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BIDDULPH PRIMARY CARE CENTRE
WHARF ROAD, BIDDULPH

TRANSPORT ASSESSMENT

For:

Prima 200

AND

NHS North Staffordshire

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1.0 INTRODUCTION

1.1 This report has been prepared by AXIS on behalf of Prima 200 and NHS North Staffordshire to consider highways and transport issues related to proposals for the development of a new Primary Care Centre facility on land off Wharf Road, Biddulph Town Centre, Staffordshire.

1.2 The proposed Primary Care Centre facility (PCC) is being pursued by NHS North Staffordshire to deliver a new GP led medical practice to serve the town of Biddulph and is proposed that the facility would be delivered as part of NHS North Staffordshire's "Fit for the future" programme under Local Improvement Finance Trust (LIFT) initiatives. The site would be developed to accommodate a new 4 storey 3200 sqm PCC building which would incorporate the relocation of existing local GP practices based within the town (Dr Butcher & Partners, Dr King & Partners and the Rupert Street Surgery), new and relocated complementary PCT services (podiatry, district nurses & community matrons), as well as an additional commercial Pharmacy unit.

1.3 The rationale for the proposed PCC facility is to provide an integrated, centrally located local healthcare facility, accessible to the main residential districts in the town by a range of travel modes and linked strategically to other Primary Care Trust (PCT) services. The PCC scheme would deliver a modern accommodation for the core GP practices as well as offering opportunities for complementary on-site facilities for generic primary care services such as health education, podiatry, district nursing, etc. The incorporation of complementary primary care services within the scheme promotes the building as a local 'one stop shop' for patients, which is further strengthened by the provision of a commercial Pharmacy on site. As patients would have the opportunity to travel to just the one location to consult a GP, attend a subsequent appointment with a nurse / primary care practitioner and also collect their prescription, the building is anticipated to provide sustainability benefits in operational, healthcare and environmental terms. The proposed building would meet modern NHS standards for Primary Care services and represent an improvement on existing local healthcare facilities within Biddulph - many of which are located in

smaller buildings that cannot offer a full range of services and have only limited opportunities for off-street parking.

1.4 The purpose of this report is to appraise the Local Planning Authority (Staffordshire Moorlands District Council - SMDC) and Local Highway Authority (Staffordshire County Council - SCC) of the anticipated highways and transport impact of the development scheme. This appraisal will include a review of the proposed site access strategy & car parking provision, an analysis of the anticipated travel demand associated with the scheme, and an assessment of the operational impact of this travel demand on the immediate transport network.

1.5 The report has been prepared to reflect the principles of March 2007 Department of Transport (DfT) document "Guidance on Transport Assessment". The DfT guidance document identifies that a full Transport Assessment report would typically be required to be prepared for a proposed new public health facility that exceeds a minimum threshold of 1,000sqm.

1.6 In addition to this Transport Assessment document, it should be noted that the formal planning application for the Biddulph PCC proposals is to be supported by a detailed Travel Plan Document (Axis Doc Ref: 912-01-02) which sets out a detailed package of sustainable travel measures and initiatives to be pursued at the site to maximise patient / staff accessibility and provide opportunities for travel by alternative modes to the private car. This Travel Plan is supported by funding and operational commitments from NHS North Staffordshire and will further reinforce the proposal site's accessibility advantages.

1.7 The scope and nature of the assessment issues included in this Transport Assessment reflect the extent of highways and traffic issues identified as being of material interest to the Planning & Highway Authority. This scope was established during preliminary discussions with SCC highways officers during summer 2009 and a copy of the initial scoping correspondence is included as **Appendix A** to this report. Key areas of assessment are as follows:

- A description of the site location, its planning status and existing local network conditions – including a description of the highway network immediately adjacent to the site, a review of local traffic demand and a review of recorded personal injury accidents within an immediate local search area;

- An accessibility audit of the proposal site, including a review of opportunities for access to the site by sustainable travel modes (walking, cycling & public transport), an analysis of existing patient catchment distribution and the results of a detailed Travel Survey of patients utilising the existing GP practices and main PCT services to be relocated to the PCC building.

- A description of the development proposals - including a review of the nature of activities proposed to take place at the site, the proposed access strategy, site layout details & car parking arrangements and on-site measures to encourage staff, patient and visitor use of sustainable travel modes;

- An assessment of the anticipated operational travel demand to / from the site via the consideration of a 'first principles' travel demand model and an estimate of the distribution / assignment of traffic movements over the local highway network.

- A consideration of the potential operational impact of the traffic generated by the development scheme on key local highway links and a review of local parking demand.

- Summary and conclusions.

2.0 SITE LOCATION & EXISTING LAND USE OPERATION

2.1 Site location

2.1.1 The general location of the proposal site is illustrated in **Figure 1** to this report. This plan illustrates the site's strategic location in relation to Biddulph Town Centre and the alignment of the A527 Biddulph Relief Road.

2.1.2 The layout of the immediate local highway network to the proposal site and key car parking areas are illustrated in **Figure 2** to this document. Photographs of existing key network features are also illustrated in **Appendix B**.

2.2 Existing site conditions & planning issues

Site layout and existing use

2.2.1 The proposal site is a town centre re-development opportunity currently occupied by a section of the Wharf Road Pay & Display public car park associated with surrounding town centre businesses.

2.2.2 To the south, the site is bounded by and the existing Biddulph Public Library building, to the east by commercial properties on High Street and to the west by residential properties on Silver Close. To the north the site is bounded by the remainder of the Wharf Road Pay & Display car park.

Existing site access

2.2.3 Vehicular access to the proposal site is currently provided via a short access road from High Street. This access road currently provides two-way connections to a small staff car parking area to the side of the library building and rear servicing / parking connection to commercial properties on High Street (see **Appendix B** to this report). The immediate section of this access road connection is only adopted highway from the junction with High Street to a point level with the rear elevation to

number 2 High Street, The remainder of the route is within the control of Staffordshire Moorlands District Council or adjacent third party landholdings.

2.2.4 Immediately to the north of the library building frontage, the access road is restricted to one-way 'entry only' access to the Wharf Road town centre car parking area and rear parking areas to properties 76-84 High Street. No exit movements are permitted from these car parking areas towards High Street. Internal connections within the car park allow for direct access to Wharf Road to the north – the main entry / exit point to the public car parking area. The existing Wharf Road Car Park facility provides a parking supply of 252 spaces.

Biddulph Town Centre Area Action Plan

2.2.4 The current Staffordshire Moorlands Local Plan was adopted in September 1998, but is currently under review and will be replaced by a Local Development Framework (LDF). The identified need for regeneration in Biddulph has, however, led to an Area Action Plan (AAP) being produced for Biddulph Town Centre in advance of the Council's Core Strategy for the LDF. This AAP document was adopted as a formal Development Plan Document in February 2007 and effectively supersedes those parts of the Staffordshire Moorlands Local Plan which relate to the Biddulph Town Centre area.

2.2.5 The AAP identifies the following overarching vision statement for Biddulph Town Centre:

> ***"A local shopping centre that attracts residents from all parts of Biddulph, as well as visitors from outside the town. A sustainable mix of retail, service, community and residential land uses and improved employment opportunities. A high quality, well designed, safe and integrated centre, accessible by a choice of transport modes. A locally distinctive town centre where environmental and heritage assets are maximised"***

2.2.6 The Biddulph Town Centre AAP proposals map (see **Appendix C**) identifies seven major development opportunities within the plan boundary. The Wharf Road car park proposal site (incorporating the existing public library building) is identified

specifically within the AAP under policy reference DS3. This policy identifies that the site would be suitable for high density residential land use, however, it is understood that a public health scheme would represent an acceptable alternative development option at this location - should the scheme accord with the key principles for new development set out in the AAP vision.

Committed local development scheme: Wharf Road North (Sainsbury)

2.2.7 One of the core components of the Biddulph Town Centre AAP relating to the re-development of the Wharf Road Site (AAP Policy Reference: DS 1) received planning approval in late 2008 (Planning ref: 08/01547/FUL_MJ). This scheme relates to the demolition of existing buildings and the delivery of the following proposed land use elements on the land parcel to the immediate north of Wharf Road:

- Sainsbury foodstore of 5,253 sqm (GIA);
- 10 residential units;
- 7 additional small retail units totalling 902 sqm (GIA);
- Ground floor B1 officers (428 sqm GIA);
- Bus Hub

2.2.8 A plan of the approved food superstore scheme and proposed highway access strategy is illustrated as **Appendix D** to this report.

2.2.9 At the time of preparation of this report, the Sainsbury development scheme was under construction with an anticipated completion date of late 2010. Details of the related highways improvement works associated with this scheme and the AAP in general are set out in section 2.4 to this report, with estimates of committed development traffic demand incorporated within the baseline traffic data set out in section 2.5.

Committed local development scheme: Old Wharf Road (Non-food retail)

2.2.10 SCC highways officers have advised that the proposed non-food retail park development on land to the south of Old Wharf Road should also be regarded as a 'committed' development for the purposes of a Transport Assessment for the Biddulph PCC site. It is understood that this scheme comprises the land uses summarised below:

- Non-food retail land uses: 8500 sqm GFA
- Industrial units: 2600 sqm GFA

2.2.11 It is understood that the scheme received planning approval in Spring / Summer 2007 but has yet to be implemented on site. No highways improvements relevant to the consideration of the Biddulph PCC scheme were proposed.

2.2.12 Whilst the Old Wharf Road site has yet to be brought into use, SCC officers have confirmed that traffic associated with the full operation of the site should be included within baseline network demand estimates in order to ensure the robust modelling of potential future network conditions. Details of the predicted traffic demand levels associated with the committed Old Wharf Road scheme are set out within a supporting Technical Note, which is included as **Appendix E** to this report.

2.3 Description of the existing local highway network

2.3.1 As noted above, the existing proposal site provides opportunities for access to two main town centre routes, viz:

- Wharf Road to the north of the site; and,
- High Street to the south east.

Northern Access to Wharf Road

2.3.2 The access to Wharf Road represents the main car park access, providing 'all movements' entry / exit opportunities to the local highway network. The existing junction is of a simple T-junction layout, with vehicle height barrier controls to / from the car park side road. Discussions with SCC have identified that the immediate section of Wharf Road has recently been subject to a minor local realignment scheme such that the new through route on this corridor is now between Wharf Road and South View, with the northern section of Wharf Road now acting as the give-way arm (see **Appendix B**). This has assisted local circulation of traffic in combination with the local Biddulph one-way system.

2.3.3 Lateral visibility from the existing car park access side road to Wharf Road is generally good as set out below:

- To Wharf Road (West): 2.4m by 90m
- To Wharf Road (North): 2.4m by 59m
- To South View (East): 2.4m by 30m*

*including sightlines across Nisa delivery road access

Reference to DfT guidance document "Manual for Streets" suggests that visibility to the north and west would be suitable for approach traffic speeds of in excess of 30mph. Sightlines to the east are suitable for traffic approach speeds of 20 – 25mph. Given the general low speed operation of the Wharf Road corridor (associated with close proximity to terminal junctions) and that approach links to the east are proposed to be further improved as part of AAP related works (see section 2.4 to this report) to incorporate a local mini-roundabout and associated stoplines (all of which will be encompassed within available sightlines from the Wharf Road car park exit) it is considered that this junction is of a suitable standard to cater for the level of traffic demand associated with access to a town centre car park. This is supported by the conclusions of the road safety review included as section 2.6 to this report, which identifies that no accident incident events have been recorded at this junction within the available 5 year survey period.

2.3.4 Wharf Road terminates approximately 100m to the west of the car park access junction at a roundabout connection to the A527 Biddulph Relief Road. This route is a 6.75m wide limited access corridor which forms a western bypass to Biddulph Town Centre. To the north the route provides connections to northern residential areas of Biddulph and onward connections to Congleton. To the south the route provides connections to Knypersley, Chell and Tunstall.

2.3.5 To the east of the main car park access, Wharf Road links to South View to provide a local connection to the main town centre route of High Street. High Street is subject to one-way restrictions to the north of the connection to South View, but offers two-way operation to the south. This southern section of route is also subject to vertical traffic calming features and speed tables. This southern section of High Street provides local access to western residential areas via the side road routes of King Street and Well Street.

Southern access from High Street

2.3.6 As noted above, southern access to the site is also available via a local access road connection to High Street. This connection forms a local staggered cross-roads layout with the opposite route of Well Street. Access to the main Wharf Road car park via this southern access is 'entry only' with exit demand from the car park prohibited. Main exit from the car parking area takes place via the northern connection to Wharf Road.

2.4 Programmed local highway improvements

2.4.1 It is understood that a range of highway and sustainable transport improvements are proposed to be implemented within Biddulph Town Centre as part of the realisation of the Town Centre Area Action Plan. Review of the proposed local highway improvement works associated with the Sainsbury's superstore scheme at the Wharf Road (North) site and related AAP elements demonstrates the following local key initiatives:

- Introduction of a new 4-arm mini-roundabout access junction on Wharf Road to serve the new store and South View side road arm;
- Partial pedestrianisation (bus only) of the section of Wharf Road to the east of the new mini-roundabout junction and the central section of High Street;
- Local re-assignment of through east-west traffic onto South View;
- Delivery of a new 'bus hub' facility on the eastern section of Wharf Road;
- Provision of 364 car parking spaces on the Sainsbury's site to cater for foodstore and public parking.

2.4.2 No changes are proposed for the entry / exit regime to the Wharf Road Pay & Display car park currently directly served from this route and located just 20m from the centre of the proposed Sainsbury's access roundabout.

2.4.3 A detailed Transport Assessment report was prepared by Denis Wilson Partnership (DWP) in support of the Sainsbury's foodstore scheme which contained details of predicted traffic demand associated with the main development elements and the anticipated local re-distribution of town centre traffic associated with the proposed partial pedestrianisation of Wharf Road and High Street. These predicted changes have been incorporated into the highway capacity analysis for the proposed PCC scheme and are set out in more detail in section 2.5 to this report.

2.5 Baseline network traffic demand

2.5.1 Baseline traffic demand utilised within this Transport Assessment has been based on the core traffic data set out in the July 2008 DWP TA document prepared to support the development of the Sainsbury's superstore scheme at Wharf Road. These traffic flows were calculated from baseline traffic counts undertaken in July 2004 and March 2007 and included for the following agreed matters with SCC highways officers:

- Incorporation of 'committed development traffic' associated with a non-food retail development at Old Wharf Road;

- Incorporation of full Sainsbury re-development traffic demand (assuming all trips generated by the Sainsbury development would be 'new' to the local highway network);
- Local traffic re-distribution effects of pedestrianisation of the eastern section of Wharf Road and central section of High Street.

2.5.2 In order to ensure the most robust assessment of network operation, at the request of SCC highways officers, this TA also utilises the 'worst case' sensitivity analyses undertaken for the Sainsbury development (i.e. an increase of Sainsbury development traffic flows by 5%).

2.5.3 2009 baseline flows (including the Old Wharf Road committed development and Sainsbury's site) during the traditional weekday AM and PM rush hour periods of 08:00-09:00 and 17:00-18:00 are illustrated in **Figures 3a** and **3c** to this report respectively. An additional baseline traffic assessment hour of 09:00-10:00, providing an estimate of weekday traffic demand conditions associated with typical peak hour operation of primary healthcare developments (see Section 6.2), is illustrated in **Figure 3b**. These 09:00-10:00 flows have been calculated using the base observed traffic count flow data and the application of the base assumptions / trip generation data set out in the DWP TA report. The derivation of the baseline flow estimates utilised in this report is set out in Technical Note 1 and included as **Appendix E**.

2.5.4 Review of the traffic data utilised in the DWP TA for the Sainsbury's store identifies that no traffic data for the main access points to the Wharf Road Pay & Display car park was collected as part of the 2004 / 2007 traffic survey exercises. In order to provide an indication of likely turning movement demand at these key locations, supplementary surveys were undertaken at both the Wharf Road (all movements) and High Street access road (entry only) car park access points in July 2009. The results of these additional surveys have been presented within the figures included within the remainder of this report.

2.6 Road safety: Personal injury accident records

2.6.1 Personal Injury Accident data (PIA) for the immediate highway network to the proposed Wharf Road PCC site has been provided by SCC for the five year search period 1 February 2004 – 31 January 2009 over a local search area including Wharf Road, High Street and South View. A summary plan of the location of all of the accident incidents recorded as part of this search exercise is summarised as **Figure 4** to this report. Copies of the detailed accident record sheets can be provided by AXIS on request (subject to clearance from SCC officers).

2.6.2 A total of nine accidents have been recorded within the extents of the identified search area over the five year period. Eight of the recorded accidents were slight in severity, with one being a serious incident. No fatalities were recorded within the search area. The table below illustrates the distribution of recorded accident incidents across the main search time period.

	Accident Type		
	Slight	Serious	Total
2004	1		**1**
2005		1	**1**
2006	4		**4**
2007	2		**2**
2008	1		**1**
Total	**8**	**1**	**9**

Review of recorded accident incidents on the Wharf Road corridor

2.6.4 Review of the historical PIA data illustrates that no accidents have been recorded along the immediate section of Wharf Road to the proposal site and proposed Sainsbury Foodstore, including the existing access point to the main Wharf Road car park and junctions with South View and Craigside. Given the generally busy nature of the existing car park entry / exit point, this would suggest a good level of highway safety at this location and that existing visibility at this junction is suitable for prevailing traffic conditions.

Other accident locations

2.6.5 Three accidents have been recorded at the southern access connection of Well Street / High Street. All of these accidents were slight in severity. One of these incidents was a rear shunt accident (accident 1), and two involved right turn manoeuvres (accidents 3 & 6) from High Street (S) into Well Street - one resulting in a pedestrian casualty. None of the accident incidents recorded involved vehicle movements associated with travel to / from Wharf Road car park southern access point or immediately adjacent businesses.

2.6.6 The remaining incidents occurring within the main search area are summarised below:

- 1 * incident involving a bus / coach colliding with a motorcyclist at the junction of High Street / South View (ref 2: serious);
- 1 * incident involving a motorcyclist overtaking a vehicle and colliding with another car at the junction of High Street / King Street (ref 4: slight);
- 1 * incident involving a vehicle failing to give way on approach to the Wharf Road / High Street junction (ref 5: slight). NB - Alcohol was noted as a causation factor in this incident;
- 1 * incident involving a vehicle making a left turn manoeuvre and colliding with a pedestrian at the junction of Wharf Road / High Street (ref 7: slight);
- 1 * incident involving a vehicle losing control (ref 8: slight) on the northern approach to the main Wharf Road / Biddulph Relief Road roundabout; and
- 1 * incident involving a car travelling ahead and colliding with a pedestrian in the carriageway outside the Crown & Cushion public house on the High Street (ref 9: slight).

None of these incidents appears directly related to vehicle movements to / from the existing Wharf Street car park or associated with local healthcare traffic demand.

2.6.7 Given the above review of issues, which identifies no historical accident events involving traffic movements to / from the main car park access points it is concluded

that there are no existing highway safety issues which would likely call the proposal scheme into question. No additional network safety improvements over and above those local highway safety and operational improvements programmed as part of the Biddulph Town Centre Area Action Plan are therefore considered to be required to support the delivery of the Biddulph PCC scheme.

3.0 SITE ACCESSIBILITY AUDIT

3.1 Overview

3.1.1 This section of the report has been prepared to consider the general accessibility of the Wharf Road proposal site and thus determine whether the re-development of the site for PCC land use would represent a sustainable scheme in transport terms.

3.1.2 National and local government planning policy identifies two primary transport objectives when considering the location of new development:

- The need to reduce the need to travel, especially by the private car;
- The need to promote accessibility to a range of sustainable travel options.

Furthermore, when considering planning applications for developments, National Planning Policy Guideline Note 13 "Transport" PPG13 states that local authorities should plan for increased intensity of development at those locations that are highly accessible by public transport, walking and cycling, principally within existing urban areas and should use parking policies that promote sustainable transport choices and reduce the reliance on the private car. Para 19 of PPG13 "Transport" states:

> ***"A key planning objective is to ensure that jobs, shopping, leisure facilities and services are accessible by public transport, walking, and cycling. This is important for all, but especially for those who do not have regular use of a car, and to promote social inclusion. In preparing their development plans, local authorities should give particular emphasis to accessibility in identifying the preferred areas and sites where such land uses should be located, to ensure they will offer realistic, safe and easy access by a range of transport modes, and not exclusively by car."***

Paragraph 39 of PPG13, regarding the specific requirements of new public heath care sites, provides the following guidance with respect to site location:

> ***"New health facilities should be planned to maximise accessibility by non-car modes of transport, whilst at the same***

> ***time providing good access arrangements for emergency vehicles and those who need to use cars. It is important that those considering new health facilities have early discussions with the local authority, to ensure proposals meet the objectives of this guidance. New intermediate health care facilities should, where possible, be located in town, district or local centres, where they will be highly accessible by non car modes of transport and where the facilities can reinforce the range of services provided by these centres."***

3.1.3 A range of additional supporting local highways and planning (saved) policies are set out within the Staffordshire Moorlands District Local Plan (1995).

3.1.4 Given the above policy objectives, it is clear that any new healthcare development in Biddulph would need to be able to demonstrate a high level of site accessibility and the ability to directly serve the immediate local community. For the purposes of this assessment, this audit of site accessibility has been carried out through reference to the following areas:

- A review of currently available local sustainable transport connections serving the proposal site;
- Analysis of the patient catchment demand associated with the operation of the existing GP practices;
- Review of the results of a recent Travel Survey carried out for staff and patients at the existing GP practices

3.2 Review of available local sustainable transport connections

3.2.1 It is considered that the location of the proposed Biddulph PCC development site at Wharf Road offers excellent opportunities for staff, patient and visitor access via a range of alternative travel modes to the private car. These opportunities for sustainable travel are set out in more detail in the paragraphs below.

Walking & Cycling Options

3.2.2 The location of the redevelopment site provides good opportunities for walking and cycling access, with a range of key residential areas directly connected by suitable walk / cycle routes. The site is located in the heart of Biddulph Town Centre and is therefore well related to a range of services at the core of the local community. The proximity to key local services could promote some shared use trips to other facilities such as shops, banks, community facilities, etc. Furthermore, the immediate highway network to the proposal site provides a range of infrastructure appropriate to encouraging walking and cycling journeys including local footpath routes, traffic signal controlled safe crossing points and signed cycle routes (see **Figure 5** to this report). The AAP for Biddulph also identifies future delivery of sections of local Town Centre pedestrianisation at the northern end of Wharf Street and High Street.

3.2.3 IHT guidance "Providing for Journeys on Foot" suggests that an 800m walk catchment represents an 'acceptable' walk distance to a local facility, with a 'preferred maximum' catchment being 1.2km. PPG13 also recognises that journeys on foot can also be appropriate for trips of up to 2km, particularly with reference to a walk to work. **Figure 6** illustrates such walking catchments on an 'as the crow flies' basis measured from the centre of the redevelopment site and demonstrates that these suitable local walk distances would include for all of the built up area of Biddulph and the connected settlements of Gillow Heath and Knypersley.

3.2.4 The proposal site is also considered to be well located to encourage both staff and visitor cycling movements. Advisory cycle routes are available in the immediate vicinity to the proposal site along Halls Road, Station Road, High Street and Wells Road. In addition, National Cycle Route 55 provides a traffic free cycling route through Biddulph and delivering connections between Stoke on Trent and Congleton. Connections to this key local route are available from within 500m of the Wharf Road proposal site. **Figure 7** demonstrates the identified local cycle connections within the Biddulph area.

3.2.5 PPG13 identifies that the pedal cycle represents a practical alternative travel option to the private car for journeys of up to 5km (particularly for staff commuting journeys). **Figure 8** to this report illustrates a 5km 'as the crow flies' cycle catchment from the Biddulph PCC site. This exercise demonstrates that such a cycle catchment from the PCC site includes for all of Biddulph and extends to the surrounding villages of Mow Cop, Harrishead, Hightown and Biddulph Moor.

Public Transport Connections

3.2.6 The Wharf Road proposal site is also well served by existing regular public transport connections, with local bus stops available on both Wharf Road itself and on immediate sections of High Street. All of these stops lie within the maximum practical 400m walk catchment threshold for travel from a new development to a local public transport stop as identified by the Institution of Highways & Transportation (IHT) in the guidance document 'Planning for public transport in developments" (see **Figure 5** to this report).

3.2.7 In addition to this good existing public transport accessibility, it is also proposed that significant public transport infrastructure improvements in Biddulph Town Centre will be delivered in support of the recently approved Sainsbury's supermarket development (see section 2.4 to this report). It is understood that this development would provide a new 'bus hub' on Wharf Road, to include high quality shelters, travel information and cycle parking. This bus hub facility is to be located within 200m of the centre of the PCC proposal site.

3.2.8 The table below summarises existing bus routes which currently call at stops within Biddulph Town Centre (see also **Figure 9** to this report). It is anticipated that these services would in future be routed via the proposed new bus hub on Wharf Road and therefore would all be available within a convenient local walk distance to the proposal site.

No.	Route	Frequency (mins)				
		Monday-Friday		Saturday		Sunday
		Day	Eve	Day	Eve	All Day
6A	Biddulph – Brown Lees - Hanley – Meir – Blythe Bridge	20	60	30	60	
94 / 94A	Biddulph – Tunstall – Wolstanton - Newcastle	30	-	30	-	-
99	Biddulph – Congleton - Macclesfield	30	-	60	-	-
999	Biddulph – Brown Lees – Hanley City Centre	30	-	30	-	-
423 / 424	Mow Cop – Brown Lees – Biddulph - Leek	Irregular	-	-	-	-

3.2.9 Review of these services demonstrates that local stops would be served by at least 9 buses per hour and providing regular connections to a range of destinations including Hanley, Tunstall and Congleton.

3.3 Review of existing patient catchment

3.3.1 The proposed Biddulph PCC scheme is envisaged to provide a new central healthcare facility to serve the town of Biddulph and surrounding settlements and to deliver a range of supporting services to the core GP function. This would involve the relocation of the practices currently based at the Well Street medical centre and the Rupert Street surgery. In order to provide a demonstration of the likely accessibility of the proposal site to the local patient list, this section of the report considers the nature of the patient catchment associated with the existing GP surgeries. It is anticipated that such an exercise will demonstrate the relationship between patient list and site location and help understand what proportion of the patient list typically lies within a short travel distance to the site and thus could reasonably undertake their journey via an alternative travel mode to the private car.

3.3.2 Details of patient postcode information for the GP surgeries have been provided by NHS North Staffordshire. Analysis of this catchment postcode data demonstrates the catchment distribution illustrated in **Figures 10 & 11** to this report. This distribution illustrates the core patient area being the immediate settlements of Biddulph, Biddulph Moor, Knypersley and Gillow Heath, with a smaller number of

patients travelling from longer distance destinations such as Congleton Hightown and Newchapel.

3.3.3 The distribution of patients within the main surgery catchment areas has been investigated through the use of the Microsoft Map Point mapping / database software which can be interrogated to provide details of patient numbers within identified 'as the crow-flies' distances from the Wharf Road proposal site. This analysis demonstrates the following main catchment distribution with respect to those patients associated with the existing Biddulph GP practices (see also **Appendix F**):

- 29.1% of patients live within a 800m 'as the crow flies' catchment of the proposal site;
- 57.5% of patients live within a 1.2km 'as the crow flies' catchment of the proposal site;
- 79.6% of patients live within a 2km 'as the crow flies' catchment of the proposal site.

3.3.4 The above analysis demonstrates that a significant proportion of patients live within a realistic walk distance from the proposal site and therefore suggests good opportunities for future travel by sustainable travel modes. This analysis is further reinforced by the results of the detailed Travel Survey exercise carried out for current patient trips to / from the existing local Biddulph medical facilities, as outlined in section 3.4 below.

3.4 Review of staff / patient travel survey exercise

3.4.1 In addition to the broad patient catchment analysis described above, staff and patients at the existing Well Street and Rupert Street GP medical practices were surveyed as to their current travel patterns for trips to the existing surgery sites and their views on their likely future travel choices following the proposal to transfer services to the Biddulph PCC facility. This information was primarily collected to inform the development of a Travel Plan to support the re-development scheme, but also provides useful information regarding current staff and patient travel mode choice and the perceived availability of alternative travel choices for journeys to the proposed PCC site.

3.4.2 Details of the Travel Survey methodology and the full breakdown of results is set out in Appendices C & D of the supporting Travel Plan report (Axis Doc: 912-01-02). The exercise included for the undertaking of questionnaire surveys for staff and patients, with the results based on 536 patient responses and 74 staff returns.

Patient Results

3.4.3 Review of the patient survey results identified the following mode share with respect to anticipated future medical related journeys to the Wharf Road proposal site:

Travel Mode	Stated future primary travel mode	Travel choice should stated primary travel mode not be available
Walk	22%	28%
Cycle	0%	1%
Public Transport	6%	17%
Car Driver	55%	10%
Car Passenger	16%	19%
Taxi	1%	8%
Other	0%	0%
Could not use other mode		16%

3.4.4 The above results demonstrate a significant proportion (28%) of the existing patient population to be based at the Biddulph PCC site would chose to utilise an alternative travel mode to the private car when visiting the surgery. 28% of patients surveyed identified that they would likely walk or use a bus to access the new centre - compared with just 20% of current patient trip movements to the existing GP practices / medical facilities within the town. Relocation of services to the new town centre PCC site could also be anticipated to result in a corresponding drop in car driver / passenger trip demand from 80% of existing patient movements to 71% following the opening of the new facility.

3.4.5 The excellent accessibility of the proposed Biddulph PCC building is further demonstrated by the results of the survey questioning to determine what alternative travel options were available to site users and whether their journey would be possible if they could not utilise their existing primary travel mode. This exercise identified that only of the order of only 16% of patients felt that they would not have a practical alternative travel choice, suggesting that the site location offers a range of travel options to users. Review of the stated alternative travel choices identifies that 46% of patients considered that walking, cycling or public transport would represent a realistic alternative when visiting the PCC proposal site.

Staff Results

3.4.6 Review of the staff survey results identified the following mode share with respect to future medical related journeys to the Biddulph PCC proposal site:

Travel Mode	Existing primary travel mode	Travel should current primary travel mode not available
Walk	4%	12%
Cycle	0%	0%
Public Transport	1%	12%
Car Driver	94%	3%
Car Passenger	1%	9%
Taxi	0.0%	9%
Other	0.0%	0%
Could not use other mode		55%

3.4.7 Review of stated staff travel patterns identifies that almost all staff currently working at medical sites within Biddulph seek to utilise a car as part of their journey to work. This is likely to be a reflection of the wider spread of staff home origins when compared to the patient distribution and the need for many staff to provide an emergency / mobile role and therefore require access to a car. Transfer of staff to the Biddulph PCC site is unlikely to result in any material change in staff travel patterns, although many staff members did note that increased accessibility to bus services might potentially encourage them to utilise this mode instead of the private car. Given that the proposed PCC site would be located less than 300m walk from the Biddulph town centre bus hub, it is possible that greater information and ultimately experience of the range and frequency of bus services available within the immediate catchment of the PCC site could potentially result in a small number of staff trips (particularly non-clinical staff) at the PCC altering their travel choice and using public transport.

3.5 Summary

3.5.1 In summary, it is considered that the above audit of accessibility issues demonstrates that the Wharf Road proposal site represents an appropriate location for the development of a PCC facility. The site is located within a short walk of a number of bus stops served by regular bus connections and within an acceptable walking and cycling distance of the core local patient catchment. The site is also located in the heart of the main commercial centre of Biddulph, therefore providing the opportunity for shared trip making to other local services such as shops, banks, community facilities, etc.

3.5.2 It is anticipated that such site accessibility would assist in managing the need to travel via the private car for local medical journeys. This is further reinforced by existing patient catchment information which identifies a significant proportion of site users would live within a short travel distance of the PCC proposal site and that future stated patient travel mode choice to the new site suggests a reduction in reliance on private car journeys when compared to travel patterns to existing medical facilities within the town.

3.5.3 It is therefore considered that development of the proposal site for integrated modern healthcare land use would accord with sustainable planning principles and assist in promoting access by alternative travel modes to the private car. Indeed, it is considered that the location of such a facility within the heart of the town centre represents the most accessible development option available and one that would minimise local healthcare related car journeys. Furthermore, it should also be recognised that sustainable site operation would be reinforced via the parallel operation of a detailed Travel Plan to provide information and support to site users to encourage greater use of walking, cycling and public transport travel modes. Further details of the Travel Plan initiatives to pursued at the Biddulph PCC site are provided in section 4.5 to this report.

4.0 REVIEW OF DEVELOPMENT PROPOSALS

4.1 Development rationale: The 'Fit for the future' North Staffordshire programme

4.1.1 It is proposed that the Biddulph Primary Care Centre site would be delivered as part of the "Fit for the future: North Staffordshire" programme under Local Improvement Finance Trust (LIFT) initiatives.

4.1.2 The Fit for the Future programme was established in 2006 and involves over £400million of investment. The project is being brought forward by health care organisations across North Staffordshire and is designed to help improve the health and social care of people living in the area and provide access to services and treatment more quickly and in better facilities.

4.1.3 The core objective of the Fit for the Future programme is the aim that patient care should be provided as close to home as practical. This means providing better health services in the community and by only calling on the specialist skills of a large hospital when needed. By the end of 2012, it is proposed that 118,000 outpatient appointments would be moved out from University Hospital North Staffordshire (UHNS), with primary care becoming the focal point for services that in the past would have been considered to be hospital based.

4.1.4 Key principles of the re-organisation of local heath services can be identified as follows.

- Services such as family doctors, therapy services and community nursing to be run from new purpose-built primary care centres / health centre. These new facilities will be larger than the existing health centres or GP practices that they will replace - allowing them to offer a wider range of services and equipment.

- More diagnostic tests and outpatients' clinics to be run within the community instead of in hospital. This means that local people will have access to outpatient hospital services closer to home.

- Community based primary care facilities to promote more services that assist people as individuals and groups to look after themselves. This includes access to information, healthy lifestyle skills (stop smoking support, healthy eating, etc) and carer / therapy support to help better manage long-term conditions such as asthma and diabetes.

4.1.5 The accommodation and services to be provided at each of the proposed new local health centres / primary care centres are to be identified to meet local needs and to be capable of responding to the rapidly changing agenda (both locally and nationally) for the provision of health services. NHS North Staffordshire has identified the development of eight main health facilities across the area to help deliver the above key objectives by 2012:

- Midway Medical Centre, Newcastle Under Lyme (completed April 2009);
- Milehouse Health Centre, Cross Heath (completed June 2009);
- Bradwell Hospital;
- Cheadle Hospital;
- Leek Hospital;
- Alton Primary Care Centre;
- Audley Health Centre
- Biddulph Primary Care Centre (planned).

4.1.6 The proposed Biddulph PCC facility would provide an integrated, centrally located local healthcare facility, accessible to the main residential districts in the town by a range of travel modes and linked strategically to other Primary Care Trust (PCT) services. The PCC scheme would deliver modern accommodation for the core GP practices as well as offering opportunities for complementary on-site facilities for generic primary care services such as minor surgery, podiatry, district nursing, etc. The incorporation of complementary primary care services within the scheme

promotes the building as a local 'one stop shop' for patients, which is further strengthened by the provision of a Pharmacy on site. As patients would have the opportunity to travel to just the one location to consult a GP, attend a subsequent appointment with a nurse / primary care practitioner and also collect their prescription, the building is anticipated to provide sustainability benefits in operational, healthcare and environmental (planning) terms.

4.2 Site development proposals

4.2.1 The proposed Biddulph PCC scheme therefore seeks to deliver one of the core 'Fit for the Future' infrastructure elements for the NHS North Staffordshire area by the development of a new GP led primary care health facility to serve the town. The site would be developed to accommodate a new 4 storey 3200sqm GFAPCC building which would incorporate three local GP businesses already operating from smaller practice bases within the town, new and relocated complementary PCT services, as well as an additional ancillary commercial pharmacy unit.

4.2.2 A masterplan of the proposed PCC development scheme layout is included as **Figure 12** to this report. This plan illustrates the general arrangement of the proposal scheme and the main site access & car parking principles. **Figures 13a-d** illustrate the proposed internal floor plans for the building. These plans identify the following key elements to be provided across the three main public access floors (the upper floor being made up of plant rooms and staff offices / facilities):

:

- GP Practice Facility and Consulting Rooms;
- Ancillary commercial pharmacy unit;
- Podiatry base and consulting rooms;
- Shared clinical space including a variety of treatment and activity rooms;
- Bookable clinical rooms and community health facilities;
- General administration / records area, reception / waiting areas, staff offices / welfare / meeting rooms;
- Office space for peripatetic PCT staff based at the site.

4.2.3 All facilities across the site would be delivered to meet modern NHS standards for GP and primary care related functions and would represent a significant improvement on the existing primary care facilities available within Biddulph.

4.3 Proposed site operation

Anticipated staffing requirements

4.3.1 Discussions with the PCT service providers have identified that staff members based at the Biddulph PCC site are anticipated to operate a range of shift patterns and that the identified staffing levels would also include for mobile / peripatetic staff members such as district nurses & community matrons who would be based at the site, but also travel out to other local health facilities to undertake clinics / patient sessions during the week.

4.3.2 Some additional ancillary staff (cleaners, security, etc) may also be required on site, but it is anticipated that such staff would generally operate outside of typical core clinical hours.

Anticipated hours of operation

4.3.3 It is anticipated that the Biddulph PCC site would operate opening hours which address both core patient access times and promote some future site flexibility for extended opening. The planning application submitted to support the scheme seeks to secure the potential for staff / patient access for the following core time periods:

- Primary Care Centre (Mon-Sun): 08:00 – 20:00

- Pharmacy (Mon –Sat): 08:00 – 23:00
- Pharmacy (Sun): 10:00 – 20:00

4.3.4 Such a flexible operating approach is in line with Department of Health requirements for increased patient access to local health services.

4.4 Site access arrangements

Vehicle access

4.4.1 Development of the proposed Biddulph PCC site is proposed to be supported by a vehicular and pedestrian access strategy ensuring access from a range of local origins. Vehicular access to the site would be delivered via connections through the existing Wharf Road car park in Biddulph Town Centre (see **Figure 14**). Access to this public car parking area is available via:

- IN / OUT access point from Wharf Road;
- IN only access point from the southern access road connection from High Street.

It is proposed that the existing access arrangements and one way operation via the southern access connection from Well Street would be supported by a scheme of improved signage and road marking arrangements, as illustrated in **Figure 14**.

Walking and cycling access

4.4.2 Walking and cycling movements to / from the proposal site would be supported by a new pedestrian plaza to the site's main south eastern frontage (High Street access road) and existing pedestrian links to Biddulph Town Centre via the Wharf Road car park.

4.4.3 An additional staff building entrance point would be available direct from the on-site staff car parking area.

Site servicing & emergency access

4.4.4 Discussions with Staffordshire Moorlands Council, the operator of the Wharf Road car park has identified that the existing car park vehicle height barriers would be removed to facilitate service vehicle access to the Biddulph PCC site. The

paragraphs below set out the principles of proposed large vehicle access to serve the site. Ultimately, the control and management of site servicing, emergency vehicle access and on-site car parking would form part of a site traffic management strategy to be prepared and agreed with key stakeholders prior to occupation of the PCC facility.

4.4.5 Ambulance access to the site would take place via both the main car park access to / from Wharf Road and the entry only access point to the south from the High Street access road. All ambulance exit movements would take place via the main site access to Wharf Road. Vehicle swept path assessment of ambulance access is included in **Appendix G** to this report.

4.4.6 The site has also been designed to be accessible to all frontages by a long wheel base fire tender unit (AUTOtrack template vehicle). Main access to the site from the wider highway network would be achieved via the dedicated large vehicle access to the car park (situated adjacent to the main Wharf Road entry / exit point, with rear access). The operation and control of this access point to deliver ensure emergency service vehicle access at all times would be managed via the site traffic management strategy. In addition to frontage access from the car parking area, vehicle turn-around would be possible within the staff car parking area (see **Appendix G**) to provide fire vehicle access to the rear of the site and direct access to the southern building frontage would be available via the proposed pedestrian plaza area from the southern access road connection to High Street.

4.4.7 Due to the nature of the proposed PCC development, it is not anticipated that the building would require substantive vehicle servicing. Regular service vehicle access would likely be limited to refuse collection (both general and medical waste collections) and occasional ad-hoc deliveries. Large service vehicle access to the site would be achieved via the gated large vehicle to Wharf Road entry / exit point, with suitable large vehicle turning opportunities available within the car park (see **Appendix G** for example vehicle swept path analysis).

4.5 Car parking

4.5.1 It is proposed that a maximum of 53 parking spaces would be provided on the Biddulph PCC development site itself (including 3 spaces for disabled users). These on-site spaces would be reserved for staff working at the Centre and disabled visitors. The proposed level of on-site car parking is the maximum practical and economically viable level of supply deliverable at the Biddulph PCC site and is anticipated to meet anticipated day-to-day staff parking requirements.

4.5.2 Patient and visitor parking would be catered for within the existing adjacent Wharf Road public car park.

4.5.3 An assessment of site related parking demand and available local spare parking capacity is set out in section 7 to this report

4.6 On-site sustainable travel initiatives

Proposed Pedestrian and Cycle Facilities

4.6.1 Cycle parking areas would be provided at a number of locations across the Biddulph PCC site. These cycle parking areas would be conveniently located to main pedestrian access points to the building and would provide opportunities for the storage of up to 22 cycles (see **Figure 15**) to this report.

4.6.2 In addition to these walking and cycling facilities, showers and changing facilities together with lockers would be provided within the new building to encourage staff walking and cycling journeys to / from the site.

Operation of a Travel Plan

4.6.3 Recent Central Government and Local Authority planning policy statements have formalised guidance for the production of Travel Plans to support new development schemes. PPG13 identifies that developments that are likely to generate a

substantial number of trips are required to demonstrate the preparation of an associated Travel Plan (para 89 to the guidance) - with this document setting out those measures to be implemented on-site to encourage sustainable trip making and to reduce overall levels of car based trip making.

4.6.4 Day to day operation of the proposed Biddulph PCC to ensure maximum accessibility by sustainable travel modes would therefore be secured through the promotion of a Travel Plan for the site. This Travel Plan would include a range of measures targeted towards staff, patients and visitors and would include the investigation of initiatives such as a staff car sharing scheme, provision of up-to-date travel information on site, staff public transport ticketing initiatives, liaison with community travel operators, etc.

4.6.5 A framework for the development of a Travel Plan at the Biddulph PCC proposal site has been submitted in support of the development planning application (Axis report ref: 921-01-02). This framework is supported by a commitment to the operation of a Travel Plan at the site by NHS North Staffordshire and is based on measures pursued at other local healthcare sites located within the North Staffordshire area.

5.0 ASSESSMENT OF DEVELOPMENT TRAFFIC DEMAND AND IMPACT

5.1 Introduction

5.1.1 This section of the report considers the levels of travel demand anticipated to be generated by the development of the proposal site for PCC land use. This appraisal has been carried out through reference to available data sources and in line with the principles set out in DfT guideline document on the production of formal Transport Assessments, "Guidance on Transport Assessment". This DfT document recommends the following with respect to the appraisal of travel demand to a new development site.

> ***"In preparing trip estimates, the travel characteristics of the proposed development should be established, and this should be based on a multi-modal assessment that identifies the number of person trips by mode and time period.***
>
> ***There is a range of trip rate database tools available that contain national, or in some cases more local, trip rates measured for typical land use sites. However, obtaining an accurate comparison is not always straightforward, especially for atypical developments. In these instances it is recommended that, unless there is a clear valid comparable situation, the assessment of trips should be constructed from first principles based on the daily operation of the proposed development." (Axis underlining)***

5.1.2 Due to the fact that only a relatively limited number of large Primary Care Centres / Health Centre sites have been completed to date, there is currently a general lack of publically available travel data for appropriate comparable sites to the proposed Biddulph PCC facility. For example, the only suitable local sites in North Staffordshire (Milehouse and Midway) have only been operational for circa 12 months and so are considered unlikely to be fully 'established' and thus not appropriate for direct travel demand comparison purposes.

5.1.3 A review of commercially available trip generation data sources for comparable medical related development sites has identified that whilst national databases such as TRICS hold some data for GP / health centre style developments, such sites are

almost exclusively of the older GP / clinic type sites, based in relatively small buildings and with few on-site complementary primary care facilities. A review of the extent of data available within the most recent version of the TRICS database (version 2009A) identifies that just 7 of the 33 sites held within the GP surgery site classification were surveyed post the end of 2005, and that only two are of 1000sqm GFA or above in size.

5.1.4 The range of sites in TRICS is therefore not considered appropriate to deliver a direct match to the new larger Primary Care Centre / Health Centre developments (such as that proposed at Biddulph) now being brought forward under current NHS initiatives. It is anticipated, for example, that the older GP sites held in the TRICS database are likely to exhibit substantially higher trip rates per sqm of development than for the new tranche of more integrated schemes.

5.1.5 Given the above review of TRICS and the fact that no other local large Health Centre sites are available for comparable survey, it has been concluded that an assessment of future trip generation to the proposed Biddulph PCC site would best be carried out via a detailed 'first principles' analysis approach - based on the anticipated future operation of all facilities and services to be provided at the site. Such an assessment approach clearly accords with advice set out in the DfT guidance.

5.2 'First principle' estimated daily travel demand levels to / from the proposed Biddulph PCC facility

5.2.1 Trip generation levels to / from the proposed Biddulph PCC facility have been estimated through a detailed assessment of patient turnover and staffing levels associated with those GP practices / PCT services proposed to be relocated to the new building. This assessment has been informed by data provided by the GP businesses and NHS North Staffordshire service managers re: current operational procedures at the existing service bases and anticipated future operating practice following transfer to the new Biddulph PCC facility.

5.2.2 Data has been collected via direct meetings with key GP / NHS North Staffordshire service managers, the undertaking of a staff and patient travel questionnaire exercise and detailed staff diary / staff rota exercise (see **Appendix H** to this report). This information has been utilised to generate a typical daily profile of travel demand to / from the site and ultimately the likely car parking demand associated with site operation.

Patient Travel Demand

5.2.3 The first principles patient modelling work has been undertaken based on anticipated 'busiest day' patient appointment demand for each of the core GP practices and PCT services (including for the modelling of timetabled specialist clinics involving either on-site staff and / or visiting practitioners). Such an aggregated 'worst case' busiest day approach is considered to provide a highly robust assessment of future operational characteristics at the site, as in practice, it is likely that the new Biddulph PCC site would be managed to ensure that the busiest operation of each service would not be timetabled to occur concurrently and that specialist clinics would be scheduled to take place on different days / different times. Notwithstanding this, it is considered that the estimates generated by this aggregation methodology will ensure a degree of confidence as to the sensitivity of the 'first principles' modelling exercise.

5.2.4 In order to model anticipated maximum patient demand, a daily patient demand profile has been calculated for each GP practice / medical service, based on the 'first principles' of:

- The number of clinical staff available and on duty*,
- The patient turnover associated with each staff member*, and;
- The typical duration of patient consultation related to different medical practitioners.

(NB – *Some clinical staff process patients related to core practitioners e.g.: nurse visit prior to seeing specialist – in such cases only one patient trip has been modelled to avoid double counting)

5.2.5 Typical appointment duration times / patient turnover for the key medical staff to be based at the Biddulph PCC site are as set out below. Such appointment slots and consultation durations have been confirmed by service managers and staff during the staff diary exercise and are based on current / anticipated future operating practice:

Doctors:	10 minute appointments	- av. 6 patients pr hr;
Practice Nurses:	10-15 minute appointments	- av. 4-6 patients pr hr;
Podiatry:	20 minute appointments	- av. 3 patients pr hr;
Phlebotomy	5 minute appointments	- av. 11 patients pr hr;

Other patient related trip movements

5.2.6 It is recognised that not all patient demand to / from the Biddulph PCC site would be directly related to the medical appointment profile / clinic sessions. Some patients are likely to visit the site to pick up repeat prescriptions, make new appointments, speak to staff for advice, collect test results, visit the pharmacy on site, etc.

5.2.7 In order to take account of such 'ad hoc' movements, a factor of an additional 15% of all modelled patient appointment related movements has been included. It is considered that such a factor would be highly robust when applied to the aggregated 'busiest day' trip estimates - as medical facilities generally discourage patients from attending surgery for non-appointment related visits during 'peak' times and often have set times when such visits should be undertaken (generally off peak).

Patient Demand Profile

5.2.8 Patient demand calculations have been calculated on the basis of a demand profile across the day, assuming initial patient consultations starting at around 08:00am and that all available appointment slots are filled. Information has been broken down into 5 minute time segments to allow for a satisfactory review of on-site patient accumulation and the related calculation of car parking demand (see also section 7 to this report).

5.2.9 Patient demand post 19:00 has not been considered in detail as part of this assessment - as full details of any future evening operating practice are not currently available. Whilst a level of evening operation would likely be pursued at the Biddulph PCC site in future (indeed some services already hold some early evening sessions, albeit only on a limited basis), such operation would not generate substantive patient demand at the intensity experienced during core weekday day-time hours. Furthermore, background travel demand on the immediate local network during these non-core time periods is also noted to be significantly lower and therefore it is anticipated that highway network capacity / travel impact is unlikely to be significant. Overall it is considered that the appraisal included in this report provides the most appropriate and robust assessment of 'worst case' Biddulph PCC development travel demand and impact on the immediate local highway network.

5.2.10 A site accumulation demand (in person trips) and arrival / departure profile for the proposed Biddulph PCC development has been estimated based on the following patient demand profile:

- Arrival: 10 minutes prior to appointment
- Appointment: Timetabled appointment duration (see para 5.2.5)
- Departure: 10 minutes after scheduled end of appointment

For a typical visit to a GP doctor, such an approach would result in a modelled patient visit / duration of stay at the PCC site of 30 minutes (i.e. 10 minute wait time, 10 minute appointment, 10 minutes post appointment). Visits to other practitioners, who typically operate with longer appointment times have been modelled with longer

total duration of stays as appropriate (e.g.: visit to a podiatry consultant = 10 minute wait time, 20 minute appointment, 10 minutes post appointment).

5.2.11 The inclusion of such a waiting time + appointment time + post consultation time to calculate a robust patient 'duration of stay' is considered to represent an appropriate estimate of anticipated 'average' patient time spent on site, as surgery practice managers generally seek to advise patients not to arrive significantly before the allotted appointment time and not all patients require post consultation services.

5.2.12 It should also be recognised that that the 'one patient visit per one practitioner on duty' approach will likely represent a worst case estimate of total patient demand at the site, as it does not take account of any opportunities for shared trip visits for patients to the site - who may well be programmed to meet more than one practitioner as part of each visit (e.g.: GP consultation, followed by a session with the practice nurse or an appointment with a specialist primary care practitioner). Indeed, the underlying principles of the development of modern Health Centres / Primary Care Centres, when compared to traditional small GP practices, is that they should seek to act as a 'one stop shop' for primary care medicine and therefore encourage shared / combined visits. Any such combined visits would assist in reducing the overall patient travel demand to / from the site.

5.2.13 The total predicted travel patient demand profile (in person trips) calculated by the 'first principles' patient turnover modelling suggests the hourly patient movements (all travel modes) to / from the predicted Biddulph PCC as illustrated in the table below (see also **Appendix I** & **Appendix L** to this report). Such demand estimates identify patient trip demand to the site across the day of 1079 patient arrival movements, with maximum hourly 2-way demand of the order of 351 patient movements (in + out) taking place for the mid morning hour of 10:00 to 11:00.

Hr Begin	Ins	Outs	Two Way
07:00	0	0	0
08:00	81	21	101
09:00	170	141	312
10:00	176	175	351
11:00	141	173	314
12:00	20	75	94
13:00	49	15	64
14:00	102	84	186
15:00	127	114	240
16:00	123	131	254
17:00	89	117	206
18:00	1	33	35
	1079	**1079**	**2157**

Anticipated total patient hourly demand profile for aggregated 'busiest day' site operation (all travel modes)

5.2.14 For the purposes of this travel demand assessment, it has been assumed that patient car trips to / from the proposed Biddulph PCC would be undertaken using the private car trip rates highlighted from the 2009 patient surveys. These surveys identified the following anticipated future car trip demand levels associated with those core services that are proposed to be relocated to the Biddulph PCC site:

	Car Driver / M'bike Driver	Car Passenger	Taxi
Rupert Street Surgery	61%	9%	1%
Dr King & Partners	54%	17%	1%
Dr Butcher & Partners	58%	14%	1%
Podiatry Patients	42%	26%	0%

5.2.15 In order to provide a robust assessment of car trip demand to the site, it has been assumed that all visitors to the site travelling either as a car passenger, car driver or taxi passenger would travel as a separate / distinct car journey. In reality such an assumption is likely to represent a degree of over-estimate of overall patient car trip demand and car park usage as some patients may travel to the site as a patient group in a single vehicle (e.g.: parent and child). Nevertheless this approach is considered to represent the most robust approach for modelling private vehicle demand movements.

5.2.16 The table below sets out the predicted levels of patient car trip demand predicted by the first principles demand exercise. This demonstrates that patient car trip demand to the site would be of the order of 1565 vehicle movements per day (in+out), with maximum hourly demand just 254 (in+out) vehicle trips during the site's 10:00-11:00 peak (see **Appendix J** to this report). Overall patient vehicle trip demand (car / motorcycle driver, car passenger and taxi) to / from the site is predicted to be of the order of 72% of total travel demand.

Hr Begin	Ins	Outs	Two Way
07:00	0	0	0
08:00	58	15	73
09:00	123	102	226
10:00	127	126	254
11:00	103	125	228
12:00	14	55	69
13:00	36	11	47
14:00	74	61	135
15:00	92	83	174
16:00	89	95	184
17:00	65	85	150
18:00	1	24	25
	782	782	**1565**

Anticipated total patient hourly vehicle trip demand profile for aggregated 'busiest day' site operation

Staff Travel Demand

5.2.17 Staff travel demand to / from the proposed Biddulph PCC site can be anticipated to be generally much reduced (in terms of total movements per day) when compared to patient demand - due to the requirement for staff to be available on-site for much of the day (particularly during 'busiest day' patient slots). Staff travel demand associated with the proposed Biddulph PCC scheme has been estimated based on responses to the staff questionnaire exercise re: future travel mode choices and the results of a detailed staff rota / diary exercise which identified typical staff attendance patterns on site and the times at which most staff travel movements could be anticipated to take place. Such information has then been disaggregated across both clinical / non-clinical staff members to understand the different travel patterns associated with key staff roles.

5.2.18 Application of the findings of the staff rota / staff diary exercise identifies the following predicted total staff travel demand profile (all travel modes) across the typical working day (see also **Appendix I** to this report). This staff rota approach includes for the travel patterns of both site based staff and more mobile clinical practitioners such as district nurses and community matrons.

Hr Begin	Ins	Outs	Two Way
07:00	2	0	2
08:00	48	2	50
09:00	10	2	12
10:00	4	3	7
11:00	7	1	8
12:00	4	19	23
13:00	11	9	20
14:00	9	3	11
15:00	3	10	13
16:00	3	13	16
17:00	0	6	6
18:00	0	29	29
	101	**97**	**198**

Anticipated total staff hourly travel demand profile for aggregated 'busiest day' site operation (all travel modes)

5.2.19 The staff travel questionnaire exercise highlighted the following stated mode split for future clinical staff and non-clinical staff trip movements to / from the proposed Biddulph PCC site.

Clinical Staff	Car Driver / M'bike Driver	Car Passenger	Taxi
Rupert Street Surgery	75%	25%	0%
Dr King & Partners	100%	0%	0%
Dr Butcher & Partners	100%	0%	0%
District Nurses / Community Matrons	100%	0%	0%
Podiatry Staff	100%	0%	0%

Non-clinical Staff	Car Driver / M'bike Driver	Car Passenger	Taxi
Rupert Street Surgery	80%	0%	0%
Dr King & Partners	84%	8%	0%
Dr Butcher & Partners	100%	0%	0%
District Nurses / Community Matrons	n/a		
Podiatry Staff			

5.2.20 Application of these disaggregated stated staff modal choice proportions to the different staff group on-site activity profiles suggests the staff car trip demand levels at the Biddulph PCC site as set out in the table below. Full multi-modal hourly staff demand estimates are provided in **Appendix J**.

Hr Begin	Ins	Outs	Two Way
07:00	2	0	2
08:00	47	2	49
09:00	10	2	12
10:00	4	3	7
11:00	7	1	8
12:00	4	19	23
13:00	11	9	20
14:00	9	3	12
15:00	3	10	13
16:00	3	13	16
17:00	0	8	8
18:00	0	28	28
	99	**97**	**196**

Anticipated total staff hourly vehicle trip demand profile for aggregated 'busiest day' site operation

Total Development Travel Demand

5.2.21 Total combined all travel mode trip demand (staff and patients) to / from the proposed Biddulph PCC site for a typical busiest operating day demand scenario is therefore estimated to be as illustrated in **Figure 16** to this report.

5.2.22 Total vehicle trip demand (car / motorcycle driver, car passenger & taxi movements) is set out in the table below (see also **Figure 17** to this report):

Hr Begin	Ins	Outs	Two Way
07:00	2	0	**2**
08:00	106	17	**123**
09:00	133	104	**237**
10:00	131	129	**260**
11:00	110	126	**136**
12:00	18	73	**91**
13:00	47	20	**67**
14:00	83	64	**147**
15:00	95	92	**187**
16:00	92	108	**200**
17:00	65	93	**158**
18:00	1	52	**53**
	882	**880**	**1762**

Anticipated total vehicle trip demand profile for typical aggregated 'busiest day' site operation (staff + patients)

5.2.23 Review of total predicted vehicle trip movements to / from the site identifies that peak hourly vehicle trip demand during peak morning surgery hours is anticipated to be of the order of 260 (average over 10:00-11:00) vehicles per hour (in + out). Such demand represents in the order of less than 4.5 vehicle movements per minute. It is not anticipated that such demand would represent a material increase in operational terms over the wider local highway network, particularly given that maximum development demand occurs outside peak 'rush hour' network demand periods and that trip movements would be spread across a range of local approach road routes (see section 5.3 to this report).

5.3 Development vehicle trip distribution and assignment

Anticipated distribution of patient / staff trips

5.3.1 The distribution and assignment of trips to / from medical centre sites is generally difficult to accurately predict, due to the fact that patients typically only visit surgery / health centre sites on an 'as required' basis. This effectively results in the potential for day to day variations in the distribution of patient trips - as different persons would visit the site on different days. Given the above, it is considered that the most

appropriate approach is to consider a patient distribution model based on an analysis of the full patient catchment area and thus include for an appraisal of general conditions using the overall spread of patients anticipated as likely utilising the facility.

5.3.2 Different methodologies have been adopted to calculate the proposed car trip distribution to the site for staff and patient movements as set out below:

1. **Staff trip movements**: Based on a simple review of stated staff home origins for car driver / car passenger movements as collected during the staff travel survey exercise. This staff distribution has been disaggregated into clinical staff and non-clinical staff movements (see **Figures 18 & 19** to this report);

2. **GP Patients & patients to local PCT services**: Based on a review of the patient catchment distribution of the existing three GP surgeries outside of an immediate 800m as the crow flies catchment (it is assumed that a substantial proportion of patient trip movements within this 800m catchment, which incorporates much of the immediate residential areas to Biddulph Town Centre, would utilise walk / cycle / public transport modes). This geographic distribution is illustrated in **Figure 20** to this report.

Anticipated route assignment

5.3.3 Traffic movements have been assigned to main approach routes to the proposed Biddulph PCC site on the basis of 'quickest route paths' predicted by the Microsoft Map-Point route planning software. This identifies that in the main, traffic would route to the site, via Wharf Road (W) and the main north / south connections to the A527 Biddulph Relief Road. It is noted, however, that alternative route options are potentially available to / from immediate local residential districts to the east and north east of Biddulph (the areas highlighted in green and purple respectively on **Figures 18-20**). Trips to / from these immediate local areas have been assigned as follows:

West Biddulph Districts (green area):

- All movements via Well Street and connections to High Street;

North West Biddulph (Thames Drive estate – purple area):

- 2/3 of movements via A527 Biddulph Relief Road (N), 1/3 of movements via local connections to Congleton Road / High Street (N).

5.3.4 In addition to the above general approach, the assignment exercise has also sought to take account of local routeing factors associated with the restricted access options at the southern access to the site from the High Street access. This southern access operates as 'entry only' to the site and the adjacent Wharf Road car park and therefore whilst available for arrival movements to / from the immediate south and west of the site, all exit movements from the site must take place via the northern Wharf Road access.

5.3.5 In recognition of the additional arrival access options provided by the High Street entry, the following local assignment approach has been adopted:

West Biddulph Districts (green area):

- All arrival movements via southern High Street access;
- All departure movements via northern Wharf Road exit and subsequent local connections to High Street (S);

Southern Catchment (yellow areas):

- 2/3 of arrival movements via A527(S) Biddulph Relief Road and northern site access option at Wharf Road;
- 1/3 of arrival movements via southern High Street access;
- All departure movements via northern Wharf Road access and subsequent connection to A527(S) Biddulph Relief Road.

5.3.6 The calculation of the relevant route assignment proportions for staff and patient categories is illustrated in **Appendix K** to this report. Aggregation of the predicted

movements across the core 12 hr weekday day time period suggests the general assignment proportions set out below (total two-way demand):

Arrival Movements:

- Via A527 Biddulph Relief Road (N): 42%
- Via Congleton Road / High Street (N): 4%
- Via Well Street: 14%
- Via High Street (S): 14%
- Via A527 Biddulph Relief Road (S): 27%

Departure Movements:

- Via A527 Biddulph Relief Road (N): 42%
- Via Congleton Road / High Street (N): 4%
- Via Well Street: 14%
- Via High Street (S): 0%
- Via A527 Biddulph Relief Road (S): 41%

5.3.7 Predicted development route assignment proportions for patient, clinical staff and non-clinical staff vehicle movements are illustrated in **Figures 21-23** to this report.

5.3.8 Review of the predicted vehicle assignment totals suggests that the majority of traffic movements to / from the proposed PCC site are likely to utilise the A527 Biddulph Relief Road. This reflects both the wide distribution of staff / patient origins and also that this route represents the most convenient approach route (bypassing the more restricted local town centre network). Some local trip movements (primarily from those immediate residential areas to the east of the town centre) would utilise the local town centre network, however, movements on the local town centre network are not anticipated to represent in excess of 20% all PCC related vehicle movements (arrivals + departures).

Predicted development traffic demand over the local network

5.3.9 Application of the predicted route assignment proportions to the development traffic volumes anticipated to take place during key assessment periods are illustrated in **Figures 24-26 (a-c)** and summarised in the table below:

	Total PCC Development Traffic Approach Route Proportions				
Time Period	A527 (N)	High St (N)	Well St	High St (S)	A527 (S)
08:00-09:00 Traditional AM Peak	42 / 7	3 / 1	13 / 2	16 / 0	31 / 7
09:00-10:00 Development Peak (AM)	56 / 44	5 / 4	15 / 18	18 / 0	36 / 41
17:00 -18:00 Traditional PM Peak	28 / 39	3 / 4	9 / 13	8 / 0	17 / 38

Development traffic (arrival / departure)

5.3.10 Review of the above results demonstrates that development traffic demand on the main key highway approach routes to the proposed Biddulph PCC site would be generally limited. Development demand on all main approach routes during traditional network rush hour peak periods is not anticipated to be in excess of 160 vehicles per hour or less than 3 vehicles per minute. Such demand is not anticipated to represent a material level of trips which would generate any operational issue on the immediate local network. It is noted, however, that actual maximum link demand would take place on the immediate section of Wharf Road (W) to the car park exit road (see Section 6.0 to this report).

5.3.11 Review of development traffic demand during the illustrative 'development peak' period of 09:00-10:00 suggests that maximum approach link impact would be of the order of 102 vehicle movements (in + out) on the northern section of the A527 Biddulph Relief Road. Such demand represents of the order of less than 2 additional vehicle movements per minute on this busy distributor road link.

6.0 ASSESSMENT OF ANTICIPATED DEVELOPMENT TRAFFIC IMPACT

6.1 Introduction

6.1 Introduction & net impact issues

6.1.1 This section of the report considers the assessment of the operation of the immediate local highway routes to the Biddulph PCC proposal site and the ability of this network to accommodate the development traffic flow movements predicted in Section 5. Impact assessment has been carried out through the consideration of:

- Changes in link flow demand on immediate sections of the highway network;
- Operation of key local network junctions to the PCC proposal site

6.1.2 It should be noted that all of these assessments have been undertaken on the basis of the highly robust approach that all predicted replacement Biddulph PCC related development traffic is added 'extra over' to existing observed baseline traffic demand levels. In reality such an approach will include for an element of 'double counting' as baseline traffic levels would already include for those GP surgery related trip movements to / from the existing Biddulph local healthcare sites. The proposed Biddulph PCC development is not anticipated to generate a significant number of 'new' trips, but rather result in a re-distribution of existing medical related trips across the local network to the proposal site.

6.1.3 Given that it is currently not possible to identify which of the existing baseline movements recorded on the local network are local healthcare related trip movements, it is proposed that the 'extra over' impact assessment approach is adopted to ensure a 'worst case' assessment of local future operating conditions.

6.2 Impact assessment parameters

6.2.1 Full opening year for PCC proposal scheme elements is anticipated to be 2011. Operational assessments have been carried out for this opening year date and for a 'future design year' of 2016, effectively 5 years post the scheme completion. Such an approach reflects recently updated Department for Transport (DfT) good practice "Guidance on Transport Assessment" for the assessment of development traffic impact and scoping discussions with SCC highways officers.

6.2.2 2011 / 2016 background traffic demand estimates for the immediate local highway network have been based on NRTF(97) low growth estimates. The NRTF factors applied are as set out below (2009 being the date of the agreed background traffic information – see **Appendix E** to this report):

- 2009 – 2011 Opening Year: 1.025
- 2009 – 2016 Forecast Year: 1.086

6.2.3 The use of such NRTF growth factors ensures for the robust assessment of future background traffic growth, with predicted growth rates well in excess of local TEMPRO growth rates for the Biddulph area.

6.2.4 Assessments have been carried out for the traditional AM (08:00-09:00) and PM (17:00-18:00) rush hour peak periods and an additional illustrative 'development peak' period of 09:00-10:00. This additional assessment hour has been carried out at the request of SCC highway officers to provide an illustration of maximum operation of the PCC facility – i.e. morning surgery periods, when most clinical staff can be expected to be on-duty and seeing patients.

6.2.5 2011 Opening Year and 2016 Forecast Year background + committed development (Old Wharf Road & Sainsbury development) estimates for the immediate local highway network are illustrated in **Figure 27(a-c)** & **Figure 28(a-c)** respectively.

6.2.6 2011 Background + predicted PCC development demand for the immediate local highway network to the proposal site is illustrated in **Figure 29(a-c)**, with 2016 forecast year background + development presented in **Figure 30(a-c)**.

6.3 Link flow assessment

6.3.1 Link flow operational assessments have been carried out for immediate sections of the local highway network to the proposed Biddulph PCC site, with particular interest being paid to the frontage sections of Wharf Road and the main local distributor road of A527 Biddulph Relief Road. These sections of route network can be anticipated to experience the maximum link demand associated with the operation of the development scheme. Should link impact levels on these sections of route be demonstrated to fall within reasonable levels, it can be concluded that development traffic at more distant network locations should also lie within acceptable thresholds.

6.3.2 Traditionally, link flow assessment criteria have been based on those percentage impact thresholds identified in 1994 Institution of Highways and Transportation 'Guidelines for Traffic Impact Assessment'. This document suggested that more detailed analysis of highway impact and / or capacity improvements was only likely to be required for situations when either:

- Traffic to / from the development exceeds 10% of existing two way traffic on the adjoining highway; or,
- Where traffic to / from the development exceeds 5% of the existing two way traffic flow on the adjoining highways at locations where traffic congestion exists within the assessment period or in other sensitive locations.

This position has been recently reviewed and updated in March 2007 DfT document "Guidelines for Transport Assessment" which notes:

> ***"If the TA confirms that a development will have material impact on the highway network, the level of impact at all critical locations on the network should be established. A particular example of material impact would be a worsening of congestion. In congested areas, the percentage traffic impact that is***

considered significant or detrimental to the network may be relatively low (possibly below the average daily variation in flow), and should have been determined in discussions with the relevant highway authorities. For the avoidance of doubt, the 1994 guidance regarding the assessment thresholds of 10 per cent and 5 per cent levels of development traffic relative to background traffic is no longer deemed an acceptable mechanism, since it creates an incentive in favour of locating development where high levels of background traffic already exist."

6.3.3 Notwithstanding these observations, in the case of the local highway network to the Biddulph PCC site which is characterised by generally lightly trafficked routes which have previously been demonstrated to be operating significantly below anticipated link and junction capacity (see July 2008 DWP Sainsbury TA), it is considered that the traditional 5% and 10% thresholds still represent a reasonable 'guide' as to the level / extent of development traffic impact likely to be experienced on immediate local routes.

6.3.4 The tables below demonstrates the predicted changes in two-way 2011 opening year and 2016 forecast year link flows on the immediate sections of Wharf Road and A527 Biddulph Relief Road for the core assessment hours. In addition summary plans illustrating directional percentage change on key link sections for 2011 / 2016 scenarios are included as **Figure 31(a-c)** & **Figure 32(a-c)** to this report.

Link Section	AM Peak Hour			09:00-10:00 Dev Peak			PM Peak Hour		
	Baseline	Baseline + PCC Dev	%'tage change	Baseline	Baseline + PCC Dev	%'tage change	Baseline	Baseline + PCC Dev	%'tage change
Wharf Road (E of Car Pk Access)	523	529	1.1%	837	861	2.9%	674	693	2.8%
Wharf Road (W of Car Pk Access)	638	728	14.1%	950	1139	19.9%	886	1007	13.7%
A527 Biddulph RR (N of Wharf Rd R'bout)	1241	1290	3.9%	1062	1169	10.1%	1656	1722	4.0%
A527 Biddulph RR (S of Wharf Rd R'bout)	1327	1366	2.9%	1232	1314	6.7%	1692	1747	3.3%
2011 Opening Year									

2 way flow totals

Link Section	AM Peak Hour			09:00-10:00 Dev Peak			PM Peak Hour		
	Baseline	Baseline + PCC Dev	%'tage change	Baseline	Baseline + PCC Dev	%'tage change	Baseline	Baseline + PCC Dev	%'tage change
Wharf Road (E of Car Pk Access)	542	548	1.1%	856	881	2.9%	694	713	2.7%
Wharf Road (W of Car Pk Access)	660	749	13.5%	977	1155	18.2%	916	1037	13.2%
A527 Biddulph RR (N of Wharf Rd R'bout)	1305	1354	3.8%	1106	1207	9.1%	1733	1800	3.9%
A527 Biddulph RR (N of Wharf Rd R'bout)	1395	1435	2.9%	1279	1356	6.0%	1771	1826	3.1%
2016 Forecast Year									

2 way flow totals

6.3.5 These results demonstrate that, in general, development flow impact is not anticipated to be of a substantial level, with hourly trip demand typically less than 5% of baseline two-way traffic levels. Maximum link impact would be experienced during the 09:00-10:00 'development peak period' when flow increases of the order of 19.9% could be anticipated on the immediate western section of Wharf Road. It should be recognised, however, that baseline flow demand is at lower levels during this time period, which would contribute to the higher percentage impact levels predicted.

6.4 Junction operational assessments

6.4.1 Junction operational capacity assessments have been undertaken for both opening year 2011 and forecast year 2016 baseline + development demand conditions at the following junctions:

- Car park access to Wharf Road;
- Proposed new Sainsbury development mini-roundabout access;
- Wharf Road / A527 Biddulph Relief Road roundabout.

6.4.2 Capacity tests have been carried out using the DfT standard analysis computer software PICADY (for priority T-junctions) and ARCADY (for roundabout and mini-roundabout junctions).

6.4.3 The results of the junction capacity analyses are summarised in the paragraphs below, with full computer model printouts included as **Appendices M, N & O** to this report for the Wharf Road car park access, new mini roundabout and main Biddulph Relief Road roundabout junction respectively. All capacity assessments have been undertaken using flows converted to pcu's (passenger car units) to provide comparable results to those included in the July 2008 DWP Sainsbury TA report .

Car Park Access to Wharf Road

6.4.4 Results of the 'with PCC development' PICADY model runs for the key assessment hours at the car park access to / from Wharf Road (effectively the main PCC site access connection) is predicted to operate efficiently for all 2016 forecast year scenarios with some spare capacity and only limited queuing on key turning movements.

Approach Arm / Movement	08:00-09:00 AM Peak Hour			09:00-10:00 Dev Peak			17:00-18:00 PM Peak Hour		
	Flow	Max RFC	Max Q	Flow	Max RFC	Max Q	Flow	Max RFC	Max Q
B-A / B-C	90	0.226	1	262	0.707	3	373	0.809	4
C-AB	492	0.380	1	649	0.691	4	328	0.425	1
Arm A – Wharf Road (E), Arm B – Car Park Access, Arm C – Wharf Road (W)									

6.4.5 Maximum RFC is predicted to occur during the PM peak period for the Wharf Road site access approach and is of the order of 0.809. Maximum queue levels predicted at this time is 4 vehicles. This level of junction operation and queuing is considered to reflect satisfactory conditions, with RFC's below the critical 0.85 threshold for further assessment. Full model printouts are provided in **Appendix M** to this report.

Wharf Road / South View / Sainsbury Development mini-roundabout

6.4.6 ARCADY capacity assessment runs have also been undertaken for the proposed Wharf Road / South View / Sainsbury development mini-roundabout layout. Details of this layout are illustrated in **Appendix D** to this report, with ARCADY model

parameters the same as those utilised within the July 2008 DWP TA. Results for the future year 2016 assessment hours are illustrated in the table below, with model printouts included as **Appendix N**.

Approach Arm / Movement	AM Peak Hour			09:00-10:00 Dev Peak			PM Peak Hour		
	Flow	Max RFC	Max Q	Flow	Max RFC	Max Q	Flow	Max RFC	Max Q
A	10	0.017	0	10	0.019	0	10	0.022	0
B	178	0.271	1	223	0.356	1	179	0.323	1
C	398	0.434	1	527	0.582	2	565	0.620	2
D	117	0.151	1	229	0.300	1	436	0.577	2
Arm A – Wharf Road (E), Arm B – South View, Arm C – Wharf Road (W), Arm D – Sainsbury									

6.4.7 Review of the above results demonstrates that the proposed junction layout is anticipated to operate efficiently for all future year time periods - with RFC values on all approach arms being less than critical 0.85 levels. Maximum RFC is predicted to occur during the PM peak scenario and is predicted for the Wharf Road (W) approach arm. These results suggest a maximum RFC of 0.620 and queuing of 2 vehicles. Given these results it is not considered that there would be any need for local capacity improvements at this junction and that the proposed design could accommodate all anticipated weekday traffic demand.

Wharf Road / A527 Biddulph Relief Road

6.4.8 ARCADY capacity assessment runs were also carried out for the local junction of Wharf Road / Biddulph Relief Road, which represents the main distributor road connection for vehicle movements to / from the proposed PCC site. Results for the forecast year 2016 assessment periods are illustrated in the table below:

Approach Arm / Movement	AM Peak Hour			09:00-10:00 Dev Peak			PM Peak Hour		
	Flow	Max RFC	Max Q	Flow	Max RFC	Max Q	Flow	Max RFC	Max Q
A	804	0.585	2	682	0.515	2	902	0.663	2
B	258	0.222	1	506	0.393	1	709	0.592	2
C	664	0.377	1	655	0.392	1	935	0.599	2
D	156	0.148	1	73	0.076	1	90	0.117	1
Arm A – A527 (N), Arm B – Wharf Road, Arm C – A527 (S), Arm D – Dorset Drive									

6.4.9 The above results demonstrate that the existing junction layout is predicted to operate with spare capacity for all future 'with PCC development' scenarios. Maximum RFC is predicted to be 0.663 and is anticipated to occur during the PM peak for the A527 (N) approach. Queuing associated with these movements would be negligible at a maximum of 2 vehicles and would not result in adverse operational conditions.

6.4.10 Given the above results, it can be concluded that no local junction capacity improvements are required over the immediate local highway network to accommodate the development demand associated with the proposed Biddulph PCC scheme.

7.0 CAR PARKING DEMAND ASSESSMENT

7.1 Introduction and overview

7.1.1 In addition to the to above review of travel demand / network traffic impact, pre-application scoping discussions with SCC highways identified that officers were keen that parking issues were considered in detail and that anticipated levels of development related car parking demand were compared against both the proposed car park supply to be delivered on site and demonstrated local public car parking supply. Whilst the Biddulph PCC proposal site represents an opportunity to deliver a highly accessible local healthcare scheme, it is recognised that the scheme would result in the loss of some existing public car parking spaces within the main Wharf Road public pay & display car park serving Biddulph Town Centre. Much of this loss of public parking is effectively to be compensated for by the development of the new Sainsbury's re-development scheme (which will provide a new adjacent car park of 349 spaces for public use), however, it is important to ensure that the development and operation of the new PCC facility would not result in an overloading of available local car parking supply - and thus have a detrimental impact on local businesses and residents.

7.2 Wharf Road pay & display car park: Existing weekday demand conditions

7.2.1 In order to identify the likely parking 'impact' of the proposed Biddulph PCC scheme, it is first necessary to identify existing parking demand conditions at the Wharf Road Pay & Display car park. This facility is located adjacent to the PCC proposal site and currently provides some 252 public car parking spaces – serving direct local business such as the Somerfield & Nisa foodstores, as well as general Biddulph Town Centre land uses.

7.2.2 It has been observed that this existing car park is typically under-utilised, particularly during weekdays, with the area to the rear of the existing public library showing little to no regular demand.

7.2.3 Under the Biddulph PCC scheme, these under-used areas of the car park are proposed to be incorporated into the development masterplan area, in combination with the reorganisation of disabled parking provision, resulting in the reduction of available public car parking by 127 spaces to 125 spaces.

7.2.4 Existing weekday operational demand levels at the Wharf Road public pay & display car park have been established via a 12 hour (07:00 – 19:00) survey of car parking accumulation undertaken during early July 2009. This survey exercise identified the car parking demand profile illustrated in **Figure 33** to this report. It should also be noted that this survey was undertaken following the closure of Craig Road retail units and related parking area and therefore represents a scenario whereby nearly all Biddulph Town Centre car parking was taking place within the Wharf Road parking area – thus representing maximum demand conditions at this location.

7.2.5 Review of **Figure 33** demonstrates that maximum observed weekday car park demand levels at the Wharf Road pay & display site were well below the existing capacity of 252 spaces. Maximum demand was recorded for the 10 minute time periods 10:50-11:00 and 16:00-16:10, when 125 spaces were noted as being occupied within the car park. Such maximum demand levels represent less than 50% of existing total supply and suggest that there may well be a level of spare parking capacity at the site which could be re-assigned to the proposed PCC development land use.

7.3 Predicted future operational parking demand associated with the proposed Biddulph PCC facility

7.3.1 In order to take into account the site specific requirements of the Biddulph PCC scheme and to ensure that all operational activity at the site can be fully reflected, it is proposed that the assessment of development related car parking demand is best undertaken via reference to the core 'first principles' traffic generation modelling exercise described in section 5.2 to this report.

Patient Parking Demand

7.3.2 For the purposes of this assessment and in order to ensure a robust appraisal of patient car parking demand, it has been assumed that all patients travelling to the site either as a car passenger or car driver would involve a separate car trip and thus the parking of an individual vehicle within the car park for the duration of an appointment. In practice such a methodology may well represent an over-estimate of patient demand as:

- Some patients travelling as a car passenger would undoubtedly be 'dropped off' at the site rather than occupying a parking space; and,

- Some patients may travel to the site in a patient group within a single vehicle (e.g.: parent and child).

7.3.3 **Appendix L** to this report demonstrates the calculation of total patient travel demand to the site (all travel modes). Analysis of the five minute breakdown of predicted trip movements to / from the proposal site over the course of the modelled day allows for the estimate of the number of patients on site at any one time. **Appendix P** demonstrates the predicted accumulation profile of patient demand across the day for each of the core GP / PCT services proposed to be provided at the Biddulph PCC site (NB – These estimates also include for a 15% uplift in total patient demand to model local demand 'surges' and ad-hoc trips to / from the site – see paras 5.2.6 & 5.2.7 to this report). Over 1070 patient arrival movements are predicted to take across the eleven hour core day time period modelled (08:00 – 19:00). Maximum patient accumulation levels predicted at the site at any one time are of the order of 90 patients.

7.3.4 Application of the anticipated future private vehicle (car driver / car passenger) demand levels identified during the patient travel survey exercise (see para 5.2.14 to this report and Appendix B to the supporting Travel Plan Framework report) allows for the calculation of a core patient car park demand accumulation as illustrated in **Appendix P**.

7.3.5 **Appendix P** predicts that maximum patient car park accumulation would likely reach maximum levels of the order of 65 vehicles – with peak demand proposed to occur during the morning surgery demand period of 10:50 - 11:05.

Staff Parking Demand

7.3.6 Whilst staff vehicle movements to / from the site would generally be more limited than patient demand (see Section 5.2 to this report), staff car parking demand at the development site is anticipated to be significant - as the majority of staff car trip arrivals would be related to a full day / half day visit to the site and thus involve a vehicle parked on site for long periods. Furthermore, the staff travel survey exercise demonstrates that a significant proportion of staff have identified that they typically drive to their place of work at present and would be unwilling / unable to change this practice once relocated to the replacement Biddulph PCC site (due to the need to provide emergency cover, be available for home visits, or provide a mobile healthcare role, etc).

7.3.7 Overall staff car parking demand at the proposal site has been calculated based on the staff rota / staff diary exercise, (which identifies when staff members would be present on site and when they would arrive / depart) and the application of the predicted levels of car use identified within the staff travel surveys.

7.3.8 Application of these car trip demand proportions identifies the predicted clinical and non-clinical staff car park accumulation demand illustrated in **Appendix Q** to this note. For the purposes of this assessment, only those staff who travelled to the site as a 'car driver' were included in calculating the staff parking demand - with those staff members who arrived as a passenger being discounted, as they would effectively be either 'dropped off' at the site or be part of a car share journey with another staff member (and therefore their vehicle parking demand has already been included in the analysis as a related car driver response). Review of these demand estimates demonstrates that maximum total staff parking demand (both clinical and non-clinical staff members) would likely be of the order of 57 spaces (for the period

11:30 – 11:40). Such maximum staff demand levels are reflected in the proposed on-site staff parking supply of 53 spaces.

Total Predicted Development Car Parking Demand

7.3.9 Summation of the predicted staff and patient car parking demand elements allows for the estimation of total car parking demand associated with the Biddulph PCC site and a simulation of how such demand would likely vary across a typical busy working day. This combined parking demand profile / car park accumulation is illustrated in **Figure 34** to this report. Review of this profile suggests that site parking demand would build rapidly from 08:00 reflecting the arrival of staff and initial patient appointments and would reach a maximum level of the order of 118 spaces for the time period 10:50 – 11:05. Peak demand is then anticipated to fall away over the lunch time period, before rising again to an early afternoon peak at 15:00. Demand during this afternoon period (94 spaces) is unlikely to reach the maximum levels predicted during the morning sessions. Demand would again fall away sharply from 17:30 as core patient appointment slots finish and day-time staff begin to leave work.

7.4 Assessment of Biddulph Town Centre car parking impact

7.4.1 As noted above, the masterplan for the Biddulph PCC scheme identifies that 53 parking spaces are to be provided within on-site parking areas for the use of designated staff members and disabled patients / visitors. All remaining patient / visitor vehicle based trips can are anticipated to seek to utilise the adjacent Wharf Road pay & display car park.

7.4.2 Given that the development of the proposed PCC facility is anticipated to reduce the level of public car parking available within the Wharf Road pay & display car park to 125 Spaces and that the Sainsbury development is proposed to provide 349 shopper related spaces, it is considered that a total car parking supply of 527 spaces would be available within the immediate vicinity of the site to accommodate future baseline + PCC related parking demand:

- On-site PCC parking supply: 53 spaces
- Future Wharf Road Pay & Display parking supply: 125 spaces
- Sainsbury shopping car park: 349 spaces

Total: 527 spaces

7.4.3 **Figure 35** to this report illustrates the combination of existing observed baseline car park demand at the Wharf Road pay & display, predicted PCC related parking demand and the anticipated parking demand associated with the new Sainsbury development. This exercise can be considered to represent an 'absolute worst case' assessment of car parking demand in Biddulph Town Centre as it includes for the following robust modelling assumptions:

- All PCC on-site medical services have been modelled as operating on a combined 'busiest day' basis;
- All PCC patient car driver and car passenger trips have been modelled as generating a demand for a car parking space on site (therefore not recognising the potential for patient drop offs or shared patient journeys);
- The modelling of PCC demand includes for a 15% 'extra over' uplift of patient parking demand to cater non-appointment movements to the site;
- All parking demand associated with the new Sainsbury store is assumed to represent new parking demand within Biddulph Town Centre (i.e. there is no transfer of demand for local competing stores);
- No 'shared use' parking demand trips (i.e. PCC visit followed by a local shopping trip) have been modelled;

7.4.4 Even assuming for these robust modelling assumptions, review of **Figure 35** demonstrates that spare parking capacity is predicted to be available across the Biddulph Town Centre car parks during all weekday day-time demand conditions.

7.4.5 As noted, the above assessment includes for the extremely robust assumption that all of the Sainsbury related parking would represent new trips / new parking demand. In reality this is an unrealistic assumption as it does not take into account the trip transfer effect associated with a new foodstore. Indeed, typically trips to new

stores are rarely 'new' trips at all, but are more likely to be existing shoppers who decide to change their food shopping location, once a new store is opened.

7.4.6 Whilst the July 2008 DWP TA report on the proposed Sainsbury store notes that a high proportion of Biddulph householders currently shop outside the town, which might limit the extent of transfer (see para 5.11.1 to the DWP TA – **Appendix R** to this report), undoubtedly some trips to the new Sainsbury store will transfer from the existing foodstores within Biddulph. Any such transfer of shopper movements would therefore likely result in a related transfer of parking demand from the Wharf Road car park (which currently serves the Nisa & Somerfield stores) to the Sainsbury car park. The potential for any such transferred parking movements is effectively 'double counted' within the preliminary analysis set out in **Figure 3**5 above.

7.4.7 **Appendix R** to this report identifies the extent of transfer and diverted trip movements accepted by SCC highways with respect to the assessment of the Old Wharf Road retail site. Base on this appraisal, it is not considered unreasonable to anticipate that of the order of at least 15-20% of future Sainsbury traffic and thus parking demand would be related to trips currently associated with the Nisa / Somerfield stores and therefore would likely swap from parking at Wharf Road to Sainsbury car park. Given the predicted hourly total parking demand levels at the Sainsbury store as estimated within the DWP TA, this could represent the following levels of car park transfer from the Wharf Road car park.

Time	Predicted Sainsbury's Parking Demand	*15% transfer from Wharf Road*
07:00-08:00	23	*4*
08:00-09:00	114	*17*
09:00-10:00	224	*34*
10:00-11:00	278	*42*
11:00-12:00	278	*42*
12:00-13:00	264	*40*
13:00-14:00	281	*42*
14:00-15:00	270	*41*
15:00-16:00	252	*38*
16:00-17:00	252	*38*
17:00-18:00	210	*32*
18:00-19:00	189	*28*

7.4.8 Review of the above table suggests that during core demand periods, even if one assumes only a relatively pessimistic level of transfer demand (i.e. 15%), up to 40 existing parking movements at Wharf Road might be expected to transfer to the Sainsbury's car park during busiest hours. Application of this transfer element to the parking demand estimates for Biddulph Town Centre would result in the car park accumulation figures set out in **Figure 36.**

7.4.9 The inclusion of the direct modeling of a transfer of trips between the existing foodstores and the proposed Sainsbury store (as illustrated in **Figure 36**) suggests a substantive level of residual spare parking capacity across Biddulph Town Centre as a whole – with of the order of 60-70 spare parking spaces during peak times and over 100 spaces during other core daytime periods;

7.5 Parking summary

7.5.1 Overall it is proposed that the development of the Biddulph PCC site would be supported by an on-site parking supply of 53 spaces, with 125 public spaces located within the adjacent Wharf Road car park. A further 349 public shopper spaces are to be made available within the adjacent Sainsbury development. This total proposed level of car parking supply is anticipated to be suitable to accommodate typical day-to-day levels of parking demand associated with core Biddulph town centre uses and still deliver an element of spare capacity for short term surge demand events / seasonal demand. It is therefore not anticipated that the Biddulph PCC proposals would result in a material local parking impact.

8.0 SUMMARY AND CONCLUSIONS

8.1 This report has been prepared to consider highways and transport issues related to proposals for the development of a new Primary Care Centre facility to serve the town of Biddulph on land to the south of the existing Wharf Road car park. The facility would bring together the three GP practices within the town (Rupert St, Dr Butcher & Partners and Dr King & Partners) and include a range of additional supporting primary care services and community outpatient opportunities.

8.2 The major driver for the provision of the new facility is the “Fit for the future” programme for the North Staffordshire area which seeks to deliver more local health care services into the community - including care and treatment currently based at the University Hospital of North Staffordshire (UHNS). By the end of 2012, it is proposed that 118,000 outpatient appointments would be moved out from UHNS, with primary care becoming the focal point for services that in the past would have been considered hospital based. NHS North Staffordshire has identified the development of four key new health centres, including Biddulph PCC, to help deliver ‘Fit for the future’ objectives.

8.3 The proposed Biddulph PCC facility would provide an integrated, centrally located local healthcare facility, accessible to the main residential districts in the town by a range of travel modes and linked strategically to other Primary Care Trust (PCT) services. The PCC scheme would deliver a modern accommodation for the core GP practices as well as offering opportunities for complementary on-site facilities for generic primary care services such as minor surgery, podiatry, district nursing, etc. The incorporation of complementary primary care services within the scheme promotes the building as a local ‘one stop shop’ for patients, which is further strengthened by the provision of a commercial Pharmacy on site. As patients would have the opportunity to travel to just the one location to consult a GP, attend a subsequent appointment with a nurse / primary care practitioner and also collect their prescription, the building is anticipated to provide sustainability benefits in operational, healthcare and environmental terms.

Site location and planning history

8.4 The urgent need for regeneration in Biddulph has led to an Area Action Plan (AAP) being produced for Biddulph Town Centre in advance of the Council's Core Strategy for the LDF. This AAP document was adopted as a formal Development Plan Document in February 2007 and effectively supersedes those parts of the Staffordshire Moorlands Local Plan which relate to the Biddulph Town Centre area.

8.5 The Wharf Road car park proposal site is identified specifically within the AAP under policy reference DS3. This policy identifies that the site would be suitable for high density residential land use, however, it is understood that a public health scheme would represent an acceptable alternative development option at this location - should the scheme accord with the key principles for new development set out in the AAP vision.

8.6 It is understood that substantial highway and sustainable transport improvements are proposed for Biddulph Town Centre as part of the realisation of the Town Centre Area Action Plan. Review of the proposed local highway improvement works associated with the Sainsbury's superstore scheme at the Wharf Road (North) site and related AAP elements, demonstrates the following local initiatives:

- Introduction of a new 4-arm mini-roundabout access junction on Wharf Road to serve the new store and South View side road arm;
- Partial pedestrianisation (bus only) of the section of Wharf Road to the east of the new mini-roundabout junction and the central section of High Street;
- Local re-assignment of through east-west traffic onto South View;
- Delivery of a new 'bus hub' facility on the eastern section of Wharf Road;
- Provision of 349 car parking spaces on the Sainsbury's site to cater for foodstore and public parking (plus additional office / residential related parking).

Existing local network conditions

8.7 The July 2008 DWP TA document prepared to support the development of the Sainsbury's superstore scheme at Wharf Road included for a wide ranging review of local network conditions within Biddulph Town Centre, including traffic survey information. This network review identified that the immediate local network does not currently suffer from congested operating conditions, even during traditional rush hour periods - with an element of spare capacity available at key junctions on the Biddulph Relief Road corridor. The base traffic data within the July 2008 DWP TA has been agreed with SCC highways as being suitable to form the basis for the capacity assessments included within this TA to support the PCC scheme.

8.8 Personal Injury Accident data (PIA) for the immediate highway network to the proposed Biddulph PCC site has been provided by SCC for the five year period covering 1 February 2003 – 31 January 2009. Review of this data identifies a strictly limited number of accident incidents, with no accident events identified at the main entry / exit points to the Wharf Road car park. It is not considered that there are any over-riding highway safety factors that would call the proposed Biddulph PCC scheme into question.

Site Accessibility Audit

8.9 The location of the proposed Biddulph PCC is considered to offer good opportunities for staff, patient and visitor access by a range of alternative travel modes to the private car. The proposal is well served by existing regular public transport connections, with town centre bus stops available within a 300m walk of the centre of the proposal site, providing access to 9 buses per hour serving key destinations such as Hanley, Newcastle, Congleton and Tunstall.

8.10 The proposal site location also provides good walk / cycle accessibility to the immediate surrounding local area, with a range of key residential areas directly connected by suitable walk / cycle routes. 57% of the existing Biddulph GP patient

list lives within a 1.2km 'as the crow flies' catchment of the proposal site (a suitable maximum local walking distance) and 99% within a 5km 'as the crow flies' catchment of the proposal site (a suitable maximum cycle distance). Results of a pre-occupation patient questionnaire exercise also suggest that patients recognise that the Biddulph PCC proposal site is likely to represent a more accessible healthcare location than existing local facilities, with future stated mode choice associated with the new centre showing a lower level of car demand when compared to travel trends for the current service bases.

Site development proposals and operation

8.11 The proposed Biddulph PCC scheme therefore seeks to deliver one of the core 'Fit for the Future' infrastructure elements for the NHS North Staffordshire area by the development of a new GP led primary care health facility to serve the town. The site would be developed to accommodate a new 4 storey 3200sqm GFA PCC building which would incorporate three local GP businesses already operating from smaller practice bases within the town, new and relocated complementary PCT services, as well as an additional ancillary commercial pharmacy unit.

8.12 Discussions with the GP practices and the PCT service providers have identified that a range of clinical, non-clinical and peripatetic staff are anticipated to based at the Biddulph PCC facility. Staff members based at the site would operate a range of shift patterns and would also includes for 'mobile' staff members such as district nurses, health visitors and sexual health / family planning counsellors, who would visit the site for clinics / patient sessions.

8.13 It is anticipated that the Biddulph PCC site would operate opening hours which address both core patient access times and promote some future site flexibility for extended opening. The planning application submitted to support the scheme seeks to secure the potential for staff / patient access to the Primary Care Centre element for 08:00 – 20:00 (Monday to Sunday). Such a flexible operating approach is in line with Department of Health requirements for increased patient access to local health services

Site access strategy, servicing & car parking

8.14 Development of the proposed Biddulph PCC site is proposed to be supported by a vehicular and pedestrian strategy ensuring access from a range of local origins. Vehicular access to the site would be delivered via connections through the existing Wharf Road car park in Biddulph Town Centre. The control and management of site servicing, emergency vehicle access and on-site car parking would form part of a site traffic management strategy to be prepared and agreed with key stakeholders prior to occupation of the PCC facility.

8.15 It is proposed that a maximum of 53 parking spaces would be provided on the Biddulph PCC development site itself (including 3 spaces for disabled users). These on-site spaces would be reserved for staff working at the Centre and disabled visitors. The proposed level of on-site car parking is the maximum practical and economically viable level of supply deliverable at the Biddulph PCC site and is anticipated to meet anticipated day-to-day staff parking requirements. Main patient / visitor parking demand would be accommodated within the existing Wharf Road public pay & display car park.

Sustainable travel measures

8.16 Operation of the proposed Biddulph site to ensure maximum accessibility by sustainable travel modes would be secured through the promotion of a Travel Plan for the site. This Travel Plan would include a range of measures targeted towards staff, patients and visitors and would include the investigation of initiatives such as a staff car sharing scheme, provision of up-to-date travel information on site, staff public transport ticketing initiatives, liaison with community travel operators, etc. A framework for the development of a Travel Plan at this site has been submitted in parallel to this Transport Assessment and is supported by a commitment to the operation of a Travel Plan at the site by NHS North Staffordshire. The design of the site would also include for appropriate walk / cycle measures including cycle

parking, access to safe pedestrian crossing points and on site shower, changing and locker facilities.

*Anticipated Travel Demand to the proposal si*te

8.17 Trip generation to / from the proposed Biddulph PCC facility have been estimated through a 'first principles' assessment of patient turnover and staffing levels associated with those GP practices / PCT services proposed to be transferred to the new building. This assessment has been informed by data re: current operating procedures and anticipated future practice at the new site as provided by practice / departmental managers. This information has been utilised to generate a typical daily profile of travel demand to / from the site and ultimately likely car parking demand.

8.18 The 'first principles' patient modelling work has been undertaken based on a aggregated busiest day approach for each of the proposed healthcare services to be based on site. An estimation of site accumulation demand (in person trips) and arrival / departure profile has been based on the following patient demand profile:

Arrival:	10 minutes prior to appointment
Appointment:	Timetabled appointment duration
Departures:	10 minutes after scheduled end of appointment.

For a typical visit to a GP doctor, such an approach would result in a modelled patient visit / duration of stay at the Biddulph PCC site of 30 minutes (i.e. 10 minute wait time, 10 minute appointment, 10 minutes post appointment). The inclusion of such a 'duration of stay' factor is considered to represent a robust estimate of anticipated 'average' time spent on site, as practice / departmental managers generally seek to advise patients not to arrive significantly before the allotted appointment time and not all patients require post consultation services.

8.19 It is recognised that not all patient demand to / from the Biddulph PCC site would be directly related to the medical appointment profile. Some patients would simply visit the site to pick up repeat prescriptions, make new appointments, speak to staff for advice, collect test results, visit the dispensary / pharmacy on site, etc. In order to

take account of such 'ad hoc' movements, a factor of an additional 15% of patient appointment related movements has been included.

8.20 The predicted patient demand profile (in person trips) calculated by the 'first principles' patient turnover modelling suggests arrival demand to the site across the day could be of the order of 1079 patient movements, with maximum hourly 2-way demand of 351 patient movements (in + out) taking place for the hour of 10:00-11:00.

8.21 For the purposes of the travel demand assessment, it has been assumed that patient car trips to / from the existing surgery would be undertaken using the private car trip rates highlighted by the patient Travel Surveys. These surveys suggested overall patient car trip demand to / from the site of approximately 70% of total travel demand. Application of these car trip demand proportions suggests daily patient traffic demand of 1565 vehicle movements per day (in + out), with a maximum hourly demand of 254 vehicle trips during the period 10:00-11:00.

8.22 Staff travel demand to / from the site would generally be more limited in terms of total daily numbers when compared to patient demand, due to the requirement for staff to remain available on-site for much of the day – particularly during 'busiest day' patient slots. Staff travel demand to / from the site has been based on recorded staff responses to the staff questionnaire exercise re: travel mode choices and a detailed staff rota / diary exercise which considered typical staff travel patterns and the times at which most staff movements could be anticipated to take place.

8.23 Application of stated staff modal choice proportions to the different on-site activity profiles suggests total staff car trip demand levels of 198 trip movements per day, (in + out) with maximum demand predicted to take place in the hour 08:00-09:00 (50 trip movements in + out).

8.24 Review of total combined vehicle trip movements to / from the site identifies that average hourly vehicle trip demand during peak morning surgery hours is predicted to be of the order of 210 vehicles per hour (in + out) for the period 08:00 – 11:00). Such demand represents less than 3.5 vehicle movements per minute. It is not

anticipated that such demand would represent a material increase in vehicle movements once spread over the immediate local highway network.

Distribution and Assignment of Trips

8.25 The distribution and assignment of trips to / from medical centre sites is generally difficult to accurately predict due to the fact that patients typically only visit surgery / health centre sites on an 'as required' basis. This effectively results in the potential for 'day to day' variations in the distribution of patient trips - as different persons would visit the site on different days. In the case of the Biddulph PCC facility, separate trip distribution approaches have been considered for staff and patient trip movements. The results for each approach have then been aggregated to provide an estimate of overall development distribution.

8.26 The different approaches adopted to calculate the proposed car trip distribution to the site are as follows:

- Staff trip movements: Based stated staff home origins for car driver / car passenger movements as collected during the staff travel survey exercise;
- GP Patients & patients to local PCT services: Based on the patient catchment distribution of the existing three GP surgeries outside of an immediate 800m as the crow flies catchment

8.27 Aggregation of the predicted movements across the core 12 hr weekday day time period suggests the general assignment proportions set out below (total two-way demand):

Arrival Movements:

- Via A527 Biddulph Relief Road (N): 42%
- Via Congleton Road / High Street (N): 4%
- Via Well Street: 14%
- Via High Street (S): 14%
- Via A527 Biddulph Relief Road (S): 27%

Departure Movements:

- Via A527 Biddulph Relief Road (N): 42%
- Via Congleton Road / High Street (N): 4%

- Via Well Street: 14%
- Via High Street (S): 0%
- Via A527 Biddulph Relief Road (S): 41%

8.28 Review of the predicted vehicle assignment totals suggests that the majority of traffic movements to / from the proposed PCC site are likely to utilise the A527 Biddulph Relief Road. This reflects both the wide distribution of staff / patient origins and also that this route represents the most convenient approach options (bypassing the more restricted local town centre network). Some local trip movements (primarily from those immediate residential areas to the east of the town centre) would utilise the local town centre network, however, movements on the local town centre network are not anticipated to represent much in excess of 20% all PCC related vehicle movements (arrivals + departures).

8.29 Application of the predicted immediate local main road route assignment proportions to the development traffic volumes anticipated to take place during key assessment periods demonstrates that, in general, development traffic demand on immediate key highway routes to the proposed Biddulph PCC site would be limited. Development demand on all main approach routes during traditional network rush hour peak periods is not anticipated to be in excess of 160 vehicles per hour or less than 3 vehicle per minute. Such demand is not anticipated to represent a material level of trips which would generate any operational issue on the immediate local network. It is noted, however, that actual maximum link demand would take place on the immediate section of Wharf Road (W) to the car park exit road (see Section 6.0 to this report).

8.30 Review of development traffic demand during the illustrative 'development peak' period of 09:00-10:00 suggests that maximum approach link impact would be of the order of 102 vehicle movements (in + out) on the northern section of the A527 Biddulph Relief Road. Such demand represents of the order of just 2 additional vehicle movements per minute on this busy distributor road link.

Network Impact Assessment

8.31 Network impact assessment has been carried out through the consideration of changes in link flow demand on immediate sections of the highway network and operation of key local network junctions to the PCC proposal site following the additional of PCC related traffic. It should be noted that all of these assessments have been undertaken on the basis of the highly robust approach that all predicted replacement Biddulph PCC related development traffic is added 'extra over' to existing observed baseline traffic demand levels. In reality such an approach will include for an element of 'double counting' as baseline traffic levels would already include for those GP surgery related trip movements to / from the existing Biddulph local healthcare sites. The proposed Biddulph PCC development is therefore not anticipated to generate a significant number of 'new' trips but rather result in a re-distribution of existing medical related trips across the local network to the proposal site. Given that it is currently not possible to identify which of the existing baseline movements recorded on the local network are local healthcare related trip movements, it is proposed that the 'extra over' impact assessment approach is adopted to ensure a 'worst case' assessment of local future operating conditions.

8.32 Link flow operational assessments have been carried out for immediate sections of the local highway network to the proposed Biddulph PCC site, with particular interest being paid to the frontage sections of Wharf Road and the main local distributor road of A527 Biddulph Relief Road. These sections of route network can be anticipated to experience the maximum link demand associated with the operation of the development scheme. Should link impact levels on these sections of route be demonstrated to fall within reasonable levels, it can be concluded that development traffic at more distant network locations should also lie within acceptable thresholds.

8.33 A review of percentage change demonstrates that, in general, development flow impact is not anticipated to be of a substantial level, with hourly trip demand typically less than 5% of baseline two-way traffic levels. Maximum link impact would be experienced during the 09:00-10:00 'development peak period' when flow increases of the order of 19.9% could be anticipated on the immediate western section of Wharf Road. It should be recognised, however, that baseline flow demand is at

lower levels during this time period, which would contribute to the higher percentage impact levels predicted.

8.34 Junction operational capacity assessments have been undertaken for both opening year 2011 and forecast year 2016 baseline + development demand conditions at the following junctions:

- Car park access to Wharf Road;
- Proposed new Sainsbury development mini-roundabout access;
- Wharf Road / A527 Biddulph Relief Road roundabout.

8.35 The results of these operational capacity assessments demonstrate that all of the key local junctions are predicted to operate with spare capacity for all future 'with PCC development' scenarios. Maximum RFCs are predicted to be less than critical 0.85 thresholds, within minimal queuing and would not result in adverse operational conditions.

8.36 Given the above results, it can be concluded that no local junction capacity improvements are required over the immediate local highway network to accommodate the development demand associated with the proposed Biddulph PCC scheme.

Parking Impact

8.37 Existing weekday operational demand levels at the Wharf Road public pay & display car park have been established via a 12 hour (07:00 – 19:00) survey of car parking accumulation undertaken during early July 2009. Review of this information demonstrates that observed car park demand levels at the Wharf Road pay & display site are well below the existing capacity of 252 spaces. Indeed, maximum demand levels are less than 50% of current total parking supply. Such results suggest that there is a substantive level of spare parking capacity at the site which could be re-assigned to the proposed PCC development land use.

8.38 In order to take into account the site specific requirements of the Biddulph PCC scheme and to ensure that all operational activity at the site can be fully reflected, the assessment of car parking demand has been undertaken via reference to the core 'first principles' traffic generation modelling exercise.

8.39 Summation of the predicted staff and patient car parking demand elements allows for the estimation of total car parking demand associated with the Biddulph PCC site and a simulation of how such demand would likely vary across a typical busy working day. Review of this profile suggests that site parking demand would build rapidly from 08:00 reflecting the arrival of staff and initial patient appointments and reach a maximum level of the order of 118 spaces for the time period 10:50 – 11:05. Peak demand is then anticipated to fall away over the lunch time period, before rising again to an early afternoon peak at 15:00. Demand during this afternoon period (94 spaces) is unlikely to reach the maximum levels predicted during the morning sessions. Demand would again fall away sharply from 17:30 as core patient appointment slots finish and day-time staff begin to leave work.

8.40 Whilst the Biddulph PCC proposal site represents an opportunity to deliver a highly accessible local healthcare scheme it is recognised that the scheme would result in the loss of some existing public car parking spaces within the main Wharf Road public pay & display car park serving Biddulph Town Centre. Much of this loss of public parking is effectively compensated for by the development of the new Sainsbury's re-development scheme. Total future car parking capacity within the immediate vicinity of the Biddulph PCC proposal site, following completion of the scheme would be 527 spaces.

8.41 Combination of existing observed baseline car park demand at the Wharf Road, predicted PCC related parking demand and the anticipated parking demand associated with the new Sainsbury development (including for 15% transfer of demand from the Wharf Road car park) suggests a substantive level of residual spare parking capacity across Biddulph Town Centre as a whole – with of the order of 60-70 spare parking spaces during peak times and over 100 during other core daytime periods. It is therefore concluded that the proposed total level of Biddulph

Town Centre car parking supply would be suitable to accommodate future predicted parking demand levels. It is therefore not anticipated that the Biddulph PCC proposals would result in a material local parking impact

Summary

8.42 Overall, it is concluded that the development of the Biddulph PCC proposal site would not result in a material impact on the existing and future operation of the immediate local highway network. The proposals are not anticipated to result in a significant increase in development flows, with immediate local links considered capable of accommodating background + development traffic volumes. Indeed, in practice many of the development movements to / from the site would already be on the local network in any event (associated with trips to existing medical facilities in the town). Car parking demand can be accommodated either within on-site parking areas or within immediate public car parks.

8.43 The proposal site's generally central location to the anticipated patient catchment and its proximity to key public transport, walking & cycling corridors and Biddulph Town Centre services can be expected to encourage sustainable trip making and accord with the principles of PPG13 by providing good accessibility and a reduced need to travel by private car. This would be further supported by the implementation of a detailed Travel Plan at the site. These accessibility factors are considered to support the overall sustainability rationale of the 'Fit for the future' programme to improve local healthcare in North Staffordshire by providing more services in the community which would previously been provided in large acute hospitals.