



*i*transport statement

Proposed 20 Dwellings Development
Land of the Former Bryntaf Garage
Bryntaff
Merthyr Tydfil

Executive Summary.....	3
Road Map & Contents.....	4
1.0 Introduction	5
2.0 References & Methodology	7
3.0 Existing Conditions & Accessibility.....	9
4.0 Development Proposals.....	18
5.0 Impact & Mitigation	25
6.0 Summary & Conclusions	28

DOCUMENT QUALITY CONTROL		DOCUMENT REF: 950-TS	
 	Revision	3	Digitally signed
	Originated	SW	
	Reviewed	RAH	
	Authorised	AW	
	16 March 2021		

CONTACT Dr Amer Halabi PhD MBA FCIHT FAPM MIOD FFB BEng(Hons)

☎ 0845 47 48 851 ✉ itransportplanning@outlook.com 🌐 www.iprtgroup.com

COPYRIGHT – ALL RIGHTS RESERVED

iPRT © Group Ltd (iPRT) and all its subsidiary companies disclaim any responsibility to the Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence within the terms of the Contract with the Client and generally in accordance iPRT's Terms and Conditions and taking account of the manpower, resources, investigations and testing devoted to it by agreement with the Client. This report is confidential to the Client and iPRT accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

Unless explicitly stated otherwise, all rights including those in copyright in the content of this document are owned by or controlled for these purposes by iPRT.

Except as otherwise expressly permitted under copyright law or it's Terms of Use, the content of this document may not be copied, reproduced, republished, downloaded, posted, broadcast or transmitted in any way without first obtaining it's written permission or that of the copyright owner.

Where the documents exist that are the responsibility of individual authors, the views contained within said documents do not necessarily represent the views of iPRT.

©iPRT Group Ltd 2021



- i. iTransport Planning, a specialist member of iPRT Group of companies, has been commissioned by the Applicant to provide a Transport Statement Analysis (Analysis) for the proposed 20 dwellings, 4 terraced blocks, on the land of the former Bryntaf Garage, Bryntaf, Merthyr Tydfil, google maps link <https://bit.ly/3rtZ8EZ> (Figure 1.1).
- ii. The Application site is located in a well-established residential area; bus services are adequately serving the local community and the site is accessible on foot and by cycle.
- iii. Taking into consideration that the relatively small scale and nature of the development and existing site use, any nearby committed developments or highway network changes will have no impact on the findings of this Analysis.
- iv. It is anticipated that the development would attract the usual servicing requirements such as refuse collection, post and stationery; the development design and layout allows for all movements and manoeuvres to take place within the site – vehicles will be able to enter and egress in forward gear.
- v. Car and cycle parking are provided having regards to Merthyr Tydfil County Borough Council parking standards..
- vi. Due to the limited scale of development, a Travel Plan would not be of value however, a Welcome Pack is recommended to promote and enhance the sustainability and accessibility of the site.
- vii. The Analysis has therefore demonstrated that:
 - Total person trips can be accommodated within the existing infrastructure;
 - Improvements to the site access, including a provision for TROs are proposed which results in betterment over existing conditions; and
 - The development proposal does not result in an unacceptable impact on highway safety or a residual cumulative impact on the road network that is severe.
- viii. It is concluded that the proposed development meets all safety and Planning Policy requirements and will have no material impact onto the highway network and as such, there are no transport / highways reasons for refusal of planning permission.

Chapter 1

- Introduction
- Development Proposals
- Site Location

Chapter 6

- Summary & Conclusions

Chapter 5

- Multi-Modal Development Impact
- Preliminary Mitigation Proposals (if applicable)
- Travel Plan / Welcome Pack recommendations
- Residual Impact

Chapter 2

- Scoping Study (if undertaken)
- Guidance & Methodology

Chapter 4

- Development Proposals
- Movement & Accessibility Strategy
- Access Arrangements & Visibility Splays
- Parking Provision & Servicing Arrangements
- Trip Generation & Multi-Modal analysis

Chapter 3

- Existing Highway Conditions
- Non-Motorised Accessibility
- Committed Developments & Highway Network Changes
- Personal Injury Incidents (if undertaken)



Chapter 1

- Introduction
- Development Proposals
- Site Location



- 1.1 iTransport Planning, a specialist member of iPRT Group of companies, has been commissioned by the Applicant to provide a Transport Statement Analysis (Analysis) for the proposed 20 dwellings, 4 terraced blocks, on the land of the former Bryntaf Garage, Bryntaf, Merthyr Tydfil, google maps link <https://bit.ly/3rtZ8EZ> (Figure 1.1).

SITE LOCATION



Figure 1.1
Illustrative site location



Chapter 2

- Scoping Study *(if undertaken)*
- References & Guidelines

- 2.1 This Analysis is in line with the Road Map and Contents on Page 4, comments from Merthyr Tydfil Council of 13th Jan 2021 and will in summary include:

Chapter 3

- A high-level review of the existing highway conditions;
- Site connectivity, accessibility and sustainability; and
- Consideration of any committed developments and associated highway network changes in the immediate vicinity of the site.

Chapter 4

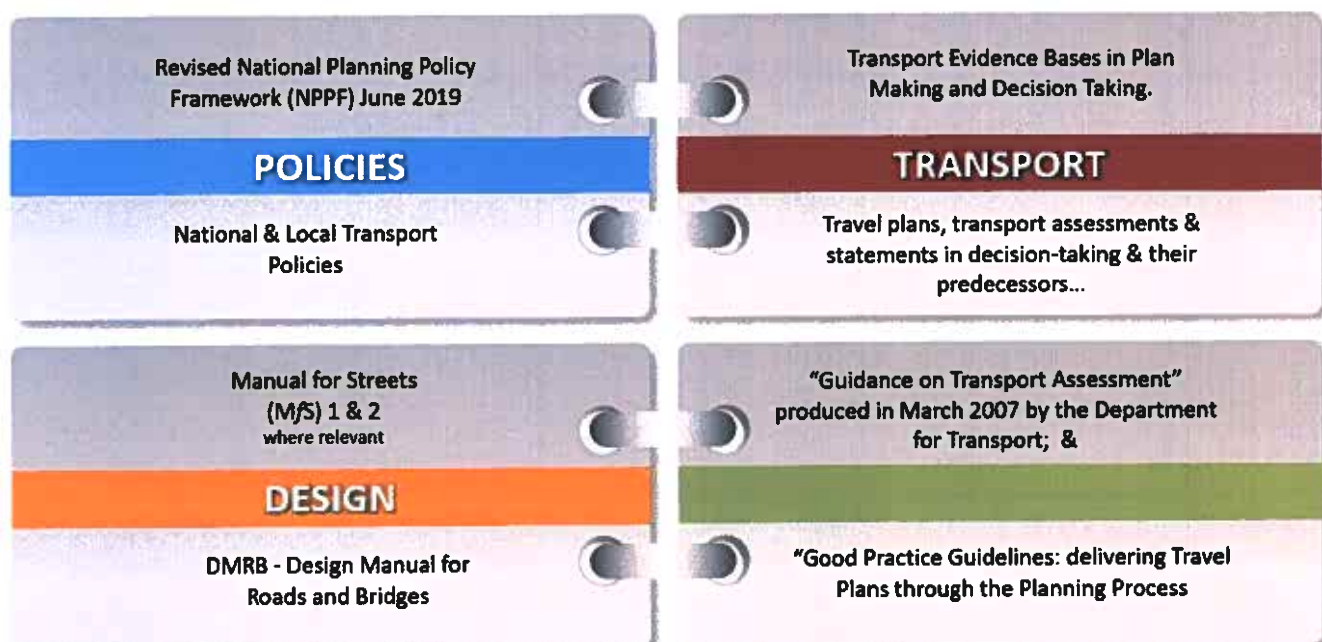
- Development proposals, access and servicing arrangements;
- Car and Cycle Parking provision; and
- Development trip rates, trip generation & multi-modal trips

Chapter 5

- Residual impact and if any, mitigation proposals.

REFERENCES & GUIDELINES

- 2.2 Technical References are annotated as (Ref) the details of which are attached in Volume 3 – Technical References.
- 2.3 Where relevant, the Analysis will be in line with NoCC LTP3, the emerging 2019 Local Plan Parking Guidelines and:

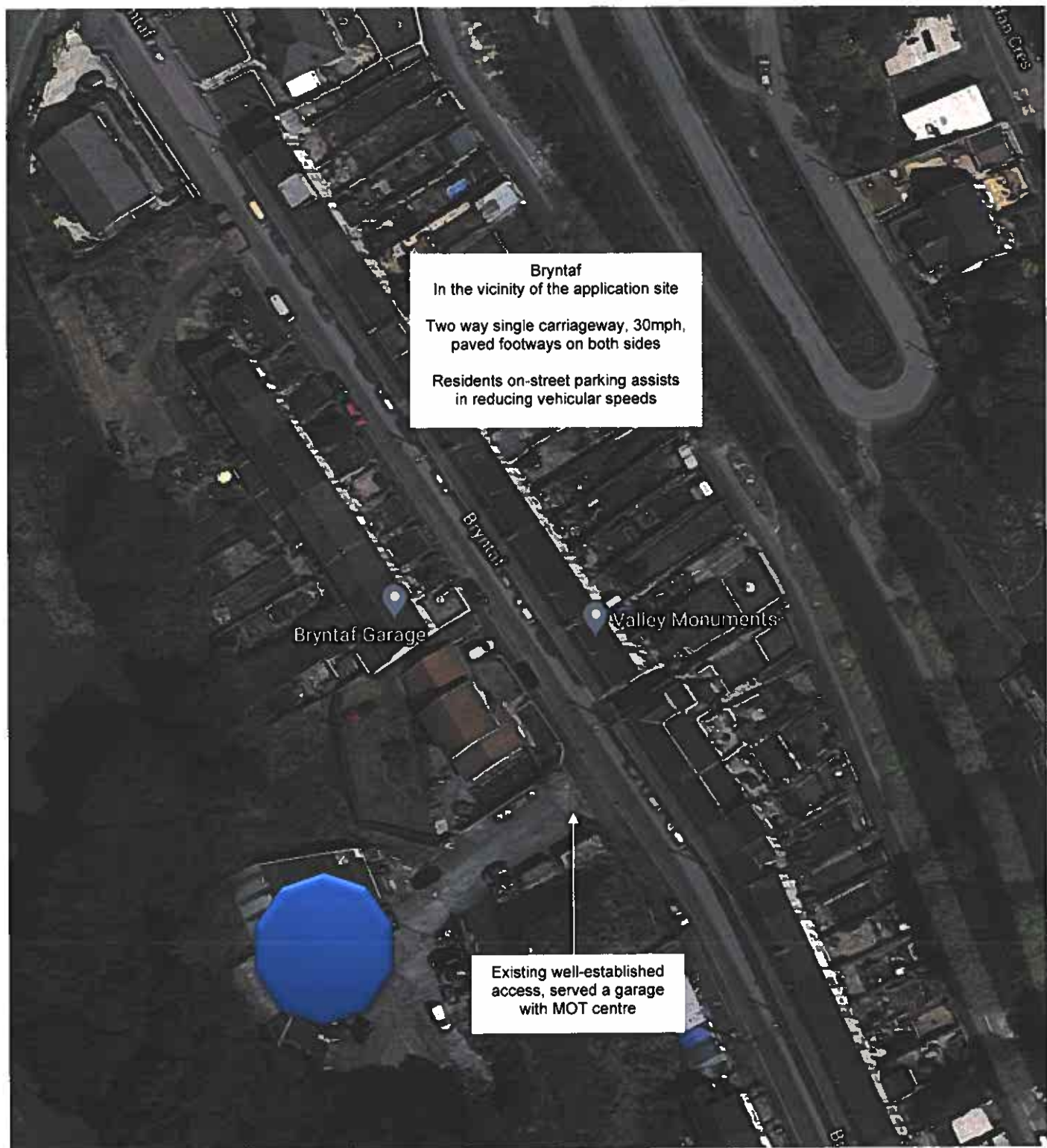




Chapter 3

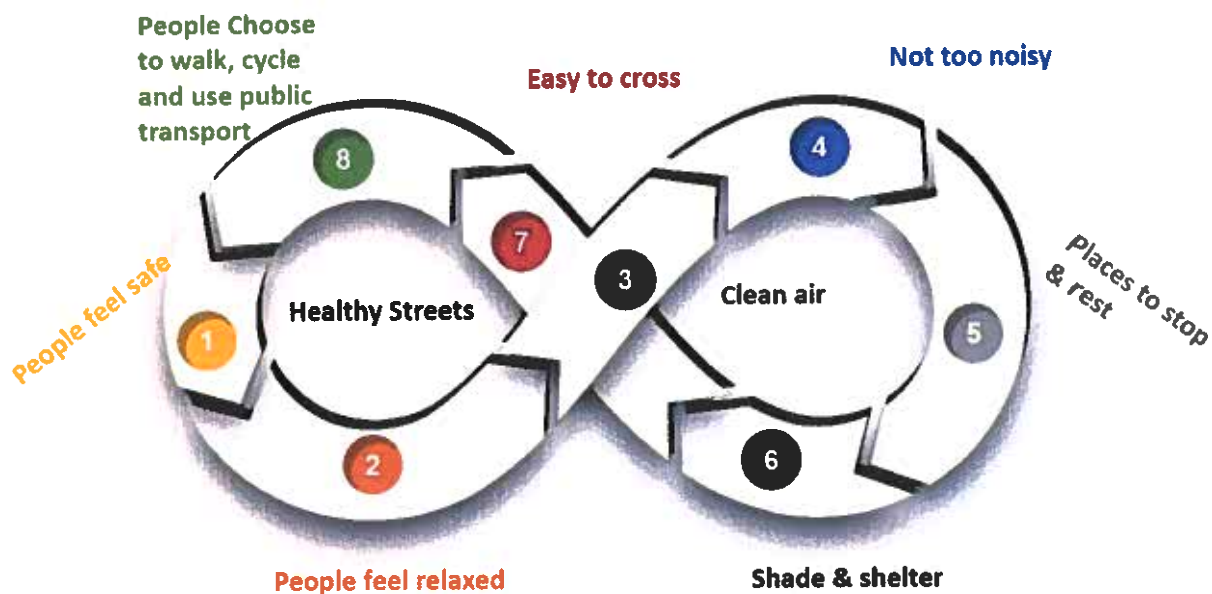
- Existing Highway Conditions
- Non-Motorised Accessibility
- Committed Developments & Highway Network Changes
- Personal Injury Incidents *(if undertaken)*

EXISTING INFRASTRUCTURE



*Figure 3.1
Key Infrastructure Features in the vicinity
of the application site*

SUSTAINABLE MODES OF TRAVEL



Bus Services

- 3.1 Bus service 81 is available within 6 minutes walk as demonstrated in Figure 3.2. The service runs between Merthyr Tydfil - Bryngolau every 30 mins M-S and hourly on Sunday. There are other services within 1km along Niconville including S79, S80 & E79

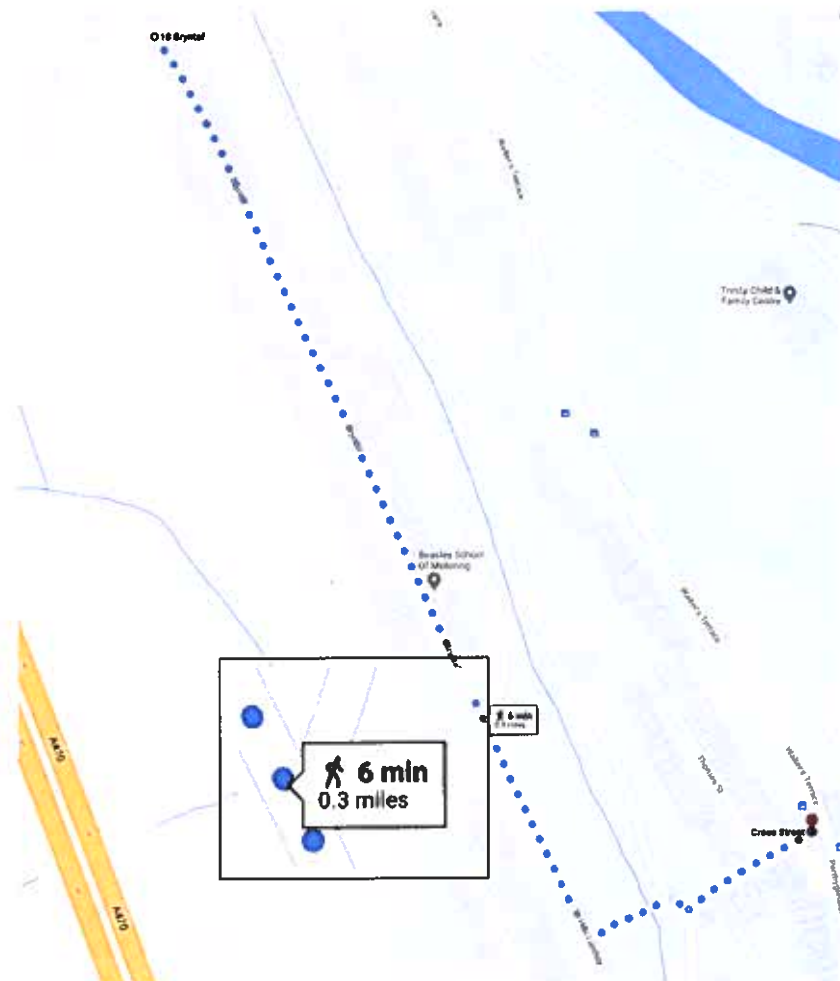
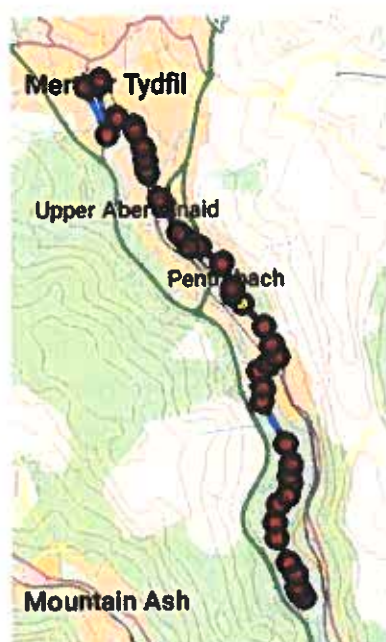
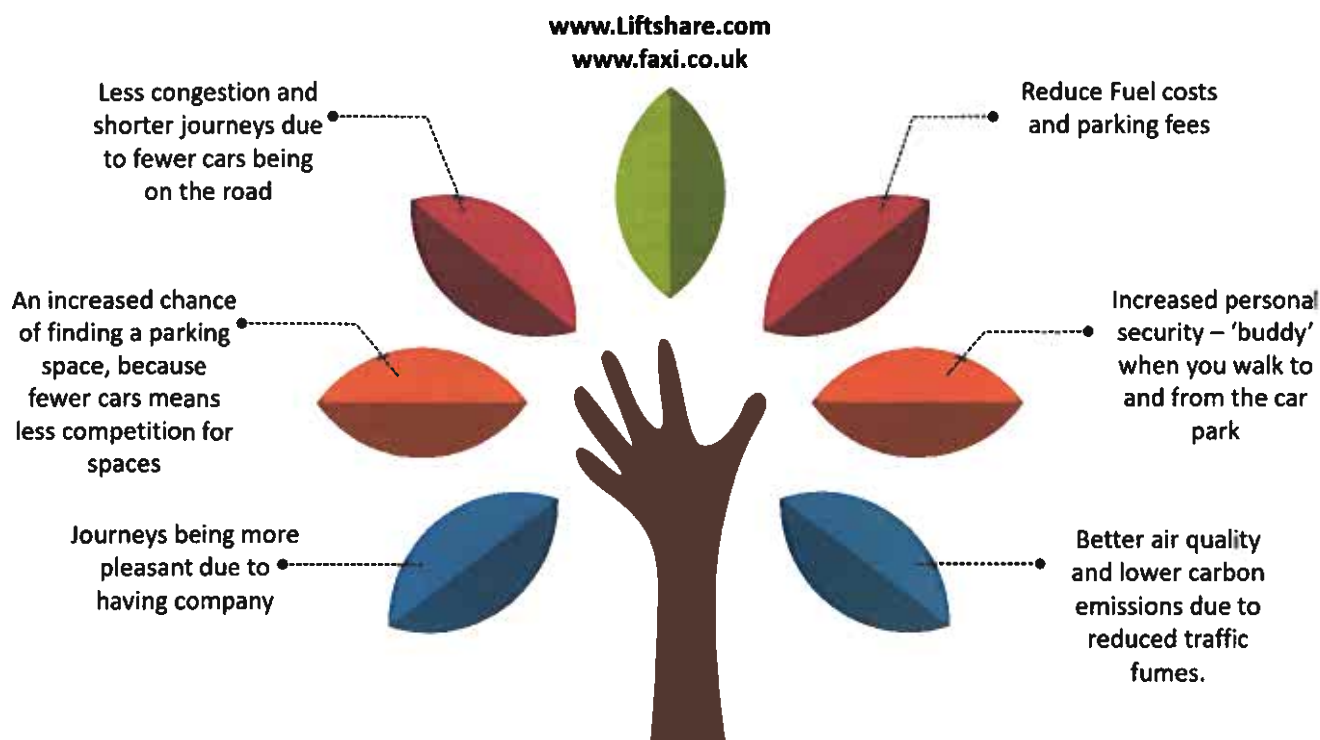


Figure 3.2
Bus Service 81

Car Sharing

- 3.2 Liftshare.com and taxi.co.uk are examples of many car-sharing platforms operating throughout the UK. The programmes allow residents to sign up and view any car-sharing opportunities within Bryntaf or adjoining villages (and within the development site)



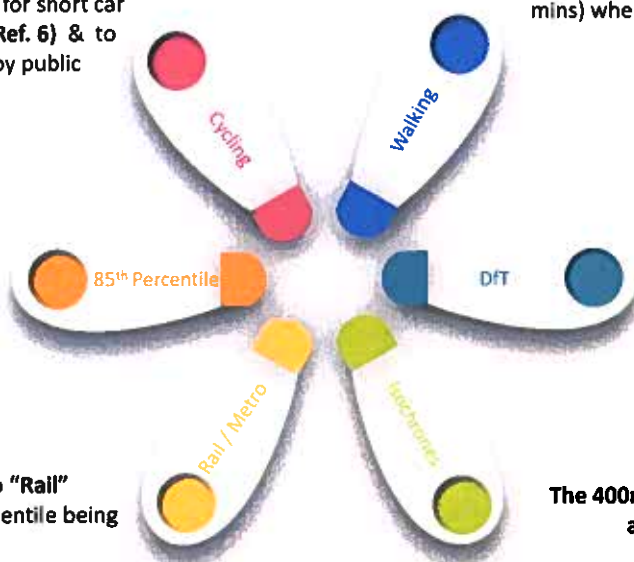
NON-MOTORISED ACCESSIBILITY

Walking & Cycling

Supported by NTS, CIHT & Sustrans' 2004 Travel Behaviour Research Baseline Survey 'measuring the potential for change', cycling has the potential to substitute for short car trips, particularly under 5km (Ref. 6) & to form part of a longer journey by public transport

Supported by National Travel Statistics and the CIHT Walking is generally considered a viable travel choice up to 2000 m (25 mins) where short journeys are required (Ref. 4, 5).

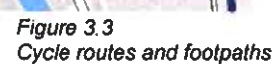
Bus	810 m	(Ref. 4)
Walking	1.95 km	(Ref. 5)
Cycling	7.25 km	(Ref. 6)
Rail	1.61 km	(Ref. 4)



The government wants cycling & walking to become the norm by 2040 and will target funding at innovative ways to encourage people onto a bike or to use their own two feet for shorter journeys (Ref. 6)

Reasonable walking distances to "Rail" stations is 1000m with 85th percentile being 1.61km

The 400m, 800m, 2km & 5km isochrones are attached in Appendices 3 & 4



Local Amenities

- 3.5 **Ref: 5** is the National Travel Survey (**Table 0403**) that outlines the average distances people will travel to undertake activities such as employment, shopping leisure, education and other key activities.
- 3.6 As such, to assess the sustainability of the site in relation to local amenities and employment opportunities, reference is made to the Government's index of multiple deprivation statistics which comprise four indicators of "Transport Inclusion". These indicators are defined as four essential types of facilities in which access is required and comprise:
- Primary Schools;
 - Health Centres;
 - Convenience Stores; and
 - Post Offices.
- 3.7 With the NTS findings in mind (**Ref: 5**), the nearest local amenities are summarised as follows:

Nearest Primary Schools

Listed here are the 10 closest primary schools to Bryntaf, Aberfan, Merthyr Tydfil, Wales, CF48 4PJ. The nearest is Ynysowen Community Primary School, approximately 800 yards away.

Name	Approximate Distance*
Ynysowen Community Primary School	800 yards
Caegarw Primary School	1.3 miles
Our Lady's R.C. Primary School	1.4 miles

Nearest Secondary Schools

Listed here are the 10 closest secondary schools to Bryntaf, Aberfan, Merthyr Tydfil, Wales, CF48 4PJ. The nearest is Afon Taf High School, approximately 1.3 miles away.

Name	Approximate Distance*
Afon Taf High School	1.3 miles
Mountain Ash Comprehensive School	1.9 miles

Nearest Doctor's Surgeries/GP Practices

Listed here are the 10 closest GPs (General Practitioners) to Bryntaf, Aberfan, Merthyr Tydfil, Wales, CF48 4PJ. The nearest is Troed Y Fan Medical Practice, approximately 500 yards away. Please consult the facility to check if they are currently accepting new NHS patients.

Name	Approximate Distance*
Troed Y Fan Medical Practice	500 yards
The Cynon Vale Medical Practice	1.4 miles

Convenience Stores & Post Office;

- 3.8 As demonstrated in Figure 3.4, the vast majority of local amenities within Aberfan are within 800m including takeaway shops, pub, post office, free cashpoint machine, doctor's surgery, pharmacy & corner shop.

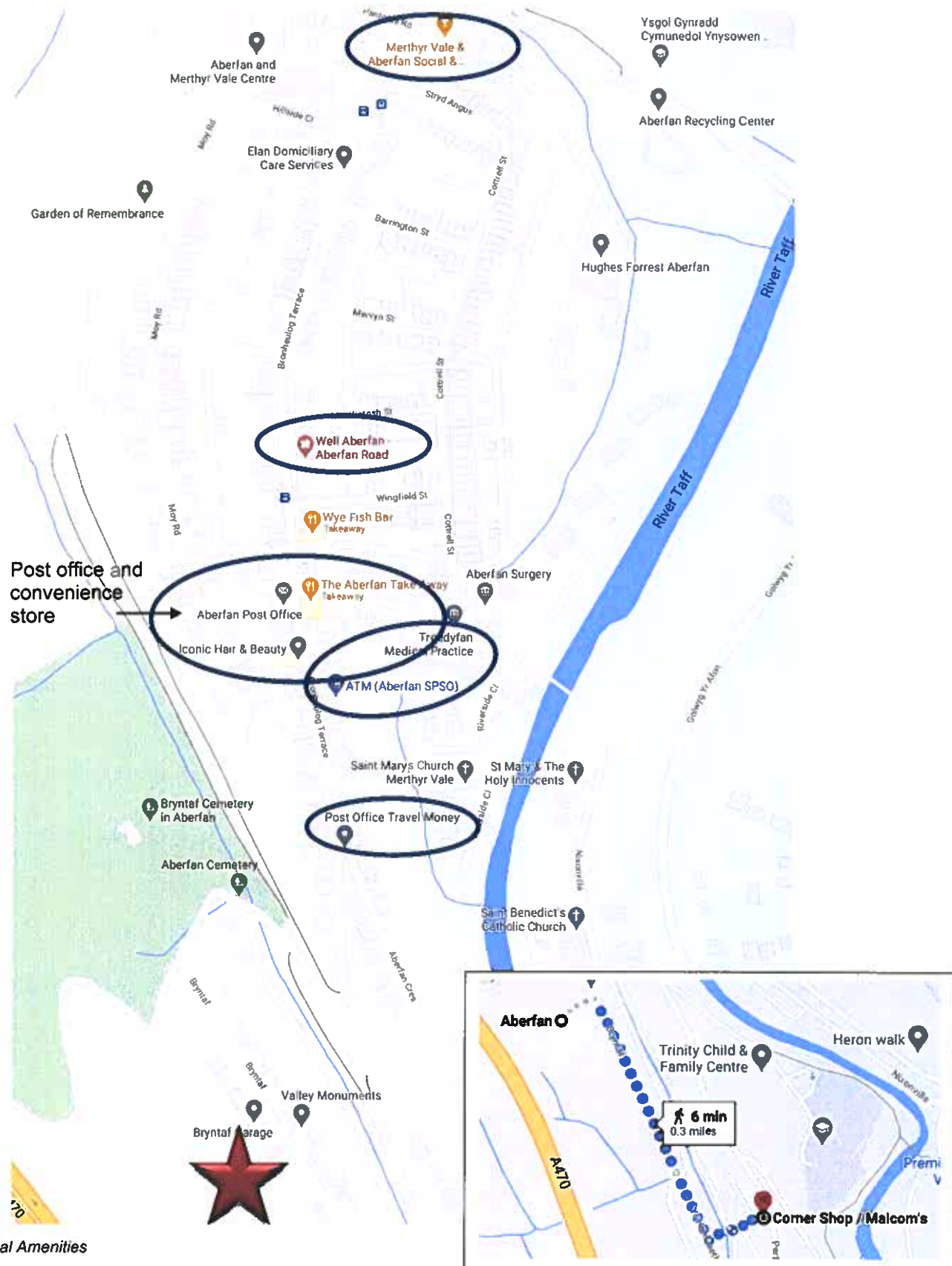


Figure 3.4
Illustrative Local Amenities

Accessibility Summary

- 3.9 This Chapter described the surrounding existing facilities such as local services, pedestrian routes, public transport services and cycleways. The site is located in a typical rural welsh village with a number of residential dwellings nearby, and taking into consideration the small scale of development and adjoining residential community, it is considered that the Application site is accessible on foot, by car-sharing, cycling and public transport.

COMMITTED DEVELOPMENTS & HIGHWAY NETWORK CHANGES

- 3.10 Taking into consideration the small scale of developments, there are no committed developments or highway network changes that may have an impact on the findings of this Analysis.

PERSONAL INJURY INCIDENTS [PIIs]

- 3.11 Within the most recent 3 years PIIs history, there are no incidents associated with the existing site access or within 400m along Bryntaf.
- 3.12 As such, there is no apparent issue in the area that would affect, or be affected by, the proposed development.

EXISTING SITE USE AND VEHICULAR TRIPS

- 3.13 The site owner has confirmed that the premises were used as a Roofing Merchants supplying all local roofing contractors in the area. The site was accessed by HGVs and LGVs and the site operated Hiab Trucks as well. In addition, the site operates as a garage and MOT centre servicing some 30-40 vehicles per day, Figure 3.6 (personal information and signature removed).
- 3.14 To verify the robustness of this information, TRICS was used and will be detailed in Chapter 4 however summarised as follows:

Time Period		Arrival		Departure		
		TRICS Rate	Vehicles	TRICS Rate	Vehicles	
0700	0800	0.699	1	0.21	0	2
0800	0900	2.238	4	0.42	1	5
0900	1000	1.888	4	1.049	2	6
1000	1100	1.329	3	1.608	3	6
1100	1200	1.888	4	1.678	3	7
1200	1300	1.119	2	1.189	2	5
1300	1400	1.399	3	1.329	3	5
1400	1500	1.399	3	1.049	2	5
1500	1600	1.399	3	2.098	4	7
1600	1700	1.049	2	2.098	4	6
1700	1800	1.189	2	2.098	4	7
1800	1900	0.21	0	0.979	2	2
						63

Figure 3.5
Summary TRICS data

23rd January 2021

TO WHOM IT MAY CONCERN

I have been a roofer for 45 years.

I bought Bryntaf Quarry in 1981 where I set up a Roofing Merchants supplying all roofing contractors in the area.

I have been having Forty Foot Trucks into my yard delivering roofing materials to me.

I have held an operators licence running Hiab trucks all these years out of there with no problems with any of the neighbours.

Due to Covid I have stopped supplying but still have skip lorries in and out picking up waste.

Any house removal big vehicles come up street or big delivery vehicles use my gateway to turn.

I run a garage and mot centre from the premises where some days we have upto 30-40 vehicles coming in and out, some motor homes for mots and repairs.

*Figure 3.6
Site Operator letter*

- 3.15 Figures 3.5 and 3.6 broadly correspond to each other in that, based on Figure 3.5, 6 / 7 vehicular movements (arrival + departure) are generated in the peak hours with a daily total of 63 movements.



Chapter 4

- Development Proposals
- Movement & Accessibility Strategy
- Access Arrangements & Visibility Splays
- Parking Provision & Servicing Arrangements
- Trip Generation & Multi-Modal analysis

4.1 The development proposals comprise :

- Removal of the existing garage, storage buildings and site clearance
- Development of 20 no. dwellings in the form of 4 terrace blocks
- Enhancement of access and creation of proposed adopted road within the site.
- Creation of 58 car parking spaces.
- Creation of landscaping including grass and trees.



Figure 4.1
Illustrative Layout
Please refer to architects pack

SITE ACCESS ARRANGEMENTS

- 4.2 The existing site access has safely met the operational demands of the Roofing Merchants business, service and MOT garage.
- 4.3 However, the site redevelopment will improve the access geometry and incorporate 6m kerblines and formalise the road width to 5.5m with 2m footways on both sides of the bellmouth to the tangent point. The site internals will form a Home Zone / shared surface arrangements which is suitable for the locality and sense of place.

VISIBILITY SPLAY

- 4.4 Bryntaf is 30mph and attract a visibility splay of 2.4m x 43m.
- 4.5 Appendix 2 demonstrates that this visibility splay is achievable in both directions;
- to the right, the visibility splay will fall within the adopted highway and land within the applicant's control. No fences, walls, hedges or vegetation higher than 750mm will be installed / planted within the visibility splay.
 - To the left, the visibility splay is taken to the middle of the road which is acceptable as the likelihood of a car overtaking another is non-existent (Ref: 2 and MfS para 7.7.5).
- 4.6 However, the applicant is prepared to fund the introduction of TRO to:
- Restrict parking to the right of the site access to protect the right visibility splay. This portion of highway fronts the proposed development and should not attract any objections; and
 - The dwelling to the immediate left of the site access (105 Bryntaf) is in the control of the Applicant. It is therefore proposed that a parking provision is provided to the rear of the property or within the application site following which a TRO can be introduced to frontage of the property, c. 32m which would restrict parking; therefore
 - The above two measures will substantially improve the access safety, pedestrian and vehicular visibility splays.

NOTE: If the Highway Authority does not feel a TRO is required, the site access still meets MfS guidance which states:

Obstacles to visibility

7.8.5 Parking in visibility splays in built-up areas is quite common, yet it does not appear to create significant problems in practice. Ideally, defined parking bays should be provided outside the visibility splay. However, in some circumstances, where speeds are low, some encroachment may be acceptable.

7.8.6 The impact of other obstacles, such as street trees and street lighting columns, should be assessed in terms of their impact on the overall envelope of visibility. In general, occasional obstacles to visibility that are not large enough to fully obscure a whole vehicle or a pedestrian, including a child or wheelchair user, will not have a significant impact on road safety.

Manual for Streets

- 4.7 *If deemed necessary, the Applicant is also prepared to fund any other TRO or speed reduction measures should the Highway Authority require them. This will be agreed as part of any Reserved Matters Application or in accordance of any planning conditions imposed.*

ON-STREET PARKING

- 4.8 It is acknowledged that the nature of Bryntaf attracted on-street parking due to the lack of front or rear drives or garages. This on-street parking feature of Bryntaf result in natural traffic calming, higher driver awareness and more cautious driving.
- 4.9 Having said that, the Application site is at the north end of Bryntaff where the vast majority if not all development drivers will be commuting to / from (limited or indeed no local amenities or links to commuter carriageways to the south).
- 4.10 Therefore, the potential of vehicles conflicting or giving way to each other is negligible when compared to those residing at the south of the Application site.

SERVICING

- 4.11 It is anticipated that the residential development would attract the usual servicing requirements such as refuse collection stationery and post.
- 4.12 The residential development includes a turning area capable of accommodating refuse HGV. Swept path analysis is provided on the architectural drawings.

CAR & CYCLE PARKING

- 4.13 58 Car and 100% cycle parking are provided having regards to Wales Parking Standards 2014 which requires:

RESIDENTIAL: NEW BUILD & CONVERSIONS ZONES 2 - 6		
Type of Development	Residents	Visitors
General Purpose Houses and Apartments		
Houses	1 space per bedroom (maximum requirement 3 spaces)	1 space per 5 units

Cycle parking

- 4.14 Where a garage is provided with a minimal internal dimension of 3m x 6m, no further cycle storage is required otherwise, sheltered and secure storage space for cycle would be provided.
- 4.15 Car and cycle parking provisions will be detailed on the architectural plans or in accordance with any planning conditions imposed.

VEHICULAR TRIP GENERATION

- 4.16 In order to establish the potential trips generated by the existing / proposed development, estimates were prepared using the TRICS computer database. The TRICS database contains vehicle count surveys from existing developments across the United Kingdom and was searched for similar developments to give estimated trip generation for the Statement.
- 4.17 The main selection parameters used in the trip rate calculations for the existing development were:
- 03 - Residential A – Houses Privately Owned [to be robust, and as a sensitivity test, any affordable element is ignored]

15 – Vehicle Services

B – Motorist Centre (Fast Fit)

- The TRICS database version used was v7.7.4;
- Sites in London, Northern Ireland, Republic of Ireland and the Isle of Man were excluded;
- The busiest AM and PM peak hours between 07:00 – 09:00 and 16:00 – 18:00 is considered;
- Re-surveyed sites were filtered and the older data excluded; and
- The data was 'cross tested'.

4.18 A summary of the TRICS output is shown in Figure 4.2 and a full set of printout included in Appendix 5.

Time Period			Arrival		Departure		
			TRICS Rate	Vehicles	TRICS Rate	Vehicles	
0700	0800		0.086	2	0.294	6	8
0800	0900		0.167	3	0.394	8	11
0900	1000		0.149	3	0.176	4	7
1000	1100		0.17	3	0.181	4	7
1100	1200		0.167	3	0.179	4	7
1200	1300		0.21	4	0.21	4	8
1300	1400		0.183	4	0.183	4	7
1400	1500		0.192	4	0.233	5	9
1500	1600		0.31	6	0.256	5	11
1600	1700		0.292	6	0.181	4	9
1700	1800		0.333	7	0.192	4	11
1800	1900		0.265	5	0.17	3	9

Figure 4.2
Peak hour trips generated by the proposed development

- 4.19 Figure 4.2 illustrates that the development proposals may result in 11 movements (arrival + departure) in the AM and PM peak hours, one every 5.5 minutes, which is not material.
- 4.20 However, when the existing use is considered, Figure 3.5, the residual movements are 5 and 4, one additional movement every 12 - 15 minutes which is negligible.
- 4.21 Therefore, in line with the Technical References (**Ref: 9**) since the 30 movements threshold is not exceeded in any one directions, no highway or junction capacity assessment is required and the proposed development would, in highway terms, have no material impact on the highway network in terms of its capacity and safety.

MULTI-MODAL MODES OF TRAVEL

- 4.22 To estimate the likely modal split associated with travel to/from the proposed development, the existing travel characteristics of local residents [employed and not working from home] for Lower Layers Merthyr Tydfil 006C

(where the site is located) and 006B (the adjoining layer) which were recorded during the 2011 Census have been studied.

- 4.23 The Census Data for the two 'layers' is very similar and indicates that on average, 63.5% of residents travel by single-occupancy vehicle (SOV) followed by public transport, car-sharing and walking.
- 4.24 This data would be useful to benchmark the development and undertake steps to promote the sustainability and accessibility of the site to new residents / purchasers.

<i>Database Q5701EW</i>				<i>Two-way Trips</i>	
<i>Mode of Travel</i>	<i>006B</i>	<i>006C</i>	<i>Average Percentage</i>	<i>AM Peak</i>	<i>PM Peak</i>
Tram / Metro	0.0%	0.0%	0.0%	0	0
Train	4.7%	4.8%	4.7%	1	1
Bus	11.1%	15.8%	13.5%	2	2
Taxi	0.2%	0.3%	0.2%	0	0
Motorcycle	0.6%	0.3%	0.4%	0	0
Car	63.9%	63.1%	63.5%	11	11
Passenger	11.8%	9.8%	10.8%	2	2
Cycle	0.6%	0.5%	0.6%	0	0
Walking	6.8%	5.3%	6.1%	1	1
Other	0.2%	0.3%	0.2%		
Total	100.0%	100.0%	100.0%	17	17

Figure 4.3
2011 Census Data – Method of Travel to Work
Person Trips by Mode

Chapter 5

- Multi-Modal Development Impact
- Preliminary Mitigation Proposals *(if applicable)*
- Travel Plan / Welcome Pack recommendations
- Residual Impact



EXTENT OF IMPACT

Vehicular Impact

- 5.1 Figure 4.2 illustrates that the development proposals may result in 11 movements (arrival + departure) in the AM and PM peak hours, one every 5.5 minutes, which is not material.
- 5.2 However, when the existing use is considered, Figure 3.5, the residual movements are 5 and 4, one additional movement every 12 - 15 minutes which is negligible.

Sustainable Modal Impact Assessment

- 5.3 Taking into consideration the findings of Figure 4:

- 1 pedestrian;
- 3 public transport users; and
- 2 car-sharers

may travel sustainably the level of which can be easily supported by the existing and proposed infrastructure provisions.

Welcome Pack

- 5.4 Due to the small scale and nature of development, a Travel Plan would not be of value hence, a Welcome Pack should be produced and distributed to all residents at the viewing stage and again at key handover.

- 5.5 The objectives of the Welcome Pack is:

- To reduce the need to travel to and from the site
- To reduce single-occupancy car travel to and from the site
- To promote walking as a healthy and sustainable way of travelling to and from the site
- To promote cycling as a healthy and sustainable way of travelling to and from the site
- To encourage the use of public transport where walking and cycling are not possible

- 5.6 As such, the Pack should include:

- Sustainable Transport Links (Ref: 16), live links can also be found at <https://www.iptgroup.com/Links/>
- Assist residents in producing personalised local travel arrangements, highlighting the travel options available to them by walking, cycling and public transport and the benefits thereof;
- Information about travelling to the development by sustainable means of transport;

- Information regarding the journey to and from work by public transport including a map of the route and location of bus stops, timetable information for the journey to and from work, and the cost of travel. Similar information provided for other regular journeys made by residents that could be made by public transport.
- Telephone numbers to local taxi companies.
- Map showing cycle routes to regular destinations and information on the cycle facilities applicable to the person.
- Information regarding the health and cost benefits of sustainable modes of travel.
 - Advertise any promotions or discounted fares offered by public transport operators;
 - Incentives to encourage residents to trial travel by bus.
 - Financial incentives for bicycle ownership.

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

- 5.7 A CTMP will be produced in satisfaction of any planning conditions imposed and pre-commencement (Ref: 13).

RESIDUAL IMPACT

- 5.8 Taking into account all the factors assessed in this Analysis, a final summary of the impacts resulting from the development proposals has been carried out and is summarised as follows:

- Junction / Link Capacity No Impact;
- Driver Delay No Impact;
- Environmental Impact No Impact (Ref: 10);
- Road Safety No Impact;
- Public Rights of Way No Impact; and
- Overall No Impact.

- 5.9 It is therefore considered that the development proposals will have no impact on the highway network in terms of its safety and capacity.

Chapter 6

- Summary & Conclusions



- 6.1 This Analysis assessed the impact of the proposed development on the highway network and concluded that:
- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
 - Safe and suitable access to the site can be achieved for all users;
 - The highway network in the area can accommodate the anticipated trip generation; and
 - The highway remains unobstructed for the safe passage of all users of the highway and that any development does not have an adverse impact on the safety of all users of the highway.
- 6.2 The Analysis described the development proposals and surrounding existing facilities such as local services, pedestrian routes, public transport services and cycleways. These sections demonstrate that the development proposal complies with the local and national guidelines and policies.
- 6.3 Additionally, the Analysis tests the impact of the development on the highway network to establish the extent of any significant highway impacts and evaluates compliance with the transport planning 'test' which prevents refusal on transport grounds unless the impacts of development are 'severe'.
- 6.4 The detailed analysis demonstrated that:
- Total person trips can be accommodated within the existing infrastructure;
 - Improvements to the site access, including a provision for TROs are proposed which results in betterment over existing conditions; and
 - The development proposal does not result in an unacceptable impact on highway safety or a residual cumulative impact on the road network that is severe.
- 6.5 It is concluded that the proposed development meets all safety and Planning Policy requirements and will have no material impact onto the highway network.



Creative Minds, *Intelligent Thinking*

Registered Office
Lugano Building, 57 Melbourne Street, Newcastle upon Tyne, NE1 2JQ
DDI: 0845 47 48 851 Cell: 07886 225 813 Fax: 0871 900 7432

Offices in...
Newcastle Upon Tyne | London | Leeds | Manchester | Birmingham | Edinburgh



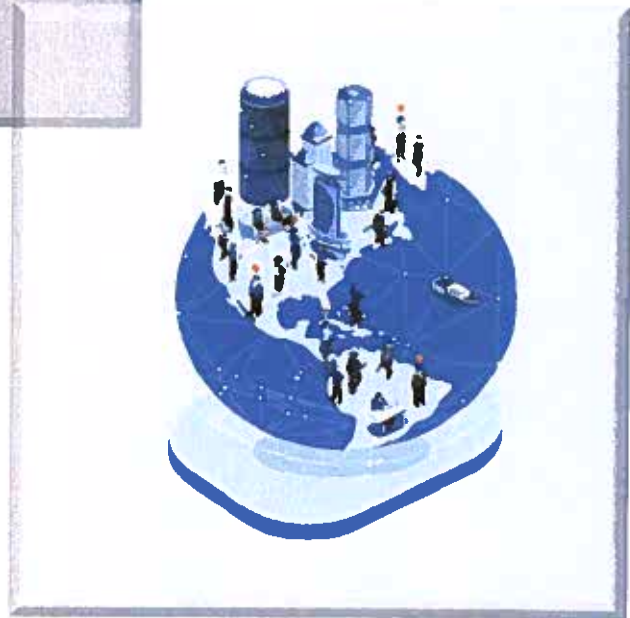
Sites Appraisal & Feasibility Assessments

Transport Assessments Transport Statements Green Sustainable Travel Plans



© IPRT Group

Member of iPRT Group of Companies



APPENDIX	CONTENT	PAGE
1	Key National Transport Policies	3
2	Development Proposals	12
3	Walk Isochrones	13
4	Cycle Isochrones	14
5	TRICS data	15

COPYRIGHT – ALL RIGHTS RESERVED

iPRT © Group Ltd (iPRT) and all its subsidiary companies disclaim any responsibility to the Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence within the terms of the Contract with the Client and generally in accordance iPRT's Terms and Conditions and taking account of the manpower, resources, investigations and testing devoted to it by agreement with the Client. This report is confidential to the Client and iPRT accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

Unless explicitly stated otherwise, all rights including those in copyright in the content of this document are owned by or controlled for these purposes by iPRT.

Except as otherwise expressly permitted under copyright law or it's Terms of Use, the content of this document may not be copied, reproduced, republished, downloaded, posted, broadcast or transmitted in any way without first obtaining it's written permission or that of the copyright owner.

Where the documents exist that are the responsibility of individual authors, the views contained within said documents do not necessarily represent the views of iPRT.

©IPRT Group Ltd 2021



TRANSPORT POLICY CONTEXT***National Transport Policy***

- i. The Government's long term strategy for transport is set out in "The Future of Transport – a Network for 2030" (DfT White Paper, 2004). An underlying objective of the strategy set out in the White Paper is to deal with the pressures of increasing demand for travel by striking the right balance between environmental, economic and social objectives, now and into the future. In terms of the road network, this means:
 - New capacity, where it is needed and justified, on environmental and social grounds;
 - Locking in the benefits of new capacity through measures such as high occupancy vehicle lanes and tolling, where appropriate;
 - The Government leading the debate on road pricing and the opportunity this gives to motorists to make better choices;
 - Better management of the network; and
 - Using new technology, so the travelling public can make smarter journey choices.
- ii. In terms of enhancing local travel this means:
 - Freer-flowing local roads delivered through measures such as congestion charging;
 - More, and more reliable buses enjoying more road space;
 - Demand-responsive bus services that provide accessibility in areas that cannot support conventional services;
 - Looking at ways to make services more accessible, so that people have a real choice about how and when they travel;
 - Tackling the environmental impacts of travel by encouraging more sustainable travel choices through promoting the use of construction travel plans, workplace travel plans and personalised journey planning, and encouraging people to consider alternatives to using their cars, and
 - Creating a culture and improved quality of local environment, so that cycling and walking are seen as an alternative to car travel for short journeys, particularly for children.
- iii. The Local Transport White Paper, 'Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen' (January 2011) reiterates the Government's vision for a sustainable local transport system that supports the economy and reduces carbon emissions. It explains how the Government is placing localism at the heart of the transport agenda, taking measures to empower local authorities when it comes to tackling these issues in their areas. The White Paper also underlines the Government's direct support to local authorities, including through the Local Sustainable Transport Fund.
- iv. The five National Transport Goals are:

- Goal 1: To reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of tackling climate change;
- Goal 2: To support economic competitiveness and growth, by delivering reliable and efficient transport networks;
- Goal 3: To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society;
- Goal 4: To contribute to better safety, security and health and longer life expectancy by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health; and
- Goal 5: To improve quality of life for transport users and non-transport users, and to promote a healthy natural environment.

PLANNING PRACTICE GUIDANCE (PPG) 2014

v. PPG 2014 stipulates that the scope and level of detail in a Transport Assessment or Statement will vary from site to site but the following should be considered when settling the scope of the proposed assessment:

- "Information about the proposed development, site layout, (particularly proposed transport access and layout across all modes of transport)
- Information about neighbouring uses, amenity and character, existing functional classification of the nearby road network;
- Data about existing public transport provision, including provision/ frequency of services and proposed public transport changes;
- A qualitative and quantitative description of the travel characteristics of the proposed development, including movements across all modes of transport that would result from the development and in the vicinity of the site;
- An assessment of trips from all directly relevant committed development in the area (i.e. development that there is a reasonable degree of certainty will proceed within the next three years);
- Data about current traffic flows on links and at junctions (including by different modes of transport and the volume and type of vehicles) within the study area and identification of critical links and junctions on the highways network;
- An analysis of the injury collision records on the public highway in the vicinity of the site access for the most recent three-year period, or five-year period if the proposed site has been identified as within a high collision area;

- An assessment of the likely associated environmental impacts of transport related to the development, particularly in relation to proximity to environmentally sensitive areas (such as air quality management areas or noise sensitive areas);
- Measures to improve the accessibility of the location (such as provision/ enhancement of nearby footpath and cycle path linkages) where these are necessary to make the development acceptable in planning terms;
- A description of parking facilities in the area and the parking strategy of the development;
- Ways of encouraging environmental sustainability by reducing the need to travel; and
- Measures to mitigate the residual impacts of development (such as improvements to the public transport network, introducing walking and cycling facilities, physical improvements to existing roads."

vi. The PPG also states:

- "in general, assessments should be based on normal traffic flow and usage conditions (e.g. non-school holiday periods, typical weather conditions) but it may be necessary to consider the implications for any regular peak traffic and usage periods (such as rush hours). Projections should use local traffic forecasts such as TEMPRO drawing where necessary on National Road Traffic Forecasts for traffic data."

National Planning Policy Framework [NPPF] – para numbering reflects that in the NPPF

Promoting sustainable transport

102. Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:
- a. the potential impacts of development on transport networks can be addressed;
 - b. opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;
 - c. opportunities to promote walking, cycling and public transport use are identified and pursued;
 - d. the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and
 - e. patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.
103. The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions,

and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.

104. Planning policies should:

- a. support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities;
- b. be prepared with the active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned;
- c. identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development;
- d. provide for high quality walking and cycling networks and supporting facilities such as cycle parking (drawing on Local Cycling and Walking Infrastructure Plans);
- e. provide for any large scale transport facilities that need to be located in the area, and the infrastructure and wider development required to support their operation, expansion and contribution to the wider economy. In doing so they should take into account whether such development is likely to be a nationally significant infrastructure project and any relevant national policy statements; and
- f. recognise the importance of maintaining a national network of general aviation airfields, and their need to adapt and change over time – taking into account their economic value in serving business, leisure, training and emergency service needs, and the Government's General Aviation Strategy.

105. If setting local parking standards for residential and non-residential development, policies should take into account:

- a. the accessibility of the development;
- b. the type, mix and use of development;
- c. the availability of and opportunities for public transport;
- d. local car ownership levels; and
- e. the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.

106. Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport (in accordance with chapter 11 of this Framework). In town centres, local authorities should seek to improve the quality of parking so that it is convenient, safe and secure, alongside measures to promote accessibility for pedestrians and cyclists.

107. Planning policies and decisions should recognise the importance of providing adequate overnight lorry parking facilities, taking into account any local shortages, to reduce the risk of parking in locations that lack proper facilities or could cause a nuisance. Proposals for new or expanded distribution centres should make provision for sufficient lorry parking to cater for their anticipated use.

Considering development proposals

108. In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:
- a. appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
 - b. safe and suitable access to the site can be achieved for all users; and
 - c. any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.
109. Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.
110. Within this context, applications for development should:
- a. give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
 - b. address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
 - c. create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
 - d. allow for the efficient delivery of goods, and access by service and emergency vehicles; and
 - e. be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.
111. All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

PRESUMPTION IN FAVOUR OF SUSTAINABLE DEVELOPMENT

- vii. The National Planning Policy Framework (NPPF) introduced the presumption in favour of sustainable development. There are three dimensions to sustainable development: economic, social and environmental and

the policies in paragraphs 18 to 219, taken as a whole, constitute the Government's view of what sustainable development in England means in practice for the planning system.

viii. The presumption in favour of sustainable development should be seen as a golden thread running through both plan-making and decision-taking.

ix. For plan-making this means that:

- local planning authorities should positively seek opportunities to meet the development needs of their area;
- Local Plans should meet objectively assessed needs, with sufficient flexibility to adapt to rapid change, unless:
 - any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the NPPF taken as a whole; or
 - specific policies in the NPPF indicate development should be restricted.

x. For decision-taking this means:

- approving development proposals that accord with the development plan without delay; and
- where the development plan is absent, silent or relevant policies are out-of-date, granting permission unless:
 - any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the NPPF taken as a whole; or
 - specific policies in the NPPF indicate development should be restricted.

MANUAL FOR STREETS (MfS)

xi. Guidance for the design of residential roads set out in Design Bulletin 32 and its companion guide Places Streets and Movement was superseded in March 2007 by the publication of the Departments for Transport and Communities and Local Government publication 'Manual for Streets' (MfS). The document sets out that:

"It is therefore strongly recommended that local authorities review their standards and guidance to embrace the principles of MfS."

xii. The aims of the document are to bring about a transformation in the quality of streets and represent a fundamental culture change in the way streets are designed and adopted. MfS provides guidance in order that streets can be designed to:

- Help to build and strengthen the communities they serve;

- Meet the needs of all users, by embodying the principles of inclusive design;
- Form part of a well-connected network;
- Be attractive and have their own distinctive identity;
- Be cost-effective to construct and maintain; and
- Be safe.

xiii. Manual for Streets advocates inclusive design and its principles which are to:

- Place people at the heart of the design process;
- Acknowledge diversity and difference;
- Offer choice where a single solution cannot accommodate all users;
- Provide for flexibility in use; and
- Provide buildings and environments that are convenient and enjoyable to use for everyone.

xiv. Manual for Streets defines a 'street' as ...

a highway that has important public realm functions beyond the movement of traffic. *Streets have a sense of place and are distinctive and are lined with and provide direct access to buildings and public spaces. Most highways in built-up areas can be considered as streets. The Manual does not define an upper limit in terms of traffic flow to define a 'street' as that was considered to be too prescriptive but as a general guide suggests a threshold of about 10,000 vehicles per day or about 1,000 vehicles per hour at peak times.*

Manual for Streets 2 (MfS2)

xv. The Chartered Institution of Highways and Transportation (CIHT) publication 'Manual for Streets 2: Wider Application of the Principles' (MfS2) was published in September 2010 and forms a companion guide to "Manual for Streets" (MfS). MfS2 fills the perceived gap in design guidance between MfS and Design Manual for Roads and Bridges (DMRB) and has been endorsed by the Department for Transport (DfT).

xvi. The "Status and Application" section of MfS2 States:

"DMRB is the design standard for Trunk Roads and Motorways in England, Scotland, Wales and Northern Ireland. *The strict application of DMRB to non-trunk routes is rarely appropriate for highway design in built up areas, regardless of traffic volume.*"

xvii. MfS2 paragraph 1.3.3 states that:

"Where designers do refer to DMRB for detailed technical guidance on specific aspects, for example on strategic inter-urban non-trunk roads, it is recommended that they bear in mind the key principles of MfS, and apply DMRB in a way that respects local context. It is further recommended that DMRB or other standards and guidance is only

used where the guidance contained in MfS is not sufficient or where particular evidence leads a designer to conclude that MfS is not applicable."

xviii. MfS2 paragraph 1.3.4 goes on to state:

"The application of MfS advice to all 30mph speed limits as a starting point is in keeping with MfS1"

xix. Most importantly, MfS2 states in 1.3.5 - 1.3.7:

Much of the research behind MfS1 for stopping sight distance (SSD) is limited to locations with traffic speeds of less than 40mph and there is some concern that driver behaviour may change above this level as the character of the highway changes. *However, 40mph speed limits in builtup areas cover a wide range of contexts, from simple urban streets with on-street parking and direct frontage access to 2/3 lane dual carriageways. Furthermore, local context varies not only from street to street but also along the length of a street.*

Where a single carriageway street with on-street parking and direct frontage access is subject to a 40mph speed limit, its place characteristics are more of a residential street or high street, with higher traffic flows, and may result in actual speeds below the limit. It is only where actual speeds are above 40mph for significant periods of the day that DMRB parameters for SSD are recommended. Where speeds are lower, MfS parameters are recommended. Where there may be some doubt as to which guidance to adopt, actual speed measurements should be undertaken to determine which is most appropriate.

Similarly, in rural areas many parts of the highway network are subject to the national speed limit but have traffic speeds significantly below 60mph. Again in these situations where speeds are lower than 40mph, MfS SSD parameters are recommended.

xx. Scope of MfS:

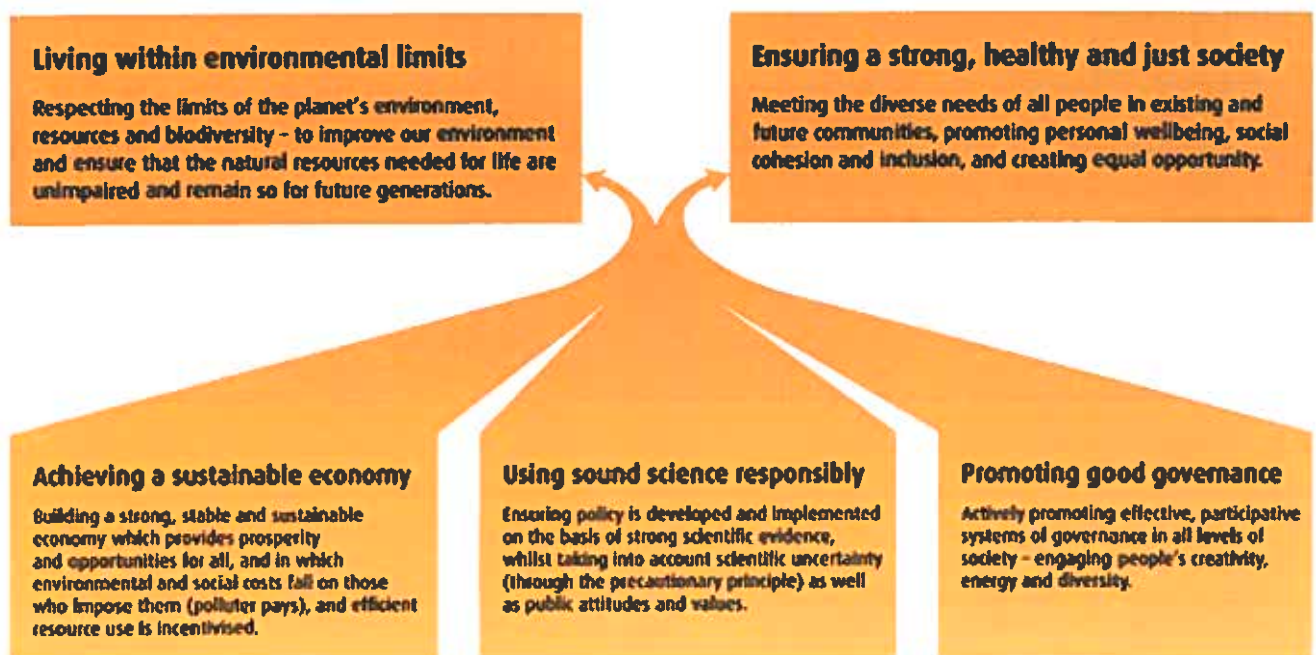
Speed Limit	20mph	30mph	40mph	50+mph
User Hierarchy	●	●	●	●
Team Working	●	●	●	●
Community Function	●	●	●	●
Inclusive Design	●	●	●	●
Ped/Cycle Support	●	●	●	●
Master Plans/Design Codes	●	●	●	●
Stopping Sight Distance	●	●	●	●
Frontage Access	●	●	●	●
Minimise Signs and Street Furniture	●	●	●	●
Quality Audits	●	●	●	●
Connectivity/Permeability	●	●	●	●

Table 1.1 Application of key areas of MfS advice

Note: ● yes ● subject to local context

SUSTAINABLE DEVELOPMENTS

- xxi. In order for the UK to become more sustainable, it is important to have an agreed set of principles that can be used as a basis for co-ordinated national policies, strategies and action plans.
- xxii. The UK Government published its 'Five Principles of Sustainable Development' in its Shared Framework for Sustainable Development, released in March 2005.



LOCAL POLICIES

- i. Please refer to planning statement



Griffiths Terrace

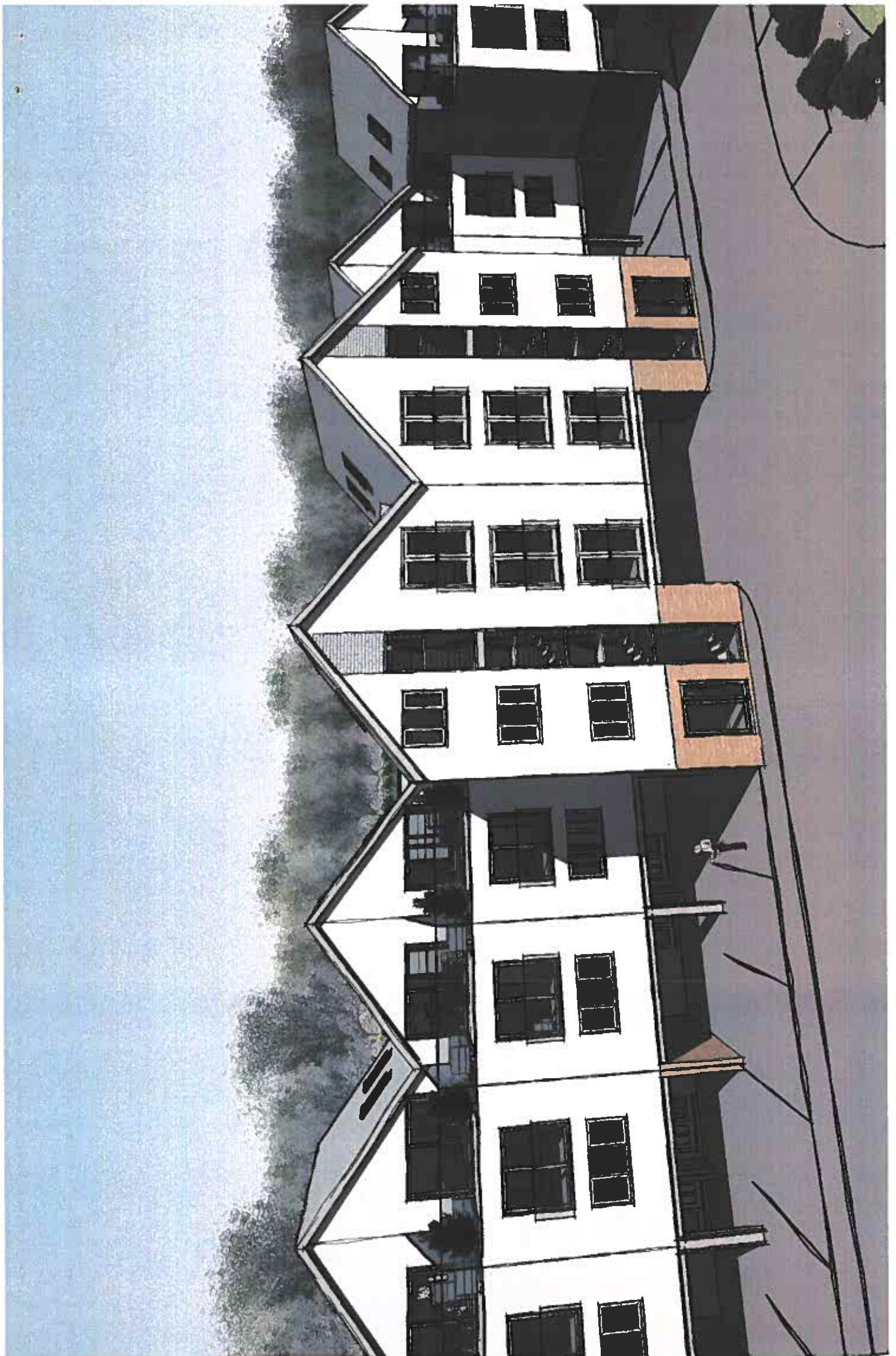
Garden area to rear of properties

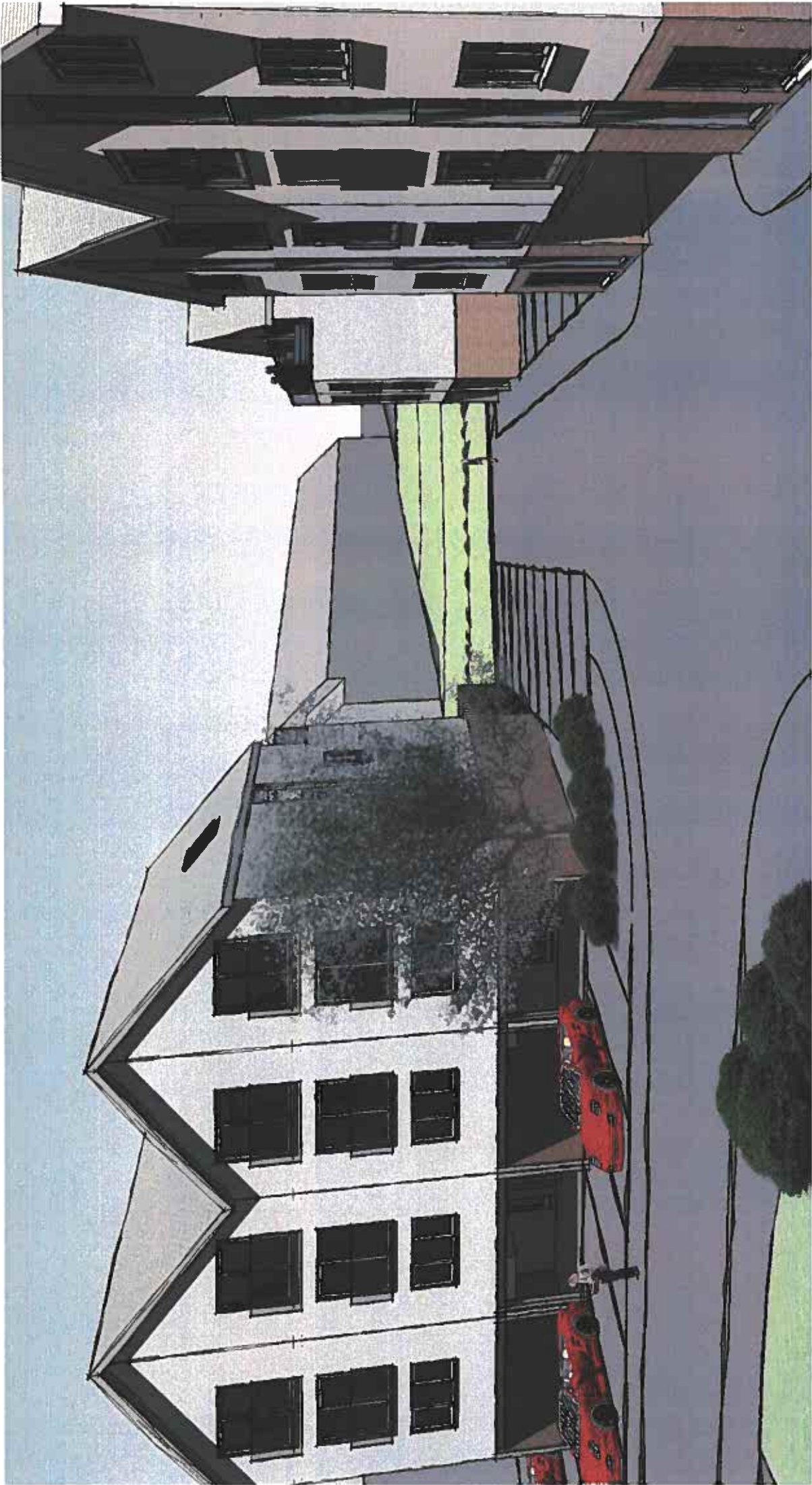
Ground floor access to apartments

Bin store for apartments

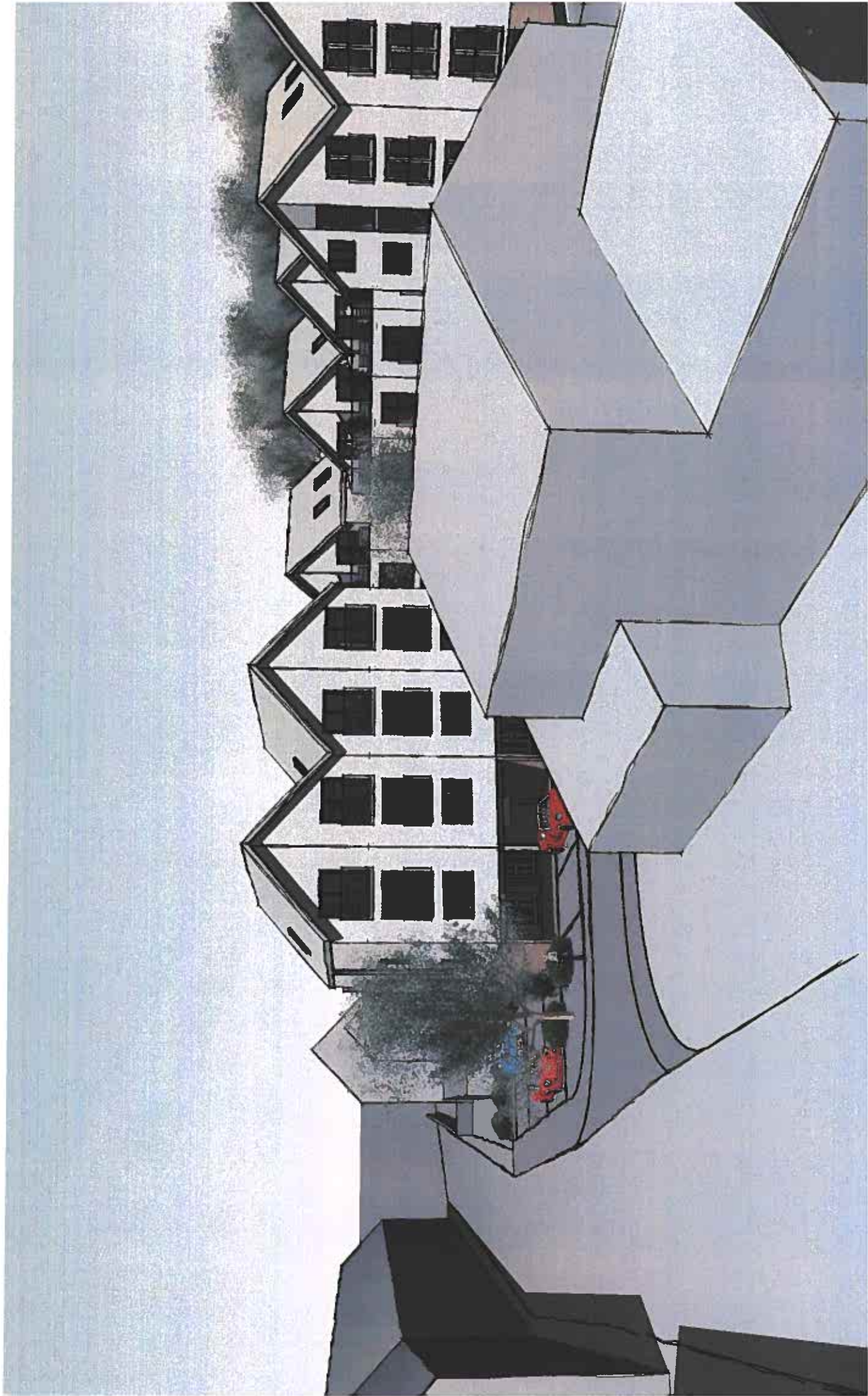
Bike store for apartments

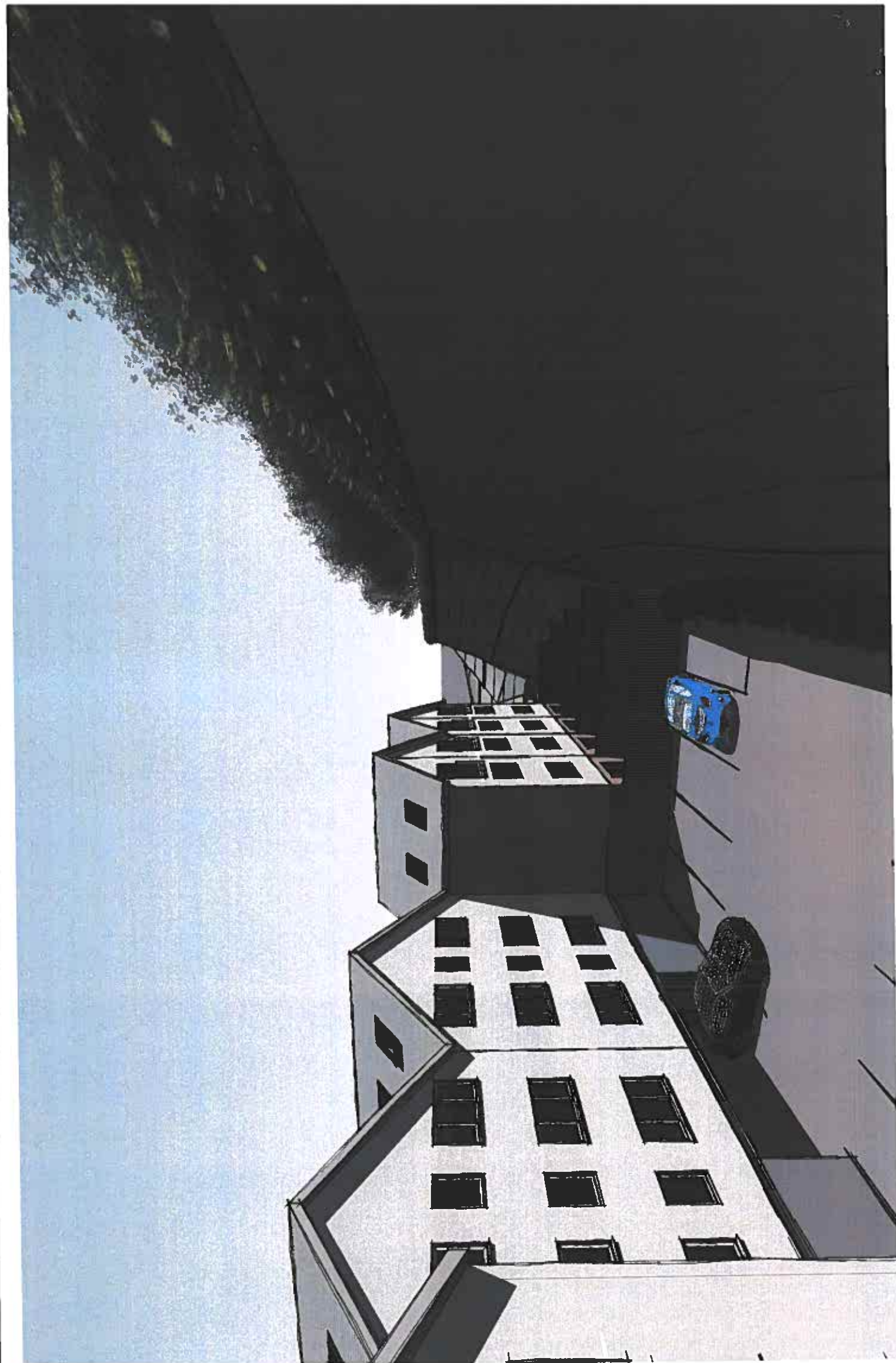
Thorn hedging or similar to foot the cliff to absorb potential falling risks from the cliff edge above and keep residents away



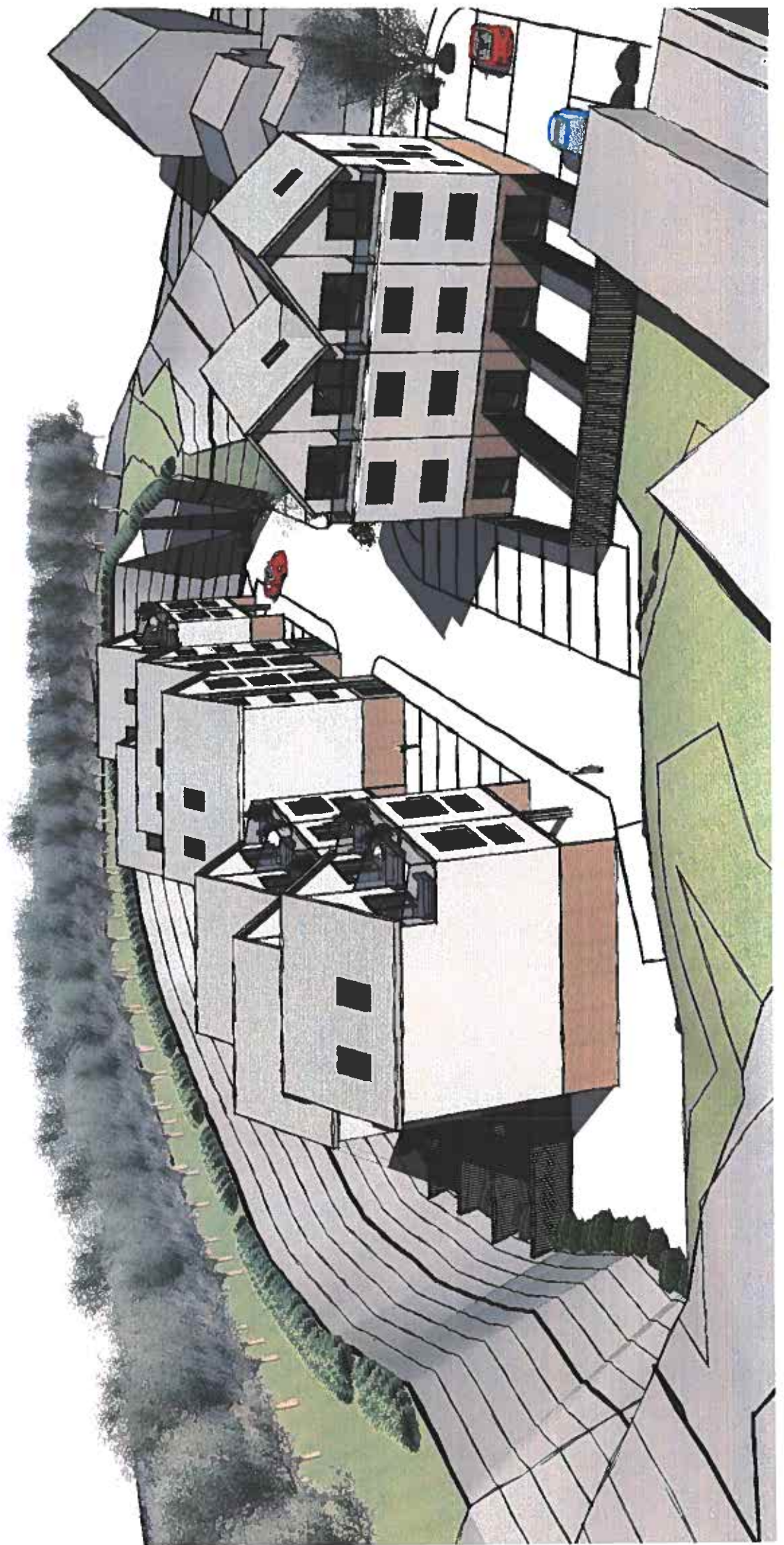


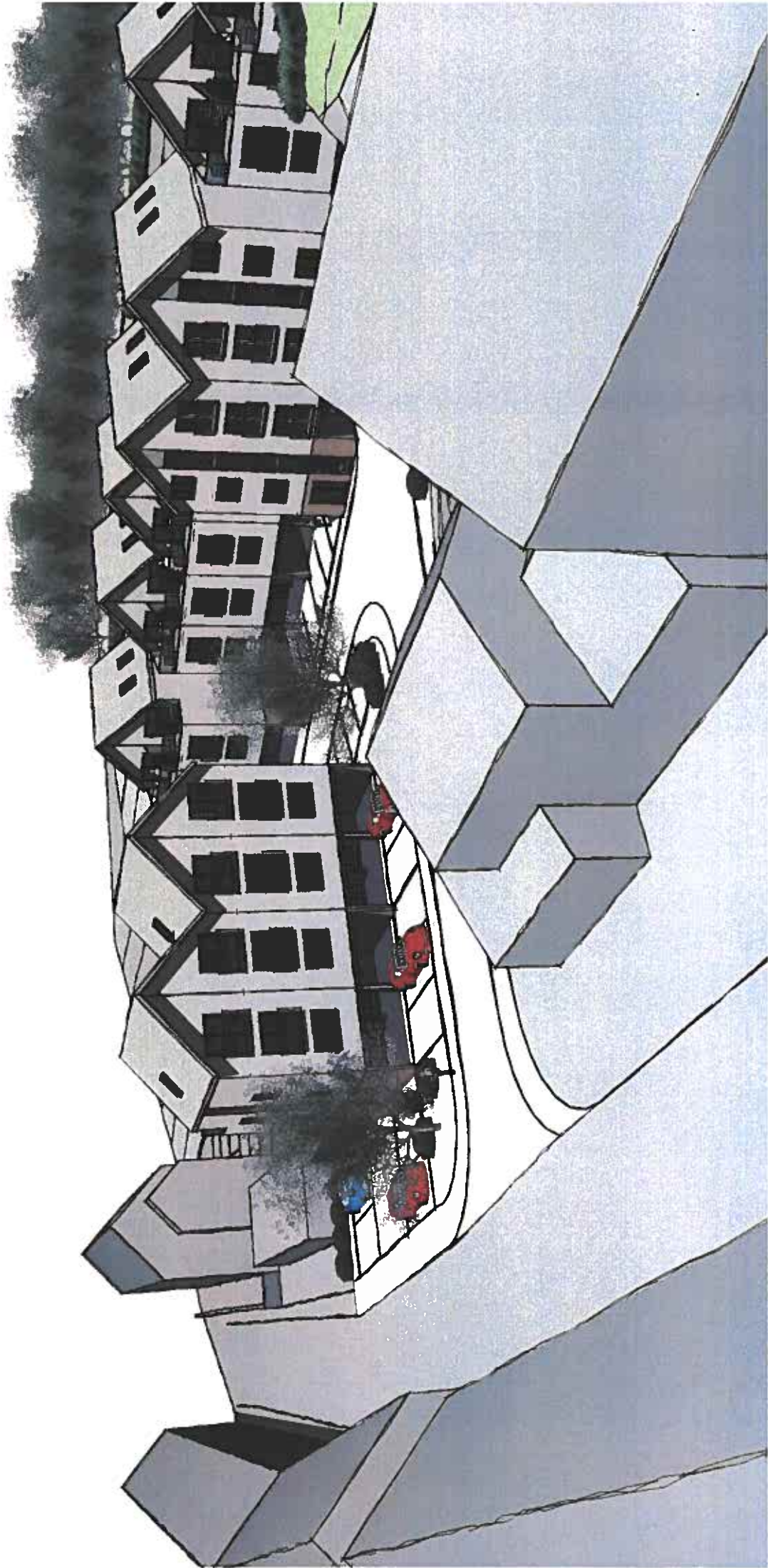


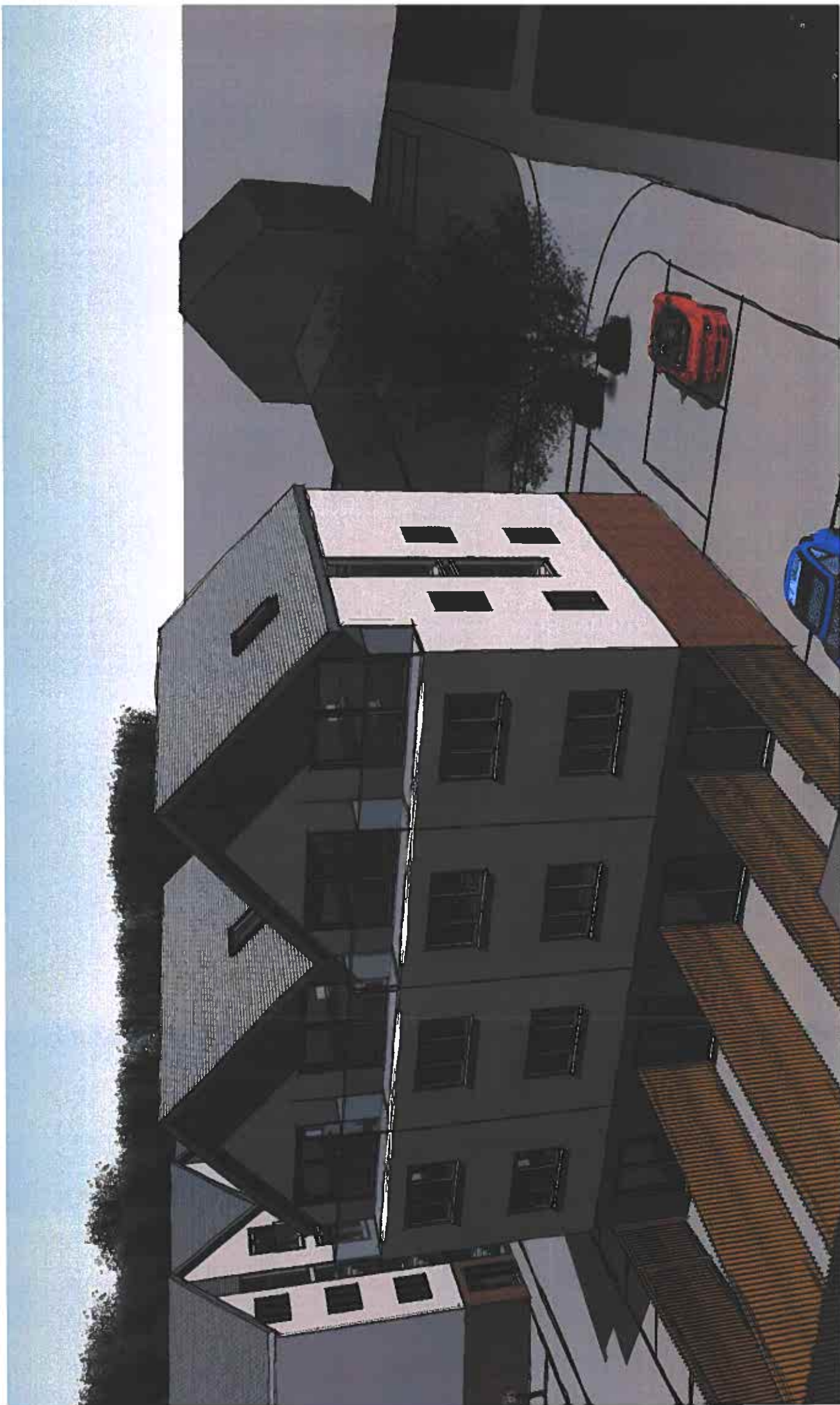


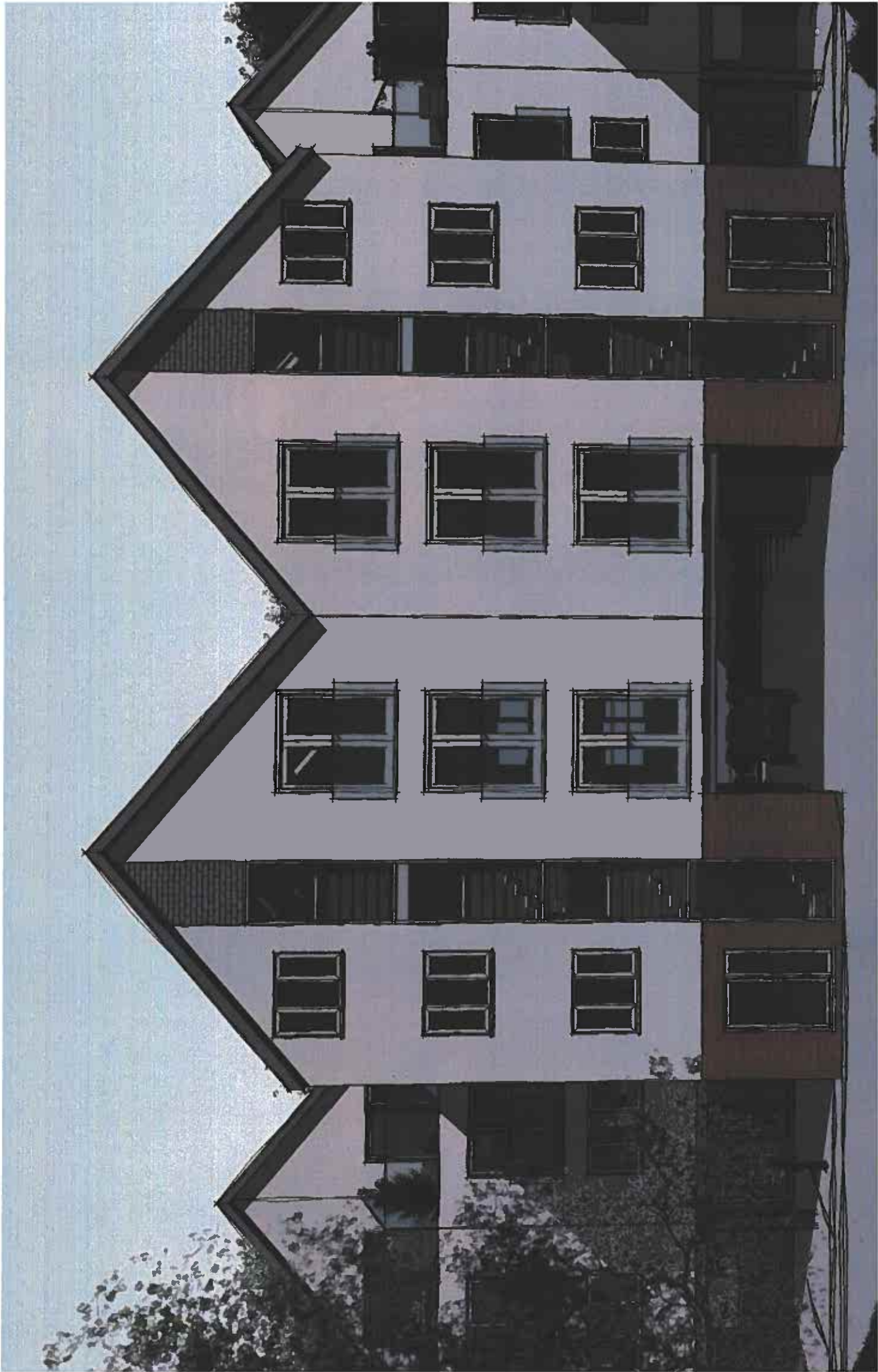




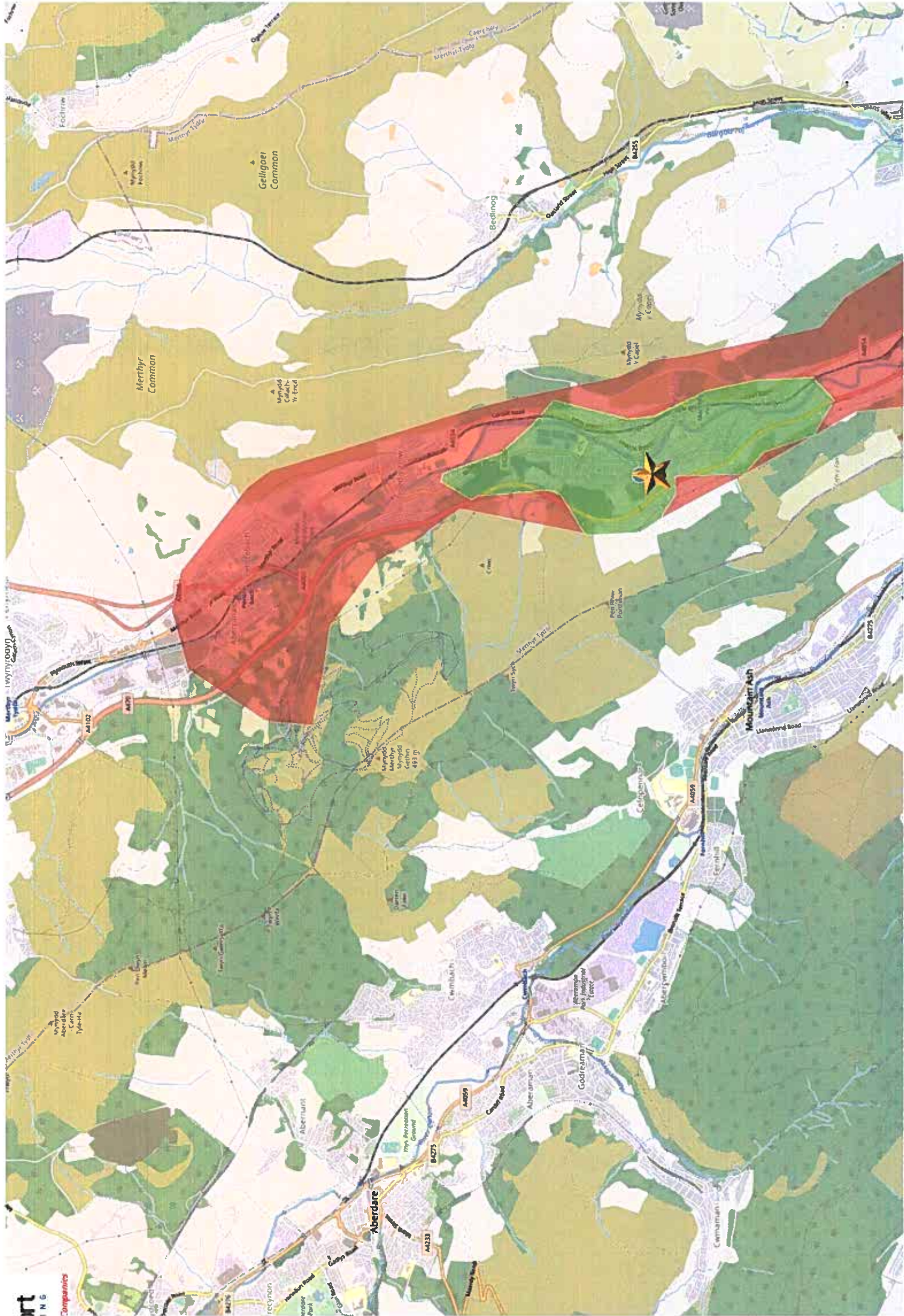












Calculation Reference: AUDIT-208601-210206-0227

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

TOTAL VEHICLESSelected regions and areas:

03	SOUTH WEST	
	WL WILTSHIRE	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	NF NORFOLK	2 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	2 days
06	WEST MIDLANDS	
	ST STAFFORDSHIRE	2 days
	WK WARWICKSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	3 days
08	NORTH WEST	
	CH CHESHIRE	3 days
	LC LANCASHIRE	1 days
	MS MERSEYSIDE	1 days
09	NORTH	
	TW TYNE & WEAR	1 days
10	WALES	
	PS POWYS	2 days
	VG VALE OF GLAMORGAN	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 10 to 30 (units:)
 Range Selected by User: 10 to 30 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 10/09/20

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	8 days
Tuesday	2 days
Wednesday	7 days
Thursday	2 days
Friday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	21 days
Directional ATC Count	1 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town Centre	4
Suburban Area (PPS6 Out of Centre)	11
Edge of Town	7

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3

22 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	6 days
10,001 to 15,000	5 days
15,001 to 20,000	3 days
20,001 to 25,000	2 days
25,001 to 50,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	3 days
25,001 to 50,000	2 days
50,001 to 75,000	3 days
75,001 to 100,000	3 days
100,001 to 125,000	1 days
125,001 to 250,000	5 days
250,001 to 500,000	5 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	9 days
1.1 to 1.5	12 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	21 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	22 days
-----------------	---------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CA-03-A-05	DETACHED HOUSES	CAMBRIDGESHIRE
	EASTFIELD ROAD PETERBOROUGH		
	Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	28	
	Survey date: MONDAY	17/10/16	Survey Type: MANUAL
2	CH-03-A-08	DETACHED	CHESHIRE
	WHITCHURCH ROAD CHESTER		
	BOUGHTON HEATH Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	11	
	Survey date: TUESDAY	22/05/12	Survey Type: MANUAL
3	CH-03-A-09	TERRACED HOUSES	CHESHIRE
	GREYSTOKE ROAD MACCLESFIELD		
	HURDSFIELD Edge of Town Residential Zone		
	Total No of Dwellings:	24	
	Survey date: MONDAY	24/11/14	Survey Type: MANUAL
4	CH-03-A-11	TOWN HOUSES	CHESHIRE
	LONDON ROAD NORTHWICH		
	LEFTWICH Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	24	
	Survey date: THURSDAY	06/06/19	Survey Type: MANUAL
5	LC-03-A-30	SEMI-DETACHED	LANCASHIRE
	WATSON ROAD BLACKPOOL		
	Edge of Town Centre Residential Zone		
	Total No of Dwellings:	24	
	Survey date: FRIDAY	14/06/13	Survey Type: MANUAL
6	LN-03-A-03	SEMI DETACHED	LINCOLNSHIRE
	ROOKERY LANE LINCOLN		
	BOULTHAM Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	22	
	Survey date: TUESDAY	18/09/12	Survey Type: MANUAL
7	LN-03-A-04	DETACHED & SEMI-DETACHED	LINCOLNSHIRE
	EGERTON ROAD LINCOLN		
	Edge of Town Centre Residential Zone		
	Total No of Dwellings:	30	
	Survey date: MONDAY	29/06/15	Survey Type: MANUAL
8	MS-03-A-03	DETACHED	MERSEYSIDE
	BEMPTON ROAD LIVERPOOL		
	OTTERSPOOL Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	15	
	Survey date: FRIDAY	21/06/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9	NF-03-A-03 HALING WAY THETFORD	DETACHED HOUSES		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		10	
	Survey date: WEDNESDAY		16/09/15	Survey Type: MANUAL
10	NF-03-A-10 HUNSTANTON ROAD HUNSTANTON	MIXED HOUSES & FLATS		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		17	
	Survey date: WEDNESDAY		12/09/18	Survey Type: DIRECTIONAL ATC COUNT
11	NY-03-A-08 NICHOLAS STREET YORK	TERRACED HOUSES		NORTH YORKSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings:		21	
	Survey date: MONDAY		16/09/13	Survey Type: MANUAL
12	NY-03-A-11 HORSEFAIR BOROUGHBRIDGE	PRIVATE HOUSING		NORTH YORKSHIRE
	Edge of Town Residential Zone Total No of Dwellings:		23	
	Survey date: WEDNESDAY		18/09/13	Survey Type: MANUAL
13	NY-03-A-13 CATTERICK ROAD CATTERICK GARRISON OLD HOSPITAL COMPOUND Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings:	TERRACED HOUSES	10	NORTH YORKSHIRE
	Survey date: WEDNESDAY		10/05/17	Survey Type: MANUAL
14	PS-03-A-01 BRYN GLAS WELSHPOOL	MIXED HOUSES		POWYS
	Edge of Town Centre Residential Zone Total No of Dwellings:		16	
	Survey date: MONDAY		11/05/15	Survey Type: MANUAL
15	PS-03-A-02 GUNROG ROAD WELSHPOOL	DETACHED/SEMI-DETACHED		POWYS
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings:		28	
	Survey date: MONDAY		11/05/15	Survey Type: MANUAL
16	SF-03-A-05 VALE LANE BURY ST EDMUNDS	DETACHED HOUSES		SUFFOLK
	Edge of Town Residential Zone Total No of Dwellings:		18	
	Survey date: WEDNESDAY		09/09/15	Survey Type: MANUAL
17	ST-03-A-06 STANFORD ROAD WOLVERHAMPTON BLAKENHALL Edge of Town Centre No Sub Category Total No of Dwellings:	SEMI-DET. & TERRACED	17	STAFFORDSHIRE
	Survey date: FRIDAY		09/05/14	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

18	ST-03-A-08	DETACHED HOUSES	STAFFORDSHIRE
	SILKMORE CRESCENT		
	STAFFORD		
	MEADOWCROFT PARK		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	26	
	Survey date: WEDNESDAY	22/11/17	Survey Type: MANUAL
19	TW-03-A-02	SEMI-DETACHED	TYNE & WEAR
	WEST PARK ROAD		
	GATESHEAD		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	16	
	Survey date: MONDAY	07/10/13	Survey Type: MANUAL
20	VG-03-A-01	SEMI-DETACHED & TERRACED	VALE OF GLAMORGAN
	ARTHUR STREET		
	BARRY		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	12	
	Survey date: MONDAY	08/05/17	Survey Type: MANUAL
21	WK-03-A-03	DETACHED HOUSES	WARWICKSHIRE
	BRESE AVENUE		
	WARWICK		
	GUYS CLIFFE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	23	
	Survey date: WEDNESDAY	25/09/19	Survey Type: MANUAL
22	WL-03-A-02	SEMI DETACHED	WILTSHIRE
	HEADLANDS GROVE		
	SWINDON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	27	
	Survey date: THURSDAY	22/09/16	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DC-03-A-08	Bungalows
NF-03-A-01	Bungalows
SH-03-A-06	Bungalows
WK-03-A-02	Bungalows

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

TOTAL VEHICLES**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	22	20	0.086	22	20	0.294	22	20	0.380
08:00 - 09:00	22	20	0.167	22	20	0.394	22	20	0.561
09:00 - 10:00	22	20	0.149	22	20	0.176	22	20	0.325
10:00 - 11:00	22	20	0.170	22	20	0.181	22	20	0.351
11:00 - 12:00	22	20	0.167	22	20	0.179	22	20	0.346
12:00 - 13:00	22	20	0.210	22	20	0.210	22	20	0.420
13:00 - 14:00	22	20	0.183	22	20	0.183	22	20	0.366
14:00 - 15:00	22	20	0.192	22	20	0.233	22	20	0.425
15:00 - 16:00	22	20	0.310	22	20	0.256	22	20	0.566
16:00 - 17:00	22	20	0.292	22	20	0.181	22	20	0.473
17:00 - 18:00	22	20	0.333	22	20	0.192	22	20	0.525
18:00 - 19:00	22	20	0.265	22	20	0.170	22	20	0.435
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.524			2.649			5.173

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	10 - 30 (units:)
Survey date range:	01/01/12 - 10/09/20
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	4

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 15 - VEHICLE SERVICES
 Category : B - MOTORIST CENTRE (FAST FIT)

TOTAL VEHICLESSelected regions and areas:

05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days
10	WALES	
	CP CAERPHILLY	1 days
11	SCOTLAND	
	FA FALKIRK	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 250 to 500 (units: sqm)
 Range Selected by User: 150 to 500 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 14/11/15

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	3

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	2
Residential Zone	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

Not Known 4 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

10,001 to 15,000	1 days
15,001 to 20,000	2 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

75,001 to 100,000	2 days
125,001 to 250,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No 4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 4 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CP-15-B-01	KWIK-FIT	CAERPHILLY
	PONTYGWINDY ROAD		
	CAERPHILLY		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Gross floor area:	250 sqm	
	Survey date: TUESDAY	17/07/12	Survey Type: MANUAL
2	DS-15-B-02	NATIONAL TYRES & AUTOCARE	DERBYSHIRE
	NOTTINGHAM ROAD		
	DERBY		
	Suburban Area (PPS6 Out of Centre)		
	Industrial Zone		
	Total Gross floor area:	320 sqm	
	Survey date: FRIDAY	26/06/15	Survey Type: MANUAL
3	FA-15-B-01	FARMER AUTOCARE	FALKIRK
	MAIN STREET		
	FALKIRK		
	BAINSFORD		
	Suburban Area (PPS6 Out of Centre)		
	Industrial Zone		
	Total Gross floor area:	500 sqm	
	Survey date: MONDAY	03/06/13	Survey Type: MANUAL
4	NY-15-B-05	KWIK FIT	NORTH YORKSHIRE
	LOW SKELLGATE		
	RIPON		
	Edge of Town Centre		
	Residential Zone		
	Total Gross floor area:	360 sqm	
	Survey date: WEDNESDAY	25/09/13	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 15 - VEHICLE SERVICES/B - MOTORIST CENTRE (FAST FIT)

TOTAL VEHICLES**Calculation factor: 100 sqm****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	358	0.699	4	358	0.210	4	358	0.909
08:00 - 09:00	4	358	2.238	4	358	0.420	4	358	2.658
09:00 - 10:00	4	358	1.888	4	358	1.049	4	358	2.937
10:00 - 11:00	4	358	1.329	4	358	1.608	4	358	2.937
11:00 - 12:00	4	358	1.888	4	358	1.678	4	358	3.566
12:00 - 13:00	4	358	1.119	4	358	1.189	4	358	2.308
13:00 - 14:00	4	358	1.399	4	358	1.329	4	358	2.728
14:00 - 15:00	4	358	1.399	4	358	1.049	4	358	2.448
15:00 - 16:00	4	358	1.399	4	358	2.098	4	358	3.497
16:00 - 17:00	4	358	1.049	4	358	2.098	4	358	3.147
17:00 - 18:00	4	358	1.189	4	358	2.098	4	358	3.287
18:00 - 19:00	4	358	0.210	4	358	0.979	4	358	1.189
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			15.806			15.805			31.611

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	250 - 500 (units: sqm)
Survey date range:	01/01/12 - 14/11/15
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



Creative Minds, *Intelligent Thinking*

Registered Office
Lugano Building, 57 Melbourne Street, Newcastle upon Tyne, NE1 2JQ
DDI: 0845 47 48 851 Cell: 07886 225 813 Fax: 0871 900 7432

Offices in...
Newcastle Upon Tyne | London | Leeds | Manchester | Birmingham | Edinburgh



**Sites Appraisal &
Feasibility Assessments**

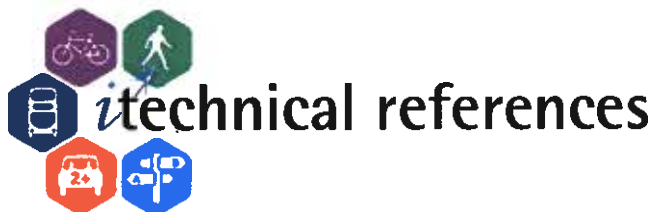
**Transport Assessments
Transport Statements
Green Sustainable Travel Plans**



© IPRT Group

Member of iPRT Group of Companies

210170



Ref.1	M/S & M/S 2	3
Ref.2	Visibility Splays.....	4
Ref.3	Pedestrian Visibility Splays	7
Ref.4	Acceptable Walking Distances – Public Transport	8
Ref.5	Acceptable Walking Distances - Walking.....	9
Ref.6	Acceptable Walking Distances - Cycling.....	11
Ref.7	Form of Access	14
Ref.8	TRICS.....	14
Ref.9	DfT and HE Guidance on Development Impact.....	15
Ref.10	Environmental Impact	16
Ref.11	Car Parking – NPPF.....	16
Ref.12	Setting of Local Speed Limits.....	17
Ref.13	Construction Traffic Guidance.....	17
Ref.14	Swept Path Analysis	22
Ref. 15	Centreline Radii & Widening on Bends (informal generic advice, always consult the LHA standards).....	23
Ref.16	Welcome Pack Links	24
Ref.17	PICs Analysis Criteria	25

Copyright – All Rights Reserved

iPRT © Group Ltd (iPRT) and all its subsidiary companies disclaim any responsibility to the Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence within the terms of the Contract with the Client and generally in accordance with iPRT's Terms and Conditions and taking account of the manpower, resources, investigations and testing devoted to it by agreement with the Client. This report is confidential to the Client and iPRT accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

Unless explicitly stated otherwise, all rights including those in copyright in the content of this document are owned by or controlled for these purposes by iPRT.

Except as otherwise expressly permitted under copyright law or its Terms of Use, the content of this document may not be copied, reproduced, republished, downloaded, posted, broadcast or transmitted in any way without first obtaining its written permission or that of the copyright owner.

Where the documents exist that are the responsibility of individual authors, the views contained within said documents do not necessarily represent the views of iPRT.

©iPRT Group Ltd 2021



REF.1 MfS & MfS 2

1. Manual for Streets defines a 'street' as ...

a highway that has important public realm functions beyond the movement of traffic. *Streets have a sense of place and are distinctive and are lined with and provide direct access to buildings and public spaces. Most highways in built-up areas can be considered as streets. The Manual does not define an upper limit in terms of traffic flow to define a 'street' as that was considered to be too prescriptive but as a general guide suggests a threshold of about 10,000 vehicles per day or about 1,000 vehicles per hour at peak times.*

Manual for Streets 2 (MfS2)

2. The Chartered Institution of Highways and Transportation (CIHT) publication 'Manual for Streets 2: Wider Application of the Principles' (MfS2) was published in September 2010 and forms a companion guide to "Manual for Streets" (MfS). MfS2 fills the perceived gap in design guidance between MfS and Design Manual for Roads and Bridges (DMRB) and has been endorsed by the Department for Transport (DfT).
3. The "Status and Application" section of MfS2 States:

"DMRB is the design standard for Trunk Roads and Motorways in England, Scotland, Wales and Northern Ireland. *The strict application of DMRB to non-trunk routes is rarely appropriate for highway design in built up areas, regardless of traffic volume.*"
4. MfS2 paragraph 1.3.3 states that:

"Where designers do refer to DMRB for detailed technical guidance on specific aspects, for example on strategic inter-urban non-trunk roads, it is recommended that they bear in mind the key principles of MfS, and apply DMRB in a way that respects local context. It is further recommended that DMRB or other standards and guidance is only used where the guidance contained in MfS is not sufficient or where particular evidence leads a designer to conclude that MfS is not applicable."
5. MfS2 paragraph 1.3.4 goes on to state:

"The application of MfS advice to all 30mph speed limits as a starting point is in keeping with MfS1"
6. Most importantly, MfS2 states in 1.3.5 - 1.3.7:

Much of the research behind MfS1 for stopping sight distance (SSD) is limited to locations with traffic speeds of less than 40mph and there is some concern that driver behaviour may change above this level as the character of the highway changes. *However, 40mph speed limits in builtup areas cover a wide range of contexts, from simple urban streets with on-street parking and direct frontage access to 2/3 lane dual carriageways. Furthermore, local context varies not only from street to street but also along the length of a street.*

Where a single carriageway street with on-street parking and direct frontage access is subject to a 40mph speed limit, its place characteristics are more of a residential street or high street, with higher traffic flows, and may result in actual speeds below the limit. It is only where actual speeds are above 40mph for significant periods of the day that DMRB parameters for SSD are recommended. Where speeds are lower, MfS parameters are recommended.

Where there may be some doubt as to which guidance to adopt, actual speed measurements should be undertaken to determine which is most appropriate.

Similarly, in rural areas many parts of the highway network are subject to the national speed limit but have traffic speeds significantly below 60mph. Again in these situations where speeds are lower than 40mph, MfS SSD parameters are recommended.

7. Scope of MfS:

Speed Limit	20mph	30mph	40mph	50+mph
User Hierarchy	●	●	●	●
Team Working	●	●	●	●
Community Function	●	●	●	●
Inclusive Design	●	●	●	●
Ped/Cycle Support	●	●	●	●
Master Plans/Design Codes	●	●	●	●
Stopping Sight Distance	●	●	●	●
Frontage Access	●	●	●	●
Minimise Signs and Street Furniture	●	●	●	●
Quality Audits	●	●	●	●
Connectivity/Permeability	●	●	●	●

Table 1.1 Application of key areas of MfS advice

Note: ● yes ● subject to local context

Figure a
Scope of MfS

REF.2 VISIBILITY SPLAYS

- Drivers emerging from minor roads or accesses require adequate visibility in each direction to enable a safe manoeuvre to be made. Visibility splay envelopes are made up of two elements, the 'x' distance and the 'y' distance. The 'x' distance is the distance along the minor road (site access) from the give way line with the major road and the 'y' distance is the distance along the nearside kerb in both directions from the centre line of the minor road. Figure b shows the construction of a typical visibility splay:

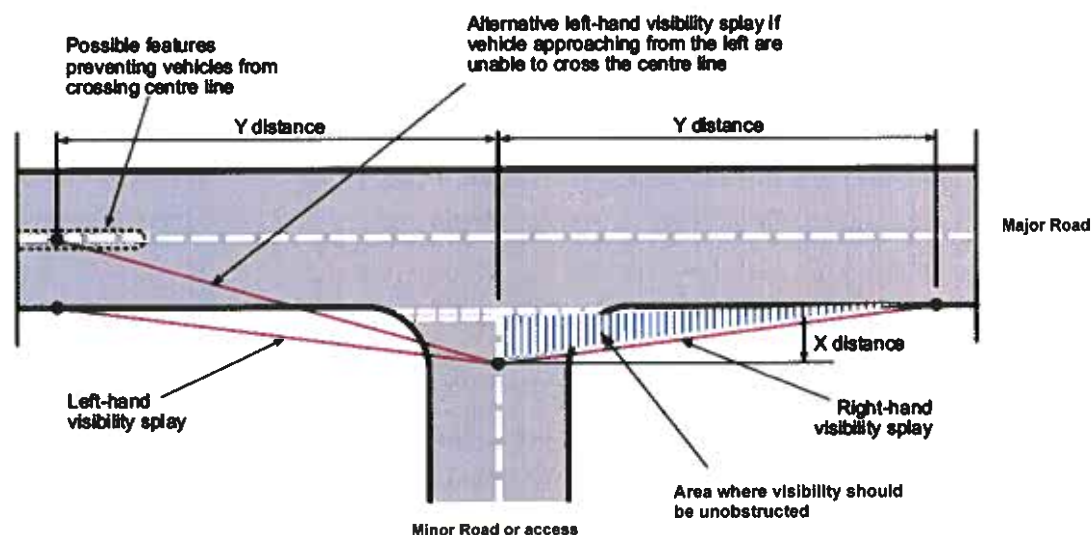


Figure b
Visibility splay requirements

9. The suggested requirements for the minor road distance (dimension 'x') is dependent upon the type of minor access and the choice of setback distance is related to the forecast traffic using the access. Figure c indicates typical requirements:

Type of Minor Road	X – Dimension (m)
The 4.5m allows vehicles to move slowly up to the give way line and leave the junction without stopping and covers the situation where two light vehicles may want to accept the same gap in the main road traffic.	4.5
The minimum necessary for motorists to see down the major road without encroaching upon it. The 2.4m set back relates to normally only one vehicle wishing to join the main road at one time.	2.4
Single dwelling or small cul-de-sac of a half a dozen dwellings, or cases of lightly used accesses and the site conditions are particularly difficult [the latter being as a relaxation]	2.0

Figure c
Typical Minor Road 'X' distance

10. The larger 'x' distance of 4.5 metres is used to reduce traffic delay on public roads and allows vehicles to move slowly up to the give way line and leave the junction without stopping. A shorter 'x' distance is appropriate as a reduced distance introduces an element of traffic calming, lowering vehicle speeds and hence, a minimum of 2.4 metres would be acceptable in this location.
11. The minimum requirement for the major road distance (dimension 'y') is dependent upon the speed of the major road. Department for Transport Design Manual for Roads and Bridges TD9/93 Table 3 [and similarly, TD42/95 Table 7/1] provides an indication of desirable minimum stopping sight distance [Figure d]

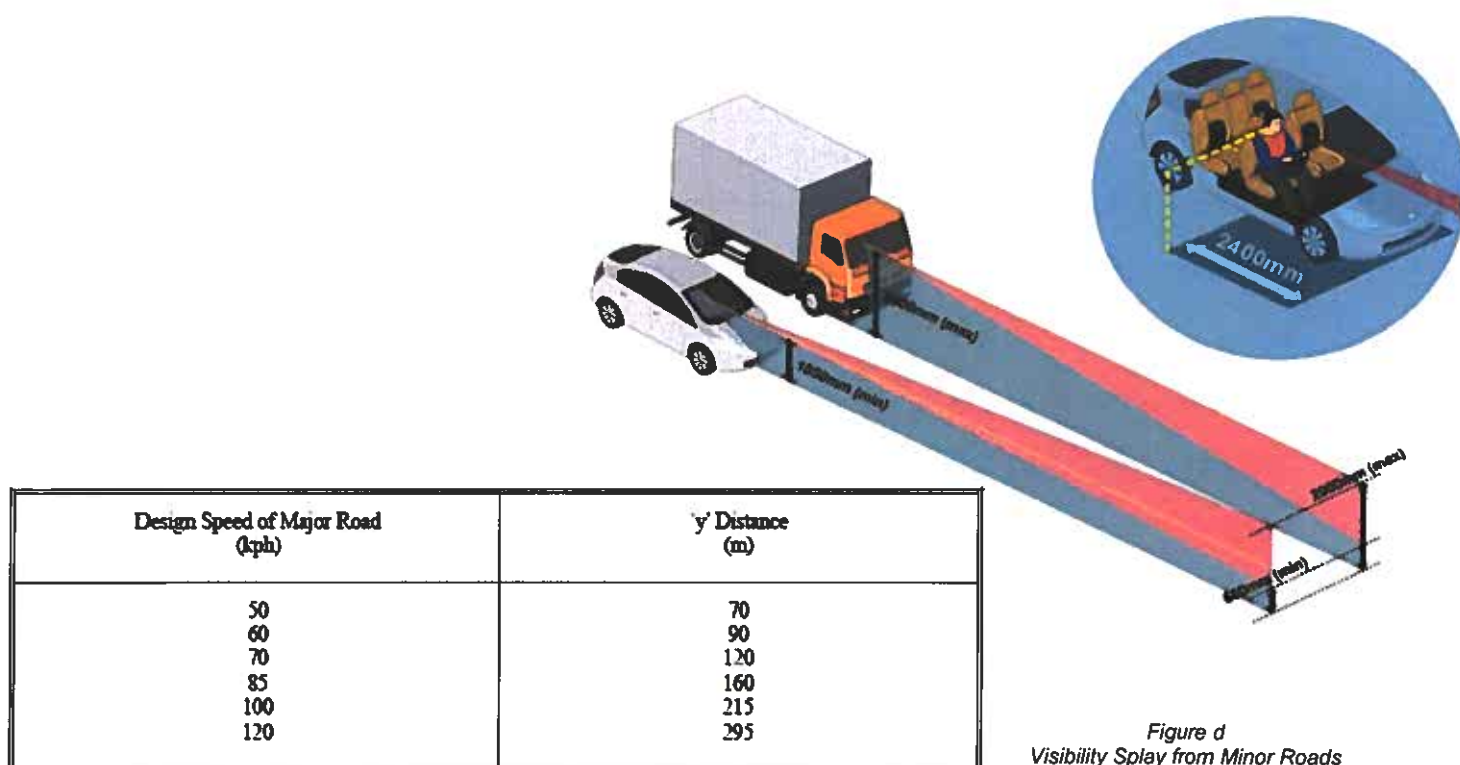


Figure d
Visibility Splay from Minor Roads

12. In the light of recent research into vehicle stopping distances and highway safety a recent DfT approved publication 'Manual for Streets 2 – Wider Application of the Principles (MfS2)', published at the end of September 2010 states the following:

- Paragraph 1.3.2 states "It is clear from Table 1.1 that most of MfS advice can be applied to a highway regardless of the speed limit. **It is therefore recommended that as a starting point for any scheme affecting non-trunk roads, designers should start with MfS**". The bold text is included within the publication itself and clearly supports the fact that vehicle stopping site distance variables are not dependent upon road classification or traffic volume, but only vehicle speed, driver perception-reaction time and deceleration
- Paragraph 1.3.6 states "...It is only where actual speeds are above 40mph for significant periods of the day that DMRB parameters for SSD are recommended. Where speeds are lower, MfS parameters are recommended"

Design Speed	Vehicle Type	Reaction Time	Deceleration Rate	SSD = $vt + \frac{v^2}{2(d+0.1a)}$ where: v = speed (m/s) t = driver perception-reaction time (seconds) d = deceleration (m/s ²) a = longitudinal gradient (%) (+ for upgrades and - for downgrades)
60kph and below	Light vehicles	1.5s	0.45g	
	HGVs	1.5s	0.375g	
	Buses	1.5s	0.375g	
Above 60kph	All vehicles	2s	0.375g (Absolute Min SSD)	
	All vehicles	2s	0.25g (Desirable Min SSD)	

$$SSD = vt + \frac{v^2}{2(d + 0.1a)}$$

speed (m/s) driver perception - reaction time (s)

deceleration rate (m/s²) longitudinal gradient (%)

Figure e
'SSD calculations formula based on MfS

Table 7.1 Derived SSDs for streets (figures rounded).

Speed	Kilometres per hour	16	20	24	25	30	32	40	45	48	50	60
	Miles per hour	10	12	15	16	19	20	25	28	30	31	37
SSD (metres)		9	12	15	16	20	22	31	36	40	43	56
SSD adjusted for bonnet length. See 7.6.4		11	14	17	18	23	25	33	39	43	45	59

Figure f
Derived SSDs for Streets – ref: MfS



13. As per M/S2, the right vis splay can be taken c. 1m into the road which is more robust – para 10.5.2

10.5.3 The Y distance represents the distance that a driver who is about to exit from the minor arm can see to the left and right along the main alignment. For simplicity it has previously been measured along the nearside kerb line of the main arm, although vehicles will normally be travelling at a distance from the kerb line. Therefore a more accurate assessment of visibility splay is made by measuring to the nearside edge of the vehicle track. The measurement is taken from the point where this line intersects the centreline of the minor arm (unless, as above, there is a splitter island in the minor arm).

REF.3 PEDESTRIAN VISIBILITY SPLAYS

14. Pedestrian sight splays of 2 metres x 2 metres will be provided to achieve clear visibility at a height not exceeding 600 mm above the adjoining carriageway level. As necessary, this will be achieved by:
- Splaying back the building or wall abutting the entrance;
 - By setting the building or wall back 2 metres behind the back edge of the footway;
 - By widening the entrance by 2 metres each side.

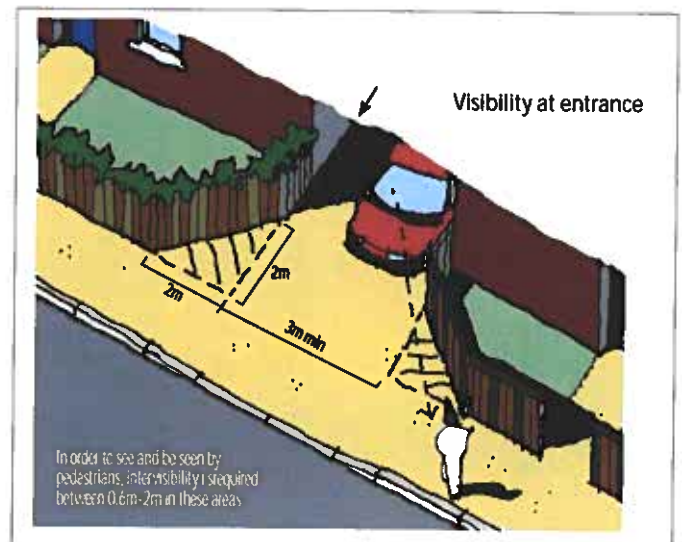
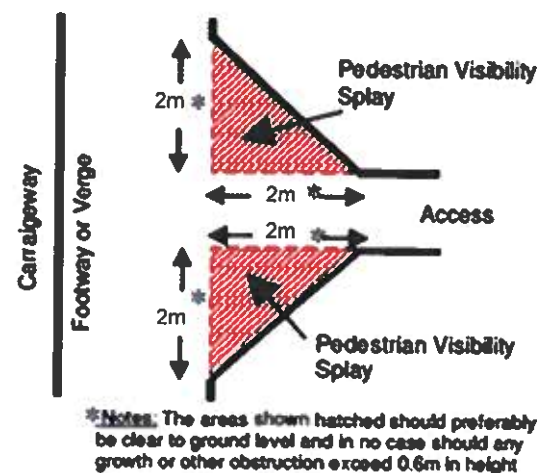


Figure g
Pedestrian Visibility Splays

REF.4 ACCEPTABLE WALKING DISTANCES – PUBLIC TRANSPORT

15. The Chartered Institution of Highways and Transportation (CIHT) publication "Guidelines for Planning for Public Transport in Developments" states

"Guidelines, not Standards; These Guidelines attempt to set out best practice. It is recognised that it will not always be possible to meet these criteria and that compromise must sometimes be made... It is the task of the professional planner, designer and engineer to decide if a lower standard is acceptable in given circumstances or if another approach would be more beneficial."

16. The above publication does state that the preferred walking distance to a bus stop is 400m, however, it further continues to state:
- "it is more important to provide frequent bus services that are easy for passengers to understand than to reduce walking distances to bus stops by a few meters"; and
 - "The bus services should NOT be distorted to satisfy this criteria [400m]".

ACCEPTABLE WALKING DISTANCES [CHARTERED INSTITUTE OF HIGHWAYS AND TRANSPORTATION]			
Walking Distance	Local Facilities *	District Facilities**	Other
Desirable	200m	500m	400m
Acceptable	400m	1000m	800m
Preferred Maximum	800m	2000m	1200m
* Includes food shops, public transport, primary schools, crèches, local play areas			
** Includes employment, secondary schools, health facilities, community / recreation facilities			

Figure h
Acceptable Walking Distances [CIHT Guidelines]

17. Walking distances have been analysed by iPRT for those trips where walking was the 1st stage mode of travel and bus was the 2nd stage mode of travel. The NTS data from 2002 to 2012 was used. The analysis shows, outside of London, the average distance people walk to a bus stop is 580m and the 85th percentile distance is 810m. It is concluded at 580m there is a good prospect people would walk to a stop and 810m is the furthest distance people could be expected to walk for a bus; these findings support Figure h.

	Median	Mean	85th Percentile
Bus Stops	480	580	810
Rail Stations	810	1010	1610

18. Further, the CIHT 2018 Buses In Urban Development publications recommends:

Table 4: Recommended maximum walking distances to bus stops

Situation	Maximum walking distance
Core bus corridors with two or more high-frequency services	500 metres
Single high-frequency routes (every 12 minutes or better)	400 metres
Less frequent routes	300 metres
Town/city centres	250 metres

NOTE: Research by ScienceDirect www.sciencedirect.com drew conclusions that the standard walking access distance is 472 meters and the maximum value is 862 meters, from the point of pedestrians' willingness. Furthermore, the ideal access time and maximum acceptable time is 8.1 minutes by 50th percentile and 16.3 minutes by 85th percentile, respectively.

REF.5 ACCEPTABLE WALKING DISTANCES - WALKING

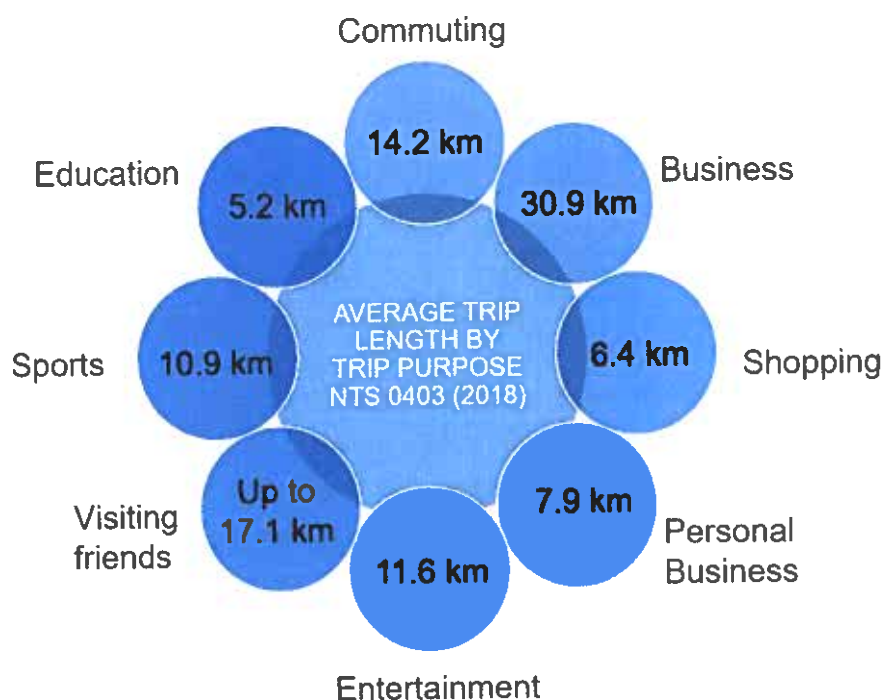
19. Whilst superseded by NPPF, the former PPG13 - Transport sets out useful guidance related to walking and cycling catchments, it states: "Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2 kilometres" (Paragraph 74):
 - The Department for Transport's (DfT) document entitled 'Manual for Streets' dated 2007 at Sections 4.4 sets out the requirements for pedestrians stating "Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot".
 - Paragraph 6.3.1 of the Department for Transport (DfT) document 'Manual for Streets' (2007) identifies that a 20 minute walk time (equivalent to a 1.6km walk distance) is acceptable subject to an attractive walking environment.
 - Table 3.2 of the Institute of Highways and Transportation (IHT) document 'Providing for Journeys on Foot' sets out acceptable maximum walk distances of, 2km for Commuting and School journeys, 800m for Town Centres, and 1.2km for elsewhere and states: "walking accounts for over a quarter of all journeys and four fifths of journeys of less than one mile" (paragraph 1.12, page 11).
20. In support of Figure H findings, walking for all purposes as the main mode of travel was interrogated using the National Travel Survey data (NTS) to calculate the average and 85th percentile distances travelled. The NTS data had between 7,700 to 8,200 fully co-operating households covering over 18,000 individuals, and so provides a robust sample. The analysis shows, outside London, the average distance people walk is 1.15km and the 85th percentile distance is 1.95km. iPRT recommends the 85th percentile distance should be used to establish the walking catchment.

Journey Purpose	Sample Size	% Split	Median (m)	Mean (m)	85 th Percentile (m)
Commuting	2166	7.1%	1000	1250	2100
Business	290	1.0%			
Education / Escort	5609	18.5%	800	1000	1600
Shopping	5958	19.6%	800	1000	1600
Other Escort	1392	4.6%	800	1100	1600
Personal Business	2730	9.0%	800	1000	1600
Leisure	5539	18.2%	800	1150	1950
Other (Including just walk)	6698	22.0%	1200	1450	2400
All	30382	100%	800	1150	1950

21. The actual distance that people will be prepared to walk to access facilities from the proposal site will depend on a number of factors, including the purpose of their journey. As stated previously, walking has the potential to replace car journeys for purposes such as employment and accessing local facilities where the distance is up to 2km.

National Travel Survey

22. The Revised NPPF (Feb 2019) continues to introduce the presumption in favour of sustainable development which should be seen as a golden thread running through both plan-making and decision-taking.
23. The Figure below from the National Travel Survey (Table 0403) outlines the average distances people will travel to undertake activities such as employment, shopping leisure, education and other key activities.



REF.6 ACCEPTABLE WALKING DISTANCES - CYCLING

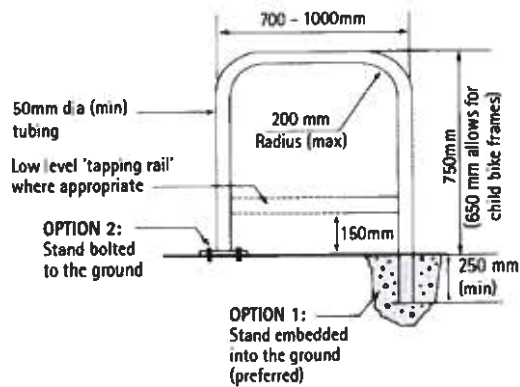
24. It has been widely acknowledged that cycling has the potential to substitute for short car trips, particularly those under 5km and to form part of a longer journey by public transport.
- This is supported by Sustrans' 2004 research Travel Behaviour Research Baseline Survey 'measuring the potential for change' that cycling offers an alternative to car travel, and particularly for trips of less than 5 kilometres. This research is supported by the 2011 National Travel Survey, which specified average journey lengths, by cycle, of c5km.
 - Similar to walking, cycling for all purposes as the main mode of travel was also interrogated using the 2010 to 2012 NTS. The analysis shows, outside London, the average distance people cycle is 4.3km and the 85th percentile distance is 7.25km. iPRT recommends the 85th percentile distance should be used to establish the cycling catchment.

Journey Purpose	Mean Distance Cycled (m)	85 th Percentile Distance Cycled (m)
Commuting	4750	8050
Leisure	5350	9650
Shopping	2550	4000
Education / Escort	2300	4000
Business	4450	8050
Personal Business	3150	4800
Other Escort	2700	4800
All Purposes	4300	7250

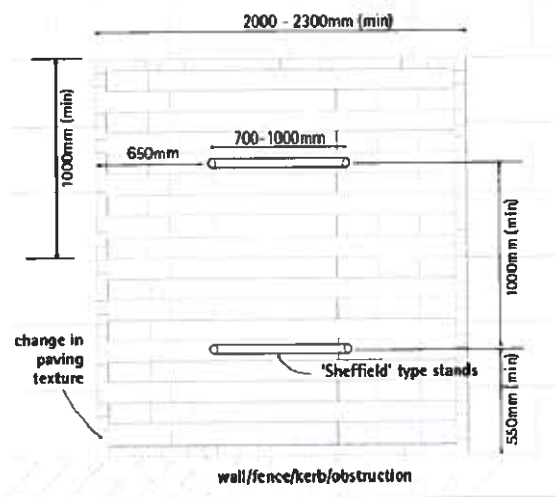
- The 2015 CIHT publication Planning for Cycling states that "the majority of cycling trips are for short distances, with 80% being less than five miles and with 40% being less than two miles. However, the majority of trips by all modes are also short distances (67% are less than five miles, and 38% are less than two miles); therefore, the bicycle is a potential mode for many of these trips (DfT, 2014a). Electric bicycles extend the range that can be cycled comfortably, and combined cycle-rail or cycle-bus journeys offer an alternative to car travel for many longer trips.

Typical Layout of Cycle Stands

Sheffield Stand



Cycle Parking Stand footprint (plan view)



Site Requirements

- The headroom is the most important factor for this racking system. A minimum of 2600mm is required for maximum capacity.
- Leave 300 to any adjoining side wall to give space for the handlebars.
- The racks are then spaced at a minimum of 400mm apart. We have found 450mm to be a good planning spacing, giving capacity as well as ensuring ease of use.
- Please allow 2000mm for the rack itself, plus a minimum of 1700mm in front for access. This access space can be used by the next row as well.
- The racks can also be installed from a central spine. For this option, please leave 2000mm for access on both sides. The 2-sided unit is then 3100mm wide.
- Racks can also be installed at a 45 or 55 degree angle to minimise space.

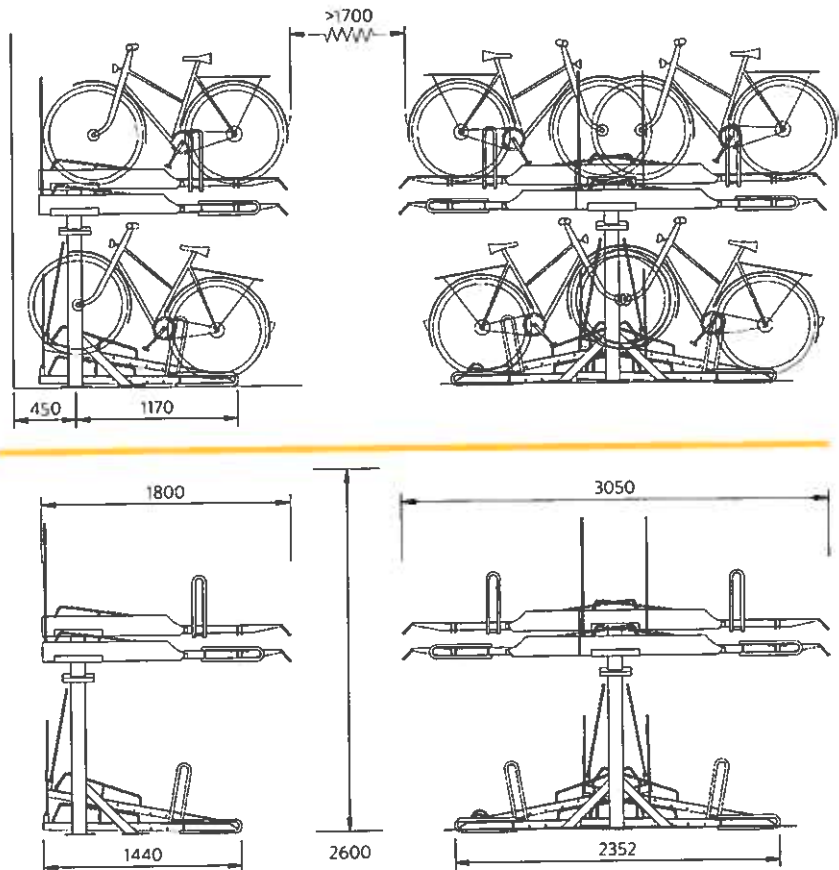


Figure i
Typical cycle stand layout (image on previous page)
High Capacity racks (bottom image)



DfT Cycling and Walking Investment Strategy

25. In April 2017, the government has published its [£1.2 billion long-term plan to make cycling and walking the natural choice for shorter journeys](#).
26. The government wants cycling and walking to become the norm by 2040 and will target funding at innovative ways to encourage people onto a bike or to use their own two feet for shorter journeys.
27. Plans include specific objectives to double cycling, reduce cycling accidents and increase the proportion of 5 to 10 year-olds walking to school to 55% by 2025.
28. The £1.2 billion is allocated as follows:
 - £50 million to provide cycling proficiency training for further 1.3 million children
 - £101 million to improve cycling infrastructure and expand cycle routes between the city centres, local communities, and key employment and retail sites
 - £85 million to make improvements to 200 sections of roads for cyclists
 - £80 million for safety and awareness training for cyclists, extra secure cycle storage, bike repair, maintenance courses and road safety measures
 - £389.5 million for councils to invest in walking and cycling schemes
 - £476.4 million from local growth funding to support walking and cycling
29. In addition, the government is investing an extra:
 - £5 million on improving cycle facilities at railway stations
 - £1 million on Living Streets' outreach programmes to encourage children to walk to school
 - £1 million on [Cycling UK's 'Big Bike Revival' scheme](#) which provides free bike maintenance and cycling classes

Access to Employment

30. The accessibility audit has identified several employment opportunities within an acceptable walking distance of the site, based on information published by the Department for Transport (DfT) and the Chartered Institution of Highways and Transportation (CIHT).
31. The CIHT document, Guidelines for Providing for Journeys on Foot suggests 2,000m as an acceptable walking distance for commuting, but also recognises a distance of up to two miles (3,200m) is practicable for walking.
32. This is supported by DfT data which shows over 40% of commuter journeys of less than 2 miles (3,200m) are by walking (Travel To Work – Personal Travel Factsheet 2011, Chart 4).

33. When considering acceptable cycling distances, DfT statistics (National Travel Survey 2014, Table NTS0306) indicate that the average cycle trip is 3.3 miles (5,300m) and DfT Local Transport Note 2/08 (LTN 2/08 – Cycle Infrastructure Design) considers that commuter trips over 5 miles (>8,000m) are not uncommon.

REF.7 FORM OF ACCESS

34. CD123 generally provide a number of basic direct access layout types which form the basis of local designs

Figure 2.3.1 Approximate priority junction provision on single carriageway roads based on flows only

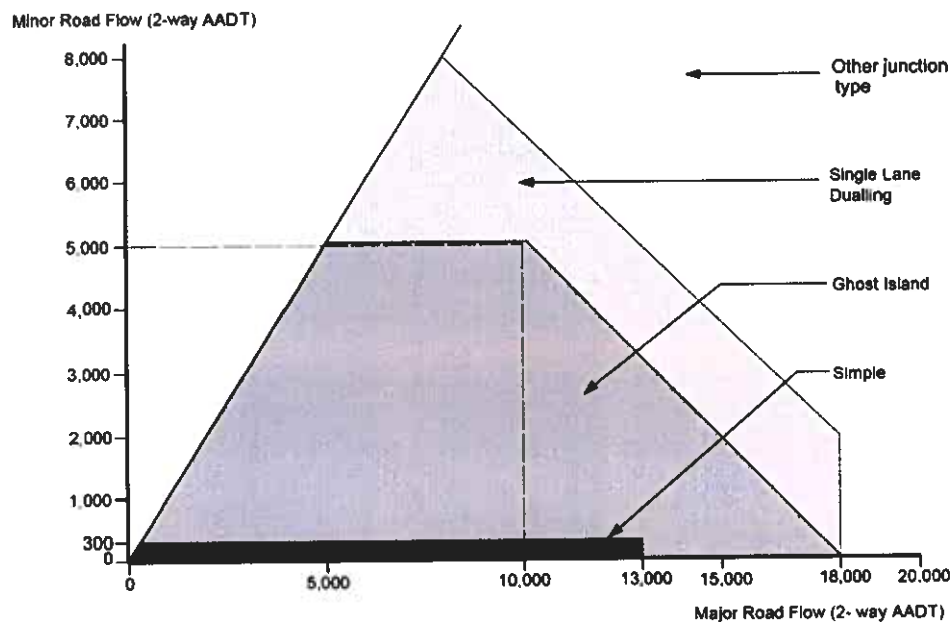


Figure j
Form of Access

REF.8 TRICS

35. The following site compatibility by main location type matrix was used [TRICS Table 4.1]:

Location Type	Town Centre	Edge of Town Centre	Suburban Area	Edge of Town	Neighbourhood Centre	Free Standing
Town Centre	-	Possibly compatible	Not compatible	Not compatible	Not compatible	Not compatible
Edge of Town Centre	Possibly compatible	-	Possibly compatible	Possibly compatible	Not compatible	Not compatible
Suburban Area	Not compatible	Possibly compatible	-	Possibly compatible	Possibly compatible	Not compatible
Edge of Town	Not compatible	Possibly compatible	Possibly compatible	-	Possibly compatible	Possibly compatible
Neighbourhood Centre	Not compatible	Not compatible	Possibly compatible	Possibly compatible	-	Not compatible
Free Standing	Not compatible	Not compatible	Not compatible	Possibly compatible	Not compatible	-

Figure k
TRICS sites compatibility

36. In October 2019, TRICS publication 'A Comparison of Vehicular Trip Rate Variation by TRICS Region and Location Type – Technical Note' was issued and concluded in paras 6.9 & 6.10:

(6.9.) These results provide us with a much greater level of clarity than we had before the study was undertaken. The question asked was 'Does regional selection in the TRICS trip rate calculation filtering process influence vehicular trip generation, when compared to location type selection?'. We can conclude from this study that regional selection should not be the major consideration when applying trip rate calculation filtering criteria, whilst TRICS location type appears to be one of the most influential factors in terms of vehicular trip generation, and therefore should be one of the main filtering considerations.

(6.10.) This study reaffirms our existing TRICS Good Practice Guidance in the area of regional vehicular trip rate variation. Before we undertook this analysis, TRICS Consortium Limited was of the opinion that factors other than region had the most influence on vehicular trip rate variation, and this has in the past been indicated by the range of vehicular trip rates that can be obtained within individual trip rate calculations, the study of rank order scatterplots and other features within the TRICS system, and of course the experience of the TRICS team. We have now undertaken and published for the first time a detailed vehicular analysis of key land use categories within the TRICS database, which has concluded that TRICS location type, when compared to regional selection, provides a much greater and consistent influence on vehicular trip rate variation. The 2020 TRICS Good Practice Guide shall reference this report accordingly.

REF.9 DfT AND HE GUIDANCE ON DEVELOPMENT IMPACT

37. Although superseded, the technical principles of the DfT Guidance on Transport Assessment [GTA] are robust and suggest in Paragraph 2.11 that the thresholds below which a formal assessment may not be needed, and above which the preparation of a TS or a TA would be appropriate. The thresholds are based upon scenarios which would typically generate 30 two-way peak hour vehicle trips. However, the Guidance does further state that *"Whilst there is no suggestion that 30 two-way peak hour vehicle trips would, in themselves, cause a detrimental impact, it is a useful point of reference from which to commence discussions"*.
38. Further, 'Guidelines for Traffic Impact Assessment' published by The Chartered Institution of Highways and Transportation' principles also remain robust and indicate that a significant traffic impact occurs when:-
- Traffic to and from the development exceeds 10% of the existing two-way traffic flow on the adjoining highway.
 - Traffic to and from the development exceeds 5% of the existing two-way traffic flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations.

If the TA confirms that a development will have severe impact on the highway network, the level of impact at all critical locations on the network should be established. A particular example of severe impact would be severe worsening of congestion.

39. Highway England's Network Analysis Tool [NAT] suggests that NO material impact may occur because there is no link where development of the site would generate a two-way total of more than 30 trips. The NAT states:
- *No material impact* – because there is no link where development of the site would generate a two-way total of more than 30 trips.
 - *Minimal material impact* – where there is no link where the total increase in two-way AM peak hour flow is greater than 35 trips. The choice of 35 is based on an application of the expectation that travel planning cannot deliver a mode shift of more than 15%. Therefore, a robust travel plan to be implemented in these cases.
 - *Material impact* – where the increase in total two-way flow on any link is in the range 35-50 trips. At these locations, it is expected that a robust travel plan and a case-by-case assessment of the need for physical mitigation measures.
 - *Major impact* - with an increase in total two-way flow on any link in excess of 50 trips. It is expected that a robust travel plan with physical mitigation likely to be necessary and funded by the developer

REF.10 ENVIRONMENTAL IMPACT

40. 'Guidelines for the Environmental Assessment of Road Traffic' sets out two rules which justify the need for an environmental assessment and indicate potential impacts.
- Rule 1 include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%).
 - Rule 2 include any other specifically sensitive areas where traffic flows have increased by 10% or more (or HGV flows have increased significantly).

REF.11 CAR PARKING – NPPF

41. The NPPF mirrors previous amendments to PPG13 issued in January 2011 aiming to reduce congestion and encourage sustainable development and shared parking, particularly in town centres; This government is keen to ensure that there is adequate parking provision both in new residential developments and around our town centres and high streets.
42. The imposition of maximum parking standards under previous governments lead to blocked and congested streets and pavement parking. Arbitrarily restricting new off-street parking spaces does not reduce car use, it just leads to parking misery. It is for this reason that the government abolished national maximum parking standards in 2011. The market is best placed to decide if additional parking spaces should be provided
43. The June 2019 Revised NPPF now states:

If setting local parking standards for residential and non-residential development, policies should take into account (para 105):

- a. the accessibility of the development;
- b. the type, mix and use of development;
- c. the availability of and opportunities for public transport;
- d. local car ownership levels; and
- e. the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.

Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport (in accordance with chapter 11 of this Framework). In town centres, local authorities should seek to improve the quality of parking so that it is convenient, safe and secure, alongside measures to promote accessibility for pedestrians and cyclists (para 106).

REF.12 SETTING OF LOCAL SPEED LIMITS

- 44. The Department for Transport Circular 01/2013 - 'Setting of Local Speed Limits' identified that each Local Authority should respond to the guidance by undertaking a review of all their A & B class roads. The Circular also states that all traffic authorities are required to use the guidance to keep their speed limits under review to accommodate changing circumstances.
- 45. A key theme of the guidance is that speed limits should be evidence led, self-explaining and seek to re-enforce drivers assessment of what is a safe speed and therefore encourage self-compliance. The guidance also identifies the role of effective speed management and defines that many components of design will need to be considered in parallel to help and encourage road users to adopt compliant and safe speeds.

REF.13 CONSTRUCTION TRAFFIC GUIDANCE

- 46. The law says that you must organise a construction site so that vehicles and pedestrians using site routes can move around safely. The routes need to be suitable for the persons or vehicles using them, in suitable positions and sufficient in number and size. The term 'vehicles' includes: cars, vans, lorries, low-loaders and mobile plant such as excavators, lift trucks and site dumpers etc.
- 47. *The key message is:* construction site vehicle collisions can and should be prevented by the effective management of transport operations throughout the construction process.
- 48. Key issues in dealing with traffic management on site are:
 - Keeping pedestrians and vehicles apart

- Minimising vehicle movements
- People on site
- Turning vehicles
- Visibility
- Signs and instructions

Keeping pedestrians and vehicles apart

49. The majority of construction transport accidents result from the inadequate separation of pedestrians and vehicles. This can usually be avoided by careful planning, particularly at the design stage, and by controlling vehicle operations during construction work.
50. The following actions will help keep pedestrians and vehicles apart:
- **Entrances and exits** - provide separate entry and exit gateways for pedestrians and vehicles;
 - **Walkways** - provide firm, level, well-drained pedestrian walkways that take a direct route where possible;
 - **Crossings** - where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;
 - **Visibility** - make sure drivers driving out onto public roads can see both ways along the footway before they move on to it;
 - **Obstructions** – do not block walkways so that pedestrians have to step onto the vehicle route; and
 - **Barriers** - think about installing a barrier between the roadway and walkway.

Minimising vehicle movements

51. Good planning can help to minimise vehicle movement around a site. For example, landscaping to reduce the quantities of fill or spoil movement. To limit the number of vehicles on site:
- provide car and van parking for the workforce and visitors away from the work area;
 - control entry to the work area; and
 - plan storage areas so that delivery vehicles do not have to cross the site.

People on site

52. The Contractor should take steps to make sure that all workers are fit and competent to operate the vehicles, machines and attachments they use on site by, for example:
- checks when recruiting drivers/operators or hiring contractors;
 - training drivers and operators;
 - managing the activities of visiting drivers;
 - People who direct vehicle movements (signallers) must be trained and authorised to do so and

- Accidents can also occur when untrained or inexperienced workers drive construction vehicles without authority. Access to vehicles should be managed and people alerted to the risk.

Turning vehicles

- The need for vehicles to reverse should be avoided where possible as reversing is a major cause of fatal accidents.
- One-way systems can reduce the risk, especially in storage areas.
- A turning circle could be installed so that vehicles can turn without reversing.

Visibility

53. If vehicles reverse in areas where pedestrians cannot be excluded the risk is elevated and visibility becomes a vital consideration.
54. The Contractor should consider:
 - **Aids for drivers** - mirrors, CCTV cameras or reversing alarms that can help drivers can see movement all round the vehicle;
 - **Signallers** - who can be appointed to control manoeuvres and who are trained in the task;
 - **Lighting** - so that drivers and pedestrians on shared routes can see each other easily. Lighting may be needed after sunset or in bad weather;
 - **Clothing** - pedestrians on site should wear high-visibility clothing.

Signs and instructions

55. The Contractor should:
 - Make sure that all drivers and pedestrians know and understand the routes and traffic rules on site. Use standard road signs where appropriate
 - Provide induction training for drivers, **workers** and visitors and send instructions out to visitors before their visit.

Construction Traffic Management Plan

56. The CTMP will be produced and would typically be expected to contain some or all of the following in detail:
 - The CTMP must be appropriately titled, include the site and planning permission number;
 - Contact details of the Project Manager and Site Supervisor responsible for on-site works to be provided;
 - Routing of construction traffic and delivery vehicles will be shown and signed appropriately to the necessary standards/requirements. This includes means of access into the site;
 - Details of and approval of any road closures needed during construction;
 - Details of and approval of any traffic management needed during construction;

- Details of appropriate signing, to accord with the necessary standards/requirements, for pedestrians during construction works, including any footpath diversions;
- The erection and maintenance of security hoarding / scaffolding if required;
- A regime to inspect and maintain all signing, barriers etc;
- Details of wheel cleaning/wash facilities – to prevent mud etc, in vehicle tyres/wheels, from migrating onto adjacent highway;
- The use of appropriately trained, qualified and certificated banksmen for guiding vehicles/unloading etc;
- No unnecessary parking of site related vehicles (worker transport etc) in the vicinity – details of where these will be parked and occupiers transported to/from site to be submitted for consideration and approval. Areas to be shown on a plan not less than 1:500.
- Layout plan of the site that shows structures, roads, site storage, compound, pedestrian routes etc.
- Any temporary access arrangements to be agreed with and approved by the LPA Highways dept;
- Details of times for construction traffic and delivery vehicles, which must be outside network peak and school peak hours.
- Details of temporary traffic management measures, temporary access, routes and vehicles;
- The parking of vehicles of site operatives and visitors;
- The loading and unloading of plant and materials;
- Storage of plant and materials used in constructing the development;
- Measures to control vibration;
- Measures to control the emission of dust and dirt;
- A scheme for the recycling and disposing of waste as a result of construction works;
- Hours of operation to be agreed in writing by the local planning authority;
- The erection and maintenance of security hoardings, including decorative displays and facilities for public viewing;
- Communication plan for liaising with the public; and
- Method to prevent contamination of the drainage network during construction.

57. Traffic movements and site conditions recommendations include but not limited to:

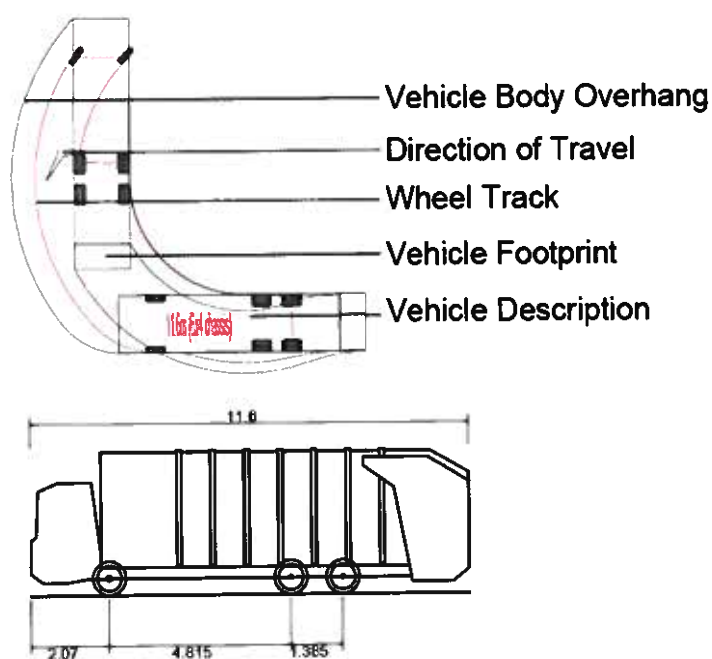
- Immediately upon commencement, all deliveries, operatives and visitors to the Project will report to the security gate. This will be communicated to all early works contractors at their Pre-start meeting;
- The main contractor should develop a logistics plan highlighting the access point for the project, loading bay, pedestrian / vehicular segregation, welfare, storage, security & material handling that will be enforced following the full Site establishment;

- Contractors, visitors and staff will use existing pedestrian pathways until such time as the sites are enclosed and access control is operational;
 - Clarification of site clearance and construction work working days and hours;
 - The construction materials 'lay down' areas will allow for a staggered delivery schedule throughout the day, avoiding peak and unsociable hours;
 - An integral part to the progress meetings held with all trade contractors is the delivery schedule pro-forma. In line with the recommendations of this study, all contractors should be required to give details of proposed timing of material deliveries to the site. At this stage they will be given a specific area for delivery;
 - The Traffic Management Plan and the control measures therein should be included within all trade contractor tender enquiries to ensure early understanding and acceptance / compliance with the rules that will be enforced on this project;
 - Under no circumstance will HGVs be allowed to lay-up in surrounding roads. All personnel in the team will be in contact with each other and site management who in turn will have mobile and telephone contact with the subcontractors; and
 - Maintain roads in a clean and safe condition.
58. The Principal Contractor would be encouraged to give serious consideration to local suppliers and priorities to those with premises adjoining the proposed development. This would enable construction materials to be delivered in the shortest possible distances, minimising the impact on the highways network.
59. Further, should any abnormal loads be delivered using the highways network, this would be programmed well in advance, notified to and in accordance with the Highways England [HE] and the Police and preferably between the hours of 22:00 and 05:00 [subject to the HE and traffic police agreement] and in line with the HE's latest abnormal loads procedures [ESDAL <https://www.gov.uk/esdal-abnormal-load-notification>].
60. HGVs must not arrive or leave the sites except between agreed hours. Any proposed HGV movements outside the agreed hours must be notified to the Construction Manager for prior approval with the Highway Authority and where relevant, the HE.
- Security / gatemen will be in position half an hour before start of work and before the earliest delivery time.
 - If relevant, persistent offenders will be reported to the Project Manager, who will action with the directors of the offending company.
61. All plant and vehicles would have engines isolated when not in use.
62. The Principal Contractor to provide a schedule, detailing the volume, timing, density and type of construction traffic in order to ensure that impact on the highways network is kept to a minimum.
63. Measures shall be developed to control the traffic on site and the Traffic Management Plan must be updated regularly as the project develops.

64. The Principal Contractor, in liaison with the Highway Authority, would install access signage for their construction traffic at designated areas to minimise the potential of vehicles taking the incorrect route. The Principal Contractor and site operators must abide by all restrictions associated with Planning Permission.

REF.14 SWEPT PATH ANALYSIS

VEHICLE KEY & SPECIFICATION - GENERIC EXAMPLE



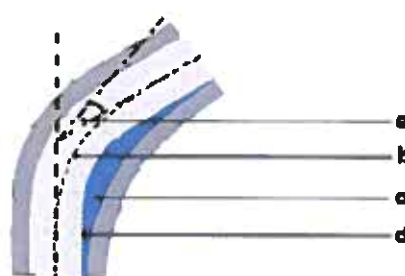
11.6m (6x4 chassis)	
Overall Length	11.600m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m

Figure L
Swept Path Analysis

REF. 15 CENTRELINE RADII & WIDENING ON BENDS (informal generic advice, always consult the LHA standards)

Speed Restraint within a 20mph Zone

65. To encourage adherence to the designed maximum speed of 20mph, it is necessary to implement engineering measure such as changes in horizontal or vertical alignments, localised narrowing, chicanes, islands and or gateways.
66. The most common approach in residential developments / 20mph zones is for the road speed to be self-enforcing hence, changes in horizontal alignment / Bends: These should be tighter than the minimum specified for each street type, down to a minimum centreline bend radius of 7.5m. The deflection should be greater than 45 degrees with a mountable shoulder to enable larger vehicles to overrun.



- a. Deflection greater than 45°
- b. Centreline bend radius less than minimum specified for road type
- c. Vehicle deterrent paving 1/36 slope into road
- d. 15mm maximum upstand

Road Type	Carriageway Width (m)	Minimum Centre Line Radius (m)
Local Housing Estate Distributor Roads	7.3	60
Approach Roads	6 to 6.75	26
Access Roads	5.5	20
Industrial/Commercial Estate Road	7.3 minimum	70 and over
Bus Route	6.75 minimum	30

The swept path of vehicles on bends is greater than the width of the vehicle itself. In order to enable vehicles to pass, curve widening corresponding with values set out below is necessary. The widening may be split equally each side of the road or totally on the inside over the full length of the horizontal curve. The kerb lines are to be tapered into the standard carriageway width at a minimum of 1:25 from the tangent points.

Centre line radius (m)	20	30	40	50	60	80-400	400 +
Minimum widening (m)	0.60	0.40	0.35	0.25	0.20	0.15	0.00

Figure M
Centreline Radii & Widening

REF.16 WELCOME PACK LINKS

67. As a minimum, the Welcome Pack should include the following:



For live links to all the above sites please visit

<https://www.iprtgroup.com/Links/>

Figure N
Welcome Pack Links

REF.17 PICs ANALYSIS CRITERIA

PRECIPITATING FACTORS	MAIN CONTRIBUTORY FACTOR
Failed to give way	Behaviour - careless/thoughtless/reckless Failed to judge other person's path or speed Failed to look Looked but did not see Inattention
Failed to avoid vehicle or object in carriageway	Behaviour - careless/thoughtless/reckless Failed to judge other person's path or speed Failed to look Looked but did not see Inattention Excessive speed Following too close Lack of judgement of own path
Loss of control of vehicle	Impairment – alcohol Behaviour - careless/thoughtless/reckless Behaviour - in a hurry Inattention Excessive speed Inexperience of driving Interaction/competition with other road users Lack of judgement of own path Site details - bend/winding road Slippery road
Pedestrian entered carriageway without due care	Impairment – alcohol Behaviour - careless/thoughtless/reckless Behaviour - in a hurry Failed to judge other person's path or speed Failed to look Looked but did not see Inattention Crossed from behind parked vehicle etc.
Poor turn / manoeuvre	Behaviour - careless/thoughtless/reckless Failed to judge other person's path or speed Failed to look Looked but did not see Inattention Excessive speed Lack of judgement of own path

Figure O
PIC Analysis Criteria



Creative Minds, *Intelligent Thinking*

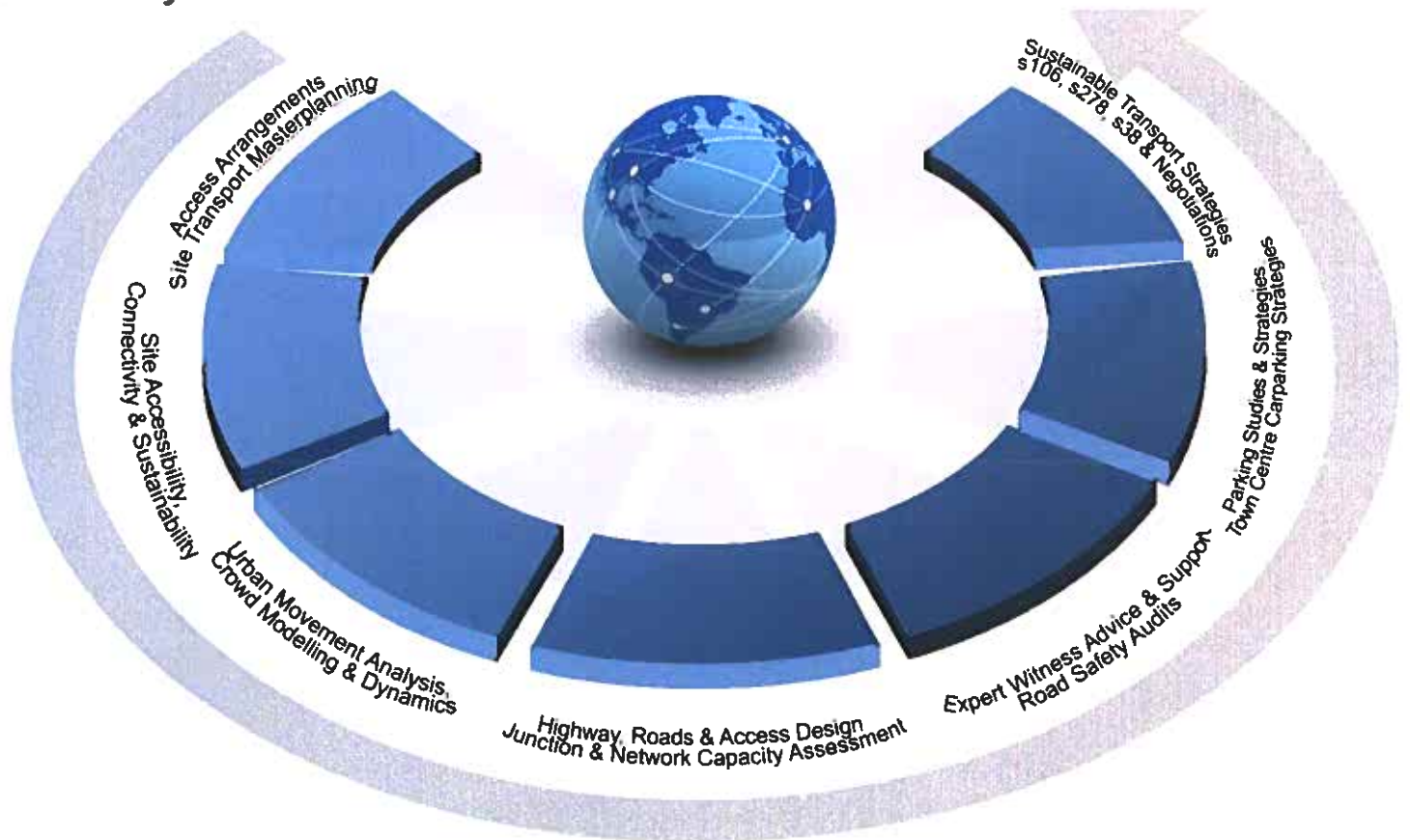
Registered Office
Lugano Building, 57 Melbourne Street, Newcastle upon Tyne, NE1 2JQ
DDI: 0845 47 48 851 Cell: 07886 225 813 Fax: 0871 900 7432

Offices in...
Newcastle Upon Tyne | London | Leeds | Manchester | Birmingham | Edinburgh



Sites Appraisal & Feasibility Assessments

Transport Assessments Transport Statements Green Sustainable Travel Plans



Member of iPRT Group of Companies