


Redditch Local Plan – Infrastructure Delivery Plan

Document: One. Version: Two.

Redditch - IDP

Worcestershire County Council

March 2013

Redditch Local Plan – Infrastructure Delivery Plan

Redditch - IDP

Worcestershire County Council

March 2013

Halcrow Group Limited

Burderop Park

Swindon

Wiltshire

SN4 0QD

tel 01793 812479 fax 01793 812089

halcrow.com

Halcrow Group Limited has prepared this report in accordance with the instructions of client Worcestershire County Council for the client's sole and specific use.

Any other persons who use any information contained herein do so at their own risk.

Document History

Redditch Development Plan – Infrastructure Delivery Plan

Worcestershire County Council

This document has been issued and amended as follows:

Version	Date	Description	Created by	Verified by	Approved by
1.0	09/2012	Draft Final Report	TM	AB	AB
2.0	03/2013	Draft Final Report	TM	AB	AB

Contents

1	Executive Summary	4
2	Introduction	8
2.1	Background	8
2.2	Purpose of this report	9
2.3	Structure of this report	10
3	Methodology	11
3.1	Introduction	11
3.2	Need for assessment	11
3.3	Development of assessment tool	12
3.4	Overview of assessment results	13
3.5	Overview: Redditch Borough Existing Highway Issues	14
3.6	Overview: Existing Public Transport (bus) Issues	15
3.7	Overview of Existing Pedestrian Issues	16
3.8	Overview of Existing Cycle Network	16
3.9	Overview of Public Transport (Rail) Issues	17
4	Review of previous work	19
4.1	Introduction	19
4.2	Redditch Development Sites – Highway Impact and Accessibility Modelling Report (May 2011)	19
4.3	The Worcestershire Local Sustainable Transport Fund – “Choose how you move in Redditch”	19
4.4	Redditch Borough Council – Town Centre Strategy – (September 2009)	20
5	Baseline and Do-Minimum Network Problems/Issues	21
5.1	Introduction	21
5.2	Highway Network Performance	21
5.3	Public Transport and Sustainable Modes of Transport	23
6	Scheme Identification	25
6.1	Introduction	25
6.2	Scheme Identification Methodology	25
6.3	Overview of Schemes	27
6.4	Scheme Tables	27
7	Conclusions and Next Steps	29
7.1	Conclusions	29

Appendix

- Appendix A** **Modelling Assessment Tool; Contents and Description**
- Appendix B** **Bromsgrove and Redditch – Planning Data**
- Appendix C** **Predicted number of trips from development sites by mode**
- Appendix D** **Infrastructure Delivery Plan – Scheme Tables**

DRAFT

1 Executive Summary

Bromsgrove District Council (BDC) and Redditch Borough Council (RBC) are preparing their Core Strategies. To assist with the development of these strategies, Halcrow has been commissioned to support Worcestershire County Council (WCC) with identifying the necessary transport related infrastructure and services, and giving advice on and preparing the transport evidence to contribute towards the Infrastructure Delivery Plan (IDP). The transport infrastructure (highway, public transport, cycle and pedestrian) and public transport services identified will be based on the assumptions set out in the Redditch Local Plan.

The Infrastructure Delivery Plan (IDP) will give details of the infrastructure that is required to support the growth set out in the Local Plan. It is envisaged that the information set out in the IDP will be used to develop a Community Infrastructure Levy (CIL), and to inform and support negotiations with developers about site specific s106 agreements. The IDP will also inform the development of the LTP3 packages and schemes.

This report sets out the transport mitigation measures proposed for Redditch Borough. A similar report identifying transport mitigation measures for Bromsgrove District is also available.

A key premise of this project is to recognise that the quantum of development proposed for Redditch will not only have a local transport impact (immediately adjacent to the site) but also an impact on the strategic transport network further afield. That is, whilst the local impacts of any development can be identified, assessed and mitigation measures implemented, for locations further away from the proposed development sites, whilst the highway impact issues to address are all to readily obvious, their cause is more difficult to identify.

Put another way, the nature of the highway network means that a development site (or the summation of a number of small development sites) can cause a significant impact some distance from the traffic generation source. That is, as congestion occurs at pinch points throughout the network, it is caused by trips travelling both short and long distances. However, once the origin of these trips has been identified, an assessment of the allocation of mitigation measure costs can be identified.

In order to undertake a network wide assessment of the transport network in Redditch, and specifically assess the cumulative transport impact on transport networks resulting from development sites proposed through the Local Plan, a Vehicle/Trip Generation modelling tool was developed. The modelling tool enables:

- the calculation of the numbers of trips that each proposed development site will generate;
- an assessment of the way in which those trips will route on the network; and
- the ability to sum the trips to establish an overall impact assessment.

The modelling tool, developed jointly with BDC, in the form of a strategic gravity model, draws upon existing evidence and was previous related studies, namely:

- Redditch Town Development Spreadsheet Model;

- Accessibility Assessments; and
- WCC Officer Workshops

Where appropriate the Vehicle/Trip Generation Model was validated for consistency against the previous studies.

In proposing future year transport infrastructure schemes, the scheme listings have, where appropriate, drawn on existing Transport Packages.

Where additional issues have been identified in and around Redditch, this project has identified further locations where mitigation is required to overcome or reduce the impact of proposed development on the transport network. That is, there are locations within the district that do not currently have the benefit of an existing package of measures identified through previous transport strategies. Furthermore, there are some development sites that were not considered at the time previous transport studies were completed. For these sites, an additional task has been undertaken to identify schemes and other mitigation measures. These proposed schemes have been identified with the assistance of the Vehicle/Trips Generation Model.

The transport schemes proposed have been identified to mitigate against predicted future year transport issues. That is, the proposed highway infrastructure schemes aim to improve capacity at key junctions which are anticipated to incur additional delays in future years as a result of the proposed housing and employment growth proposed for the area covered by Redditch Borough.

The proposed sustainable transport infrastructure schemes aim to connect the proposed development sites to the existing transport network. Where appropriate, measures are proposed to improve the existing transport network with the objective of encouraging greater use of more sustainable transport modes.

Policy/Strategy, Feasibility/Deliverability and the appropriate Design Standards and Guidelines have been considered in developing the list of scheme proposals. Each of the proposed transport schemes has a 'cost for implementation' identified. Costs include construction costs, relevant percentage uplifts to account for scheme preparation and development costs over and above the basic construction and materials and optimism bias.

A breakdown of the costs for the proposed future year transport schemes required to support the development assumptions put forward is provided below. Note that public transport service operating costs are gross (i.e. before revenue is taken into account) and in some cases represent potential improvements to existing commercial services. As such the net costs will be lower than those shown below.

Table 1.1 – Costs associated with Improved Bus Service Provision (includes service enhancements across Bromsgrove District and Redditch Borough)

Bromsgrove and Redditch Bus Operations - Routes and Frequencies

Note: Gold, Silver and Bronze Bus Routes/Roadside Infrastructure referenced as per Worcestershire County Council Passenger Transport Infrastructure Best Practice Report (November 2007)

Location	Potential Scheme	Costs
Bromsgrove Town Centre Services to link developments - 'Clover-leaf'	Silver Standard Bus Route, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 800,000.00
Inter-Urban - Service 144 - Birmingham to Worcester (via Bromsgrove and Catshill)	Gold Standard Bus Routes, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 2,200,000.00
Inter-Urban - Service X3 - Kidderminster to Redditch (via Bromsgrove)	Gold Standard Bus Routes, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 1,320,000.00
Inter-Urban - Service 143 - Birmingham to Redditch (via Bromsgrove and Catshill)	Gold Standard Bus Routes, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 1,680,000.00
Inter-Urban - Service 145 - Bromsgrove to Redditch (via Longbridge)	Gold Standard Bus Routes, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 1,200,000.00
Redditch Service 50 (Brockhill Development)	Silver Standard Bus Route, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 400,000.00
Redditch Service 51 (Brockhill Development)	Silver Standard Bus Route, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 400,000.00
Redditch Service 52 (Brockhill Development)	Silver Standard Bus Route, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 400,000.00
Redditch Service 61 (Developments east of the town centre)	Silver Standard Bus Route, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 667,000.00
Redditch - Webheath Service	Silver Standard Bus Route, Service Frequency; Mon-Sat (15 mins), Evenings and Sundays; min half hourly Periods of Operation; Mon-Sat (0600-1900), Evenings (1900-2300), Sundays (0800-2000)	£ 134,000.00
SUB TOTAL		£ 9,201,000.00

Table 1.2 – Costs associated with future year Highway Infrastructure Schemes required to support Development Assumptions in Redditch Borough

Highway Infrastructure Schemes	Costs (£/millions)	
	Total (Construction)	Ongoing Maintenance and/or Operating Costs
TOTAL	£8.67m	£590k
Redditch	£6.83m	£460k
HGV Lorry Park	£1.84m	£125k

Table 1.3 – Costs associated with future year Sustainable Transport Infrastructure Schemes in Redditch Borough

Sustainable Transport Schemes (Walking and Cycling)	Costs (£/millions)	
	Total (Construction)	Ongoing Maintenance and/or Operating Costs
Redditch TOTAL	£1.45m	£31k

2 Introduction

2.1 Background

Bromsgrove District Council (BDC) and Redditch Borough Council (RBC) are preparing their Core Strategies. To help inform the transportation aspects of these strategies, Worcestershire County Council (WCC) has instructed Halcrow to assist with the assessment of transport impact of the proposed new development.

This report focuses on the findings of the IDP assessment relating to Redditch Borough Council. A similar report focusing on Bromsgrove District Council is also available.

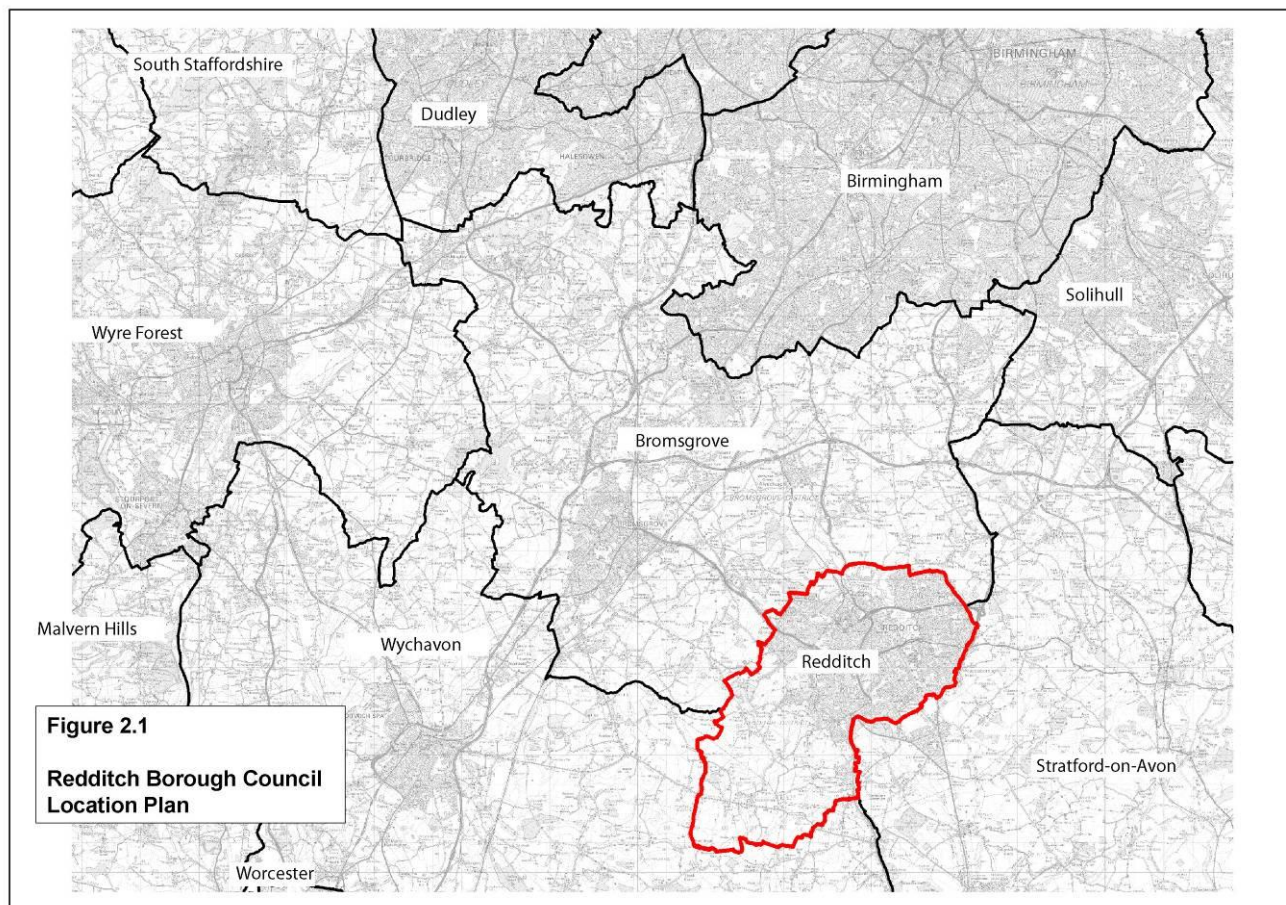
The Local Plan contains the long term vision and objectives for RBC up to the year 2022, and includes the policies for delivering these objectives in a planned and cohesive manner, through:

- providing policies to ensure that all development is sustainable;
- allocating larger 'strategic' sites across BDC and RBC;
- identifying infrastructure requirements to support the delivery of the development plan, including transport, education, health, water and energy. This will be the Infrastructure Delivery Plan; and
- assessing all other potential development sites whether it is for housing, employment, retail, education, health, community use or indeed an open space use.

The Local Plan will replace the existing RBC Local Plan when it is adopted in September 2014. It will also supersede elements of Worcestershire County Council's County Structure Plan.

Figure 2.1 shows the relationship of the two authority areas and their environs.

Figure 2.1 – Redditch Borough Council Location Plan



2.2 Purpose of this report

Halcrow has been commissioned to support WCC with identifying the necessary transport related infrastructure and services, and giving advice on and preparing the transport evidence to contribute towards the Infrastructure Delivery Plan (IDP). The transport infrastructure (highway, public transport, cycle and pedestrian) and public transport services identified will be based on the assumptions set out in the Local Plan.

The Infrastructure Delivery Plan (IDP) will give details of the infrastructure that is required to support the growth set out in the Local Plan. It is envisaged that the information set out in the IDP will be used to develop a Community Infrastructure Levy (CIL), and to inform and support negotiations with developers about site specific s106 agreements. The IDP will also inform the development of the LTP3 packages and schemes.

The methodology adopted through this study, agreed between Halcrow and WCC through Officer Meetings and Workshops, has created a means of providing an evidence base for the transport infrastructure (highway, public transport, cycle and pedestrian) and public transport services necessary to mitigate the transport (vehicle access and movements, multi-modal trip generation) impacts of the potential development sites identified in the draft Redditch Local Plan.

This report identifies the transport schemes required to support the growth proposed for Redditch Borough contained in the Local Plan and provides supporting evidence to demonstrate the way in which the transport schemes contribute towards the wider aims of the Local Plan. The report contains a description of the adopted methodology used to derive the list of proposed transport schemes and sets the work in the context of other transport evidence work recently undertaken for Redditch.

2.3 Structure of this report

Following this introductory chapter:

- Chapter 3 sets out the methodology followed to identify schemes. This includes an introduction to the spreadsheet based transport model used to assess future trip generation by all modes of transport
- Chapter 4 considers previous transport evidence work undertaken in Redditch and how this comprehensive review has drawn upon and complemented the previous work undertaken.
- Chapter 5 describes the baseline performance of the transport network
- Chapter 6 introduces and contains the scheme tables

The report contains four appendices:

- Appendix A Modelling Assessment Tool: Contents and Description
- Appendix B Redditch Local Plan – Planning Data
- Appendix C Forecast number of trips from development sites by mode
- Appendix D Infrastructure Delivery Plan – Transport Scheme Tables

3 Methodology

3.1 Introduction

The methodology used to complete this project was agreed jointly between Halcrow and Worcestershire County Council.

The methodology adopted has:

- Understood, from previous work, relevant policy guidance, development quantum's, types and locations and agreed parameters for the project;
- Established the transport network and infrastructure baseline conditions for Redditch thereby understanding the network performance for all modes of transport and to identify potential key gaps in transport infrastructure and service provision across the RBC area;
- Developed a joint Vehicle/Trip Generation model for BDC and RBC to act as an assessment tool to assist with the identification of schemes to support proposed development contained in the draft RDP; and
- Identified infrastructure schemes and services to mitigate against the impacts of proposed development.

The methodology adopted has ensured that the best use was made of existing data and tools available. It has set a clear foundation for the identification of schemes and has provided a means by which complex 'knock on' effects can be identified and assessed.

The way in which schemes have been identified has recognised environmental and deliverability factors as well as requirements to overcome identified problems and create opportunities for more sustainable travel choices.

The overall approach has been based on achievable interventions. Furthermore, it does not rely on an approach focussing on a single or limited number of schemes that could not be implemented in the required timescale.

3.2 Need for assessment

A key premise of this project is to recognise that the quantum of development proposed for Redditch will not only have a local transport impact (immediately adjacent to the site) but also an impact on the strategic transport network further afield. That is, whilst the local impacts of any development can be identified, assessed and mitigation measures implemented, for locations further away from the proposed development sites, whilst the highway impact issues to address are all to readily obvious, their cause is more difficult to identify.

The nature of the highway network means that a development site (or the summation of a number of small development sites) can cause a significant impact some distance from the traffic generation source. That is, as congestion occurs at pinch points throughout the network, it is caused by trips travelling both short and long distances. However, once the origin of these trips has been identified, an assessment of the allocation of mitigation measure costs can be identified. It is envisaged that the

information set out in the IDP will be used to develop a Community Infrastructure Levy (CIL), and to inform and support negotiations with developers about site specific s106 and s278 (and other relevant) agreements to contribute towards their impact on the local and strategic transport network.

Thus a tool that allows the:

- calculation of the numbers of trips that each proposed development site will generate;
- the assessment of the way in which those trips will route on the network; and
- has the ability to sum the trips to establish an overall impact assessment

...will enable a network wide assessment to be conducted. Such an assessment tool has been prepared jointly for BDC and RBC for the purposes of this project. Whilst the tool is necessarily strategic in nature, it does include all the key routes and most importantly key junctions. Without such a tool it is difficult to assess the combined impact of development sites over a large area.

Existing data, and recently undertaken transport network assessments for both BDC and RBC also provide the means to identify the need for transport infrastructure and services resulting from the proposals in the Draft RDP. This data includes accessibility assessments and individual spreadsheet models developed to assess Bromsgrove and Redditch development. A review of previous studies informing the IDP and the associated transport scheme proposals is provided in Section 3 of this report.

3.3 Development of assessment tool

The assessment tool is a spreadsheet model that combines a number of functions:

- Multi-modal trip generation model;
- Trip routing model;
- Gravity model; and
- Presentation and analysis of results

[See Appendix A for a Technical Note setting out assumptions and the methodology applied to develop the Vehicle/Trip Generation Modelling tool used to assess the impact of developments across Bromsgrove District and Redditch Borough. The Technical Note also contains comparison to other models being used for assessment in the area.]

In summary, the model provides a means of assessing the cumulative assessment of the impact of proposed development on the highway network across Bromsgrove District and Redditch Borough. The development details provided by each authority are contained in Appendix B. The model covers the AM and PM peak periods and provides trip generation data for walk, cycle, bus and highway. In addition, for walk, cycle and public transport, a full 24 hour period assessment of generation is made.

The model concentrates on the area covered by Bromsgrove District and Redditch Borough, but recognises key destinations for travel beyond these two districts.

Highway (car) trips are assessed through a trip generation calculation and the assigned to the modelled highway network from development sites to locations both within and outside Bromsgrove District and Redditch Borough. The assignment of highway trips is based on the strategic and main road network serving the area. That is, motorways, the main 'A' roads and key 'B' class roads in the area.

In terms of non-car trips (sustainable modes), the model contains a 'trip generation' element. The model calculates the likely number of trips by walk, cycle, rail and bus modes from each of the development clusters. The model takes account of relevant local mode share data and applies appropriate trip rates to indicate the number of additional trips on the transport network resulting from the proposed development sites. For further details on the development of the Vehicle/Trip Generation Model see Appendix A.

3.4 Overview of assessment results

The Vehicle/Trip Generation Model has been used to assist the identification of the schemes set out in this Technical Note. Appendix C contains a listing of trip generations from each cluster/site. The results have been used to identify the locations where schemes should be considered to overcome the pressure points in the network shown to be an issue in the forecast year scenario. It is noted that the model has not been the sole source of scheme identification, other sources include:

- Bromsgrove and Redditch Town Development Models
- Accessibility Assessments
- WCC Officer Workshops

These sources have all combined to provide a comprehensive assessment of network requirements to accommodate forecast development proposals. The inputs from this assessment are set out in Section 3 of this report.

3.5 Overview: Redditch Borough Existing Highway Issues

The key highway routes of Redditch Borough are shown on Figure 3.1.

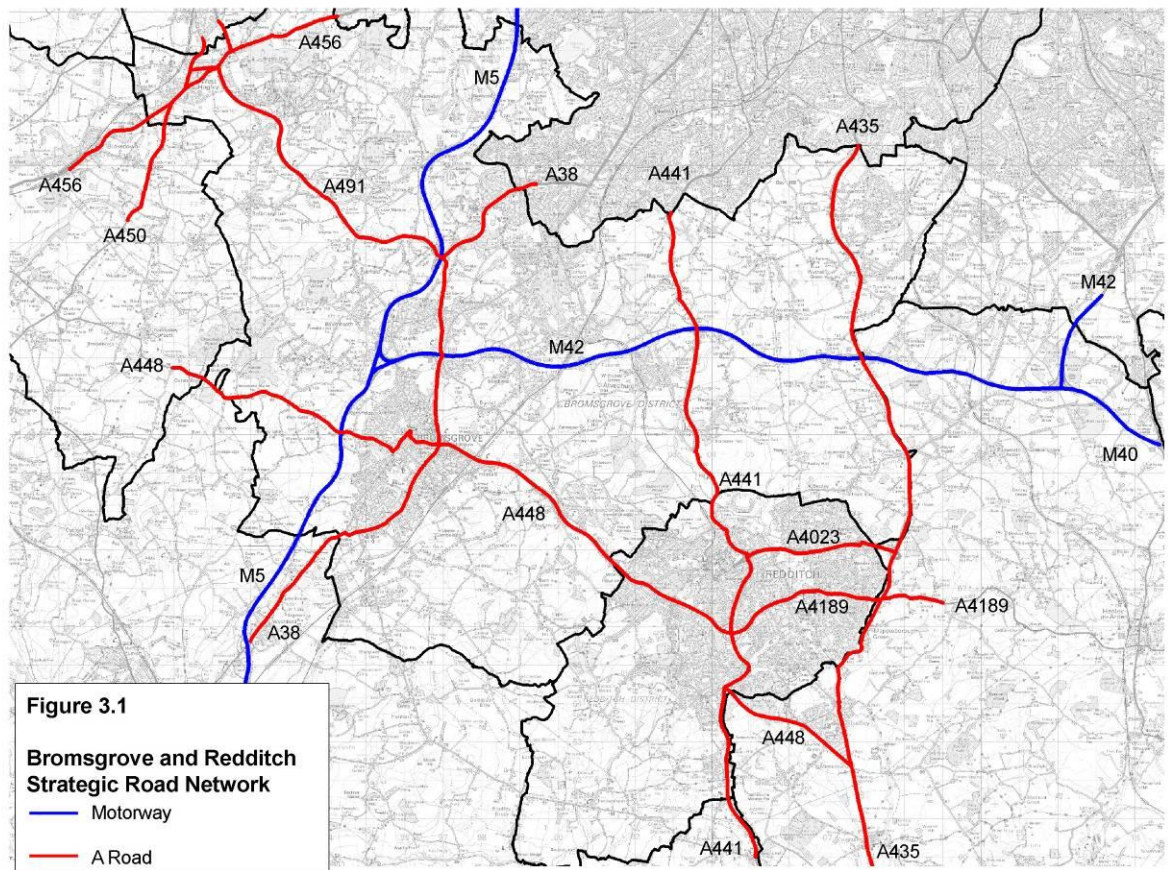


Figure 3.1 shows the main A Road serving the west of Redditch towards Bromsgrove and the M5 Motorway is the A448. This road, in the form of a dual carriageway, links into Redditch to a major intersect junction with the A441. The A441, also in the form of a dual carriageway runs north/south providing links north towards M42 Junction 2 and the Birmingham Conurbation and south towards Astwood Bank and onwards towards Evesham, becoming a single carriageway road in the south of Redditch.

East of Redditch the main north/south route is the A435 which provides links north to M42 Junction 3 and the Birmingham Conurbation and south towards Alcester and Evesham. The A435 operates as a dual carriageway north of the junction with the A4023 and single carriageway to the south. Access routes to the A435 from Central Redditch are provided by the A4023 and the A4189.

All of the major A Roads which pass through Redditch are in the form of dual carriageways, these being the A448, A441, A4023, and A4189. These roads are accessed from local residential, employment and commercial development sites via slip road junctions.

Access to the slip roads junction is provided by a myriad of B Road routes which pass through the residential, employment and commercial development sites.

The highway network in Redditch provides substantial capacity on the main strategic A Roads which pass through the town. The access points to those main A Roads are vital to ensuring the highway network functions without major congestion hotspots. The majority of the development sites proposed for RBC are located in or around the circumference of Redditch and therefore access to the main strategic highway network from these sites is via the B Roads which run through the town. Consideration must be given to how these roads, and more critically the junctions located along them, will operate with additional traffic flows sourcing from the proposed development sites.

3.6 Overview: Existing Public Transport (bus) Issues

The existing bus network operating in Redditch Borough, in terms of its proximity to proposed development sites is described below.

The bus network in operation across Redditch Borough is concentrated on Redditch but does serve more rural, outlying, areas on routes operating between Redditch and surrounding towns.

In Redditch service patterns connect the outlying residential and employment districts on the edge of the town with the town centre.

Redditch is linked to surrounding towns via the following bus services;

- 26 – Redditch to Stratford-on-Avon
- 70 – Redditch to Astwood Bank
- 142 – Redditch to Bromsgrove
- 143 – Redditch to Birmingham (via Bromsgrove and Catshill)
- 146 – Redditch to Birmingham
- 182 – Redditch to Lickey
- 183 – Redditch to Bromsgrove
- 247/248 – Redditch to Evesham
- 350 – Redditch to Worcester
- 519 – Redditch to Solihull
- X3 – Kidderminster to Redditch (via Bromsgrove)
- X50 – Redditch to Birmingham

Redditch is also served with a well connected bus network within the town. Bus Services link the key residential and employment developments with key trip attractors/generators such as the town centre and the hospital.

In order to accommodate the growth contained within the Draft IDP a set of bus operation standards have been developed by WCC. These are consistent with the policies set out in the Worcestershire LTP3. An assessment of total cost to provide services to these standards on key corridors has been calculated. It is recognised that these services may be already supplied, either wholly or in part. Hence, the role of the IDP is to ensure that this level of service is maintained in order to retain the attractiveness of services and to provide the necessary capacity to accommodate the forecast bus passenger demand. If this level of service is not met, whilst some individuals may have the ability to transfer mode to use a car (resulting in increased pressure on the highway), for others, the potential travel opportunities by bus to access employment, education and health opportunities will be lost.

These bus service operations aspirations would be accompanied by infrastructure to deliver reliable and attractive bus services. These include bus shelter provision and access arrangements to these shelters from the development sites, as well as priority measures at the most congested locations. Bus shelter/stop provision is proposed to fit with WCC's 'Gold', 'Silver' and 'Bronze' standards for Bus Stops.

A means of assessing the funding requirement to create a reliable bus service corridor has been developed for the purposes of this work. From work previously carried out by Halcrow on behalf of WCC and other Local Authorities it is possible to develop a 'cost rate' for 'bus corridor infrastructure measures'. From previous work undertaken to cost estimate Bus Route Corridor Studies a detailed cost rate of £170,000 per 100m for 'general measure to improve bus reliability and service quality' has been calculated.

Applying this to other urban corridors has provided a cost to implement the suite of measures needed to deliver the desired bus service standards in the towns across the area covered by Redditch Borough.

3.7 Overview of Existing Pedestrian Issues

To identify pedestrian infrastructure requirements to support the development assumptions put forward through the Redditch Local Plan, each development site has been considered. The number of anticipated pedestrians travelling to and from each site over a 24 hour period has been calculated and used to inform the assessment. The analysis focussed on identifying links between the proposed development sites and the existing pedestrian network in terms of footways and pedestrian crossing facilities (where required).

The infrastructure requirements do not include pedestrian infrastructure within the development sites.

3.8 Overview of Existing Cycle Network

To identify cycle infrastructure requirements to support the development assumptions put forward through the Local Plan, each development site has been considered. The number of anticipated cyclists travelling to and from each site over a 24 hour period has informed the process. Analysis has focussed on identifying links from the proposed development sites to existing cycle infrastructure.

The cycle network in Redditch comprises of a combination of recommended on-road routes (that have been assessed for suitability) and a series of dedicated off road routes, some of which form part of the National Cycle Network. The cycle route map for Redditch (taken from the WCC website) have been used to assess linkages from proposed development sites to existing cycle infrastructure.

The cycle infrastructure included on the proposed list of schemes includes all aspects of cycle infrastructure including signage, on-road cycle marking and where appropriate dedicated off road cycle links.

It has been assumed cycle infrastructure within the development sites will be considered by developers and will meet relevant LTP3 and other policy & design standards, this includes all cycle paths and the appropriate amount of cycle storage facilities.

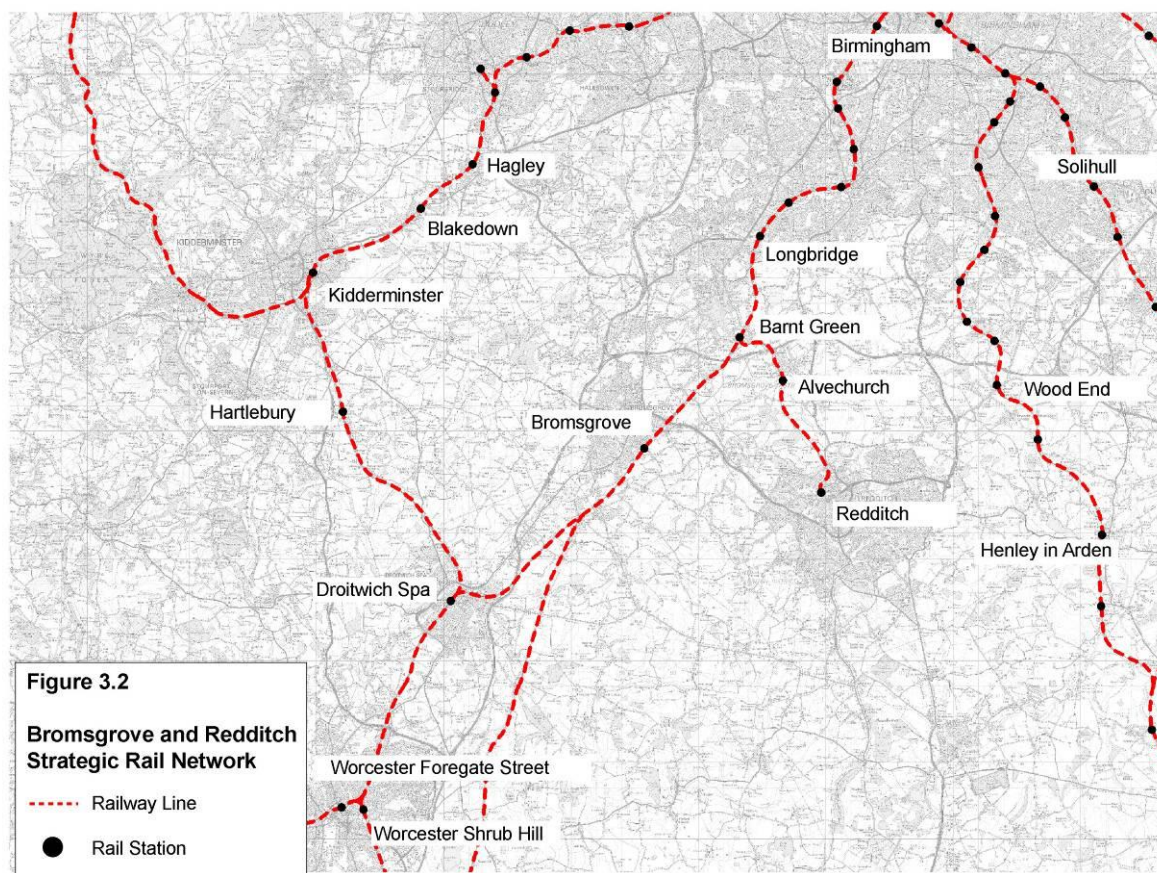
3.9 Overview of Public Transport (Rail) Issues

The local rail network provides a valuable contribution towards local and longer distance travel. Indeed, Redditch benefits from being connected to regional and national destinations by the rail network. The local rail network is shown on Figure 3.2.

To increase patronage of the rail network within Redditch Borough, WCC has identified improving access to the railway stations as a key requirement for investment.

The important role of attractive walking and cycling routes to the stations has been described elsewhere in this report. Hence, for Redditch station, improving access to Redditch Railway Station for walking and cycling is critical from both existing and proposed development sites.

Figure 3.2 – Bromsgrove and Redditch Rail Network



Network Rail is currently consulting with stakeholders with a view to implementing a rail enhancement project on the section of line linking Redditch and Birmingham New Street. The proposals include the construction of a second section of railway track which will run from north of Alvechurch Station for approximately 3km towards Redditch. The scheme would have a number of benefits for passengers from Redditch Borough including:

- Increased services between Redditch, Alvechurch and Barnt Green to Birmingham New Street;
- More space for passengers travelling between Redditch and Birmingham New Street; and
- A more flexible service.

Based on predicted timescales the scheme is due for completion by the end of 2014.

4 Review of previous work

4.1 Introduction

In order to ensure alignment between all transport studies highlighting requirements for future year transport infrastructure within Redditch Borough, the following studies have informed this project:

- Redditch Development Sites – Highway Impact and Accessibility Modelling Report (May 2011);
- The Worcester Local Sustainable Transport Fund – Choose how you move in Redditch; and
- Redditch Borough Council – Town Centre Strategy – (September 2009)

A brief discussion of how each of the studies was used follows.

4.2 Redditch Development Sites – Highway Impact and Accessibility Modelling Report (May 2011)

The Redditch Highway Impact and Accessibility Modelling Report provides an assessment of a number of proposed residential and employment development sites throughout Redditch Borough.

The work had two distinct aims. Firstly, to assess the highway impact of future development on the Redditch highway network. To highlight those junctions which are likely to require mitigation in order to accommodate future traffic growth and to ensure the development sites do not have a detrimental impact on the highway network both in the vicinity of the proposed sites and throughout the town on strategic highway junctions. Secondly, the report assessed the proposed development sites in terms of their accessibility to local services and to key destinations.

This report has been used as evidence to support the results of the modelling completed for the purposes of this project. The outcomes from the Redditch Highway Impact and Accessibility Modelling Report also feed into the review of the baseline transport conditions in Section 5.

4.3 The Worcestershire Local Sustainable Transport Fund – “Choose how you move in Redditch”

Announced by Central Government in 2010, the Local Sustainable Transport Fund (LSTF) aims to help build strong local economies and address the urgent challenges of climate change. All English Local Authorities outside of London were eligible to bid for funding. WCC submitted a bid to the LSTF entitled ‘Choose how you move in Redditch’. The bid submitted for Redditch was for just over £3,500,000 and proposed the following initiatives:

- Enhancing access to broadband Internet and promotion of teleworking;
- Investment in information kiosks to improve access to travel information;
- A series of events to promote the use of sustainable modes;

- A programme of individual travel marketing and planning for up to 27,000 households;
- An intensive marketing campaign to promote sustainable modes of travel;
- Travel training for teens and young adults;
- Travel training for vulnerable adults;
- A school sustainable travel intervention programme for six schools and colleges;
- A workplace sustainable travel intervention programme for four workplaces;
- Improvements to walking and cycling routes (including signage) to improve safety and security;
- A scheme on Evesham Road, to stop rat running, congestion and deteriorating air quality and improve the reliability and commerciality of the bus network in western Redditch; and
- Passenger transport infrastructure enhancements.

4.4 Redditch Borough Council – Town Centre Strategy – (September 2009)

In 2009 Redditch Borough Council commissioned a study to deliver a Town Centre Strategy for Redditch. The strategy aimed to;

- Demonstrate the baseline position of Redditch Town Centre;
- Establish a vision for the town centre;
- Ensure the accessibility and connectedness of the Town Centre; and
- Improve the public realm of the Town Centre.

Recommendations resulting from the Town Centre Strategy included a Public Realm Framework which included updating frontages, co-ordinating street furniture, signage, landscaping and public art. Improved physical and visual connections between the town centre and surrounding areas was also considered key for to 'provide a sense of arrival' to the Town Centre. Recommendations to achieve this aim included signing strategies, traffic management schemes on Redditch Ringway and a car park naming strategy.

5 Baseline and Do-Minimum Network Problems/Issues (Current Network Issues)

5.1 Introduction

This section of the report provides an overview of the existing and predicted future, (with further development) performance of the transport network in Redditch. The previous research undertaken into the identification of current and forecasting of future transport network performance has provided a comprehensive database of problems and issues. This section of the report draws on that work.

5.2 Highway Network Performance

Evidence collated from Workshop Meetings held between Halcrow and WCC Planning Officers highlighted a number of issues currently being experienced on the highway network in Redditch.

It was agreed between Halcrow and WCC staff that the overriding issue of the highway network in Redditch is access to the main strategic highway A – Road network. Other identified issues include the identification of Dagnall End Road signal junction as the busiest in Redditch and pressure on a number of the roundabouts in the Studley area. It is a generally perceived view that the core strategic highway network has sufficient capacity to cope with additional demand resulting from the proposed development sites.

Analysis of the performance of the highway network across Redditch was undertaken for the purposes of the Redditch Development Site Highway Impact Report. This work was based on the evidence produced from a bespoke gravity model developed specifically to assess the impact of proposed development sites in Redditch. The work identified a number of key links and junctions where uplifts in traffic flows resulting from the development sites were likely to impact on the Redditch highway network.

The assessment of the impact on the highway network, resulting from the additional trips from all the development sites combined into a single scenario identified a number of links where increases in traffic flows were subdivided into a number of separate categories of traffic increases, as summarised below;

- 0 to 5% uplift;
- 5 to 10% uplift;
- 10 to 50% uplift; and
- Over 50% uplift.

Junctions shown to have an increase in trips of greater than 5% as a result of the combined impact of the residential and development sites include the following:

- Ravensbank Drive/A4023/Alders Drive;
- A4189/A435;

- Alders Drive/Far Moor Lane;
- Alders Drive/A4189/Claybrook Drive;
- B4497/A4189;
- B4497/Claybrook Drive/Washford Drive;
- Studley Road/Washford Drive/Woodrow Drive;
- Studley Road/Redditch Road/Green Lane;
- Studley Road/Redditch Road/B4092;
- Greenlands Drive/Woodrow North/Woodrow Drive/Rough Hill Drive;
- B4504/Middle Piece Drive;
- A448/B4504;
- Heathfield Road/Blackstitch Lane/Green Lane/Church Road;
- Birchfield Road/Foxlydiate Lane;
- B4096/B4184/A448/Birchfield Road;
- B4184/Lily Green Lane/Parklands Close;
- Brockhill Lane/B4184/Salters Lane;
- B4184/Hewell Road;
- B4184/Birmingham Road;
- A441/Bordesley Lane/Middlehouse Lane;
- A441/B4101;
- A4023/B4497/Moons Moat Drive; and
- Ravensbank Drive/Lovage Road/Madeley Road.

5.3 Public Transport and Sustainable Modes of Transport

The Accessibility Assessment carried out for the purposes of the Redditch Development Sites – Highway Impact and Accessibility Modelling Report (May 2011) work completed by Halcrow and WCC considered a number of the proposed development sites in Redditch. It identified gaps in the existing network of public transport and sustainable transport provision to access proposed residential and employment sites and to link developments to the existing network. The main conclusions of this work are listed below, based on findings for pedestrian infrastructure, cycle infrastructure and public transport infrastructure.

The findings of the evidence collated from Workshop Meetings held between Halcrow and WCC Planning Officers in July 2012 are also included in the relevant sections below.

Pedestrian infrastructure

The Accessibility Assessment carried out for the purposes of the Redditch Development Sites – Highway Impact and Accessibility Modelling Report (May 2011) recommended a number of improvements to pedestrian links be completed in order to promote walking as a viable alternative to travelling by car. These improvement schemes included the extension of numerous footways to link development sites to key destinations, public transport infrastructure and the existing sustainable transport network.

The discussions between Halcrow and WCC Planning Officers replicated the findings of the Accessibility Assessment. It was agreed pedestrian links from development sites proposed for the north west of Redditch will require improved facilities for pedestrians to link to town centre and other local trip attractors and generators. Walking from outlying areas of Redditch to the town centre is unattractive due to the large distances involved, therefore pedestrian links should be provided to connect to bus service routes, as promoted through the Redditch – Choose How You Move Initiative. There are a number of locations around Redditch where the strategic highway networks create severance issues for pedestrians, a specific example being the A448 in the west of the town. There is a requirement for the provision a budget to upgrade a number of dropped kerb crossing around the town in the coming years.

Cycle infrastructure

The Accessibility Assessment carried out for the purposes of the Redditch Development Sites – Highway Impact and Accessibility Modelling Report (May 2011) recommended a number of improvements to Redditch cycle network be completed in order to promote cycling as a viable alternative to travelling by car. These improvement schemes included the extension of numerous cycle paths to link development sites to the existing Redditch cycle network.

It was agreed, through the discussions between Halcrow and WCC planning officers, there is a requirement for development sites located in out-lying areas of Redditch to be connected to the existing Redditch cycle network. There is a requirement for

additional cycle parking infrastructure in Redditch town centre and at various local centres around the town. The severance issue caused by the strategic road network and the potential difficulty in providing direct links between development sites and key trip attractors/generators is also an issue for cyclists.

Public transport infrastructure and services

The Accessibility Assessment carried out for the purposes of the Redditch Development Sites – Highway Impact and Accessibility Modelling Report (May 2011) states the majority of development sites in and around Redditch will require either additional bus services or extensions to existing route services.

In accordance with the discussions between Halcrow and WCC staff regarding walking and cycling infrastructure provision, the bus network in Redditch must be capable of supporting additional trips resulting from the proposed development sites. Improving walking links to the bus network will increase bus patronage in Redditch and service provision in future years must support the additional demand.

Overall conclusion

In conclusion, there are a number of issues to in Redditch regarding both the sustainable modes of transport and the highway network.

In summarising the highway network the overriding issue is the ability of vehicles to access the core A-Road network via local distributor roads rather than the ability of the strategic highway network to deal with additional development trips.

In terms of the provision of sustainable transport in Redditch there is a requirement to build upon the existing, walk, cycle and bus network around the town to link proposed development sites to key trip destinations and generators around the town via the existing sustainable transport network.

6 Scheme Identification

6.1 Introduction

This section of the IDP sets out the mitigation measures identified as a result of the analysis of previous work and the model developed for this study. The mitigation measures have been presented in tabular form, with a description of location, issue, the mitigation proposed and cost.

The following sections set out the assumptions that have formed the basis of the scheme assessment and costs.

6.2 Scheme Identification Methodology

Where appropriate the study has drawn on existing Transport Packages (See Section 4). For example, scheme proposals identified through the previous work undertaken in Redditch have been taken as the core schemes for the IDP.

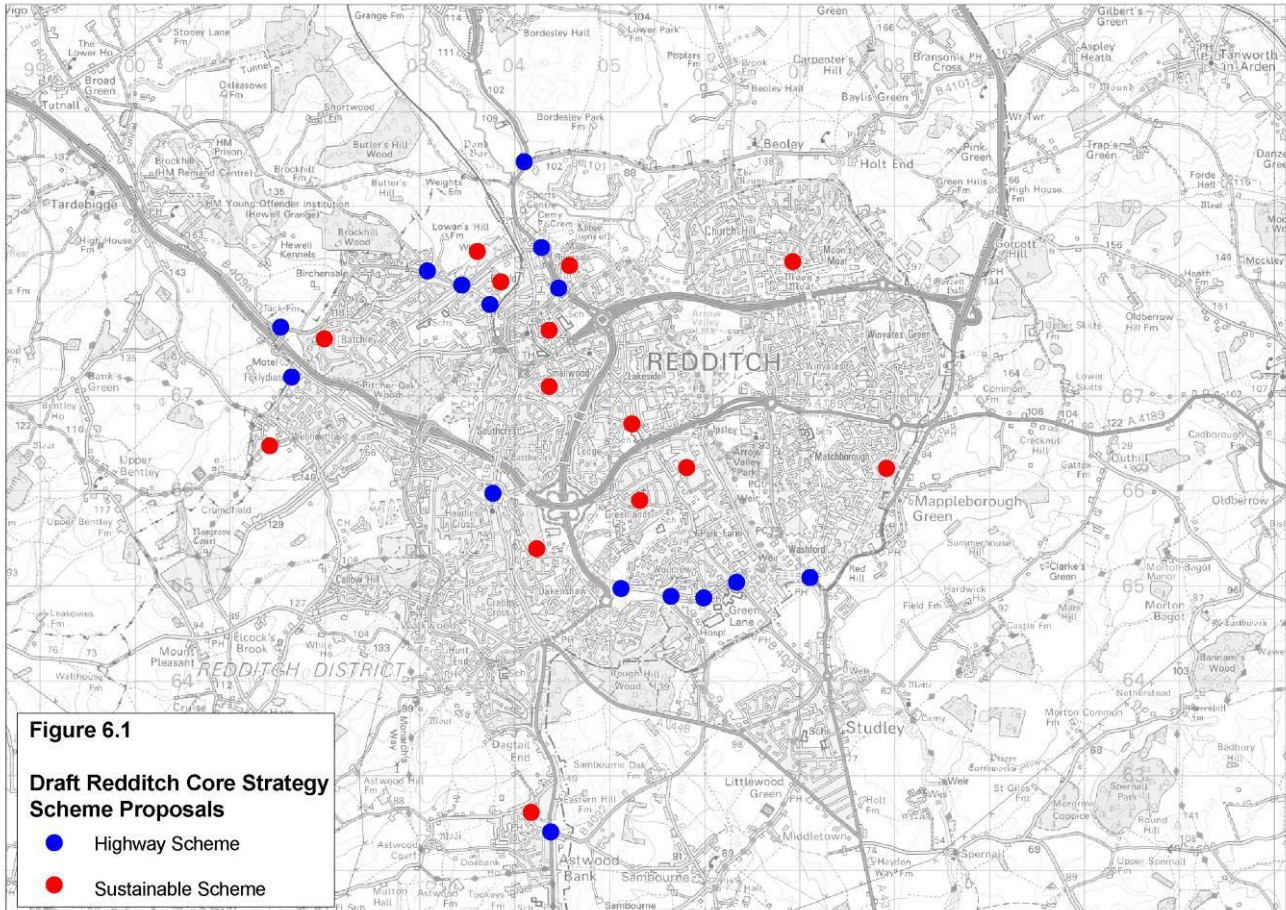
However, this study has identified additional issues in Redditch through the use of Vehicle/Trip Generation Model. Thus further locations where mitigation is required to overcome or reduce the impact of proposed development have been identified.

Proposed transport schemes have been identified to mitigate against predicted future year transport issues. The proposed highway infrastructure schemes aim to improve capacity at key junctions which are anticipated to incur additional delays in future years as a result of the housing and employment growth proposed for Redditch Borough. These junctions have been identified through the use of the Vehicle/Trip Generation Model.

The proposed sustainable transport infrastructure schemes aim to connect the proposed Redditch development sites to the existing transport network and where appropriate improve the existing transport network to encourage greater use of more sustainable transport modes. These schemes have been identified through consideration of the results of the Vehicle/Trip Generation Model to determine where additional infrastructure is required to complete the sustainable transport network to support trips by sustainable modes to and from these development sites.

The proposed transport schemes are shown on Figure 6.1. These plans show the locations of the schemes identified as a result of the Vehicle/Trip Generation Model. These plans can also be related to the plans shown in Chapter 4 where the main issues were identified (individual junctions and corridors).

Figure 6.1. – Draft BDP IDP proposals – Redditch



Each of the proposed transport infrastructure schemes have also been considered against the following design considerations;

- Policy/Strategy – proposals have recognised the policies and strategies put forward through WCC’s Local Transport Plan and to be consistent with the general approach to transport schemes in the area;
- Feasibility/Deliverability – consideration has been given to the deliverability of the proposed transport schemes. That is, the proposed schemes have considered potential land constraints, proximity to existing obstructions (e.g. Railway Lines), topography and overground services and utilities; and
- Design Standards and Guidelines – good practice design guidelines have been considered against all of the proposed transport schemes. Only schemes that could meet appropriate design guidelines have been proposed, subject to detailed design.

All of the proposed transport schemes have been priced using the approach set out in Section 6.4.

6.3 Overview of Schemes

The different characteristics of locations within the RDP area have been taken into consideration when identifying schemes. That is, though there is always an emphasis on the provision of sustainable alternatives, there is also an acknowledgement that the measures identified need to be appropriate for the journey being made and location of the start point.

In Redditch a balanced approach has been adopted, identifying both highway and more sustainable measures. In the rural areas, whilst the use of sustainable modes is to be encouraged, it is acknowledged that highway capacity issues also need to be addressed to enable both car and bus trips to use the network efficiently.

6.4 Scheme Tables

The Scheme Tables are presented in Appendix D.

Cost estimates for each of the proposed schemes were prepared primarily using construction rates used by WCC through the costing of schemes associated with the Worcester Transport Strategy (WTS). It should be noted that where some items fell outside the scope of the WTS, assumptions were made using costs incurred from other similar schemes carried out for other local authorities and by using the SPONS Handbook. Costs can vary considerably from site to site and supplier to supplier. More detailed cost estimates will be determined when the precise details of each scheme are known during further design stages. Subsequent to the initial construction cost estimates, construction cost uplifts and optimism bias were applied.

These uplifts are summarised in Table 6.1 (Highways) and Table 6.2 (Sustainable Modes)

Table 6.1: Uplifts to Highway Scheme base construction costs

Highway	
Preparation	12%
Supervision	5%
Evaluation	0%
Drainage	10%
Preliminary	5%
Site Supervision	5%
Design	10%
Services and Utilities	30%
Landscape	10%
Normal Road TM	10%
Strategic Road TM	20%
Groundworks/Earthworks	2%
Maintenance	25%
Consultation	10%
Ecology	10%

The uplifts included in Table 6.1 are based upon values used for WTS costing purposes and previous work for other local authorities.

These uplifts are calculated based on the construction cost and prior to the optimism bias being added. The uplifts cover the additional costs above and beyond the actual

cost of construction. That being items including site preparation, site supervision and evaluation. A generic drainage cost is included along with design, landscaping and ecology. Different uplifts are applied for traffic management dependent on the local road network, i.e. a greater allowance is provided for on the strategic highway network.

Table 6.2: Uplifts to Sustainable Mode base construction costs

Sustainable	
Preparation	0%
Supervision	2%
Evaluation	0%
Drainage	3%
Preliminary	5%
Site Supervision	3%
Design	10%
Services and Utilities	3%
Landscape	3%
Normal Road TM	2%
Groundworks/Earthworks	2%
Maintenance	5%
Consultation	5%
Ecology	2%

The uplifts for sustainable mode schemes are generally less than those applied for the highway schemes. This is because the proposed schemes are generally smaller schemes which are less intrusive and have fewer associated risks. Allowances for Ecology and Drainage are often less as the proposed schemes pose less risk to local environments and SUDs and surface drainage can often be applied. The design uplift costs remain the same for both the highway and sustainable schemes.

The Optimism Bias is calculated by referring to 'The British Department for Transport Procedures for Dealing with Optimism Bias in Transport Planning Guidance Document – June 2004'. It is noted that all the uplift items have been added to the cost of construction prior to the 44% Optimism Bias Uplift. The Optimism Bias uplift is based upon the maximum applied rate for standard civil engineering works at this preliminary stage. This percentage, when applied, suggests an 80% probability of staying within the budget.

The cost estimates do not include Land Costs (if required).

7 Conclusions and Next Steps

7.1 Conclusions

The report has set out the context, methodology and tabulated results of a strategic assessment of the impact of development proposals in the Local Plan. The schemes identified have been chosen based on the degree to which additional demand to travel impacts on the surrounding road network and the policy and design requirements of central and local government.

The list is comprehensive, but contains no very major proposals to accommodate the increase in demand. Hence, there is an expectation that some change in mode share will occur as a result of increased attractiveness of more sustainable modes, as well as increased congestion on the highway network.

It is noted that the scale of infrastructure proposed is significantly less than that which has been introduced to the network over the past 20/30 years. There are no new town bypasses, major improvements to inter-urban routes or new major river crossings. In terms of this exercise these schemes were considered against environmental and deliverability criteria as well as mitigation of transport impacts.

The schedule of schemes presented, and the associated costs, have taken into account the additional costs associated with scheme design and an allowance made for scheme maintenance over a 30 year period. These added allowances mean that if the scheme costs are simply compared to construction costs they appear high, but the additional costs have been derived through experience and represent the total cost to deliver the individual schemes.

Overall, the inputs provide a comprehensive schedule of infrastructure interventions to mitigate the transport impacts of the proposed Local Plan development.

7.2 Potential future activities

This report has set out a comprehensive listing of infrastructure and public transport service requirements in order to mitigate against the impact of the new development proposals contained in the Local Plan. These requirements have been identified through reference to policy statements and work to assess the impact of additional journeys on the highway network.

The work has been based on information on proposed developments as identified in the Local Plan in summer 2012. It is recognised that this document has subsequently been the subject of consultation as a result of this there are likely to be changes going forward.

How will we deal with changes to development assumptions?

Under guidance from Planning Officers at BDC and RBC, changes to the development assumptions for the area may be necessary in spring 2013. Such changes may be the inclusion of cross boundary development sites and the inclusion of an alternative development scenario. Assuming any changes to these assumptions fit the 'development clusters', as used in the Vehicle Trip Generation Model, any changes to these assumptions can be relatively easily incorporated into the model and the associated impact on the transport network assessed. Halcrow proposes no action to

update the model is undertaken until guidance is received from all of the three district councils.

Feeding viability assessments into the transport elements of the IDP and assessment of “priorities”

Halcrow could assist with the final wording to go forward into the IDP if required. We recognised that of the final document is structured in a different way, some assistance may be required to present our methodology and results in a consistent manner to other infrastructure requirements.

Phasing and delivery issues

Iterations between planning data and the transport infrastructure requirements. Which development sites are most likely to occur first?

The list of proposed transport schemes focuses on key transport corridors linking the major settlements in Redditch Borough. The results of the modelling provide indications of the key schemes required to support each of the proposed development sites. A further piece of analysis work, using the Vehicle/Trip Generation Model, could be carried out to provide an assessment of the transport schemes required to support each of the development sites in turn. The schemes proposed through the existing study aim to meet the cumulative demands on the transport network. A further stage would be to provide a breakdown of the schemes required to support each of the development sites in turn. However, it should be noted in some cases justification of large schemes may be more difficult when considering individual development sites compared to the total cumulative impact.

Funding opportunities

This report has identified and costed a comprehensive schedule of transport infrastructure requirements. In providing these costs, no allowance has been made for any scheme that may already have funding secured, or schemes where funding has been allocated through LTP or other sources. An exercise could be undertaken to identify the potential funding sources for the remaining schemes.



Appendix A

Modelling Assessment Tool; Contents and
Description

DRAFT

Appendix A Modelling Assessment Tool; Contents and Description

To be completed upon completion of the modelling of the cross boundary sites

DRAFT

DRAFT

Appendix B

Bromsgrove and Redditch Development Plan –
Planning Data

DRAFT

Appendix B Bromsgrove and Redditch – Planning Data

DRAFT



Appendix C

Predicted number of trips from development sites by mode

DRAFT

Appendix C Predicted number of trips from development sites by mode

To be completed upon completion of the modelling of the cross boundary sites

DRAFT

DRAFT



Appendix D

Infrastructure Delivery Plan – Scheme Tables

Appendix D Infrastructure Delivery Plan – Scheme Tables

DRAFT



DRAFT