be potentially combined to produce a larger consolidated development;
- Locations with similar attributes in terms of access to the strategic transport network.

4.2.4 Table 4.1 below identifies the potential housing allocation created from the group of potential development locations within the 16 'cluster groups'². Figure 2 illustrates their locations. The locations of these clusters vary in their characteristics and include general potential future housing allocation areas.

² *The housing numbers presented in Table 4.1 are rounded figures of those proposed by developers*



Table 4.1 – Potential Housing Allocation Contained Within Each Cluster

Cluster	Site	Potential Number of Houses
A	North Newbury	1500
B	South Newbury – Rugby Club	1200
C	South Newbury – Sandford Park	2500
D	Wash Water	500
E	Greenham	500
F	West Newbury	1000
G	Newbury Racecourse	1400
H	North Tadley – Silchester Road	500
I	Hungerford	500
J	Hermitage	500
K	Theale – Near Junction 12	500
L	Tilehurst – Turnhams Farm	800
M	Kennet Valley Park	7500
N	Thatcham – Siege Cross Farm	1000
O	Thatcham – North of Bowling Green Road	500
P	Newbury and Thatcham Gap	750
	Total for all clusters	21,150

4.3 SUMMARY

4.3.1 This chapter has outlined the approach to determining potential development clusters for housing allocation, which will inform the analysis of the development impact on the local and principal road network.

5 Trip Generation and Distribution

5.1 TRIP GENERATION

5.1.1 Typically, the composition of housing type (i.e. number of bedrooms, affordable housing, etc) in a development site will affect the volume of trips generated by the site. There is little information available regarding the specific impact of a change in the percentage of affordable housing, although a report³ for the TRAVL database of London Borough vehicle trip rates concluded that:

“the number of peak hour trips per dwelling... is relatively constant, regardless of the number of bedrooms and whether the dwelling is affordable or private”.

5.1.2 Most of the strategic development sites have no information available regarding the type of housing included within each site. Therefore, a single trip rate (departure and arrival) was applied for each development cluster, to allow for like for like comparisons between results obtained for each cluster.

5.1.3 The residential vehicle trip rates used for all of the clusters were identified using the industry standard TRICS 2008 (a) database. The database was interrogated specifically for privately owned housing developments in the South East and South West, excluding London so as not to skew the data with London developments (which are likely to produce preferentially low vehicle trip rates). The table below summarises the departure and arrival vehicle trip rates per household, in the AM peak for all sites returned from interrogation of the database.

Table 5.1 – Summary of Vehicle trip rates – Privately Owned Housing (South East/South West)

Vehicle Departures (8.00 – 9.00)	Vehicle Arrivals (8.00 – 9.00)	Site	Number of Households
0.231	0.385	Alverton Rd, Penzance	13
0.260	0.123	Kingsholm Rd, Gloucester	73
0.259	0.070	Ridgeway/Meadow Way – Badger Farm, Winchester	1040
0.302	0.113	Longcroft Lane, Welwyn GC, Hertfordshire	53
0.333	0.071	Maple Drive, Wiltshire	99
0.389	0.148	A3050 Hurst Rd, East Molesey, Surrey	54
0.391	0.111	A24, Epsom, Surrey	514
0.409	0.151	Old Malling Way, Lewes, East Sussex	491
0.416	0.071	Knightwood Rd, Badgers Copse, Eastleigh	700
0.42	0.145	New Bedford Rd, Luton, Bedfordshire	131
0.427	0.127	Knightwood Rd, Chandlers Ford, Eastleigh	300
0.443	0.121	A266 Mid Lavant, Near Chichester, West Sussex	90
0.52	0.317	Riddy Lane, Luton, Bedfordshire	82

³ Research Note on Residential Vehicle trip rates, MVA 2007

5.1.4 Results of the querying the database returned average vehicle trip rates from TRICS of **0.41** trips for generated trips and a trip rate of **0.12** trips for attracted trips. Both vehicle trip rates related to each household in the AM peak hour, and these were applied to all clusters.

5.1.5 The trip rate applied to the trip distribution in the model was based on an average of departure vehicle trip rates for all sites, excluding Badger Farm, Winchester. The trip rate for this site was too low relative to other larger sites (with developments over 100 dwellings), and hence not considered a realistic representation of vehicle trip rates – an ‘outlier’.

5.1.6 It is acknowledged that this selection of sites did not contain a large number of local sites, and that additional examples of sites within the Newbury area could be derived from local transport assessments. However, these assessments would tend to use vehicle trip rates which indicate low levels of trip making to assist successful negotiation of planning applications. Therefore, it is considered that this cross section of sites was representative of trip making from the West Berkshire development sites.

5.1.7 The volume of trips departing from and arriving at each cluster⁴, based on the calculated vehicle trip rates of 0.41 and 0.12 trips per household, respectively, is shown in Table 5.2.

Table 5.2 – Trip Generation from Development Clusters

Cluster	Site	Number of Houses	AM Trips Departures	AM Trips Arrivals
A	North Newbury	1500	610	179
B	South Newbury – Rugby Club	1200	492	144
C	South Newbury – Sandleford Park	2500	1025	300
D	Wash Water	500	205	60
E	Greenham	500	235	69
F	West Newbury	1000	410	120
G	Newbury Racecourse	1400	574	168
H	North Tadley – Silchester Road	500	205	60
I	Hungerford	500	185	54
J	Hermitage	500	205	60
K	Theale – Near Junction 12	500	155	45
L	Tilehurst – Turnhams Farm	800	328	96
M	Kennet Valley Park	7500	3075	900
N	Thatcham – Siege Cross Farm	1000	410	120
O	Thatcham – North of Bowling Green Road	500	191	56
P	Newbury and Thatcham Gap	750	303	89

⁴ Trip totals in Tables 5.2 and 5.3 are based on exact housing numbers proposed by developers as at February 2008 rather than the rounded housing numbers given in Table 4.1.



5.1.8 The single departure and arrival trip rate used for all housing developments gives no consideration to any differences in trip rate that arise from a high proportion of affordable housing. The proportion of new housing stock this represents cannot be determined until planning consent has been granted and therefore has not been included as part of this study. The study is therefore, representative of a worst case scenario with the acceptance that vehicle trip rates from affordable housing are likely to be lower than the single trip rate used.

5.1.9 This approach does not take into account additional measures that the developer may undertake to reduce the trip rate of a development, especially for large developments. Proposals for Kennet Valley Park (KVP), in particular, are associated with a range of public transport measures and internal facilities which will reduce the volume of outgoing car trips. However, the higher assumed trip rate provides a robust “worst-case” scenario for assessment.

5.2 TRIP DISTRIBUTION

5.2.1 Having identified the number of peak hour trips generated from each cluster the distribution of vehicle trips from each cluster’s potential residential development was calculated.

- Trip distribution for clusters within the modelled area were drawn from existing data associated with the traffic model,
- Journey to Work data from the 2001 Census was used to analyse trip distribution for clusters outside the model area.

5.2.2 For those development clusters that lie within the area of the traffic model, existing zones of a similar size and land use near to the development were identified. Existing model zone distributions were derived primarily from Roadside Interview and other survey data during the development of the base traffic model. The distributions of these zones were used to provide trip distributions for the development clusters.

5.2.3 The trip distribution zones for all development clusters are shown in Table 5.3. The locations of these zones are given in Figure 3.



Table 5.3 – Cluster Distribution Zones

Cluster	Site	Number of Houses	Distribution Zone
A	North Newbury	1500	10
B	South Newbury – Rugby Club	1200	101
C	South Newbury – Sandford Park	2500	101
D	Wash Water	500	103
E	Greenham	500	74
F	West Newbury	1000	96
G	Newbury Racecourse	1400	80
H	North Tadley – Silchester Road	500	Census + 178
I	Hungerford	500	Census + 274
J	Hermitage	500	Census + 271
K	Theale – Near Junction 12	500	Census + 271/177
L	Tilehurst – Turnhams Farm	800	Census + 271/177
M	Kennet Valley Park	7500	Census + 271/177
N	Thatcham – Siege Cross Farm	1000	153
O	Thatcham – North of Bowling Green Road	500	169
P	Newbury and Thatcham Gap	750	3

5.2.4 To enable analysis of clusters outside the model area, travel to work census data was obtained for appropriate wards considered representative of possible travel patterns from the external clusters. This data has been used to calculate the volume of trips that constitutes long-distance traffic passing through the modelled area and the volume of trips that is destined for a local zone within Newbury and Thatcham. Long-distance strategic traffic was manually included in the matrix, whereas local trips were distributed according to the existing modelled trip distribution at the network entry point. The wards used to identify trip distributions from census data for clusters outside the model area are shown in Table 5.4.

Table 5.4 – Wards Used for Census Distribution Data

Cluster	Site	Ward
H	North Tadley – Silchester Road	North Tadley
I	Hungerford	Hungerford
J	Hermitage	Hermitage
K	Theale – Near Junction 12	Calcot
L	Tilehurst – Turnhams Farm	Calcot
M	Kennet Valley Park	Calcot



5.3 SUMMARY

5.3.1 This section has explained the process undertaken to examine the trip generation and distribution of the potential new developments. Based on the derived vehicle trip rates, it was observed that Cluster K (Theale near Junction 12) would generate the fewest departure trips in the AM Peak (155), while Cluster M (Kennet Valley Park) would generate the largest number of departure trips in the AM Peak (3075). With regard to trips attracted, Cluster K still attracted the least amount of trips (45) and Cluster M remained the largest attractor of trips in the AM Peak (900). The subsequent chapter discusses in more detail the assessment of traffic impact on the transport network using the existing Newbury and Thatcham SATURN Traffic Model.

5.3.2 The trip generation and distribution data has been agreed with the Highways Agency as described in correspondence issued on 26 September 2008.



6 Quantitative Assessment of Clusters

6.1 INTRODUCTION

6.1.1 In order to inform West Berkshire's Local Development Framework, the transport impact of traffic generated by future housing development on the local and strategic road network was assessed using the existing Newbury and Thatcham SATURN Traffic Model.

6.1.2 Analysis using the traffic model relies on a number of assumptions regarding future traffic conditions and the treatment of development traffic. This section specifies the assumptions that have been made for undertaking the transport assessment in relation to the Do Minimum scenario and the treatment of each development site.

6.2 DO MINIMUM ASSUMPTIONS

FORECAST MATRICES

6.2.1 As part of the original development of the Newbury and Thatcham Traffic Model, forecast year matrices for 2011 and 2016, AM and PM peak hours were developed. The forecasts are based on the validated 2006 base model, with projections to forecast years based on local growth factors derived from the TEMPRO National Trip End Model database.

6.2.2 On commencement of this study it was agreed with the Council that the existing forecast matrices should provide the base for assessment of potential LDF residential cluster sites. In subsequent phases of more detailed assessment of impacts associated with the LDF additional detail on more recently consented developments will be included.

FORECAST NETWORKS

6.2.3 The forecast Do Minimum networks used in the LDF assessment were those originally developed as part of the traffic model. They are the same as the base network, with the following exception of a new car park access via a mini-roundabout on London Road for the Park Way development

6.2.4 The AM peak has been used for the assessment since it contains more concentrated trip patterns than the PM peak. The modelled area is shown in Figure 4.

6.3 DEVELOPMENT SITE ASSUMPTIONS

6.3.1 The strategic housing sites were grouped into clusters for assessment purposes, after which loading points for each of the clusters were identified. This is summarised in Table 6.1 below.



Table 6.1 – Cluster Loading Points

Cluster	Site	Loading Point
A	North Newbury	Oxford Road/Shaw Hill/Vodafone Access
B	South Newbury – Rugby Club	Monks Lane
C	South Newbury – Sandford Park	New access road within site
D	Wash Water	Wash Water / A343 Sandpit Hill
E	Greenham	Greenham Road
F	West Newbury	Enborne Road
G	Newbury Racecourse	B3421 Hambridge Rd
H	North Tadley – Silchester Road	A340 Paices Hill
I	Hungerford	A338 High Street / A4 Bath Road
J	Hermitage	Priors Court Road (A34 / M4)
K	Theale – Near Junction 12	A4 Bath Road / M4
L	Tilehurst – Turnhams Farm	A4 Bath Road / M4
M	Kennet Valley Park	A4 Bath Road / M4
N	Thatcham – Siege Cross Farm	A4 Bath Road
O	Thatcham – North of Bowling Green Road	Heath Lane / Bowling Green Road
P	Newbury and Thatcham Gap	Turnpike Road / A4 Bath Road

6.3.2 The locations of these loading points are shown in Figure 5.

6.4 NETWORK CHANGES

6.4.1 No specific network changes were included in the assessment with the exception of a new link road associated with Cluster C – Sandford Park. A generic link road with a 50mph speed limit was modelled running between Monk’s Lane in the north and the A339/B4640 roundabout in the south. All other development clusters were assessed with the existing future year network as outlined in the modelling assumptions at the start of this chapter.

6.5 CLUSTER SCORING

6.5.1 The traffic impact of each cluster has been assessed under the following attributes:

- Network-Wide Performance
- Congestion on Key Links
- Journey Times on Principal Routes
- Local Re-assignment on Sensitive Local Roads



6.5.2 Each element is assigned a score between 0 and -2, where 0 represents a neutral traffic impact and -2 represents a significant negative impact. No attributes are assigned a positive score, since any apparent improvement, such as a reduction in traffic flow, will only occur as a result of increased congestion leading to reassignment elsewhere on the network. To award positive scores in such circumstances would imply a positive impact and would mask the detrimental effect of the development.

6.5.3 Since the start of this assessment the status of Kennet Valley Park in 2016 has changed. The proposed secretary of state changes to the South East Plan now does not contain the South West Reading SDA. All clusters have been assessed both in isolation and with Kennet Valley Park (Cluster M) included as a committed development in the Do Minimum scenario.

NETWORK-WIDE PERFORMANCE

6.5.4 As part of the assignment process, SATURN produces a set of summary statistics covering the whole of the modelled area, which can be compared under different scenarios to judge the overall impact of a scheme or development. A subset of these statistics has been used to assess the impact of each development cluster using the following indicators:

- Over-Capacity Queues
- Travel Time
- Travel Distance
- Average Speed

6.5.5 Over-capacity queues are queues that are formed when traffic is unable to pass through a junction within a single cycle. The first three elements are all reported by SATURN as totals for the network as a whole. However, these will increase in proportion to the volume of traffic produced by the development, so it is difficult to make meaningful comparisons about the relative impact of each cluster. Consequently, the assessment has used average values per vehicle to enable a direct comparison between sites.

6.5.6 Since the statistics are an average of all trips over the entire modelled area, a significant impact in one area will only have a small average impact over the entire modelled area. As a result, the thresholds chosen for cluster scoring appear low. The thresholds used to determine the scoring for each attribute are shown in Table 6.2.

Table 6.2 – Network-Wide Performance Scoring Thresholds

Score	Over-Capacity Queue	Travel Time	Travel Distance	Average Speed
+ 2				
+1				
0	< 7.5 seconds	< 7.5 seconds	< 10 metres	< 0.5 kph
- 1	< 15 seconds	< 15 seconds	< 50 metres	<1 kph
- 2	> 15 seconds	> 15 seconds	> 50 metres	>1 kph



6.5.7 The average score across all elements was calculated to produce the overall cluster score for Network-Wide Performance.

CONGESTION ON KEY LINKS

6.5.8 A series of links have been identified that are representative of key locations within the study area. All links are considered in both directions. These links are:

- A339 – North of A4, Donnington
- A339 – South of A4, Newbury Town Centre
- A34 – North of A4, Donnington
- A34 – South of A4, Enborne
- A4 – West of A339, Speen
- A4 – East of A339, Shaw
- M4 – East of J13
- M4 – West of J13

6.5.9 For each link, the change in the volume-capacity (V/C) ratio is considered. A V/C ratio of 0.85 is considered to be congested and a value of 1 indicates the link is operating at capacity. Congested urban areas such as Newbury town centre are generally governed by junction capacity rather than link capacity, so link V/C ratios were not expected to change significantly. The V/C ratio thresholds are shown in Table 6.3.

Table 6.3 – Congestion on Key Links Scoring Thresholds

Score	Change in Link V/C Ratio
+ 2	
+1	
0	< 1%
- 1	< 5%
- 2	> 5%

6.5.10 Scores are assigned for each link under consideration and the average is then calculated to produce the score for the Congestion on Key Links attribute.

6.5.11 No clusters score a -2 value – the sensitivity of amending the scoring was explored, but seen to have no effect, so the bandings have been kept as shown.

JOURNEY TIMES ON KEY ROUTES

6.5.12 To demonstrate the impact of increased congestion at junctions in a manner that is straightforward and easy to compare between clusters, journey times on key routes have been calculated. These calculations include any delay experienced by vehicles while queuing at junctions. To better capture the impact of development clusters, the routes have been split into local and strategic routes. The local routes chosen for assessment are:

- A339



- A4

6.5.13 Strategic routes considered are:

- A34
- M4

6.5.14 Due to the variety of roads that could be subject to re-routing, dependent on cluster location, it is difficult to specify a robust numerical test that can be applied equally to all clusters.

6.5.15 Each route covered the available links included in the traffic model and journey times were calculated for both directions. The thresholds used to determine the cluster scoring are shown in Table 6.4.

Table 6.4 – Journey Times on Key Routes Scoring Thresholds

Score	Change in Journey Time
+ 2	
+1	
0	< 5 seconds
- 1	< 15 seconds
- 2	> 15 seconds

6.5.16 As with the other attributes, the average score across all routes has been calculated to produce the overall score for the Journey Times on Key Routes element of the study.

LOCAL RE-ASSIGNMENT

6.5.17 Further assessment was done to establish the level, if any, of traffic assigning onto local sensitive roads, as a result of proposed development at each respective cluster.

6.5.18 In order to score this indicator, SATURN plots showing the difference in traffic flows on the surrounding local road network between the Base scenario and after development at each cluster, were reviewed.

6.5.19 Clusters were scored as indicated in Table 6.5 below. Explanatory text on the scores assigned to each cluster is given in Chapter 7, together with details of the roads identified as being locally sensitive for each potential residential development location.

Table 6.5 – Local Re-assignment Scoring Thresholds

Score	Local Re- Assignment
+ 2	
+1	
0	Little or no re-routing onto sensitive local roads
- 1	Some re-routing onto sensitive local roads
- 2	High level of re-routing onto sensitive local roads



6.6 SUMMARY

6.6.1 This chapter has outlined the specific assumptions made in testing the impact of the proposed housing development on the strategic road network using the Newbury and Thatcham SATURN Traffic Model. The assumptions ensure a consistent approach is adopted for all sites based on the best available data, and that the analysis is consistent with previous assessment already undertaken using the Newbury and Thatcham Traffic Model. Furthermore, this section has set out the framework for analysing the model output, as applicable to each development cluster.



7 Quantitative Scoring of Clusters

7.1 INTRODUCTION

7.1.1 This chapter sets out the results of analysis undertaken to ascertain the impact of future residential development at the specified clusters on the network. Results are based on the scoring methodology as detailed in Section 6 and are given for two scenarios: the cluster is assessed in isolation and with Kennet Valley Park included as a committed development.

7.1.2 The results below show the score assigned to each cluster as well as a summary of the traffic impact of the development. Further details regarding the specific quantitative impact are given in Appendix A to Appendix D.

7.2 ANALYSIS OF RESULTS AND CLUSTER SCORES

Cluster A – North Newbury

Table 7.1 – Cluster A Quantitative Scoring

Cluster A – North Newbury		
Indicator	No KVP	With KVP
Network-Wide Performance	-1	-1
Congestion on Key Links	-1	0
Journey Times on Local Routes	-1	-2
Journey Times on Strategic Routes	-1	-1
Local Re-assignment	-1	-1
TOTAL	-5	-5

7.2.1 Despite loading at multiple points, traffic exiting Cluster A primarily uses the Vodafone link to access the road network. This increases delay at the junction between this link and the A339, leading to an increased journey time on the A339 southbound. This increased delay leads to southbound traffic re-routing onto the A34 to avoid the congestion. Most noticeably, traffic previously travelling south through Newbury towards Basingstoke on the A339 now diverts onto the A34 before turning back north on the B4640 to access the A339 to the south of Newbury.

7.2.2 Although the additional traffic increases delay at the Vodafone access, it does not lead to a significant increase in queuing across the network as a whole. However, the re-routing that occurs as a result of this delay affects the performance of key junctions throughout the modelled area, leading to an increase in journey time on the A4 eastbound, A339 both directions and the A34 southbound. Across the network as a whole, drivers travel greater distances to avoid queues, leading to an increase in average travel time and a decrease in average speed of 1 kph.

7.2.3 The impact is similar in both scenarios (i.e. with or without Kennet Valley Park), with the exception of the impact on the A4, particularly westbound. Additional traffic from Cluster A creates congestion along the route, increasing the journey time. The journey time southbound on the A339 increases by 139 seconds, compared to an increase of 37 seconds when KVP is not committed. Congestion caused elsewhere in the network by Kennet Valley Park means that the northbound A339 journey times increase by 20 seconds compared to a reduction of 1 second when KVP is not committed.

7.2.4 With regard to traffic re-routing on local sensitive roads, development at Cluster A results in some re-routing on local roads, notably on the southbound Oxford Road, as traffic seeks to avoid congestion on the A339, the A34 southbound and at the Vodafone access junction. Hence, a score of -1 has been awarded. This pattern of movement is similar whether the cluster is developed independently or alongside Kennet Valley Park save for minor variations in traffic flows on affected routes. Hence, the same score has been given for both development scenarios.

Cluster B – South Newbury: Rugby Club

Table 7.2 – Cluster B Quantitative Scoring

Cluster B – South Newbury: Rugby Club		
Indicator	No KVP	With KVP
Network-Wide Performance	0	0
Congestion on Key Links	0	0
Journey Times on Local Routes	-2	-2
Journey Times on Strategic Routes	0	-1
Local Re-assignment	-1	-1
TOTAL	-3	-4

7.2.5 Small volumes of traffic associated with Cluster B travelling on the A339 are sufficient to have a significant impact on the Robin Hood roundabout and Bear Lane roundabout, which are already operating close to capacity. This increases journey times in both directions on the A339 by around 25 seconds, causing traffic travelling to the west of Newbury to head south on the A343 before turning north on the A34. This movement in turn puts pressure on the A4 eastbound access to the town centre, increasing the journey time for this movement by 22 seconds.

7.2.6 The impact of Cluster B is less severe across the network as a whole, with no significant increased queuing, but an increase in the average journey time of 7 seconds and a decrease in average speed of 1kph.

7.2.7 Including Kennet Valley Park as a committed development increases pressure at all points, meaning Cluster B creates an increase in the A4 westbound journey time of 15 seconds. The increased traffic from Cluster B changes the priority at key junctions leading to local reassignment, such that the southbound A339 journey time increases slightly by 5 seconds. Across the network, the increase in traffic from Cluster B does not lead to any substantial impacts compared to the base with KVP committed.

7.2.8 A score of -1 has been given for the level of re-routing on local roads as a result of development at Cluster B. Although this has very little or no impact on the wider strategic network, it results in significant re-routing on local roads, notably Monks Lane, (the main access point for this cluster), Bury's Bank Road and the A343.

Cluster C – South Newbury: Sandleford Park

Table 7.3 – Cluster C Quantitative Scoring

Cluster C – South Newbury: Sandleford Park		
Indicator	No KVP	With KVP
Network-Wide Performance	-2	-2
Congestion on Key Links	0	0
Journey Times on Local Routes	-2	-2
Journey Times on Strategic Routes	0	-1
Local Re-assignment	-2	-2
TOTAL	-6	-7

7.2.9 Cluster C is a large development which has a significant impact on the operation of the whole network. Traffic primarily affects local routes, increasing journey times in both directions on the A4 and A339. Average queues increase by 19 seconds per vehicle across the whole network, leading to an increase in average journey time and a reduction in the average speed. However, there is re-routing caused by this extra traffic, indicating that all key junctions are similarly affected by the increase in trips. The most noticeable instance of re-routing is 75 vehicles previously using the B4000 to access the west of Newbury chooses to use the M4 and A339 due to increased congestion at the A4/A34 junction.

7.2.10 There is little difference in the impact on journey times when Kennet Valley Park is considered as a committed development, except for a significant increase in the A4 eastbound journey time of 141 seconds, compared to 33 seconds when KVP is not included.

7.2.11 Development at Sandleford Park, both with and without Kennet Valley Park results in development traffic using major arterial routes such as the A339, M4 and A34 to reach different destinations. However, there is also a significant amount of re-routing on local roads, notably Crookham Hill, Bury's Bank Road and the A343 to avoid increased congestion in the town centre. This explains the -2 score awarded to this cluster for local re-assignment, in both development scenarios.

Cluster D – South Newbury: Wash Water

Table 7.4 – Cluster D Quantitative Scoring

Cluster D – South Newbury: Wash Water		
Indicator	No KVP	With KVP
Network-Wide Performance	0	0
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-1
Journey Times on Strategic Routes	0	0
Local Re-assignment	-2	-2
TOTAL	-3	-3

7.2.12 Cluster D has a relatively insignificant impact on the network. The majority of the development traffic wishes to travel north, which leads to a decrease in the northbound A339 journey time of 8 seconds. Other routes are not significantly affected. Overall, however, there is a negligible impact on Strategic Routes, hence the 0 score awarded.

7.2.13 If KVP is constructed prior to development, A339 northbound times increase by 10 seconds. In addition, increased traffic in the centre of Newbury causes some of the development traffic to divert onto the A34 to travel north, leading to a moderate increase in the A34 north journey time.

7.2.14 The development at Cluster D has been scored -2 in the development scenario with and without Kennet Valley Park because of significant re-routing on surrounding local roads. Although the access point for this cluster is the A343 Sandpit Hill, traffic distributes itself on local roads, notably Wash Water, Andover Drove and part of Enborne Street in order to reach its destination.

Cluster E – Greenham

Table 7.5 – Cluster E Quantitative Scoring

Cluster E – Greenham		
Indicator	No KVP	With KVP
Network-Wide Performance	-2	-2
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-1
Journey Times on Strategic Routes	0	0
Local Re-assignment	-2	-2
TOTAL	-5	-5

7.2.15 Traffic associated with the Greenham development is quickly dispersed over several local roads, meaning that journey times on key routes are not substantially affected, except for an increase of 9 seconds on the northbound A339, caused primarily by increased delay at the Bear Lane roundabout. However, the development traffic does lead to increased delay across the network as a whole, with an increase in average queuing time of 16 seconds and a reduction in average speed of 1.7kph. Hence the -2 score awarded for network performance.

7.2.16 With KVP already constructed, pressure on the A4 / A34 junction causes around 30 vehicles to divert away from the A4 onto the M4 to access Hungerford, but the overall impact on the network as a whole is similar to the base.

7.2.17 The result of development at Greenham with and without Kennet Valley Park is an increase in traffic flows on surrounding local roads. The key sensitive local routes affected include part of Greenham Road, the southbound Bury's Bank Road, and Pinchington Lane westbound. This cluster has been scored -2 for impact of traffic re-routing on local roads.

Cluster F – West Newbury

Table 7.6 – Cluster F Quantitative Scoring

Cluster F – West Newbury		
Indicator	No KVP	With KVP
Network-Wide Performance	-2	-2
Congestion on Key Links	0	0
Journey Times on Local Routes	-2	-1
Journey Times on Strategic Routes	0	0
Local Re-assignment	-2	-2
TOTAL	-6	-5

7.2.18 Traffic associated with the West Newbury development (Cluster F) has a significant impact on the operation of the town centre. There is little opportunity for re-routing, leading to an increase in network-wide queuing time of 18 seconds. An increased volume of traffic trying to travel across the town centre leads to an increase in journey times in both directions on the A339 and eastbound on the A4.

7.2.19 With KVP traffic included, there is additional pressure from westbound movements. Traffic from Cluster B changes the priorities at key junctions, leading to an increase in the A4 eastbound journey time of 24 seconds, although due to the scores being an average of a number of sites, the journey time score on local routes with KVP is -1.

7.2.20 In relation to traffic re-assigning onto local roads, development at West Newbury has been scored -2 because of the significant volume of traffic using Enborne Road to access the development. Some of this traffic also routes via Kingsbridge Road and Bury's Bank Road in order to access the A34 further down stream, avoiding the congestion in the town centre, at the A4/A339/A343 junction. The same score has been given for both development scenarios, with and without Kennet Valley Park.

Cluster G – Newbury Racecourse

Table 7.7 – Cluster G Quantitative Scoring

Cluster G – Newbury Racecourse		
Indicator	No KVP	With KVP
Network-Wide Performance	-2	-2
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-1
Journey Times on Strategic Routes	0	0
Local Re-assignment	-1	-1
TOTAL	-4	-4

7.2.21 The Newbury Racecourse development (Cluster G) is similar to the West Newbury development (Cluster F) in that it is located at the periphery of the town centre with little opportunity for traffic reassignment. The majority of the traffic wishes to travel north, increasing delay at the Robin Hood roundabout causing an increase in journey times on the A4 westbound of 24 seconds and 22 seconds eastbound. Minimal impact in the opposite direction means that, on average, the impact on local route journey times scores -1. The impact across the network as a whole is more severe, with an increase in average queuing time per vehicle across the whole network of 23 seconds. This is the largest increase in network queuing time except for Kennet Valley Park. Overall network performance has thus been scored -2.

7.2.22 When KVP is included as a committed development, introducing Newbury Racecourse increases the average queuing time even more, to 43 seconds. Since traffic is held in queues across the network, it cannot complete its journey, leading to minor increases (3 seconds) in journey times on the A339 northbound. Overall, however, there is a negligible impact on Strategic Routes, hence the 0 score awarded.

7.2.23 Development at Newbury Racecourse whether independently or in tandem with Kennet Valley Park results in the majority of traffic associated with the development being channelled on to the A4 Bath Road. However, some of the development traffic uses the B3421 Hambridge Road and Kings Road to access the A4, as well as A339 northbound further downstream. Hence, because of this medium level of re-routing on sensitive roads, the cluster has been scored -1 in both development scenarios.

Cluster H – North Tadley

Table 7.8 – Cluster H Quantitative Scoring

Cluster H – North Tadley: Silchester Road		
Indicator	No KVP	With KVP
Network-Wide Performance	0	-2
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-1
Journey Times on Strategic Routes	0	0
Local Re-assignment	0	0
TOTAL	-1	-3

7.2.24 Since the North Tadley development (Cluster H) is located beyond the south-eastern boundary of the modelled area, all development traffic uses the A339 to access Newbury, increasing journey times in both directions on the A339, leading to a decrease in average speed of 0.2kph.

7.2.25 With Kennet Valley Park included in the assessment, the impact of the North Tadley development is more severe. This is primarily because KVP traffic creates additional pressure in the north and west of the study area, whereas North Tadley applies pressure in the south, meaning that the conflict between this additional traffic is focussed on the Bear Lane and Robin Hood roundabouts. Consequently, the average time spent queuing increases by 16 seconds.

7.2.26 The access point for this cluster is on the A340 at Paices Hill, which is outside the modelled area. However, based on the traffic flows from the development within the extent of the model, there is no evidence of significant impact on local roads resulting from traffic re-assigning itself on the network. For this reason, the cluster has been scored 0 for both development scenarios.

Cluster I – Hungerford

Table 7.9 – Cluster I Quantitative Scoring

Cluster I – Hungerford		
Indicator	No KVP	With KVP
Network-Wide Performance	-1	0
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	0
Journey Times on Strategic Routes	0	0
Local Re-assignment	0	0
TOTAL	-2	0

7.2.27 The majority of the traffic associated with Cluster I travels westbound on the M4, with only a small proportion travelling to Newbury on the A4. This affects the performance of Robin Hood roundabout, leading to an increase in journey times on the A339. There is no significant effect on the network as a whole, with the exception that the long-distance traffic associated with the development increases the average journey time.

7.2.28 There is little difference when KVP is included as a committed development, with the exception that increased queues at junctions prevent traffic from accessing the A339, leading to a reduction in overall journey time.

7.2.29 Development at Hungerford does not have re-routing impacts on locally sensitive roads. This is because the bulk of development related traffic accesses the network via the A338 and A4. In addition, most eastbound movements are channelled along the A338 to link in with the M4, leading to increased traffic volumes on those particular routes, with very little increases on A4 eastbound. Thus, due to the lack of direct impact on local roads in the surrounds of this cluster, a score of 0 has been awarded for traffic re-assignment on local sensitive routes.

Cluster J – Hermitage – Denison Barracks

Table 7.10 – Cluster J Quantitative Scoring

Cluster J – Hermitage: Denison Barracks		
Indicator	No KVP	With KVP
Network-Wide Performance	0	0
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-2
Journey Times on Strategic Routes	0	0
Local Re-assignment	-1	-1
TOTAL	-2	-3

7.2.30 Development traffic from Denison Barracks is split between Priors Court Road, to access the A34 north of the M4, and Long Lane to access Newbury town centre and principal routes to the south. The traffic accessing the town centre is sufficient to displace some existing traffic off the A339 southbound and onto the A4, A34 and B4640 to access Newbury from the south. This results in a moderate increase in journey times on the A34 southbound, but no significant impact on the network as a whole.

7.2.31 The situation is far more severe when Kennet Valley Park is included in the appraisal, since KVP traffic causes M4 J13 to become overcapacity, leading to large queues on the M4. The A4 eastbound access also experiences significant additional queuing. Traffic from Denison Barracks exacerbates these queues, leading to an increase in journey times on the A4 eastbound and the A339 southbound of 27 and 28 seconds, respectively.

7.2.32 As mentioned above, traffic generated from development at this cluster mainly accesses the network via Priors Court Road (which links the development to the M4 and A34), and the B4009 Long Lane. Although some of the development traffic accesses other parts of the network using the main strategic routes i.e. A34 and A339, the bulk of southbound traffic uses Long Lane to access Newbury town centre. The moderate volume of traffic on a locally sensitive route justifies the score of -1 given for this cluster for both development situations.



Cluster K – Theale – Near Junction 12

Table 7.11 – Cluster K Quantitative Scoring

Cluster K – Theale: Near Junction 12		
Indicator	No KVP	With KVP
Network-Wide Performance	0	-1
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	0
Journey Times on Strategic Routes	0	-1
Local Re-assignment	0	0
TOTAL	-1	-2

7.2.33 Development traffic from Theale is split evenly between the M4 and A4. There is no significant delay across the network as a whole, but the additional traffic accessing Newbury town centre results in a moderate increase in journey times on the A339.

7.2.34 The impact is more severe when Kennet Valley Park is included, since both developments access the study area at the same points. This is shown clearly by the 52 second increase in the M4 westbound journey time, caused by the queuing at M4 J13. This leads to a moderate deterioration in network-wide indicators.

7.2.35 The bulk of development traffic from Cluster K is channelled on to the strategic routes of the M4 and A4. Furthermore, since Theale is outside the modelled area, the development's impact on local roads in its immediate vicinity cannot be assessed. Hence, this cluster has been scored 0 for both development scenarios.

Cluster L – Tilehurst – Turnhams Farm

Table 7.12 – Cluster L Quantitative Scoring

Cluster L – Tilehurst: Turnhams Farm		
Indicator	No KVP	With KVP
Network-Wide Performance	0	-2
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-1
Journey Times on Strategic Routes	0	-1
Local Re-assignment	0	-1
TOTAL	-1	-5

7.2.36 The impact of Cluster L is essentially the same as for Cluster K, since they share common loading points. Additional development traffic causes a slight increase in journey times on the A339, causing some southbound traffic to divert onto the A34, increasing journey times on the southbound A34. The impact is not sufficient to generate a large difference in network performance indicators.

7.2.37 With Kennet Valley Park included in the appraisal, development traffic becomes stuck in queues at the access points to the study area, leading to an increase of 24 seconds in the average queue time and a decrease of 1.6kph in average speed – worsening network performance, and hence the -2 score given for this indicator in this scenario.

7.2.38 As with Cluster K, the bulk of traffic generated from Cluster L is channelled via the M4 and A4 in both development scenarios. However, there is significantly more traffic on the A4 westbound when this cluster is developed in the scenario with Kennet Valley Park, which leads some traffic to re-route along local residential roads in the Thatcham estates, particularly along Floral Way. Thus, in this scenario, this cluster has been scored -1. If the site is developed without Kennet Valley Park, it is observed that additional traffic from Cluster L is not significant enough on its own to cause re-routing, and hence a score of 0 has been given for this development scenario.

Cluster M – Kennet Valley Park

Table 7.13 – Cluster M Quantitative Scoring

Cluster M – Kennet Valley Park		
Indicator	No KVP	With KVP
Network-Wide Performance	-2	N/A
Congestion on Key Links	-1	N/A
Journey Times on Local Routes	-2	N/A
Journey Times on Strategic Routes	-1	N/A
Local Re-assignment	-2	N/A
TOTAL	-8	N/A

7.2.39 Predictably, given the size of the development, Kennet Valley Park has a very significant impact across the network. Development traffic enters the study area via the A4 and M4 to the west of the area. Consequently, the largest changes in journey times are on the eastbound links to Newbury. The A4 eastbound journey time increases by 133 seconds, while the M4 westbound increases by a very significant 676 seconds, as the M4 J13 does not have sufficient capacity to handle this volume of traffic.

7.2.40 Across the network as a whole, average queuing time is increased by 116 seconds, average journey time is increased by 136 seconds, and average speeds fall by 11kph.

7.2.41 In practice, it is likely that this represents a worst-case scenario, and that the traffic generated by the scheme is likely to be lower, due to internalisation of trips and increased public transport provision.

7.2.42 The sheer volume of traffic generated by the development at Kennet Valley Park means that congestion on major routes and at key junctions on the network is inevitable. Consequently, there is a high level of re-routing as traffic seeks alternative less congested routes, mainly along local routes in Thatcham. Those most significantly affected include Floral Way and several roads on the Thatcham estates. This cluster has thus been scored -2.

Cluster N – Thatcham – Siege Cross Farm

Table 7.14 – Cluster N Quantitative Scoring

Cluster N – Thatcham: Siege Cross Farm		
Indicator	No KVP	With KVP
Network-Wide Performance	0	-2
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-1
Journey Times on Strategic Routes	0	-1
Local Re-assignment	-2	-2
TOTAL	-3	-6

7.2.43 The routing of traffic associated with the Siege Cross Farm development indicates that the A4 is operating at capacity in the base scenario. Westbound traffic chooses to use nearby residential and local roads, split between notably Floral Way to the north and Bury's Bank Road to the south. Development traffic therefore utilises available capacity in the local road network, leading to a moderate increase in journey times on local routes.

7.2.44 With Kennet Valley Park completed, the additional traffic on the A4 leads to increased queuing, increasing the average queue time by 16 seconds and leading to an increase of 86 seconds in the A4 eastbound journey time. This increase results in a significant deterioration of the network performance and moderate increases in journey times on both local and strategic routes.

7.2.45 Development at Cluster N immediately impacts upon traffic on local surrounding roads in the Thatcham estates, particularly Floral Way, Falmouth Way, and Harts Hill Road. Although this pattern of movement is similar whether cluster N is developed independently or in tandem with Kennet Valley Park, there are slightly more vehicles on affected roads in the former scenario than the latter. Nevertheless the differences are so small that the cluster has been scored -2 in both development situations due to the scale of the impact experiment in both circumstances.

Cluster O – Thatcham – North of Bowling Green Road

Table 7.15 – Cluster O Quantitative Scoring

Cluster O – Thatcham: North of Bowling Green Road		
Indicator	No KVP	With KVP
Network-Wide Performance	0	0
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-2
Journey Times on Strategic Routes	0	0
Local Re-assignment	-2	-2
TOTAL	-3	-4

7.2.46 The impact of Cluster O is similar to that of Cluster N, except the higher volume of traffic travelling North of Newbury has a greater impact on journey times on the A339.

7.2.47 The inclusion of Kennet Valley Park leads to an increase in the A4 eastbound journey time of 113 seconds, but this is localised, as it does not generate a significant deterioration in network-wide performance.

7.2.48 The impact of development at Cluster O is an increase in traffic flows on local roads on the Thatcham estates. Significant increases are seen on Falmouth Way, Floral Way, Bowling Green Road and Tull Way. There are however, minor variations in actual flows, with slightly higher volumes being observed if the development is built alongside Kennet Valley Park rather than on its own. The differences are so small however that the cluster has been scored -2 in both development scenarios.

Cluster P – Newbury and Thatcham Gap

Table 7.16 – Cluster P Quantitative Scoring

Cluster P – Newbury and Thatcham Gap		
Indicator	No KVP	With KVP
Network-Wide Performance	0	0
Congestion on Key Links	0	0
Journey Times on Local Routes	-1	-2
Journey Times on Strategic Routes	0	-1
Local Re-assignment	-1	-1
TOTAL	-2	-4

7.2.49 Travel patterns from Cluster P indicate the A4 is congested along its length. Eastbound traffic from Cluster P uses the Floral Way local access road to travel east rather than use the A4, whereas westbound traffic travels west on local roads such as Turnpike Road to access the town centre, rather than travel along the A4 through Robin Hood roundabout.

7.2.50 With Kennet Valley Park constructed, additional traffic leads to a moderate increase in journey times on the A4, but more significant journey times on local routes.

7.2.51 As with Clusters N and O, development of Cluster P has a knock on effect on local traffic conditions, particularly on Turnpike Lane and Fir Tree Lane. In both development scenarios i.e. with and without Kennet Valley Park, about half of traffic from this cluster impacts directly upon the A4 eastbound, and the other half is re-assigned to the surrounding local roads, with minor variations in flows on the affected routes. As such a score of -1 has been assigned for this cluster in both development scenarios.

7.3 SUMMARY

7.3.1 The section has discussed the impact of individual development clusters on the network through a range of quantitative indicators obtained from the Newbury and Thatcham traffic model. Overall, the A339 and A4 are very sensitive to increases in traffic flow, particularly at the Bear Lane and Robin Hood roundabouts, which are operating at capacity in the base situation. Assessing each of the clusters once Kennet Valley Park is assumed to have been completed generally means that journey times on the A4 are worse, although the increased queuing can mean that journeys on the A339 actually improve, since the traffic wishing to make this movement is held in a queue elsewhere.

7.3.2 Assessment of the impact of development at all clusters both with and without Kennet Valley Park on locally sensitive routes has revealed variations between clusters. In particular, development at clusters in Thatcham i.e. at Siege Cross Farm (N) and North of Bowling Green Road (O) significantly increase traffic on the local surrounding roads, which are particularly sensitive. Other clusters, whose development would result in a significant level of re-routing of traffic onto local sensitive routes include South

Newbury – Sandford Park (C), Wash Water (D), Greenham (E), West Newbury (F) and Kennet Valley Park (M).

7.3.3 The ranking of sites based purely on the quantitative assessment is given below.

Table 7.17 – Quantitative Ranking of Clusters Excluding KVP from Do Minimum

ID	Cluster	Number of households	QUANTITATIVE ASSESSMENT					Sub-Total
			Impact on Road Network					
			Network Performance	Congestion on Key Links	Journey Times on Local Routes	Journey Times on Strategic Routes	Local Re-assignment	
H	North Tadley - Silchester Road	500	0	0	-1	0	0	-1
K	Theale - Near Junction 12	500	0	0	-1	0	0	-1
L	Tilehurst - Turnhams Farm	800	0	0	-1	0	0	-1
I	Hungerford	500	-1	0	-1	0	0	-2
J	Hermitage - Denison Barracks	500	0	0	-1	0	-1	-2
P	Newbury & Thatcham Gap	750	0	0	-1	0	-1	-2
B	South Newbury - Rugby Club	1200	0	0	-2	0	-1	-3
D	South Newbury - Wash Water	500	0	0	-1	0	-2	-3
N	Thatcham - Siege Cross Farm	1000	0	0	-1	0	-2	-3
O	Thatcham - North of Bowling Green Road	500	0	0	-1	0	-2	-3
G	Newbury Racecourse	1400	-2	0	-1	0	-1	-4
A	North Newbury	1500	-1	-1	-1	-1	-1	-5
E	Greenham	500	-2	0	-1	0	-2	-5
C	South Newbury - Sandford Park	2500	-2	0	-2	0	-2	-6
F	West Newbury	1000	-2	0	-2	0	-2	-6
M	Kennet Valley Park	7500	-2	-1	-2	-1	-2	-8

Table 7.18 – Quantitative Ranking of Clusters Including KVP in Do Minimum

ID	Cluster	Number of households	QUANTITATIVE ASSESSMENT					Sub-Total
			Impact on Road Network					
			Network Performance	Congestion on Key Links	Journey Times on Local Routes	Journey Times on Strategic Routes	Local Re-assignment	
I	Hungerford	500	0	0	0	0	0	0
K	Theale - Near Junction 12	500	-1	0	0	-1	0	-2
J	Hermitage - Denison Barracks	500	0	0	-2	0	-1	-3
H	North Tadley - Silchester Road	500	-2	0	-1	0	0	-3
D	South Newbury - Wash Water	500	0	0	-1	0	-2	-3
P	Newbury & Thatcham Gap	750	0	0	-2	-1	-1	-4
G	Newbury Racecourse	1400	-2	0	-1	0	-1	-4
B	South Newbury - Rugby Club	1200	0	0	-2	-1	-1	-4
O	Thatcham - North of Bowling Green Road	500	0	0	-2	0	-2	-4
A	North Newbury	1500	-1	0	-2	-1	-1	-5
E	Greenham	500	-2	0	-1	0	-2	-5
L	Tilehurst - Turnhams Farm	800	-2	0	-1	-1	-1	-5
F	West Newbury	1000	-2	0	-1	0	-2	-5
N	Thatcham - Siege Cross Farm	1000	-2	0	-1	-1	-2	-6
C	South Newbury - Sandford Park	2500	-2	0	-2	-1	-2	-7



8 Qualitative Assessment of Clusters

8.1 INTRODUCTION

8.1.1 Having analysed the potential impact of residential development on the road network in Chapter 7, this chapter assesses each cluster's potential to contribute towards wider transport objectives by promoting sustainable travel to and from the respective development clusters. An assessment framework has been developed based on a set of transport policy objectives derived from those used in the West Berkshire Council Local Transport Plan (LTP). The LTP process analysed regional and national objectives and from these established a series of local transport objectives for West Berkshire. These local objectives have been drawn upon in developing the LDF assessment framework for West Berkshire. Assessment of the development clusters has considered each cluster's capacity to meet the following transport objectives, as set by West Berkshire Council:

- To increase accessibility to services
- To reduce impact and effect of congestion
- To widen travel choice to essential services by means other than the car
- To improve public transport

8.1.2 To enable each cluster group to be scored against each of these objectives, allowing for a numerical comparison, and the identification of the most suitable locations for residential development, each cluster was assessed against the objectives through a series of indicators.

8.2 INDICATORS

8.2.1 Indicators were developed for three of the objectives i.e. increased accessibility, reduced congestion and public transport improvements to assist in measuring the sustainability of each development cluster. Indicators for wider travel choice are intertwined with increased accessibility and public transport improvements. The benefits of using indicators to assess the clusters against each objective are that:

- Indicators enable quantification of impact and inform how issues affect the selected objectives.
- Indicators allow the relative importance of different components of an objective to be measured

8.2.2 The list of derived indicators that have been used for the three selected objectives is shown in Table 8.1 below.



Table 8.1 - Qualitative Assessment Matrix

West Berkshire LDF Transport Analysis - Assessment Matrix	
Objective	Indicator
Congestion	Potential for Road Improvements
	Proximity to Cycle Route Network
Accessibility	Access to Major Centres by PT/ Walk
	Provision of Local Retail
Public Transport	Potential for Bus Service Improvements
	LTP Identified Public Transport Improvements
	Proximity to Rail Stations

8.2.3 The above indicators will enable an examination of the current status of each objective relative to each cluster, and in so doing will enable the identification of how residential development of that cluster might impact or contribute to each of the transport objectives.

8.3 SCORING METHODOLOGY

8.3.1 To assess each cluster against the specified indicators a scoring system has been developed. A consistent scoring methodology has been used for all indicators to allow a total score to be identified for each cluster and final ranking to occur within an overall analysis framework. An explanation of the scoring methodology is given in Table 8.2 below:

Table 8.2 - Qualitative Indicator Scoring

Indicator description	Score
The cluster will have a very positive impact on the transport objective	+ 2
The cluster will have a slightly positive impact on the transport objective	+1
The cluster will have a negligible or neutral impact on the transport objective	0
The cluster will have a slightly negative impact on the transport objective	- 1
The cluster will have a very negative impact on the transport objective	- 2

8.3.2 Alongside each score a commentary has been provided to allow an explanation and justification behind the scoring given. It is important to note that the scores awarded for each cluster reflect measurements taken from the centre of each cluster.

8.4 SCORING PER INDICATOR

8.4.1 The following section identifies and explains the inclusion of each of the indicators within the assessment, stating the assessment criteria used to judge each cluster against that indicator and how this relates to scoring each cluster within the above scoring methodology.



8.5 CONGESTION INDICATORS

Potential for Road Improvements

8.5.1 Road improvements on key transport corridors will assist in increasing road capacity, reducing congestion and alleviating congestion hotspots. Within this indicator, clusters have been scored on their proximity to known road improvement schemes on key transport corridors.

8.5.2 Based on each cluster's location relative to the above road improvements and more minor improvements, scores have been assigned as indicated in Table 8.3 below:

Table 8.3 - Road Improvement Scoring

+2	Major improvement currently in program of works
+1	Minor improvements
0	No improvements
-1	N / A
-2	N / A

8.5.3 Negative scores have not been used when scoring this indicator because a lack of road improvements in the local vicinity of a cluster may be due to none being needed, rather than due to a lack of road improvements. A cluster that is close to a major congestion hotspot may also be close to a major improvement scheme, which will help alleviate congestion. A positive score within this indicator will therefore help to offset a negative score with regard to a cluster's current local congestion, thus providing a more balanced view on future development in this cluster.

Proximity to Cycle Route Network

8.5.4 Proximity to the strategic cycle network (including the proposed future extensions to this network) is an indication of good provision for cycling in and around the local area and provides the ability to travel further and in a safe manner, using dedicated facilities. The greater the possibility for people to cycle their peak time journeys, the greater the opportunity to reduce traffic congestion via more sustainable modes. Figure 6 indicates the current network of cycle routes within West Berkshire.

8.5.5 In connection with this indicator, an appreciation has also been made of the general cycle opportunities within each cluster's location and the availability of 'safer' cycle routes and low flow roads within the local area. Reflection of these local cycle opportunities, although not directly scored, is noted within the commentary of each cluster given in Section 9 of this report.

8.5.6 Therefore, based on each cluster's location relative to the pedestrian/cycle route network scores have been assigned as indicated in Table 8.4 below:



Table 8.4 - Proximity to Cycle Network Scoring

+2	Within 0-1km from the route network
+1	Within 1-2km of the route network
0	Greater than 2km / Not on the route network
-1	N / A
-2	N / A

8.5.7 In assessing proximity to the route network, scores have been assigned as a positive, not a negative, because a lack of access to the route cycle network may not necessarily indicate a low level of accessibility, simply a lack of route network availability. However being in close proximity to the national and local cycle route network may increase the likelihood of commuters cycling to work, due to the route network generally providing a better standard of cycle routes. Hence, the more people cycle to work, the greater the potential to reduce general traffic congestion at peak times.

8.6 ACCESSIBILITY INDICATORS

Access to Major and District Centres by Public Transport and Walk

8.6.1 Shopping accounted for 20% of all trips by all transport modes in 2005 (RAC Foundation of Motoring, 2005). The average distance for such trips was measured at 4.3 miles in 2003 (DfT, 2005) and over half (58%) of all car trips in the UK are under 5 miles, equal to a half hour cycle ride (DfT, 2005). In terms of accessibility via sustainable transport it is therefore important that clusters are assessed in terms of their accessibility to retail centres via public transport, walking and cycling to ensure increased uptake in these modes where possible.

8.6.2 District and Major Centres are taken as those identified within the Accession plots generated by West Berkshire Council for the study area, and do not include local centres which could be expected as part of any large residential development. Those District and Major Centres identified within the plots are as shown in Table 8.5 below:

Table 8.5 – District and Major Centres in West Berkshire

District Centres	Major Centres
Hungerford	Basingstoke
Lambourn	Oxford
Pangbourne	Newbury
Tadley	Reading
Thatcham	Swindon
Theale	
Wantage	



8.6.3 Development clusters within 15 minutes travel time of a District or Major Centre can afford residents the ability to walk to access these amenities and thus gain the most positive scoring of +2. Those clusters that lie within 16 – 30 minutes travel of a District or Major Centre were scored +1, whilst clusters within 30 – 60 minutes travel time of a District or Major Centre were scored 0.

8.6.4 The Accession Plots provided by West Berkshire Council showed accessibility to District and Major Centres for the morning peak i.e. 8 – 9am and in the inter-peak, i.e. 9 – 10am. The clusters were scored for both of these time periods to gauge the differences, if any, in accessibility within these time periods. Results of the assessment showed that accessibility to either a District or Major Centre in either time period was broadly similar, and hence the scores presented for this indicator in Chapter 9 reflect an overall score for both time periods.

8.6.5 Based on the above, each cluster's location in terms of travel time to the nearest District or Major centre has been scored as indicated in Table 8.6 below. No clusters were more than an hour away from a given centre.

Table 8.6 – Accessibility to Major Centres by Public Transport or Walk Scoring

+2	Up to 15 minutes by PT/walk access to Major and District Centre
+1	16 to 30 minutes by PT/ walk access to Major and District Centre
0	30 – 60 minutes by PT/walk access to Major and District Centre
-1	N / A
-2	N / A

8.6.6 The ranges given for each score category have been taken from those used within the West Berkshire Council Accession study on which this indicator will be judged. Each Cluster's location was measured from its centre point.

Proximity to Local Facilities

8.6.7 In order to fully assess the accessibility of a cluster we must also consider its accessibility to and provision of local facilities nearest to the cluster itself. Local facilities have been taken to mean essential amenities such as primary schools, secondary schools, GP surgeries, convenience stores, leisure centres etc. which people are likely to access on a daily basis. A comprehensive list of amenities considered, has been developed based on West Berkshire's Rural Settlement Hierarchy, as shown in Appendix E. Each Cluster's proximity to services was measured from its centre point. The scoring for this indicator is shown in Table 8.7 below.



Table 8.7 – Proximity to Local Facilities Scoring

+2	Score from West Berkshire’s Rural Settlement Hierarchy of 25 or more.
+1	Score of 20 – 25
0	Score of 10 – 20
-1	Score of 0 – 10
-2	N / A

8.6.8 It is important to note that detailed analysis of this indicator was only undertaken for the six external clusters far from Newbury or Thatcham town centre of i.e. Clusters H to M. This analysis was based on the Rural Settlement Hierarchy produced by West Berkshire Council in May 2008. The remaining ten clusters were assumed to have excellent provision of services identified in Appendix E, given their proximity to the town centre. Hence, the clusters in the latter category were scored +2, except in some cases where constraints to accessibility of those local facilities meant that a score of +1 was more appropriate (namely Cluster D: South Newbury – Washwater and Cluster N: Siege Cross Farm).

8.7 PUBLIC TRANSPORT INDICATORS

Proximity to Rail Stations

8.7.1 The availability of a local rail station is likely to induce a significant uptake in rail travel within that cluster for peak hour commuter trips. This indicator judges the proximity of each cluster to a rail station. Table 8.8 below indicates the scoring criteria associated with this indicator.

Table 8.8 – Proximity to Rail Stations Scoring

+2	Within 800m from Newbury rail station
+1	Within 2km from Newbury rail station or within 800m from other mainline railway stations
0	Within 5km from Newbury or other mainline railway stations
-1	N / A
-2	Nearest rail station greater than 5km away

8.7.2 Within the above scoring high accessibility of a rail station within this indicator has been judged to equal a cluster within 800m, equal to 10 minutes walk from that station.

8.7.3 A higher score has been attributed to clusters close to Newbury railway station than other mainline railway stations as more rail services call at Newbury than at other mainline railway stations in the West Berkshire area. Other railway stations considered in this assessment include Thatcham, Theale, Hungerford and Tilehurst (located in neighbouring Reading Borough). Cluster G – Newbury Racecourse is close to the Newbury Racecourse railway station, but has been scored against its proximity to



Newbury railway station as Newbury Racecourse station is not served by mainline rail services.

8.7.4 Reasonable accessibility has been judged as equal to a cluster being located 2km (25 minute walk) from the station and maximum acceptable distance being 5km (20 minute cycle). Beyond 5km requires rail users to travel by motorised transport to reach the station and thus earns a negative rating.

Potential for Bus Improvements

8.7.5 The potential for bus improvement provides the ability to assess how sustainable any extensions to the existing bus network to serve each cluster, would be. To enable an assessment of this type a proxy figure of 500 households was used which was assumed to be the number of households required to support one additional vehicle. This is based on the expected revenue level that would be required to cover the cost of one additional vehicle. It has also been assumed that one additional vehicle would be required for each additional 2km that a current bus service must journey from the network to serve the cluster. Hence the highest score for this indicator would be gained if the cluster was close to the route network or the potential development in that cluster was very large.

8.7.6 Using West Berkshire Council's mapping of the district wide current bus network, and the assumptions stated above, the following scoring criteria have been developed to assess this indicator, as shown in Table 8.9 below:

Table 8.9 – Potential for Bus Improvements Scoring

+2	The cluster can support bus improvements
+1	There is potential for the cluster to support bus improvements
0	N / A
-1	N / A
-2	The cluster cannot support bus improvements

8.7.7 Any development at a reasonable scale is likely to require additional public transport improvement, however if the scale of development cannot support these improvements then additional funding will need to be found to supplement public transport provision in these area. Hence, clusters identified within these categories have been given a negative scoring while those clusters that can / have the likely potential to support public transport improvement have been given a positive score to indicate their suitability in this area. The decision between awarding a +2 or +1 score has been made on whether the cluster could definitely support PT improvement (+2), or would 'likely' be able to support PT improvements but would require further analysis at the development period (+1).

LTP Identified Public Transport Improvements

8.7.8 West Berkshire's Local Transport Plan identifies a number of public transport improvements which, if close to a cluster location, has the potential to increase the public transport accessibility of the site and public transport modal share, should it be



developed. To ensure this is factored into the assessment of the clusters this indicator will score clusters on their proximity to already identified public transport improvement schemes.

8.7.9 Based on each cluster’s location relative to these public transport improvements, and more minor improvements identified by West Berkshire Council, scores will be assigned as indicated in Table 8.10 below:

Table 8.10 – LTP Identified Public Transport Improvements Scoring

+2	Major improvement
+1	Minor improvements
0	No improvements
-1	N / A
-2	N / A

8.7.10 Negative scores have not been used when scoring this indicator because a lack of public transport improvements in the local vicinity of a cluster may be due to none being needed, rather than due to a neglect of public transport improvements. Conversely a cluster that is currently not well served by public transport, but is in proximity of a major improvement scheme, will have its scores balanced in regard to public transport by the positive scores available with this indicator.

8.8 SUMMARY

8.8.1 This chapter has discussed the indicators, which will be used to assess the potential for the respective development clusters to promote sustainable travel patterns. In particular, this will be assessed by:

- Analysing the potential for road improvements adjacent to each cluster and each cluster’s proximity to cycle routes (to alleviate congestion);
- Analysing each cluster’s proximity to major centres and retail opportunities by walk or cycling (to gauge accessibility levels) and;
- Examining the potential for bus corridor improvements and LTP identified public transport improvements for each cluster, as well as assessing each cluster’s proximity to a rail station (to encourage more travel by public transport).



8.9 NEXT STAGE OF ASSESSMENT

8.9.1 Chapter 9 discusses these indicators in detail, with regard to each cluster, upon which each cluster is scored against the set indicators.

8.9.2 Total scores for each cluster were obtained by aggregating the scores awarded against each of the indicators identified in this chapter. This assessment will inform the strategic allocation process and provide an assessment of the transport sustainability and the potential of each cluster to accommodate/mitigate potential future development. However, there may be additional overriding factors (not assessed in this study) as to why one cluster is less sustainable than another, and thus any ranking of scores should be viewed purely on a transport assessment basis.

9 Qualitative Scoring of Clusters

9.1 INTRODUCTION

9.1.1 This chapter sets out the scores awarded to each cluster based on the indicators identified in the previous section and associated scoring criteria. For each cluster a brief introduction is given, including both positive and negative characteristics used to calculate the relative scores. Furthermore, a summary table indicating the scores awarded relative to each indicator with an overall score for that cluster is provided.

9.2 SCORING RESULTS

CLUSTER A – NORTH NEWBURY

9.2.1 Scoring results for this cluster are illustrated in Table 9.1 below.

Table 9.1 - Cluster A Qualitative Scoring

Cluster A – North Newbury	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+1
Access to Major and District Centre by PT/Walk	+1
Proximity to Local Facilities	+2
Proximity to Rail Stations	+1
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	7

9.2.2 Cluster A (North Newbury) encompasses areas East and West of the A339 and is part of the Newbury and Thatcham Urban Area. It lies within 2km of several services, retail and employment opportunities, including:

- Substantial areas of business and industry within the town centre;
- Retail and leisure facilities;
- West Berkshire Community Hospital.

9.2.3 As identified above this cluster is within excellent reach of a range of local facilities, which justifies the +2 score awarded for this indicator.

9.2.4 The cluster lies within 2km of the National Cycle Route Network, it is close to the Newbury and Thatcham local cycle network and Newbury rail station, placing it in good stead for future residential development. This aspect is further bolstered by the fact that this cluster is within a 30 minute travel time by public transport or walk time to the nearest major centre, Newbury, hence making it an ideal location to ensure sustainable development.

9.2.5 The bus services operating close to the cluster are very infrequent, with service 15 operating 2 journeys daily while services 6, 9 and 99 operate 4 services daily, respectively. However, the size of the proposed development (1500 houses), and its 2km proximity to the town centre make for sufficient justification for the implementation of an extra bus service to tie in with the wider network, hence a score of +2 was awarded, as per the scoring criteria outlined in the previous chapter.

CLUSTER B – SOUTH NEWBURY: RUGBY CLUB

9.2.6 Table 9.2 below summarises the scoring of this cluster.

Table 9.2 - Cluster B Qualitative Scoring

Cluster B – South Newbury: Rugby Club	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	+1
Proximity to Local Facilities	+2
Proximity to Rail Stations	+1
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	8

9.2.7 The Rugby Club cluster is located south of Newbury town centre, adjacent to Newbury College. It lies in an area with relatively good provision of bus services, and is within 2km of Newbury rail station, providing good train links to London and the West Country. Furthermore, the cluster is situated close to a signed cycle path along Monks Lane.

9.2.8 This cluster lies approximately 3km from Newbury town centre, making it accessible within 30 minutes by walk or public transport. Service 3A runs past the site every 45 minutes, and although the bus service provision is staggered, its closeness to the wider network provides more frequent services, and the 1200 dwellings proposed would make it possible to support a bus extension to the wider network to improve accessibility.

CLUSTER C – SOUTH NEWBURY: SANDLEFORD PARK

9.2.9 The scores given to this cluster are summarised in Table 9.3 below.

Table 9.3 - Cluster C Qualitative Scoring

Cluster C – South Newbury: Sandleford Park	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+1
Access to Major and District Centre by PT/Walk	0
Proximity to Local Facilities	+2
Proximity to Rail Stations	0
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	5

9.2.10 Cluster C (South Newbury – Sandleford Park), located south of Newbury is proposed as a potential location for a new village development. The development area would include the area covered by cluster B (Rugby Club) within its boundary. The site is to the south of the adjacent Rugby Club potential development site and as a result of this, the size of the development and the assumption that distances are based on average distances from the centre of the zone, it displays different characteristics to its neighbours. Although the site is not in a built-up area, it is within 2km of a cycle route, on the A339 along Newtown Road.

9.2.11 This cluster is in close proximity to two main bus routes; service 32/32A runs every hour, while services 3A/3B/3C run every 45 minutes. This level of staggered provision would on average provide three services past the site every two hours, a low level of provision by any standard. In addition, this cluster's location means that it takes more than 30 minutes to access the nearest district or major centre, hence it has been scored 0.

9.2.12 Nevertheless, the cluster's location within 5km of the town centre and Newbury rail station, its links to the surrounding bus network, as well as the level of housing numbers (2500) place it in favour of supporting an extension to the wider network.

CLUSTER D – SOUTH NEWBURY: WASH WATER

9.2.13 Table 9.4 below shows scores for this cluster.

Table 9.4 - Cluster D Qualitative Scoring

Cluster D – South Newbury: Wash Water	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	0
Access to Major and District Centre by PT/Walk	0
Proximity to Local Facilities	+1
Proximity to Rail Stations	0
Potential for Bus Improvements	-2
LTP Identified Public Transport Improvements	0
TOTAL	-1

9.2.14 Cluster D (South Newbury – Wash Water) lies in the small suburb of Wash Common, to the south of Newbury. There is no cycle or walking route in the vicinity of the cluster, the nearest one being more than 2km away, along Monks Lane, making access by either of these modes difficult.

9.2.15 In terms of public transport, the cluster lies 5km from Newbury rail station and the town centre. Bus service provision is very poor, with only service 20, X20 running close to the cluster, and even then, provides only six journeys daily. Hence, in terms of public transport accessibility, it takes more than 30 minutes on the bus to access a major centre, which is why it has been scored 0 for this indicator. This cluster has, however, been awarded a +1 score for proximity to local facilities due its proximity to already established residential areas, whilst being some distance from Newbury Town Centre.

9.2.16 The cluster has been scored -2 for potential bus improvements because 500 households will not be able to support an extension to bus network to serve the cluster.

CLUSTER E – GREENHAM

9.2.17 The scores given for this site are shown in Table 9.5 below.

Table 9.5 - Cluster E Qualitative Scoring

Cluster E – Greenham	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	0
Proximity to Local Facilities	+2
Proximity to Rail Stations	+1
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	7

9.2.18 The Greenham Cluster (Cluster E) is located to the south east of Newbury, within 2km of Central Newbury rail station, hence +1 given for this indicator. In addition, the cluster is bordered by a signed cycle path along Greenham Road to the West, and a quiet on road cycle route along New Road to the east, which explains the +2 score given for this indicator.

9.2.19 This cluster has been scored +2 for proximity to local facilities because it is in situ of a range of services, including Newbury Retail Park which lies about a kilometre west of the cluster.

9.2.20 In terms of accessibility, the Accession plots provided showed that the cluster is within 30 – 60minute travel time by public transport or walk to the nearest district or major centre, which is why it has been scored 0. Despite this, Service 11A provides a 30 minute frequency near the cluster whereas service 3B runs a 45 minute frequency. The 500 dwellings proposed for this site are sufficient to support an extension from the site to the network, and it may be possible to divert service 11A into the site given its frequency.

CLUSTER F – WEST NEWBURY

9.2.21 The scores for this cluster are shown in Table 9.6 below.

Table 9.6 - Cluster F Qualitative Scoring

Cluster F – West Newbury	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	0
Proximity to Local Facilities	+2
Proximity to Rail Stations	+1
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	7

9.2.22 Cluster F (West Newbury) is located close to the Enborne area of Newbury. This cluster is within 2km of Newbury rail station and has access to on-road cycle routes along Kingsbridge Road and Enborne Road, which explains the +2 score given for both indicators.

9.2.23 The cluster lies within 30 – 60 minutes of a Major or District Centre, by public transport or walk, hence the 0 score given for this indicator. Although there is limited bus provision within the vicinity of this cluster i.e. service 13 runs every 2 hours, the site lies within 3km of Newbury town centre and slightly more frequent services on the network (i.e. services 12 and 3A). This, coupled with the 1000 homes proposed for this cluster would provide enough capacity to support an extension to the network, and in so doing improve accessibility and travel times to and from the cluster.

9.2.24 The cluster is within good reach of a number of local facilities, including St Bartholomew’s school, which is located about 1.5km away from the site along Enborne Road. This justifies the +2 score given for proximity to local facilities.

9.2.25 Hence, the +2 score given to this cluster for potential for bus improvements is largely due to the housing numbers proposed, which are well above the 500 threshold defined to support a new bus service, and the cluster’s proximity to the town centre.

CLUSTER G – NEWBURY RACECOURSE

9.2.26 Table 9.7 illustrates the overall score awarded to this cluster.

Table 9.7 - Cluster G Qualitative Scoring

Cluster G – Newbury Racecourse	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	+1
Proximity to Local Facilities	+2
Proximity to Rail Stations	+1
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	8

9.2.27 In terms of cycle access, a quiet cycle route runs south of the Racecourse along New Road, while a signed cycle path off the carriage way can be found to the east along Racecourse Road. These cycle routes, the latter of which is shared with pedestrians in some parts, provide added permeability from the cluster to the neighbouring residential areas, as well as the town centre.

9.2.28 This cluster is adjacent to Newbury Racecourse to the north, and is within 2km of the Newbury railway station. Therefore, a score of +1 has been given for this indicator. The cluster is also close to Newbury Racecourse station. However, Newbury Racecourse station is not as well served as Newbury railway station and does not offer direct rail services to London.

9.2.29 The site currently experiences a good level of bus service provision, (service 11 runs near the cluster every 30 minutes), and lies within good reach of other regular services serving Newbury town centre and the wider district. However, the Accession plots showed that it would take between 15 – 30 minutes to access a major or district centre from this cluster. This is why it has been scored +1 for accessibility.

9.2.30 In terms of proximity to local facilities, the cluster is highly accessible to Newbury town centre, Newbury business park, Newbury retail park and other leisure and employment opportunities on offer within the town. The site has been given a +2 score for this indicator.

9.2.31 This cluster is extremely well positioned in terms of potential for bus service improvements. The proposal for 1400 dwellings at this cluster would provide even more justification for an additional bus service to be provided as part of the development, scheduled to tie in with services on the wider network. Hence, the +2 scores given to this cluster owe to the cluster's proximity to Newbury town centre, good cycle links, and excellent position within the wider bus network.

CLUSTER H – NORTH TADLEY: SILCHESTER ROAD

9.2.32 Cluster H was scored as shown in Table 9.8.

Table 9.8 - Cluster H Qualitative Scoring

Cluster H – North Tadley: Silchester Road	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	0
Access to Major and District Centre by PT/Walk	+1
Proximity to Local Facilities	+1
Proximity to Rail Stations	-2
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	2

9.2.33 The North Tadley cluster lies 17km to the south east of Newbury, and 10km to Basingstoke, as the nearest major centre.

9.2.34 The nearest rail station Aldermaston, is well over 5km away from the cluster, and hence a score of -2 has been given for this indicator. There are no walk or cycle routes in the immediate vicinity of this cluster, and it has thus been scored 0 for this indicator.

9.2.35 In terms of bus service provision, the more frequent services run between Tadley and Basingstoke, notably the Jazz 2, which operates at a 20 minute frequency, providing 3 services in the hour. Other services include services 104 and 105, which run between the cluster, Newbury and Reading, and operate a 60 minute frequency. Analysis of the Accession plots revealed that it would take between 15 – 30 minutes to access a major or district centre from this cluster, which is why it has been scored +1 for the accessibility indicator.

9.2.36 The matrix of local service provision given in Appendix E shows that this cluster is within a moderate range of local facilities, hence a score of +1 has been given for this indicator.

9.2.37 The limited bus provision, distance from nearest train station and lack of cycle/walk facilities close to the site make this cluster, probably the least attractive in terms of sustainable travel modes. However, the +2 score awarded to this cluster for the potential for bus service improvements indicator is mainly due to the presence of the Jazz 2 high frequency service to Basingstoke, and the fact that the 500 dwellings proposed for this cluster would meet the minimum requirement for an extension to the network.

CLUSTER I – HUNGERFORD

9.2.38 Table 9.9 below summarises the findings for this cluster.

Table 9.9 - Cluster I Qualitative Scoring

Cluster I – Hungerford	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+1
Access to Major and District Centre by PT/Walk	+2
Proximity to Local Facilities	+2
Proximity to Rail Stations	+1
Potential for Bus Improvements	-2
LTP Identified Public Transport Improvements	0
TOTAL	4

9.2.39 Cluster I (Hungerford) is a market town situated about 16km west of Newbury. According to the 2001 census, the town had a population of approximately 5,700 residents and was estimated at 6,000 in 2006. This cluster is the westernmost town in Berkshire, situated on the border with Wiltshire, and lies within the North Wessex Downs Area of Outstanding Natural Beauty.

9.2.40 In terms of accessibility, Hungerford is close to Junction 14 of the M4, the A4 Bath Road, as well as the Kennet and Avon Canal. The cluster is very close to Hungerford rail station, which lies on the West of England Main Line, and provides rail services to Newbury, Reading, London, and Thatcham, amongst other destinations. Hence it has been scored +1 for this indicator.

9.2.41 Hungerford town centre offers a range of services and has been identified as a district centre in Table 8.5. The West Berkshire Accession maps show that Cluster I is located within 15 minute access of Hungerford district centre by public transport or walking so the accessibility indicator has been scored +2. This cluster also benefits from reasonable links to Newbury by train and National Cycle Route 4; however bus service provision to Newbury is very poor.

9.2.42 Furthermore, of all the external clusters analysed, this cluster had the highest level of provision of local facilities in close proximity to the cluster. For this reason a score of +2 was awarded.

9.2.43 The proposed housing numbers of 500 would reach the threshold considered to be appropriate to support additional bus service, provided that the pick up point in the site is within 2km of an existing bus route. This enables the diversion of an existing services rather than needing to provide a separate, dedicated service. The available service (13) is isolated from the wider network, and potential extensions may be difficult to deliver.

CLUSTER J – HERMITAGE: DENISON BARRACKS

9.2.44 Results of the accessibility scores attributed to this cluster are illustrated in Table 9.10 below.

Table 9.10 - Cluster J Qualitative Scoring

Cluster J – Hermitage: Denison Barracks	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	0
Access to Major and District Centre by PT/Walk	0
Proximity to Local Facilities	0
Proximity to Rail Stations	-2
Potential for Bus Improvements	-2
LTP Identified Public Transport Improvements	0
TOTAL	-4

9.2.45 The Hermitage – Denison Barracks cluster is located in the village of Hermitage, approximately 8km north east of Newbury. The village lies in the heart of the North Wessex Downs, an Area of Outstanding Natural Beauty, therefore any proposed development would have to be seriously considered in light of relevant guidance and policy relating to development in environmentally sensitive areas such as this one.

9.2.46 Given its small size, the cluster is within proximity of a limited provision of services, including a primary school, a post office, church and a small light industrial unit housing several small businesses, among others. This is illustrated in Appendix E, and explains the 0 score given for this indicator.

9.2.47 This cluster is particularly well placed for car access, being located close to the M4 linking to Wales and London, and the A34 providing the main arterial route between the north and south of the district. However, the lack of a rail station, coupled with poor bus service provision (three services running daily) and lack of cycle and pedestrian access all serve to create a cluster that would be hardly accessible by greener travel modes. This is further demonstrated on the West Berkshire Accession maps, which illustrate that the cluster is accessible within 60 minutes by public transport or walking from a major or district centre.

9.2.48 With regard to potential for bus improvements, while the proposed 500 dwellings meet the threshold for a bus extension, the cluster is so disintegrated from the wider network and town centre that it renders extension of services to any part of the network economically unsound.

CLUSTER K – THEALE: NEAR JUNCTION 12

9.2.49 Table 9.11 illustrates the scores awarded for this cluster.

Table 9.11 - Cluster K Qualitative Scoring

Cluster K – Theale: Near Junction 12	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	+2
Proximity to Local Facilities	+2
Proximity to Rail Stations	+1
Potential for Bus Improvements	+1
LTP Identified Public Transport Improvements	0
TOTAL	8

9.2.50 Cluster K (Theale) is included in the Eastern Urban Area, but is identified separately because it is not part of the contiguous urban area. This cluster lies approximately 15km to the east of Newbury, and 10km to the west of Reading. It is bordered by Junction 12 of the M4, connecting it to London and the West Country.

9.2.51 Although this cluster does not have a national cycle route within its boundaries it is connected to the local cycle route network, it has good accessibility via public transport and walking, located within 15 minute travel time to the nearest district centre (Theale) and up to a 30 minute travel time to the nearest major centre (Reading). Bus service 102 provides a 30 minute service frequency, while service 105 runs every 60 minutes. A score of +2 has thus been given for accessibility.

9.2.52 Theale rail station is within 800m of the cluster, providing connections to London, Newbury, Reading, and as far as Exeter and Taunton. Thus, a score of +1 has been given for proximity to rail stations.

9.2.53 Theale's proximity to Reading and the M4 has attracted several distribution companies and offices to set up in the village, particularly to the eastern side. Notably, the Arlington Business Park is located in the village, as is the headquarters of Wolseley, one of the world's biggest building equipment distributors. This will compliment employment opportunities in the cluster. In light of this, and other local facilities identified as being close to this cluster in Appendix E explain the +2 score given for proximity to local services.

9.2.54 In terms of potential for bus service improvements, a score of +1 has been awarded due the cluster's proximity to a more connected and frequent bus network within Reading, despite the fact that the proposed 500 dwellings for this cluster is only just within the 500 household threshold.

CLUSTER L – TILEHURST: TURNHAMS FARM

9.2.55 The scores awarded for this cluster are summarised as below.

Table 9.12 - Cluster L Qualitative Scoring

Cluster L – Tilehurst: Turnhams Farm	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	+2
Proximity to Local Facilities	+1
Proximity to Rail Stations	0
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	7

9.2.56 Cluster L (Tilehurst – Turnhams Farm), although identified within West Berkshire’s potential housing allocations site, is actually located within the confines of Reading.

9.2.57 There is a cycle route along the A4 and Dorking Way. For this reason the cluster has been scored +2 for proximity to cycle route network.

9.2.58 Its proximity to Reading means that most of the bus services serving the area are operated by Reading buses, providing on average a frequency of up to 30 minutes to the nearest major centre (Reading). A less frequent service, 104/105 runs close to the cluster every hour between Tilehurst and Newbury, while services 33 and 38 run every 15 minutes past the site, providing connections to Reading town centre. The Accession plots also revealed that this cluster is within 15 minutes travel time to a major or district centre, which explains the +2 score given for the accessibility indicator. Appendix E also shows that this cluster is within good reach of a range of local facilities, hence it has been scored +1 for this indicator.

9.2.59 Tilehurst rail station lies approximately 2km of the cluster to the north, providing rail services to Reading, Bristol, Wales and the Midlands. Tilehurst is not as well served as Newbury therefore proximity to Tilehurst railway station has been scored 0 points.

9.2.60 Given this cluster’s proximity to Reading town centre and to frequent bus routes in the area, as well as 800 proposed dwellings for the site, this cluster can support any bus service improvements or extensions to the network. The +2 score was given for this indicator because bus improvements would be viable at this cluster.

CLUSTER M – KENNET VALLEY PARK

9.2.61 Table 9.13 below shows the scores given for this cluster.

Table 9.13 - Cluster M Qualitative Scoring

Cluster M – Kennet Valley Park	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	+1
Proximity to Local Facilities	0
Proximity to Rail Stations	0
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	5

9.2.62 Cluster M (Kennet Valley Park) lies to the southwest of Reading, and adjacent to Theale, and is bound by the M4 to the north. The cluster's location is relatively accessible, and its proximity to Reading ensures an adequate level of bus service provision runs past the site. In particular, services 102 and 25/26 every 30 and 20 minutes, respectively. Less regular services between Newbury and Reading, which also run not far from the cluster include service 101 which runs every 2 hours, and 105 which runs every 60 minutes. Travel time from this cluster to the nearest district or major centre by public transport or walk is approximately 30 minutes, hence the +1 score given for the accessibility indicator.

9.2.63 The cluster is currently within 2km of Theale rail station and will be within 2km of a new railway station proposed at Green Park, hence a score of 0 has been awarded.

9.2.64 The site is within 1km of cycle path that runs along the Kennet and Avon canal and connects to Reading town centre and other routes on the network, hence the +2 score given for this indicator. Furthermore, the cluster's location close to Reading means it has a range of local facilities. However these are external to the site, as shown in Appendix E. It is acknowledged that the development will provide a range of new local facilities. Hence, a score of 0 is given for proximity to existing local facilities.

9.2.65 In light of these observations, and the 7500 homes proposed for this cluster, it is deduced that the Kennet Valley Park cluster will support service extensions to the network, an observation that is also supported by the Kennet Valley Park development Transport Assessment prepared by Peter Brett Associates in June 2006.

CLUSTER N – THATCHAM: SIEGE CROSS FARM

9.2.66 Table 9.14 summarises scores awarded for Cluster N.

Table 9.14 - Cluster N Qualitative Scoring

Cluster N – Thatcham: Siege Cross Farm	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	+1
Proximity to Local Facilities	+1
Proximity to Rail Stations	+1
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	7

9.2.67 Cluster N (Thatcham – Siege Cross Farm) is located in the Urban Area of Newbury and Thatcham. Thatcham lies 5km east of Newbury, and 24km to the west of Reading.

9.2.68 In terms of accessibility, the cluster is within 1km of Thatcham rail station, which lies on the Newbury – Reading line, providing connections to Reading, London and the West Country, hence +1 given for this indicator. The cluster is within 30 minutes travel time to Newbury town centre by public transport or on foot, and is also within 1km of several cycle paths connecting to Newbury and the other residential areas. Service 102 runs every 30 minutes runs closest to this cluster. Thus, a score of +2 has been given for proximity to cycle route network, and +1 score is awarded access to a major or district centre.

9.2.69 The settlement is largely a dormitory town for Newbury, Reading and London, and its shopping and town centre facilities cater primarily for local needs. The cluster is adjacent to employment opportunities concentrated at Colthrop to the east of the town, which incorporate substantial distribution businesses, but some distance from other local facilities. This justifies the +1 score given for proximity to local services.

9.2.70 One thousand houses have been proposed for this cluster, which makes extensions to the wider bus network ideal, given its proximity to Newbury and Thatcham town centres, as well as the wider bus network.

CLUSTER O – THATCHAM: NORTH OF BOWLING GREEN ROAD

9.2.71 Scores awarded for Cluster O are shown below.

Table 9.15 - Cluster O Qualitative Scoring

Cluster O – Thatcham: North of Bowling Green Road	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	+1
Proximity to Local Facilities	+2
Proximity to Rail Stations	0
Potential for Bus Improvements	+1
LTP Identified Public Transport Improvements	0
TOTAL	6

9.2.72 As with the previous cluster, Thatcham: North of Bowling Green Road is located in Thatcham. While this cluster is within 5km of Thatcham rail station, hence being scored 0, it is outside the realms of bus provision in the area, with no identified services running close to the site.

9.2.73 Like cluster N, however, it benefits from good cycle and pedestrian routes along Tull way, which link in to quieter routes along the network, serving residential areas. It is also within 1km of national cycle routes 4 and 23, which connect to the wider district, as a result a +2 score is thus given.

9.2.74 The Accession plots produced by West Berkshire illustrated that this cluster is within 30 minute travel time to a major centre (in this case Newbury), by public transport or on foot, giving it relative accessibility to essential facilities such as shopping, leisure, health, education etc. In view of this, a score of +1 was given for this indicator.

9.2.75 The 500 dwellings proposed for this cluster is only just on the defined threshold for a service extension, but this indicator has nonetheless been scored +1 because of its proximity to regular bus services on the network, within Thatcham and Newbury. This level of connectivity is considered appropriate to support an extension to the network, serving the cluster and the wider locality.

CLUSTER P – NEWBURY AND THATCHAM GAP

9.2.76 The scores for this cluster are summarised in Table 9.16.

Table 9.16 - Cluster P Qualitative Scoring

Cluster P – Thatcham and Newbury Gap	
Indicator	Matrix Score
Potential for Road Improvements	0
Proximity to Cycle Route Network	+2
Access to Major and District Centre by PT/Walk	+2
Proximity to Local Facilities	+2
Proximity to Rail Stations	+1
Potential for Bus Improvements	+2
LTP Identified Public Transport Improvements	0
TOTAL	9

9.2.77 The Newbury and Thatcham Gap cluster, as its name suggests, lies between the two main urban areas of Newbury and Thatcham. The area is characterised by high accessibility levels in terms of bus service provision and national cycle route 4.

9.2.78 Travel time to the nearest major or district centre of Newbury is up to 15 minutes, as reflected in the West Berkshire Accession plots, explaining the +2 score awarded. In addition, the cluster is within a 2km radius of Newbury railway station, providing links to Reading, London, the West Country and further afield. As such this indicator was scored +1.

9.2.79 The strategic location of this cluster places it within a wide range of facilities, and has been scored +2.

9.2.80 Although this cluster is lacking in terms of direct bus services running past the site, it is within 3km of Thatcham town centre, and 5km of Newbury town centre, both of which have relatively good provision of frequent bus services. Hence, this proximity, coupled with 750 dwellings proposed for this cluster, an extension to the network to improve accessibility to and from the cluster is possible, and this cluster has been awarded +2 for this indicator.

9.3 SUMMARY

9.3.1 This chapter has scored each cluster based on the indicators set in Chapter 8, with regard to the clusters' sustainability credentials and provided a discussion of what the scores mean in relation to the cluster location and other variables. West Berkshire's LTP has a strategy for wider transport improvements. However, it has not identified specific locations for schemes, and for this reason, all the clusters have scored zero on 'proximity to road improvements' and 'LTP identified public transport improvements' indicators.

9.3.2 A summary of the scores is given in Table 9.17

Table 9.17 - Qualitative Ranking of Clusters

ID	Cluster	Number of households	QUALITATIVE ASSESSMENT							Sub-Total
			Congestion		Accessibility		Public Transport			
			Road Improvements	Proximity to Walk/Cycle Route Network	PT/Walk Access to Major & District Centre	Provision of Local Facilities	Proximity to Rail Stations	Potential for Bus Improvements	LTP Identified Public Transport Improvements	
P	Newbury & Thatcham Gap	750	0	2	2	2	1	2	0	9
B	South Newbury - Rugby Club	1200	0	2	1	2	1	2	0	8
K	Theale - Near Junction 12	500	0	2	2	2	1	1	0	8
G	Newbury Racecourse	1400	0	2	1	2	1	2	0	8
N	Thatcham - Siege Cross Farm	1000	0	2	1	1	1	2	0	7
L	Tilehurst - Turnhams Farm	800	0	2	2	1	0	2	0	7
E	Greenham	500	0	2	0	2	1	2	0	7
F	West Newbury	1000	0	2	0	2	1	2	0	7
A	North Newbury	1500	0	1	1	2	1	2	0	7
O	Thatcham - North of Bowling Green Road	500	0	2	1	2	0	1	0	6
C	South Newbury - Sandleford Park	2500	0	1	0	2	0	2	0	5
M	Kennet Valley Park	7500	0	2	1	0	0	2	0	5
I	Hungerford	500	0	1	2	2	1	-2	0	4
H	North Tadley - Silchester Road	500	0	0	1	1	-2	2	0	2
D	South Newbury - Wash Water	500	0	0	0	1	0	-2	0	-1
J	Hermitage - Denison Barracks	500	0	0	0	0	-2	-2	0	-4

9.3.3 The next chapter provides a summary of the scoring for all clusters from both the qualitative and quantitative analysis, from which each cluster can be ranked based on its overall score for sustainability and impact on the local and strategic road network. From here it will be clearer as to which clusters will be preferred for future housing development.



10 Synopsis of Results

10.1 INTRODUCTION

10.1.1 This section combines the results given in the previous chapters, bringing the quantitative and qualitative strands of analysis together to form a conclusion.

10.2 SUMMARY OF QUANTITATIVE ASSESSMENT – NET IMPACT ON HIGHWAY NETWORK OPERATION

10.2.1 Chapter 7 of this study reviewed the forecast impact of individual development locations on the strategic network. It has been identified that if all clusters are developed independently, Clusters C – South Newbury (Sandleford Park), F – West Newbury and M – Kennet Valley Park will have the greatest impact on the operation of the highway network. All three of these clusters had the greatest adverse impact on journey time forecasts for the local highway network. Kennet Valley Park also impacted journey time forecasts for the strategic highway network.

10.2.2 Similarly, if all clusters are developed in tandem with Kennet Valley Park, the results showed that Clusters C – South Newbury (Sandleford Park) and N – Thatcham (Siege Cross Farm) would have the greatest impact on the network. Hence, Cluster C is forecast to have a consistent impact on the highway network. The increased problems with congestion and delay are, in part due to the size of the potential developments at the identified clusters, but also due to trips generated by them occurring on sections of the network that already experience a degree of stress.

10.3 SUMMARY OF QUALITATIVE ASSESSMENT – POTENTIAL TO ENCOURAGE SUSTAINABLE TRAVEL PATTERNS

10.3.1 A detailed qualitative assessment of each cluster against sustainable transport indicators was provided in Section 9.

10.3.2 Clusters P (Newbury and Thatcham Gap) scored the highest, scoring 9 points out of a possible 14. This cluster is followed by Clusters B (South Newbury – Rugby Club), K (Theale) and G (Newbury Racecourse), both scoring 8 points. All these clusters did not score on Identified Road Improvements and LTP Public Transport Improvements due to the limited number of specific Road and Public Transport Improvements currently proposed throughout West Berkshire.

10.3.3 The next five clusters to be scored highly against sustainability indicators were Cluster A – North Newbury, Cluster E – Greenham and Cluster N – Thatcham Siege Cross Farm, Cluster L – Tilehurst (Turnhams Farm), and Cluster F – West Newbury, all of which scored 7 points.

10.3.4 These clusters all score the maximum against the Potential for Bus Improvements indicator. Also, with the exception of Cluster A – North Newbury, they all score the maximum against proximity to Cycle Route Network. There are, however, variations in their scores for PT/Walk Access to Major or District Centre.

10.3.5 At the opposite end of the spectrum the Clusters which score the least against the Sustainability Indicators are Cluster D – South Newbury (Wash Water) (-1 points), Cluster H – North Tadley (Silchester Road) (-1 point) and Cluster J – Hermitage (Dennison Barracks) (-4 points).



10.3.6 Clusters H and J are both some distance from Major and District Centres as well as rail stations. Also, neither cluster is served by an existing walk/cycle route network. Cluster J – Hermitage (Dennison Barracks) is further disadvantaged by the current low level provision of local facilities close to the cluster and the fact that connecting the site to the existing high frequency bus network would not be financially viable.

10.4 SYNOPSIS OF QUANTITATIVE AND QUALITATIVE ASSESSMENT

10.4.1 A summary showing the combined score, excluding Kennet Valley Park from the base case, is given in Table 10.1. The equivalent summary including Kennet Valley Park is given in Table 10.2



Table 10.1 – Combined Ranking of Clusters (KVP Excluded from Base)

ID	Cluster	Number of households	QUALITATIVE ASSESSMENT						QUANTITATIVE ASSESSMENT					Sub-Total	TOTAL SCORE		
			Congestion		Accessibility		Public Transport		Impact on Road Network								
			Road Improvements	Proximity to Walk/Cycle Route Network	PT/Walk Access to Major & District Centre	Provision of Local Facilities	Proximity to Rail Stations	Potential for Bus Improvements	LTP Identified Public Transport Improvements	Network Performance	Congestion on Key Links	Journey Times on Local Routes	Journey Times on Strategic Routes			Local Re-assignment	
P	Newbury & Thatcham Gap	750	0	2	2	2	1	2	0	9	0	0	-1	0	-1	-2	7
K	Theale - Near Junction 12	500	0	2	2	2	1	1	0	8	0	0	-1	0	0	-1	7
L	Tilehurst - Turnhams Farm	800	0	2	2	1	0	2	0	7	0	0	-1	0	0	-1	6
B	South Newbury - Rugby Club	1200	0	2	1	2	1	2	0	8	0	0	-2	0	-1	-3	5
G	Newbury Racecourse	1400	0	2	1	2	1	2	0	8	-2	0	-1	0	-1	-4	4
N	Thatcham - Siege Cross Farm	1000	0	2	1	1	1	2	0	7	0	0	-1	0	-2	-3	4
O	Thatcham - North of Bowling Green Road	500	0	2	1	2	0	1	0	6	0	0	-1	0	-2	-3	3
E	Greenham	500	0	2	0	2	1	2	0	7	-2	0	-1	0	-2	-5	2
A	North Newbury	1500	0	1	1	2	1	2	0	7	-1	-1	-1	-1	-1	-5	2
I	Hungerford	500	0	1	2	2	1	-2	0	4	-1	0	-1	0	0	-2	2
F	West Newbury	1000	0	2	0	2	1	2	0	7	-2	0	-2	0	-2	-6	1
H	North Tadley - Silchester Road	500	0	0	1	1	-2	2	0	2	0	0	-1	0	0	-1	1
C	South Newbury - Sandleford Park	2500	0	1	0	2	0	2	0	5	-2	0	-2	0	-2	-6	-1
M	Kennet Valley Park	7500	0	2	1	0	0	2	0	5	-2	-1	-2	-1	-2	-8	-3
D	South Newbury - Wash Water	500	0	0	0	1	0	-2	0	-1	0	0	-1	0	-2	-3	-4
J	Hermitage - Denison Barracks	500	0	0	0	0	-2	-2	0	-4	0	0	-1	0	-1	-2	-6



Table 10.2 – Combined Ranking of Clusters (KVP Included in Base)

ID	Cluster	Number of households	QUALITATIVE ASSESSMENT							QUANTITATIVE ASSESSMENT					Sub-Total	TOTAL SCORE	
			Congestion		Accessibility		Public Transport			Impact on Road Network							
			Road Improvements	Proximity to Walk/Cycle Route Network	PT/Walk Access to Major & District Centre	Provision of Local Facilities	Proximity to Rail Stations	Potential for Bus Improvements	LTP Identified Public Transport Improvements	Network Performance	Congestion on Key Links	Journey Times on Local Routes	Journey Times on Strategic Routes	Local Re-assignment			
K	Theale - Near Junction 12	500	0	2	2	2	1	1	0	8	-1	0	0	-1	0	-2	6
P	Newbury & Thatcham Gap	750	0	2	2	2	1	2	0	9	0	0	-2	-1	-1	-4	5
B	South Newbury - Rugby Club	1200	0	2	1	2	1	2	0	8	0	0	-2	-1	-1	-4	4
G	Newbury Racecourse	1400	0	2	1	2	1	2	0	8	-2	0	-1	0	-1	-4	4
I	Hungerford	500	0	1	2	2	1	-2	0	4	0	0	0	0	0	0	4
A	North Newbury	1500	0	1	1	2	1	2	0	7	-1	0	-2	-1	-1	-5	2
E	Greenham	500	0	2	0	2	1	2	0	7	-2	0	-1	0	-2	-5	2
O	Thatcham - North of Bowling Green Road	500	0	2	1	2	0	1	0	6	0	0	-2	0	-2	-4	2
F	West Newbury	1000	0	2	0	2	1	2	0	7	-2	0	-1	0	-2	-5	2
L	Tilehurst - Turnhams Farm	800	0	2	2	1	0	2	0	7	-2	0	-1	-1	-1	-5	2
N	Thatcham - Siege Cross Farm	1000	0	2	1	1	1	2	0	7	-2	0	-1	-1	-2	-6	1
H	North Tadley - Silchester Road	500	0	0	1	1	-2	2	0	2	-2	0	-1	0	0	-3	-1
C	South Newbury - Sandleford Park	2500	0	1	0	2	0	2	0	5	-2	0	-2	-1	-2	-7	-2
D	South Newbury - Wash Water	500	0	0	0	1	0	-2	0	-1	0	0	-1	0	-2	-3	-4
J	Hermitage - Denison Barracks	500	0	0	0	0	-2	-2	0	-4	0	0	-2	0	-1	-3	-7



10.4.2 The combined scoring presented in the tables above show that there are a number of clusters which score well regardless of whether Kennet Valley Park is included in the base.

10.4.3 The clusters that score well in both scenarios are:

- Cluster P – Newbury and Thatcham Gap
- Cluster B – South Newbury – Rugby Club
- Cluster G – Newbury Racecourse
- Cluster K - Theale

10.4.4 The noticeable effect of including Kennet Valley Park in the base is that Cluster I - Hungerford moves into 5th place from being the 10th highest ranked cluster without KVP, whilst Cluster K - Theale moves to 1st place when KVP is included in the base scenario. Also affected when the KVP is included is Cluster L - Tilehurst, which moves down the rankings from 3rd to 10th.

10.4.5 Including Kennet Valley Park in the base increases traffic levels on the A4 giving rise to re-routing effects, which lead to increased congestion in the town centre. This explains why Cluster P – Newbury and Thatcham Gap, (which is located on the A4), located close to the town centre, does not score as highly when Kennet Valley Park is included in the base. The impacts of Kennet Valley Park vary from site to site - there are significant impacts on Siege Cross Farm, Tilehurst, and Hungerford in the rankings, but overall most other sites are ranked in similar positions.

10.4.6 Cluster J – Hermitage (Denison Barracks) scores the least points in both scenarios. Although this cluster is not the lowest scored cluster when assessed against impact on the road network, it scored the least well against the sustainability indicators in the qualitative assessment.

10.5 SUMMARY

10.5.1 In combination, the transport assessments undertaken within this report provide a sound evidence base upon which the relative transport merits of potential residential development locations can be assessed. The conclusions of this assessment are intended to be part of an overall assessment of the merits of potential locations for residential development made up of different components, of which transport is one factor.

11 Summary and Conclusions

11.1 OVERVIEW

11.1.1 The purpose of this study has been to assess the transport impact of proposed residential development at 16 development sites on the strategic road network within West Berkshire, and determine clusters' suitability for development in light of compliance with transport policy objectives. Potential locations for residential development were identified by West Berkshire Council, and their suitability for development has been assessed against:

- A qualitative audit of clusters in terms of potential to support and encourage sustainable travel patterns;
- The impact of potential residential development trips on the strategic road network; and
- The impact of potential residential development trips on key junctions within the West Berkshire area.

11.2 SUMMARY OF FINDINGS

11.2.1 The results of the assessment indicate that those areas most suited for development are those which are closest to existing centres, notably Newbury town, and are those which tend to make use of available infill land in locations from which the town centre can be accessed. These locations are –

- Newbury and Thatcham Gap
- Theale (near Junction 12)
- South Newbury (Rugby Club)
- Newbury Racecourse
- Greenham

11.2.2 This assessment has been undertaken on the basis of their impact on the existing highway network and current levels of accessibility by non car modes.

11.2.3 The locations identified as part of the study are good potential areas for development, although a series of mitigation measures will help to deliver these sites which will be examined in Stage 2. A number of issues have been identified that will need to be considered to deliver these sites, and these are either being picked up in parallel studies, or will be considered within Stage 2 of this study.

11.2.4 The site which is most dependent on the outcome decision of Kennet Valley Park is Thatcham – Siege Cross Farm. From a transport policy view point this would be a logical location to develop as it is close to the A4 where highway and public transport improvements are being recommended, and within good access of Thatcham rail station. With Kennet Valley Park and the associated traffic issues which are generated along the A4, this creates a situation where development is not favourable, unless these traffic issues are mitigated.

11.2.5 Relatively few impacts are expected on the strategic road network. This is due to the fact that most of the development sites are to the south and east of the town. The main site which would impact on the M4 is North Newbury (Cluster A – 1500 homes).

This is further down the priority list for delivery and mitigation measures for this will be developed as part of Stage 2.

11.2.6 Specific issues to consider in relation to our recommended clusters for development include –

- **Newbury Racecourse** – capacity constraints already exist on the A4 close to Newbury which would need to be mitigated by public transport measures. Specific local management measures would be needed to tackle the issues on race days.
- **South Newbury Rugby Club** – this is an extension of the town and the site scores well in accessibility terms but less well in highway terms.
- **Greenham** – Good potential for improvements to public transport into Newbury.
- **Thatcham north of Bowling Green Road** - delivery of this site will be assisted by the outcomes of the A4 junction improvements programmed by the Council. The Floral Way/Heath Lane route will need to be considered in terms of access for this site.
- **West Newbury** – this site is difficult to access at present. There is no link to the A34, but the site offers good opportunity for accessing the town centre.
- **North Newbury** – although close to the town centre, and potentially good bus access to the town centre, there are junction capacity issues accessing the site which would need to be addressed to make this site deliverable.

11.2.7 In transport terms, the site at Denison Barracks is not a favourable site to develop owing to its location and accessibility constraints.

11.3 CONTRIBUTION OF SITES TOWARDS HOUSING TARGETS


11.3.1 The sites which have been identified total 13650 dwellings (excluding KVP) with the housing requirement for West Berkshire being 10,500. Therefore not all of the clusters identified through this plan will need to be delivered.

11.3.2 During Phase 2 of this study, the Council will identify a number of clusters for WSP to undertake more detailed analysis on. Phase 2 will need to test the “in combination” effects of certain clusters as well as schemes that could potentially mitigate the impact of development on the road network.

11.4 KEY SITES AND MITIGATION ANALYSIS

11.4.1 The analysis has raised the need for a number of key mitigation measures and issues to be addressed to enable the delivery of the sites. A series of potential mitigation measures have been considered in existing studies and will be reviewed for their suitability once potential development sites have been selected based on all of the available criteria, of which transport impact is only one component. Potential mitigation measures include:

- Park and Ride as a mitigation measures to accommodate demand into Newbury, potentially from the south;
- Extension of existing Vodafone Park and Ride service to cater for the public;

- 
-
- Improved bus service provision along A4 corridor;
 - Dedicated bus service provision from the development sites to Newbury rail station to avoid increased car trips caused by rail heading from Newbury rail station;
 - Potential improvements to bus services serving the cluster sites to the south of Newbury and the best way of serving these;
 - Revisions to town centre parking in Newbury;
 - A339/Vodafone Access: If this is to be used as an access point for North Newbury, this junction will need to be improved to allow development traffic to exit the site without causing existing traffic to divert onto the trunk road network via the A34;
 - A4 West of Newbury: This stretch of the A4 is operating at capacity in the base situation. Sites located to the west of Newbury have a significant impact on journey times, leading to re-routing using unsuitable local roads;
 - Mitigation measures on the local road network which West Berkshire Council would need to incorporate within the Local Transport Plan, and mitigation measures which would need to be developed in conjunction with the Highways Agency to reduce the impact upon the strategic road network;
 - Kennet Valley Park: The analysis presented here assumes a relatively high trip rate for Kennet Valley Park and assumes that all traffic will be able to exit the site and access the M4 and A4 without being held in a queue. Traffic then causes very significant queues on the approaches to the model area, particularly at M4 J13. Any mitigation measures at this junction will merely transfer the problem to the centre of Newbury at the Robin Hood and Bear Lane roundabouts. Any additional developments built once Kennet Valley Park has been completed are inevitably held in queues elsewhere in the Newbury and Thatcham area. The volume of trips associated with Kennet Valley Park needs to be carefully examined to ensure that the disruption to the operation of the West Berkshire road network is minimised.

11.5 SUMMARY

11.5.1 This study has provided a qualitative assessment of the relative merits of residential development at different locations within the West Berkshire area, focused on sustainability criteria. This has taken into account the full amount of housing it may be possible to realise within the district to enable a subsequent decision on preferred locations for residential development. In addition an assessment has been undertaken to determine the likely impact of potential development on the strategic road network within the district boundary. This is complemented by an assessment of the potential for non car mode improvements to benefit public transport users, pedestrians and cyclists

11.5.2 This assessment sits alongside the outcomes of parallel assessments against wider sustainability criteria and provides evidence through which stakeholders due to participate participate in LDF determination can make an informed response on their preferred sites for future residential development.



Appendices, Figures & Tables