# MLM



West Suffolk Hospital, Bury St Edmunds Transport Statement - Masterplan On Behalf of West Suffolk NHS





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West Suffolk Hospital, Bury St Edmunds, Suffolk Transport Statement Masterplan

**On Behalf of West Suffolk NHS** 

Document Ref: TC/616256/LAB Revision: Date: March 2015 **Prepared:** 

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#### 1 Introduction

- 1.1 MLM Consulting Engineers have been commissioned by KLH architects on behalf of the West Suffolk NHS Foundation Trust to provide an accompanying Transport Statement (TS) associated with the Masterplan for the hospital. The details are set out in the planning statement that accompanies the Masterplan documents.
- 1.2 The Trust has commissioned an option appraisal to compare the redevelopment of the Hardwick Lane site and the development of a new healthcare campus on the Westley site. The purpose of the appraisal is to establish the preferred location for the future delivery of healthcare in West Suffolk. It is anticipated that this work will be concluded later this year, following which the Trust will develop a detailed strategic long term development plan for the preferred option.
- 1.3 In the meantime the development of a new hospital either at Hardwick Lane or on the Westley Site is unlikely to come to fruition for a period of at least 15 years during which time the provision of healthcare needs to be able to adapt to medical developments and the pressures arising from an aging and growing population. Currently on average the outpatients department sees 1000 patients per day, in the next 10 years this is predicted to increase to 1500 patients per day. These increases relate to the change in demographics relating to many things including age and increase in family housing in the area.
- 1.4 The redevelopment of parts of the site follows on from the future emerging Masterplan for the site that is to improve facilities for patients and also members of staff. In the short term the Trust needs to provide the following:-
  - a cardiac catheterization laboratory or cath lab (the current facility requires upgrading);
  - a sterile services department (SSD) to be relocated on site from Hospital Road, currently there are many vehicle trips associated with this facility;
  - new residences to replace the existing substandard residences; and
    - additional car parking.
- 1.5 The Masterplan seeks consent for the development in relation to location, mass, landscaping and car parking provision.
- 1.6 The Transport Statement therefore is to assure the local planning authority that the Masterplan development will make some impact on the local highway network but the proposal seeks to mitigate them.
- 1.7 The existing location is shown in **Appendix 1.** This shows the existing site in relation to the highway network nearby. The appendices also include the proposed Masterplan on drawing SK04.
- 1.8 Planning consent was granted for the replacement of key worker accommodation up to 5 storeys in height, in 2014, which is included in the Masterplan drawings. This would entail decanting out staff from existing accommodation to the front of the site, then the existing buildings would be demolished.

- 1.9 On site parking surveys have been undertaken as the Masterplan increases the number of mainly staff, with some patient car parking provision on site. The data is very comprehensive as it provides a minute by minute daily traffic flows to the staff and visitor car parks.
- 1.10 This TS takes due account of current best practice advice contained in the document 'Guidance on Transport assessment published by the Department of Transport (DfT) in March 2007. Consultations are also ongoing with the County Council in respect of providing confirmation that the car park management regime will be addressed in the hospital Travel Plan that accompanies the Masterplan.

#### The Scope of the TS

1.11 Following this introduction the report will be structured in the following manner:-

**Section 2, Baseline Conditions:** Describes the existing site and adjacent areas, local highway network and public transport.

**Section 3, Proposed Development & Access Arrangements:** Considers details of the proposals along with the description of the site access arrangements and parking provision.

**Section 4, Trip Generation & Impact:** Considers the potential implications of development trips on the local highway network and impact.

**Section 5, Conclusions:** Provides a summary of the report and draws together its conclusions.

#### 2 **Baseline Conditions**

#### **Existing Site**

- 2.1 The site, known as Site C, is located to the south of the main hospital campus. It is accessed from Hardwick Lane from the north. There are three access points that lead to and from the hospital.
- 2.2 Refer to Site Location Plan at Appendix 1 and aerial image below.



- 2.3 The site is approximately 700m, by vehicle, from the highway and is reached via 6m wide access roads and security controlled barriers. There are a number of staff car parks on site which are accessed from the internal, mainly one way link roads.
- 2.4 The current breakdown of car parking on the whole hospital campus is as follows, there are 16 car parks on site, 260 spaces of which were added in 2004, eleven years ago. A summary of the parking spaces and allocation is set out below:
  - Overall 1494 (in the Planning Statement)
  - Public/Private 1,177 36
  - Disabled
  - Car share 30
  - 20 minute drop off 14
  - The remainder are for consultants.
- 2.5 Currently the existing nurses accommodation, on the northern part of the site, that was granted consent last year, will be demolished. A new block has been granted consent to the south western side that will accommodate up to 160 residents as the replacement for the existing. This is traffic impact neutral and is included in the Masterplan.

#### Access to the Site from Hardwick Road.

2.6 The access arrangements from and to the highway have not been addressed in this report as the changes are deminimis. However access arrangements to the hospital were reviewed a few years ago, prior to changes being undertaken on site, and the results confirmed that they were satisfactory based on comprehensive traffic surveys and traffic modeling work undertaken.

#### **Current Operational Facilities on Site**

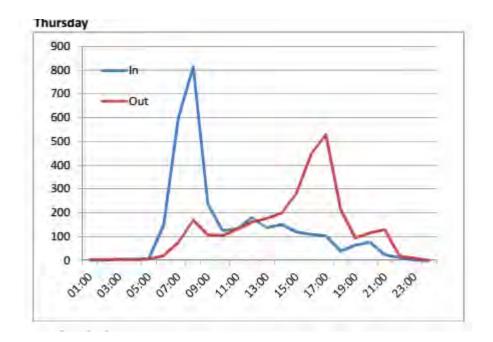
- 2.7 Operationally there are many service provisions on site including accident and emergency services, general hospital care and support services, educational facilities, accommodation for staff, a day nursery and hospice.
- 2.8 There are also comprehensive parking provision and service access facilities on site to provide the essential safe facilities for staff, patients and visitors to gain access to site over the 24 hours in any day. Public transport does not cater for early morning or late shift employees. This is typical on any hospital site in the UK, excluding the larger cities such as London, as services are run to cater for much larger populations.

#### On-site Parking

- 2.9 There are 16 on-site staff parking areas, which is set out in a number of locations. The new Masterplan development increases the number of spaces. In order to determine baseline flows parking surveys were undertaken for a whole week, including a weekend. This included the visitor car park primarily to the front of the hospital building, plus staff parking that are located to the south and west of the hospital. The staff parking is accessed via a CCTV double barrier on the eastern side of the one way clockwise system. The location of the car parks and One Way system is shown on SK05, in **Appendix 2**. The plan also shows photographs of the private internal and external highway road network.
- 2.10 The photographs were taken between 2.30PM and 3.30PM, on a weekday, when the staff car parks were full, the visitor car park was full with vehicles parked in the aisles, temporarily, waiting for a car parking space to become vacant.
- 2.11 The plan also shows the One Way routes, signing and lining, plus the recent improvements to the access to the staff car parking arrangements. The location and number of occupied spaces for cycle parking and motorcycle parking is also shown.

#### **On-site Parking Surveys**

- 2.12 Traffic and access has been reviewed since 2011 when many surveys, capacity assessments were undertaken in relation to traffic using the existing access points to the hospital. The surveys and traffic capacity calculations confirmed that junctions from and to the hospital had spare capacity.
- 2.13 However subsequent work has been undertaken to provide an improvement to the management of the existing car parking provision. The car park entry and exit barriers now monitor on a minute by minute basis cars travelling into and out of the site. The survey results undertaken, are shown below for a Thursday and a parking accumulation over the whole week is included in **Appendix 3**.



2.14 The above arrival and departure profiles of staff confirms the 24 hour operational characteristics of the hospital and the need to provide parking close to the site. The accumulation graph for the week is now shown below.

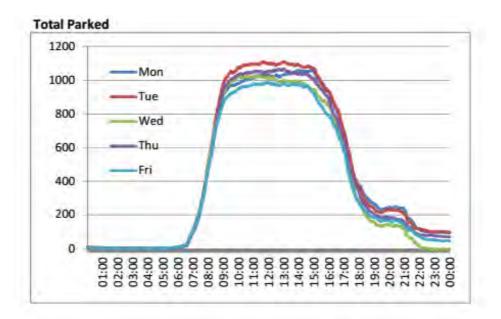


Table 2.1 – Staff Arrival and Departures	- Existing (for a Monday)
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		<u> </u>	
Time	Arrival	Departure	Total
0800-0900	549	120	669
1700-1800	78	398	476

2.15 Car parking provision is fully occupied on site and the hospital has also taken steps to provide more to reduce the impact of staff and some visitors parking on the local road network on local residential estates. It was observed that parking on Sharp Road takes place. A photograph is shown below.



- 2.16 The additional parking provision for staff, up to 150 spaces, is located at the Rugby Club, off Southgate Green/Rougham Road (A134) during which a shuttle bus provides a regular service. The shuttle bus operates between 6.40AM to 9.20 AM and 2.10PM till 6.10PM Monday to Friday every 30 minutes. The bus has 33 seats, that travels 1.5km from the club car park to the hospital. The access to the club car park is a left in and left out from and to the A134. Staff parking on this site can do so for free.
- 2.17 A photograph is shown below of the site. It was taken at mid-day when the car park appeared to be full.



#### Photograph No 2 Bury St Edmunds Rugby Union FC – Car Park

2.18 As part of the pre Masterplan work consultations have and will continue with Suffolk County Council to reassure the authority that the development impacts will be mitigated.

#### Walking & Cycling

- 2.19 The footway network follows the local roads, within the hospital campus. There are also footpath links between buildings. They are very comprehensive.
- 2.20 An accessibility plan is included in **Appendix 4**. This shows local bus stops, walk distances, that equate to 5 and 10 minute journeys on foot. A 2.5km radius has also been added that provides guidance on how easy it is to reach the urban areas nearby. Average cycle distances are generally about 5km but it varies due to location, and seasonal influences.

#### Public Transport – Bus services

- 2.21 The nearest bus stops to the site are within 800m and come from Bury St Edmunds, bus station. The bus frequency table is shown below for these services 82, 84, 86, M11 and M22.
- 2.22 The list below does not include the full list, the full list is in **Appendix 5.**

Route No	Route	Frequency
82	Bury St Edmunds, Bus station – Bury St Edmunds West Suffolk Hospital- Bury St Edmunds, Bus station.	Sunday 9:30am- 17:30pm (every 30mins)
84	Thetford, Barclay close – Bury St Edmunds, West Suffolk Hospital.	Mon- Fri 07:15am- 18:15pm Generally one (every hour)
86	Brandon, Kestrel Drive- Bury St Edmunds, West Suffolk Hospital	Mon- Fri 07:45am- 17:45pm Generally one (every hour)
M11 & M22	Bury St Edmunds, Bus station- Bury St Edmunds, West Suffolk Hospital- Bury St Edmunds, West Suffolk Hospital.	Mon- Fri 07:33am- 18:34pm One (every hour)

#### Table 2.2 Local Bus Services

#### Rail

2.23 The nearest station is Bury St Edmunds a distance of approximately 1.5miles from the site..

#### **Travel Plan**

- 2.24 Travel by public transport is encouraged via the Hospital Travel Plan that is updated on a regular basis. The Travel Plan mechanism provides the management tools to set targets, monitor its effects and review and amend.
- 2.25 It also includes reviewing the fees associated with car parking charges on a daily, weekly, monthly and salary sacrifice basis. Currently the charges are as follows:
  - Daily rate is £1.60 and has been since 2012/13. Salary sacrifice is not applicable to the daily rate – only the salary deduction via payroll which is currently:
  - £6 for up to 15 hours (work contract)
  - £12 up to 22 hours
  - £18 for anything over 22 hours

#### Summary

2.26 The existing site is therefore very well served by public transport within suitable walking distances of the site. Local buse and rail services do offer opportunities for staff and visitors to travel to and from the hospital.

#### **3** Proposed Masterplan Development

- 3.1 As mentioned in Section 1, the development proposals are to plan to meet the demands over the next 15 years during which time the provision of healthcare needs to be able to adapt to medical developments and the pressures arising from an aging and growing population. Currently on average the outpatients department sees 1000 patients per day, in the next 10 years this is predicted to increase to 1500 patients per day. These increases relate to the change in demographics relating to many things including age and increase in family housing in the area.
- 3.2 The redevelopment of parts of the site follows on from the future emerging Masterplan for the site that is to improve facilities for patients and also members of staff. In the short term the Trust needs to provide the following:-
  - a cardiac catheterization laboratory or cath lab (the current facility requires upgrading);
  - a sterile services department (SSD) to be relocated on site from Hospital Road, currently there are many vehicle trips associated with this facility;
  - new residences to replace the existing substandard residences; and
  - additional car parking.
- 3.3 The above includes to demolish and rebuild staff accommodation, provide much needed on site sterilization facilities, provide more parking provision for staff and visitors to meet the growing demand in health.
- 3.4 The architects planning and design and access statement elaborates on the new car parking accommodation blocks that are to be provided on site. The car parking layout is however shown in **Appendix 6**.

#### Access Arrangements

- 3.5 The previous vehicular access to the car parks will remain. The exit barriers onto Hardwick Road will continue to throttle traffic leaving site especially during the PM evening peak hour. The new pedestrian links from the car parks will tie into the existing.
- 3.6 The increase in car parking summating to over 400 will provide the following:
  - Flexibility in providing easier access for patients attending clinics. Currently they have to drive around to find spaces as opposed to being located fronting the daycentre they have to attend.
  - Will permit current staff parking, Car Park C for car sharers, comprising of approximately 50 spaces, to be provided for patients. Then staff car sharers will be relocated to a new car park. Currently many visitors and patients are driven to site. They have to park in the front car park that accommodates some 300.
  - Will also permit parking for contractors whilst attending site to maintain the various buildings and units.

- Will permit easier control of unauthorised parking.
- Better management control of the car parks.
- Will also incorporate better signage, direction signs to car park zones, pay and display points, drop off and collection points.
- Will reduce the demand to park off site on local estate roads.

#### **Construction Access Arrangements**

3.7 The new blocks, sterilization units etc will be accessed by construction traffic from Hardwick Road. The internal roads are wide enough to take construction traffic and is located away from the hospital wards and outpatient units. This will however be dealt with at the detailed stage. Car parking will be required for construction operatives to take tools and equipment on site.

#### **Delivery & Service Vehicles**

3.8 Delivery and refuse vehicles will continue to serve the site as existing from the internal estate roads.

#### 4 Trip Generation & Impact

- 4.1 The development impact is primarily due to increasing parking provision on site. Current parking provision on site is inadequate based on the evidence base of on road parking in the area and the provision of parking at the rugby club.
- 4.2 The new park spaces will provide opportunities for patients to park close to the specialist outpatient units they are to be treated, the car share spaces for staff will be increased and the additional parking will accommodate service personnel during the redevelopment phases. The net result will be a reduction in on road parking. Hence the parking provision will not result in additional trips to site on the network, but will be a short reassignment of traffic from the network to the site as opposed to on road.
- 4.3 The main impact on the network will be during the evening peak hour as traffic leaves the hospital access, via the exit barriers, as opposed to from the local estate roads.
- 4.4 In order to provide guidance on the flows onto the network, throttled by the exit barriers, the current flows per minute based on staff parking provision has been used. The increases and flows are shown in **Appendix 7**, summarised below:

Time	Arrival	Departure	Total							
0800-0900	760	166	926							
1700-1800	108	551	659							

#### Table 4.1 – Staff Arrival and Departures – Proposed (for a Monday)

4.5 The above numbers are for guidance but in practice with on site facilities the numbers are likely to be far less as patients will be allocated many of the parking spaces close to the specialisation unit they visit. The car parking numbers in the assessment also include those travelling to and from the hospice and nursery facilities on site.

- 4.6 The hospital does however have the Travel Plan to mitigate the impacts which includes:
  - promotion of a car sharing scheme;
  - provision of 134 cycle storage spaces;
  - participation in the Department of Transport tax efficient cycle purchase scheme;
  - introduction of car parking charges for staff to encourage alternative means of travel;
  - travel advice for new staff members;
  - leased car scheme favouring low emission cars;
  - on site bus stop; and
  - participation in national walk to work week.
- 4.7 Therefore in practice West Suffolk Hospital has the mechanism in place, in liaison with the planning authority, to ensure the Travel Plan objectives and actions are kept up to date.

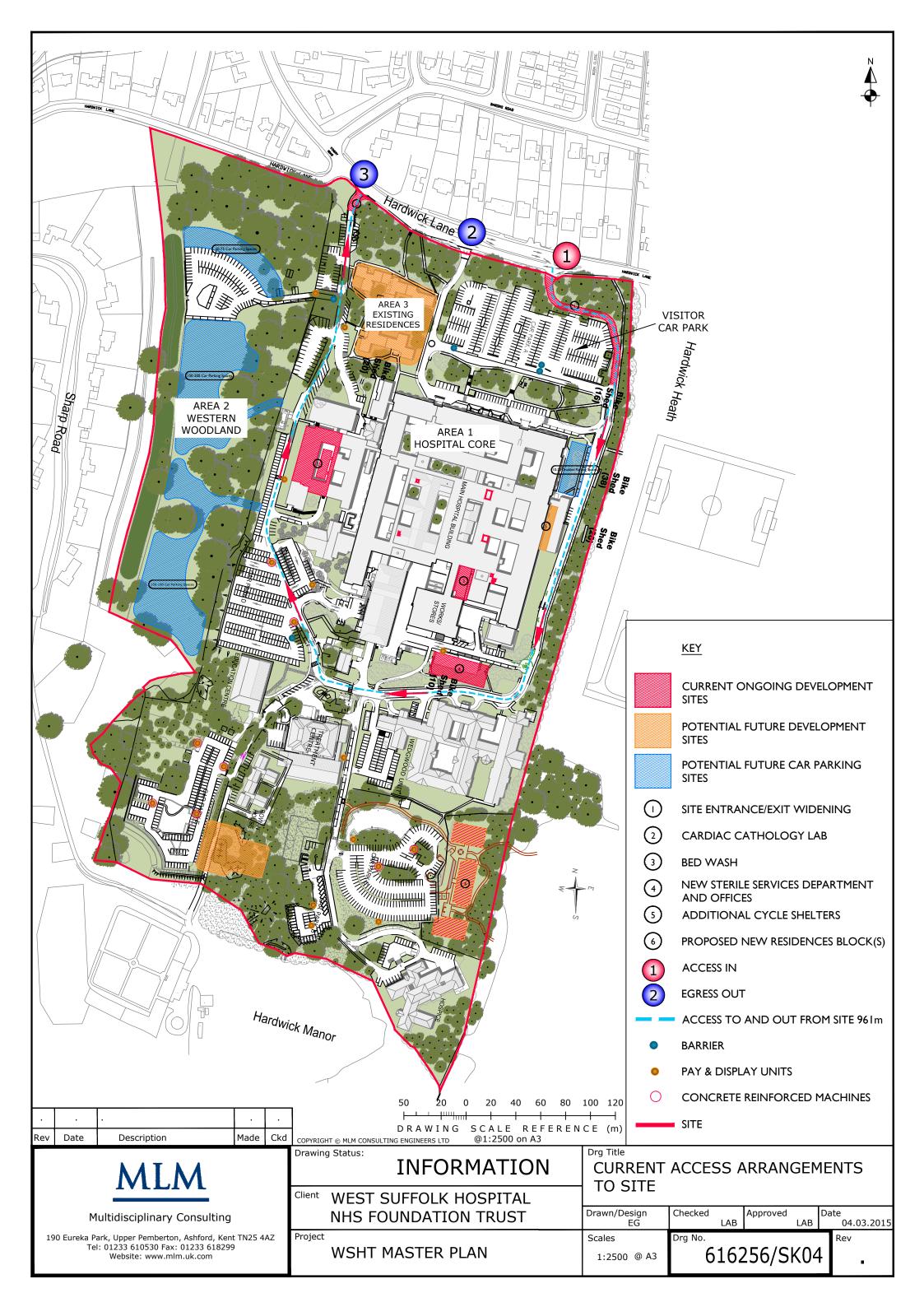
#### 5 Conclusions

- 5.1 MLM Consulting Engineers have been commissioned by the West Suffolk Hospital NHS Trust to provide a Transport Statement (TS) associated with the proposal to provide a Masterplan to ensure health care services to the local community are managed over the next 15 years. The Masterplan is to address accommodation, on site services and also to provide car parking for patients close to their specialist outpatient units. The provision of more staff parking to accommodate an increase in staffing numbers over the next few years, patient demand due to demographic changes, provision for on site changes and the redevelopment and maintenance of the buildings and grounds respectively.
- 5.2 Baseline traffic numbers have been provided, based on car parking provision on site, based on 24 hour electronic data collated from the in and out barriers to the site.
- 5.3 Based on current car parking data and site visits, not only is the car parking provision on site at capacity, but unauthorised parking also occurs in the area. Off site parking takes place, on road, on local estate roads. The hospital also uses an off site parking area at the local rugby club to provide free parking for up to 150 car drivers.
- 5.4 The proposed increase in car parking provision of just over 400 spaces has also been calculated, based on staffing numbers, staff and visitors to the hospice, on site nursery unit and all drivers that enter and leave via the barrier control system.
- 5.5 The majority of the new car parking provides a facility for vehicles, which are already parked in the area hence an increase in on site travel by car will not make a material increase on local junctions. The exit barriers to the car parks also provide a throttle to vehicles gaining access onto the highway.

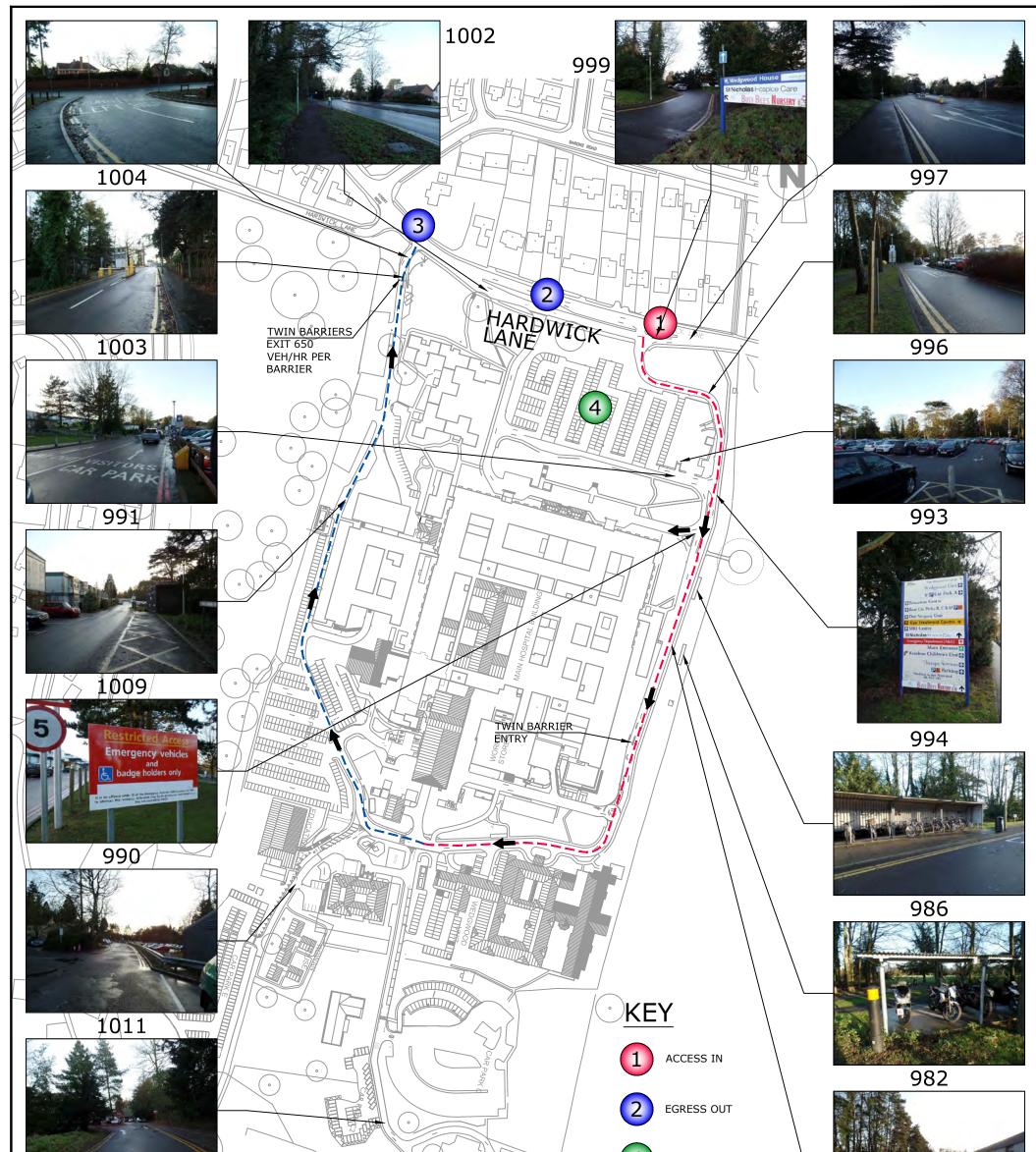
- 5.6 The hospital trust have a Travel Plan that accompanies the Masterplan that sets out various actions and targets to mitigate the impacts. They include reviewing car parking charges, allocating car share spaces, allocating parking spaces close to patients outpatient clinic. The document provides guidance to the planning authority that the development will not make any impact on the local road network. West Suffolk Hospital has an excellent travel plan in place which is likely to reduce trips by car.
- 5.7 Overall it has been demonstrated that the development, will have a neutral impact in traffic terms and also is likely to reduce on road parking in the area. Hence as the impacts are low therefore in National Planning Policy Framework policy terms there is a presumption in favour of the development.

Location Plan and Proposed Development





Existing On Site Network



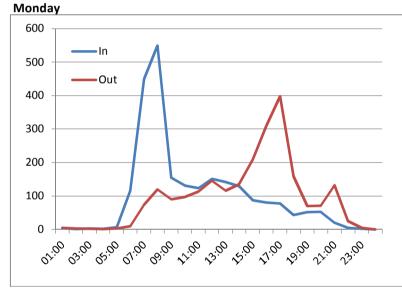
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	MLM			Drawing Status:	CURRENT ACCESS ARRANGEMENTS
				Client WEST SUFFOLK HOSPITAL	
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190 Eureka Park, Upper Pemberton, Ashford, Kent TN25 4AZ Tel: 01233 610530 Fax: 01233 618299 Website: www.mlm.uk.com				WSHT MASTER PLAN	Scales Drg No. Rev 1:2500 @ A3 616256/SK05

On Site Car Park Data

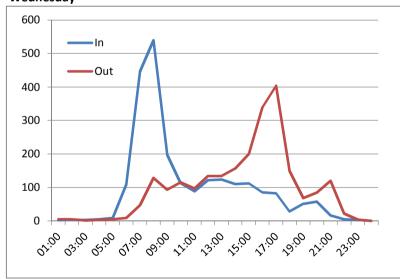
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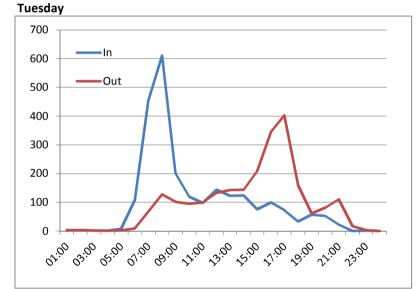
**Existing Car Parking** 

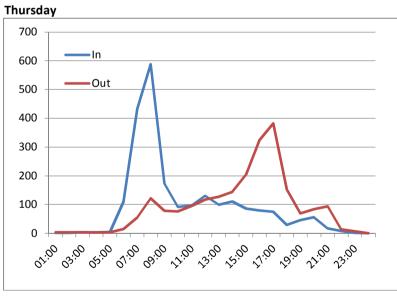
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	3	0	03:00	3	2	2	1	3	1	3	3	2	3
	4	0	04:00	2	1	1	1	5	3	4	2	4	1
	5	0	05:00	7	3	8	2	9	5	5	4	10	2
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	-	0	07:00	449	74	454	67	447	47	432	55	410	47
	8	0	08:00	549	120	610	127	539	128	588	122	504	112
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1	6	0	16:00	81	309	99	344	85	339	79	324	96	305
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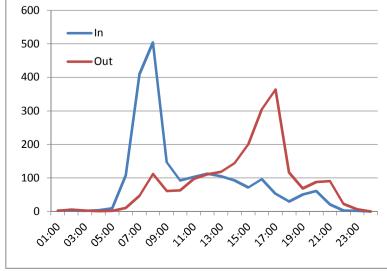


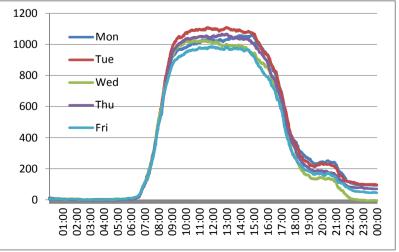




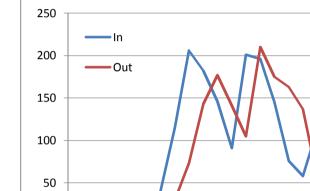
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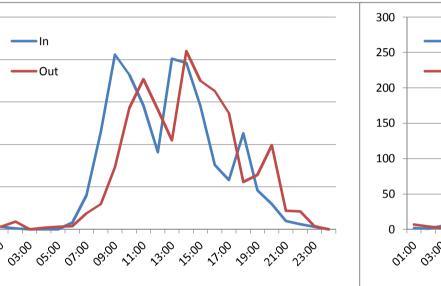
Friday

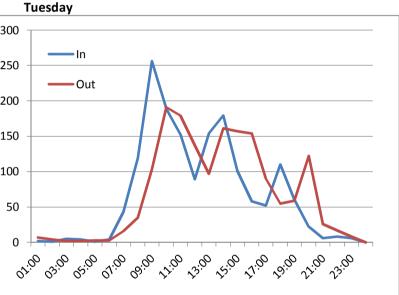




Car Park	Car Park A - Visitor		Mon	Mon			Wed		Thu		Fri	
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14		0 14:0	0 196	5 210	179	161	175	161	167	140	155	143
1		0 15:0	0 145	175		157	108	155	138	157	73	138
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18	8	0 18:0	0 113	56	110	55	99	52	104	63	103	36
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20	C	0 20:0	0 30	) 99	22	122	19	101	23	112	28	104
2	1	0 21:0	0 10	) 22	6	26	13	32	11	28	9	30
22	2	0 22:0	0 6	5 21	8	17	5	15	5	19	3	17
23	3	0 23:0	0 3	4	6	8	3	7	2	12	4	14
24	4	0 00:0	0 0	0 0	0	0	0	0	0	0	0	0
Monday							Tuesday					



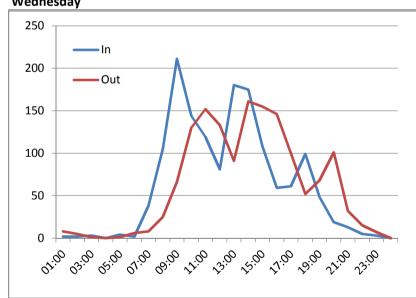


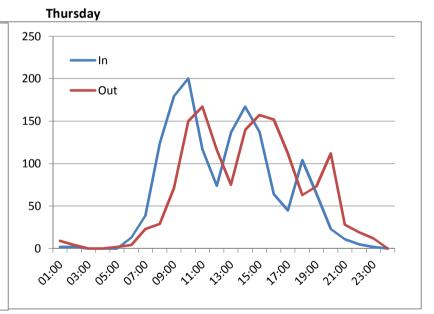




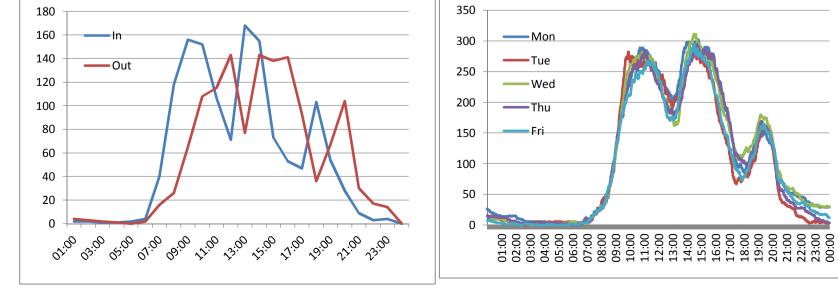
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01:00

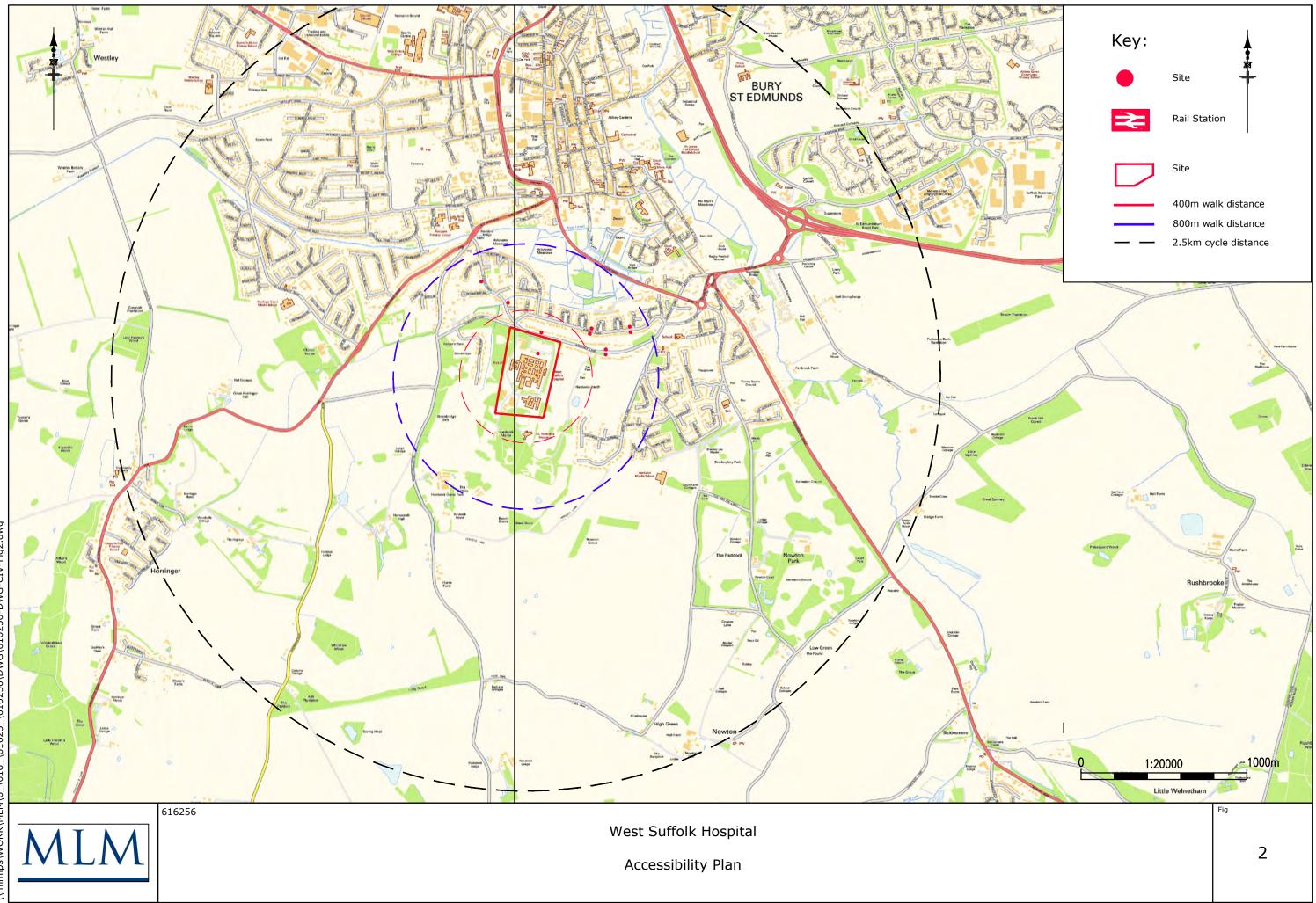








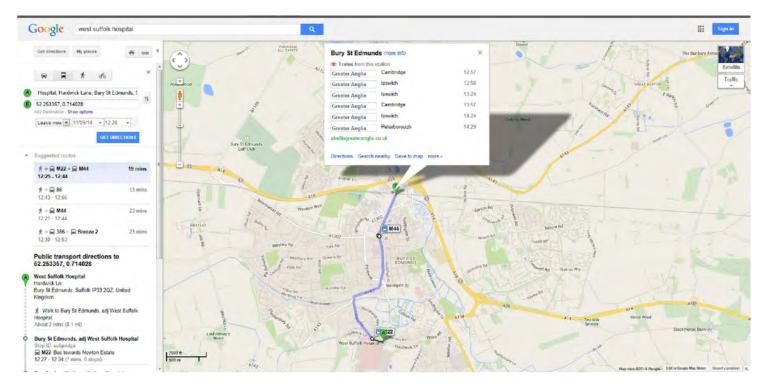
Accessibility Plan



Public Transport

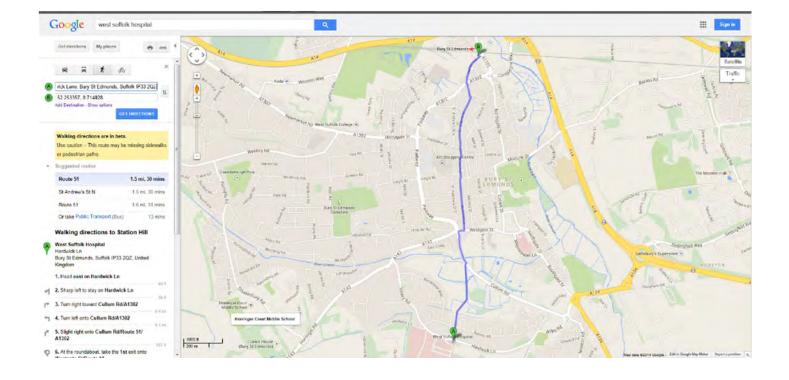
#### Rail

There is one train station nearest the hospital in West Suffolk, this is St Edmunds train station. The journey from the train station to the hospital can take anything from 19 minuites to 23 minuites depending on traffic, walking to the hospotal from here is 1.5 miles and can take minimum half an hour from the train station.



#### Transport from the Train station to the Hospital.

#### Walking from the Train station to the Hospital

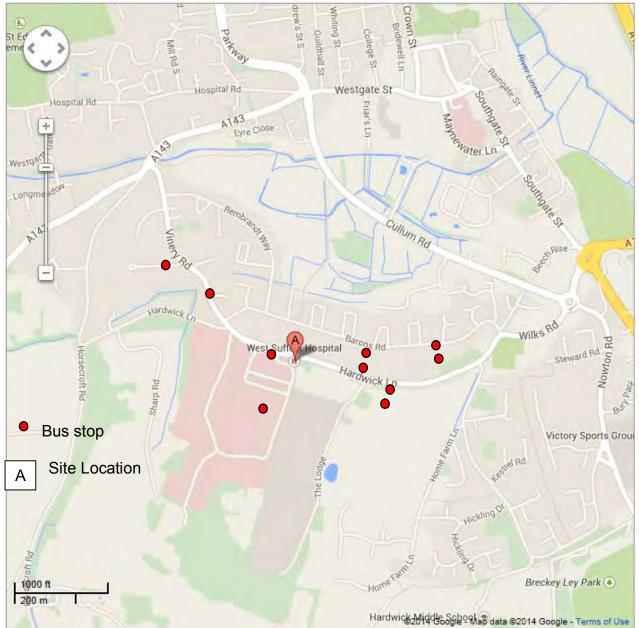


#### Bus Services near to the West Suffolk Hostpital

The nearest bus stops to the site are within 800m and come from Bury St Edmunds, bus station. The bus frequency table is shown below for these services – 82, 84, 86, M11 and M22. For further information on the service providers and timetables visit the web site from the service providers.

#### **Local Bus Services**

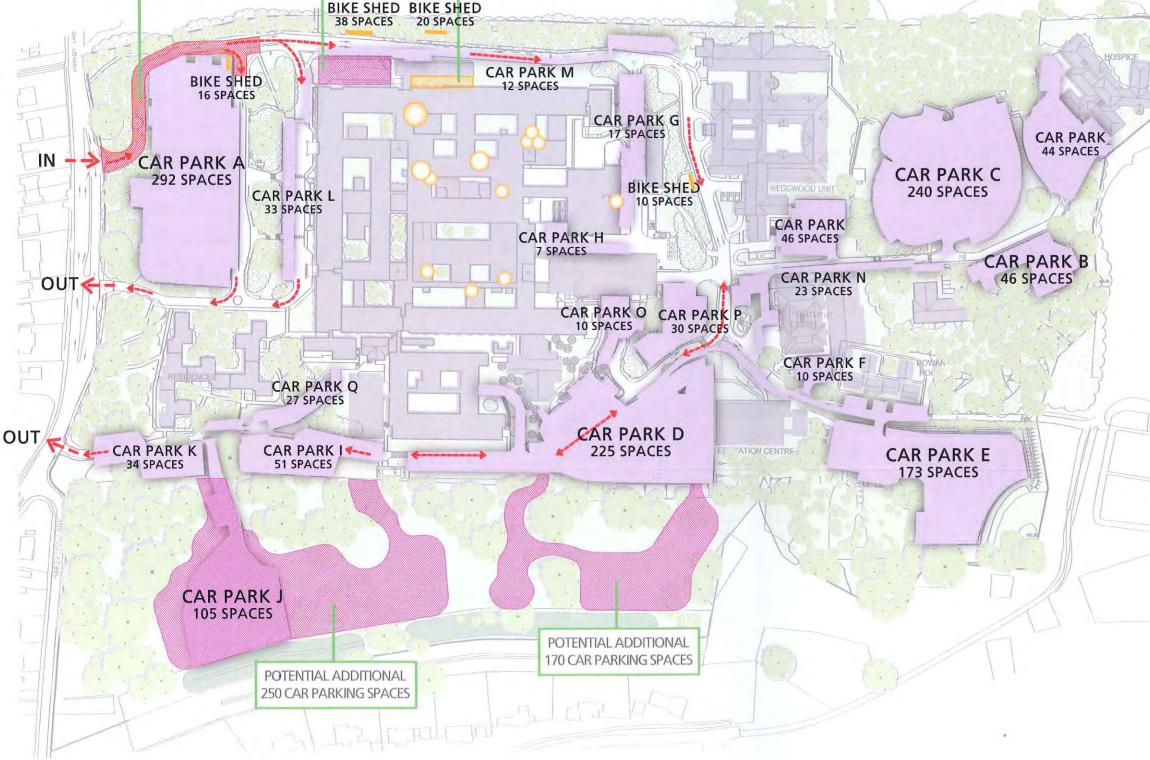
Bus stop location	Route No	Route	Frequency
CS Coach Services	82	Bury St Edmunds, Bus station – Bury St Edmunds West Suffolk Hospital- Bury St Edmunds, Bus station.	Sunday 9:30am- 17:30pm (every 30mins)
CS Coach Services	84	Thetford, Barclay close – Bury St Edmunds, West Suffolk Hospital.	Mon- Fri 07:15am- 18:15pm Generally one (every hour)
CS Coach Services	86	Brandon, Kestrel Drive- Bury St Edmunds, West Suffolk Hospital	Mon- Fri 07:45am- 17:45pm Generally one (every hour)
Mulleys Bus Company	M11 & M22	Bury St Edmunds, Bus station- Bury St Edmunds, West Suffolk Hospital- Bury St Edmunds, West Suffolk Hospital.	Mon- Fri 07:33am- 18:34pm One (every hour)



Car Parking Architects Layout

# EXISTING VEHICLE PARKING Marking Spaces POTENTIAL ADDITIONAL COLOR PARKING Spaces POTENTIAL VEHICLE PARKING POTENTIAL CYCLE STORAGE POTENTIAL ROAD IMPROVEMENT POTENTIAL VEHICLE PARKING POTENTIAL ROAD IMPROVEMENT POTENTIAL ROAD IMPROVEMENT





PROPOSED SITE ENTRANCE

WIDENING FOR FULL 2 LANES

POTENTIAL 10-20 DISABLED

CAR PARKING SPACES

POTENTIAL NEW SECURE

CYCLE STORE AREA







The vast majority of staff work at the Hardwick Lane site. The hospital also receives a large number of visitors each day and car parking provision is at capacity.



#### TRAVEL PLAN In 2014 a new Travel Plan was prepared and adopted by

the Trust, replacing former plans from 2005 and 2010. This current version has been included in a recent application to build replacement staff/student residences on site and will be a key element in the Masterplan exercise.

#### SUSTAINABLE TRAVEL

The infrastructure has already been put in place and actions taken on more sustainable travel include: - Promotion of a car sharing scheme

- Provision of 134 cycle storage spaces
- Participation in the Department of Transport tax efficient cycle purchase scheme
- Introduction of car parking charges for staff to encourage alternative means of travel
- Travel advice for new staff members
- Leased car scheme favouring low emission cars
- On site bus stop
- Participations in national walk to work week

#### Traffic alleviation measures:

- Dedicated car parking for car sharers
- Lease of 150 car parking spaces at Bury St Edmunds Rugby Club and introduction of a shuttle bus to and from the hospital
- Use of bollards to control irregular parking in areas other than defined spaces
- Widening of the rear site exit into two lanes to improve traffic flows
- Introduction of a one way system to improve traffic flow within the site
- Introduction of longer visiting hours to spread late afternoon visits over a longer period

# Looking Forward-three areas have been identified for future promotion:

- Improved cycle facilities, route and pedestrian signage to encourage more walking and cycling
- Improved bus routes, timetable and display of public transport information in the hospital
- A re-launch of the staff car sharing scheme

#### A D D I T I O N A L P A R K I N G Additional parking provision is required for the following reasons:

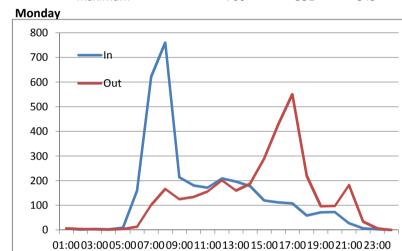
- 1. To allow the Trust to address visitor parking availability
- 2. To allow the Trust to increase blue badge spaces
- To allow the Trust tolerance to enforce unauthorised parking
- 4. To provide tolerance for increased Trust activity and staff numbers
- 5. To provide site tolerance in support of construction and refurbishment projects.

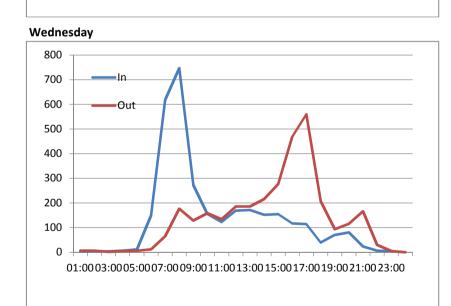
West Suffolk NHS Foundation Trust

Future Traffic Flows

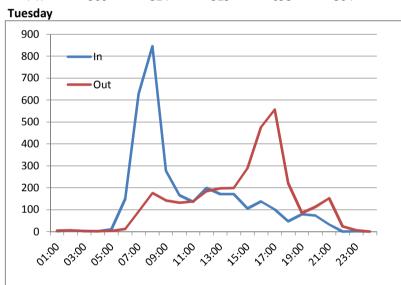
#### \\mlmips\WORK\MLM\6\_\616\_\61625\_\616256\CALC\[616256-CALC-CIV-CarPark-Weekly-Movement.xlsx]S-Summary Increase

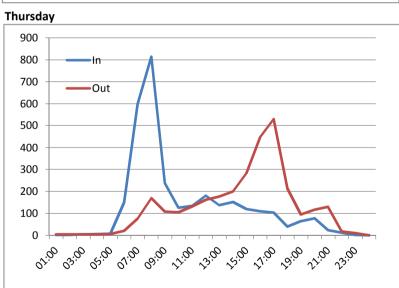
Net increas	e in parkin	g is =		417	The existin	g is =	1383	-	300	in Visitor o	ar park	Factor =	1.385042
Car Park S	Car Park S (Staff)			Mon Tue		Tue	e Wed		Thu			Fri	
hour	min	Time		In	Out	In	Out	In	Out	In	Out	In	Out
1	(	) (	01:00	6	7	1	4	3	7	1	4	4	3
2	(	) (	02:00	1	4	4	6	4	7	1	4	4	8
3	(	) (	03:00	4	3	3	1	4	1	4	4	3	4
4	(	) (	04:00	3	1	1	1	7	4	6	3	6	1
5	(	) (	05:00	10	4	11	3	12	7	7	6	14	3
6	(	) (	06:00	161	14	150	12	150	12	151	21	148	15
7	(	) (	07:00	622	102	629	93	619	65	598	76	568	65
8	(	) (	08:00	760	166	845	176	747	177	814	169	698	155
9	(	) (	09:00	213	125	278	141	273	129	240	108	204	84
10	(	)	10:00	181	134	165	132	155	159	126	105	129	87
11	(	)	11:00	172	157	136	137	122	134	134	132	143	134
12	(	)	12:00	209	202	199	184	169	186	181	162	157	154
13	(	)	13:00	197	161	170	198	172	186	137	176	145	163
14	(	)	14:00	179	187	172	199	152	216	152	199	129	199
15	(	)	15:00	120	289	105	289	155	277	119	283	100	278
16	(	)	16:00	112	428	137	476	118	470	109	449	133	422
17	(	)	17:00	108	551	101	557	115	560	104	529	73	504
18	(	)	18:00	60	220	47	220	39	206	40	213	42	162
19	(	)	19:00	72	97	79	84	71	94	64	96	71	96
20	(	)	20:00	73	98	73	112	80	116	78	116	84	122
21	(	) :	21:00	28	183	32	152	24	166	24	130	29	126
22	(	) :	22:00	7	35	0	24	7	30	11	18	4	32
23	(	) :	23:00	3	7	1	6	4	6	1	10	3	10
24	(	)	00:00	0	0	0	0	0	0	0	0	0	0
	maximum	=		760	551	845	557	747	560	814	529	698	504





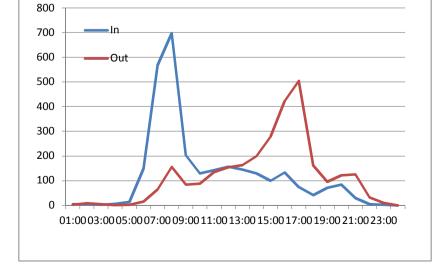
Friday

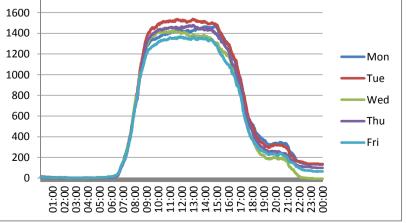












Car Park S	(Staff)		Mon		Tue		Wed		Thu		Fri		
hour	min	Time	In	Out	In	Out	In	Out	In	Out	In	Out	
1	0	01:00	) 4	5	1	3	2	5	1	3	3	2	
2	0	02:00	0 1	3	3	4	3	5	1	3	3	6	
3	0	03:00	3	2	2	1	3	1	3	3	2	3	
4	0	04:00	2	1	1	1	5	3	4	2	4	1	
5	0	05:00	7 (	3	8	2	9	5	5	4	10	2	
6	0	06:00	0 116	10	108	9	108	9	109	15	107	11	
7	0	07:00	0 449	74	454	67	447	47	432	55	410	47	
8	0	08:00	549	120	610	127	539	128	588	122	504	112	
9	0	09:00	0 154	90	201	102	197	93	173	78	147	61	
10	0	10:00	0 131	97	119	95	112	115	91	76	93	63	
11	0	11:00	0 124	113	98	99	88	97	97	95	103	97	
12	0	12:00	0 151	146	144	133	122	134	131	117	113	111	
13	0	13:00	0 142	116	123	143	124	134	99	127	105	118	
14	0	14:00	0 129	135	124	144	110	156	110	144	93	144	
15	0	15:00	87	209	76	209	112	200	86	204	72	201	
16	0	16:00	81	309	99	344	85	339	79	324	96	305	
17	0	17:00	78	398	73	402	83	404	75	382	53	364	
18	0	18:00	0 43	159	34	159	28	149	29	154	30	117	
19	0	19:00	52	70	57	61	51	68	46	69	51	69	
20	0	20:00	53	71	53	81	58	84	56	84	61	88	
21	0	21:00	20	132	23	110	17	120	17	94	21	91	
22	0	22:00	5	25	0	17	5	22	8	13	3	23	
23	0	23:00	2	5	1	4	3	4	1	7	2	7	
24	0	00:00	0 0	0	0	0	0	0	0	0	0	0	

Net Change (Increase in movements).

Car Park S (Stat		Mon		Tue	Tue		Wed			Fri		
nour min	-	Time	In	Out	In	Out	In	Out	Thu In	Out	In	Out
1	0			2	0	1	1	2	0	1	1	1
2	0	02:00	0	1	1	2	1	2	0	1	1	2
3	0	03:00	1	1	1	0	1	0	1	1	1	1
4	0	04:00	1	0	0	0	2	1	2	1	2	0
5	0	05:00	3	1	3	1	3	2	2	2	4	1
6	0	06:00	45	4	42	3	42	3	42	6	41	4
7	0	07:00	173	28	175	26	172	18	166	21	158	18
8	0	08:00	211	46	235	49	208	49	226	47	194	43
9	0	09:00	59	35	77	39	76	36	67	30	57	23
10	0	10:00	50	37	46	37	43	44	35	29	36	24
11	0	11:00	48	44	38	38	34	37	37	37	40	37
12	0	12:00	58	56	55	51	47	52	50	45	44	43
13	0	13:00	55	45	47	55	48	52	38	49	40	45
14	0	14:00	50	52	48	55	42	60	42	55	36	55
15	0	15:00	33	80	29	80	43	77	33	79	28	77
16	0	16:00	31	119	38	132	33	131	30	125	37	117
17	0	17:00	30	153	28	155	32	156	29	147	20	140
18	0	18:00	17	61	13	61	11	57	11	59	12	45
19	0	19:00	20	27	22	23	20	26	18	27	20	27
20	0	20:00	20	27	20	31	22	32	22	32	23	34
21	0	21:00	8	51	9	42	7	46	7	36	8	35
22	0	22:00	2	10	0	7	2	8	3	5	1	9
23	0	23:00	1	2	0	2	1	2	0	3	1	3
24	0	00:00	0	0	0	0	0	0	0	0	0	0
maximum =			211	153	235	155	208	156	226	147	194	140

Assume '1/3 more during the peak =

417 / 3

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