Appendix D

Land to the West of Twerton
Evaluation

D1 Land to the West of Twerton

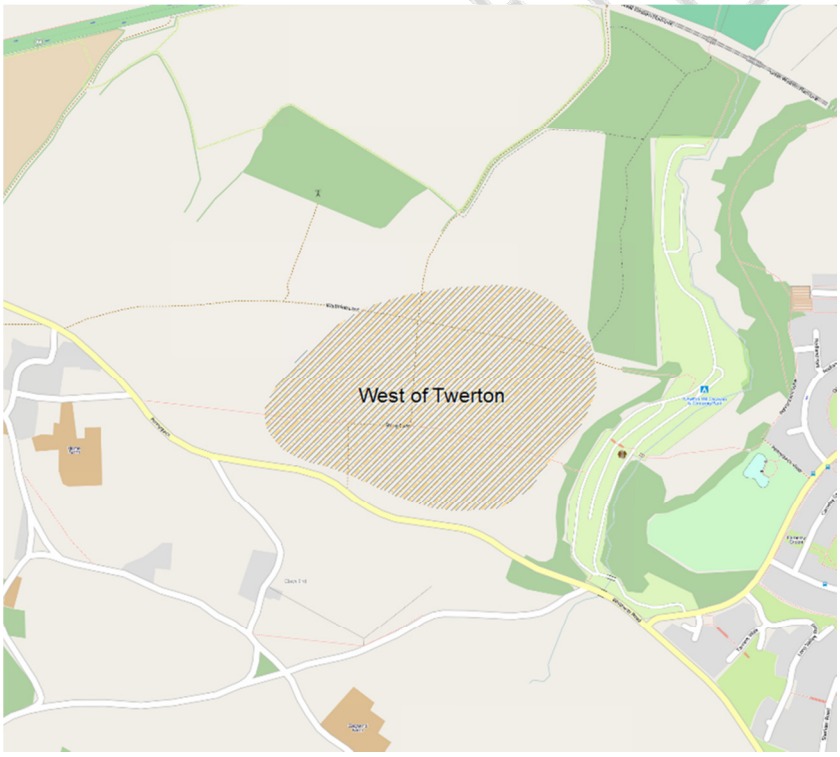
D1.1 Overview

This location is located on slopes facing towards the city and enclosed within the 'bowl' of the city. The historic areas of Newton St Loe to the south west and Kelston Park to the north are high quality landscapes are deemed important in the setting of the World Heritage Site and sensitive to development.

Local variations in landscape character exist and Pennyquick Lane forms a boundary to the character of the fields and slopes which define this location area and the contrasting character of Newton St Loe to the south west of this road. Likewise, the river corridor and flood plain to the north, with the valley containing Newton Brook to the east of this location form a landscape 'gap' to the west of the city which are strongly perceived from a range of receptors in and around the area.

This location is relatively isolated with the majority of local amenities located in Twerton.

Figure 17: Land to the West of Twerton Location



D1.2 Census (2011) Mode Share Review

A review of the recently released journey to work information for the ward indicated the following mode share. The results have been ranked to compare the mode share with other B&NES wards and against each of the other locations evaluated.

Table 50: Census Mode Share Review, Bathavon West Ward, Bath[29]

Mode	Percentage of Journeys to Work	Ward rank within B&NES (of 37)	Ward rank amongst locations examined (of 8)
Walk	9%	23	6
Cycle	2%	27	7
Bus	9%	8	2
Train	3%	21	7
Car as driver	68%	20	6
Car as passenger	6%	The overall impact of these modes on trip generation from each location is negligible and ward to ward differences between these modes are measures in tenths of percentages. Rankings were therefore not calculated.	
Taxi	0%		
Motorcycle	1%		
Other Public Transport	0%		
Other	2%		
Total	100%	N/A	N/A
Of which sustainable[30] modes account for:	23%	22	7

Modal use is equally split in Bathavon West is predominantly car based (68%) which is the sixth highest of the wards examined in this study.

In total just 23% of residents travel by sustainable modes which ranks seventh of the wards examined. This is despite the ward ranking second for bus use at 9% of journeys to work (four of the eight wards have bus use at 9%).

D1.3 Sustainable Transport

D1.3.1 Walking

This locations rural setting offers opportunities to utilise the existing public rights of way network which crosses this location. However, in terms of undertaking walking trips for access to employment or other local amenities there is limited opportunities from the development area. No footways are provided along Pennyquick the primary highway providing access to this location and nearby Newton Saint Low. Should this location come forward for development careful consideration would have to be given to pedestrian facilities.

ACCESSION analysis indicates that within 20 minutes it is possible to walk to Newton St Loe and to the western extant of Twerton however significant pedestrian improvements would be required along key routes to facilitate walking trips. Should this location come forward careful consideration of linkages to established walking networks should be given.

[29] Table excludes "work from home" and "not in employment" as these modes do not impact on the modal choice for off-site trips.
[30] Sustainable modes are considered to be walk, cycle, bus, rail, other public transport.

D1.3.2 Cycling

Similar to the pedestrian networks there is a lack of dedicated cycling facilities adjacent to this location. However Pennyquick does offer opportunities for good cycle access into Newton St Loe, Twerton and central Bath. National Cycle Route 4 is located approximately 1km to the north of the study area. NCN 4 offer traffic free routes links to Bristol and Bath.

ACCESSION analysis indicates that central Bath can be reached in less than 20 minutes. Linkages to the NCN should be considered if this location is brought forward.

D1.3.3 Public Transport

The bus services operating within the vicinity of this location are indicated in Table 51.

Table 51: Bus Services Operating within 400m, Land to the West of Twerton

Service No.	Route	Frequency (two way)	Bus Stop Location
5	Bath-Twerton-Bath	15 mins	Newton Road

There are no public transport services currently serving this location, however the No 5 operates within close proximity.

ACCESSION analysis indicates that:

- Central Bath cannot currently be reached within 30 minutes.
- It is possible to travel to Lower Weston and Odd Down within 30 minutes.
- The distance of this location from Oldfield Park and Bath Spa rail station indicates that rail travel from this location is less attractive than other modes.

Should this location come forward it may be possible to extend the existing No 5 from this location into Bath although the relatively small number of residences on this location may make an extension commercially unattractive. This location would require new bus stop facilities either along Pennyquick.

D1.4 Highway Impact

D1.4.1 Access

The only access to the area is from Pennyquick Lane which is constrained as the highway climbs the hill from the direction of Twerton having crossed the Newton Brook. Access could be provided from a number of locations along Pennyquick with the highway alignment affording good visibility for the length of the development area.

Pennyquick provides access to the A4 and A39 via a roundabout junction 0.6km to the north-west of this location. Journeys to Bristol, South Gloucestershire and Keynsham would use this route to travel west. This is also the most likely route into central and northern Bath from the development location as it affords the shortest journey times. Trips to the south and south-west of Bath would travel

along Pennyquick/Whiteway Road/Rush Hill towards Odd Down and Combe Down.

D1.5 Vehicular Trips

Vehicular trip generation has been based on 300 residences, of which 35% are affordable homes. A car modal share of 69% has been assumed based on the Bathavon West ward.

Table 52: Peak Hour Trip Generation

Offsite Trips	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
Vehicles	35	113	115	66

D1.5.1 Destination and Assignment

The distribution of vehicular trips has been calculated using the Bathavon West ward and are shown in Table 53.

Table 53: Distribution of Car Trips from Bathavon West Ward

Destination	Percentage of Vehicular Trips
Bath	36%
Keynsham	1%
Midsomer Norton/Radstock/Westfield	6%
Other B&NES	25%
City of Bristol	11%
South Gloucestershire	5%
Somerset	3%
Wiltshire	6%
Other	7%
TOTAL	100%
Contained with B&NES	68%

The Bathavon West ward has the lowest percentage of residents working in Bath of the four "edge of Bath" locations considered in the study. Containment with B&NES is relatively high at 68% but with these trips dispersed across the authority the car is the most likely mode of travel to work.

Trips into Bath have been distributed so that 35% route via A36 Lower Bristol Road, with 26% using the A4 Newbridge Road and 39% routed along Pennyquick/Whiteway Road/Rush Hill. Assignment of vehicular trips has been undertaken and this identifies the following key impacts:

- In total, Lower Bristol Road is forecast to experience an additional 35-45 two-way trips in peak hours, Pennyquick (east of this location) an additional 30-40 trips and the A4 Newbridge Road an additional 15 trips.
- Trips to Bristol, Keynsham and South Gloucestershire are forecast along the A4 resulting in 25-35 vehicular trips per hour in peak times.

- There are an additional 30-35 trips through Corston on the A39 in peak hours.

Table 54: Additional Vehicular Trips Resulting from Development

Highway/Area	AM Peak Hour				PM Peak Hour			
	NB	SB	EB	WB	NB	SB	EB	WB
A4 Newbridge Road			11	3			6	11
A4 East of Saltford			8	27			28	15
A36 Lower Bristol Road (W)			27	8			16	28
Pennyquick (East of access)			23	8			14	25
A39 Corston	7	22			23	13		
A3062 Bradford Road			8	3			5	8
Broad Quay	11	3			6	11		
A4 Bath Road to/from Bristol			3	10			11	6
A4174 Ring Road	8	3			4	8		

D1.5.2 Changes in Volume and Capacity

The potential impact of development in terms of percentage increase in 2029 traffic volumes has been calculated. In percentage terms the impact of development is forecast to be most significant along the A39 through Corston and along the Pennyquick and the A36 Lower Bristol Road into Bath. There is negligible impact forecast on Bradford Road, A4 or A4174 Ring Road.

Table 55: Increase in Vehicular Trips as Proportion of 2029 Background Traffic

Highway/Area	AM Peak Hour				PM Peak Hour			
	NB	SB	EB	WB	NB	SB	EB	WB
A4 Newbridge Road			1%	0%			0%	1%
A4 East of Saltford			1%	2%			2%	1%
A36 Lower Bristol Road (W)			4%	1%			2%	3%
Pennyquick (East of access)			3%	1%			1%	4%
A39 Corston	1%	7%			6%	2%		
A3062 Bradford Road			1%	0%			1%	1%
A4 Bath Road to/from Bristol			0%	0%			1%	0%
A4174 Ring Road	1%	0%			0%	0%		

Highway link volume/capacity ratio has been calculated for key links in the study area in the future assessment year. This identifies potential congestion and delays as a result of insufficient link capacity along the A4 through Saltford and along A4 Newbridge Road. Pennyquick is identified as being close to capacity in the PM peak hour.

Table 56: Volume/Capacity on Link, With-Development 2029

Highway/Area	AM Peak Hour				PM Peak Hour			
	NB	SB	EB	WB	NB	SB	EB	WB
A4 Newbridge Road			48%	75%			102%	49%
A4 East of Saltford			110%	77%			86%	91%
A36 Lower Bristol Road (W)			46%	46%			45%	59%
Pennyquick (East of access)			69%	63%			93%	63%
A367 Wells Road	52%	26%			33%	59%		
A3062 Bradford Road			66%	48%			56%	59%
A4 Bath Road to/from Bristol			33%	67%			43%	51%
A4174 Ring Road	35%	49%			36%	57%		

Table 56 shows that the impact of development is likely to be confined to Pennyquick between the A39/A4 roundabout and Odd Down, with increases in traffic along the A39 not significant in terms of link capacity.

D1.5.3 Potential for Mitigation

An initial evaluation of highway infrastructure and transport services has been undertaken to identify potential measures and constraints along key highways.

- Any development in the area should provide pedestrian connections to Newton Saint and Newton Road (Twerton) via internal routes and footway improvements along Pennyquick.
- New bus stops could be provided along Pennyquick.
- There is little scope for widening of Pennyquick/Rush Hill to provide additional link capacity within the existing highway boundary. Junctions along Pennyquick/Whiteway Road/Rush Hill may require modifications to improve highway capacity. This could include modifications to the A39/A4/Pennyquick roundabout to create extra capacity.
- The maximum quantum of development on this location is 300 units. Expansion of Newbridge P&R site could facilitate traffic reductions on the A4 and A36 corridors of sufficient volume to any impact resulting from development.

There is little scope for new public transport services or other measures to encourage modal shift to sustainable travel due to the isolated location.

D1.6 Conclusions

The ward is one of the least sustainable examined in this study and the areas location isolates it from employment areas, education and retail facilities. Existing bus services are relatively poor in comparison to other greenfield locations and the quantum of development is considered insufficient to support additional services. Furthermore the development area is more than 30-minutes bus travel time from Bath city centre and this is considered uncompetitive with the car.

Walking and cycling facilities are not currently provided in the area and distances to services would deter most users. Sustainable travel modes are therefore not considered attractive to a significant number of commuters.

The vehicular impact of development is largely confided to Pennyquick and the A39 through Corston. Pennyquick is forecast to operate close to capacity in the future year (2029 PM peak hour) and there is little scope for mitigation north of this location.

Overall development of this location is likely to result in car dependant behaviour due to the isolation of this location from Bath and a lack of established sustainable transport infrastructure and services. The highways impacts of development are not considered significant although Pennyquick is forecast to operate close to capacity in future years.