Hydrock

East Devon New Community

Sustainable Access Review of Option Sites

For *East Devon District Council*

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Executive Summary

This Sustainable Access Review provides an initial assessment to help shape and inform discussions regarding the location of a potential new community of up to 8,000 new homes in East Devon. Three Option sites have been examined against a range of criteria, focusing on their credentials for enabling and facilitating travel by sustainable transport modes given the requirements of local and national policy, and the climate emergency context.

Following the completion of traffic modelling by consultants acting on behalf of Devon County Council (DCC), this report sits alongside a high-level comparative Strategic Traffic Review, with both reports brought together in an overarching Summary Note.

This review, prepared by Hydrock's Transportation team in consultation with East Devon District Council (EDDC) and DCC, takes account of the local context, current constraints, and the emerging vision for the new community - e.g. the potential to achieve a development which incentivises and delivers high-levels of non-car travel, makes suitable provision for residual car trips/parking (including Electric Vehicles (EVs), and considers new and emerging transport technologies including e-bikes/scooters, other forms of micromobility, and Autonomous Vehicles (AVs). More detailed proposals for such provision will form part of the high-level Transport Assessment for the preferred site, once this has been determined by EDDC; at this stage, consideration has been given to the differing nature of each of the sites and whether this enhances or restricts potential access by all modes. For example, even if high quality cycle facilities are provided, a site that lies closer to large employment areas is likely to see higher levels of cycle commuting than one that lies further away.

While many transport aspects of each site could be addressed or improved (e.g. public transport provision), there will be some fundamental elements of their location or topography that will either be more expensive to mitigate or continue to have an underlying effect. Each Option has been reviewed and scored across four key areas, walking, cycling, public transport and proximity to employment. For each site, a high-level commentary is provided on its ability to accommodate emerging and future transport modes.

The table below provides a summary of the three potential Options for a new town in East Devon, and their respective scores.

Assessment Category	Option One	Option Two	Option Three
Walking	4	1	4
Cycling	4	2	4
Public Transport	4	2	4
Employment	5	3	4
Overall (/20)	**17**	**8**	**16**
Rounded Average Score	**4.3**	**2**	**4**

Options One and Three perform strongly across all categories, and are considered to be evenly matched in terms of transport sustainability. Option Two would require the greatest level of intervention, and provides the lowest opportunity to promote sustainable transport.

1. Introduction

1.1 Overview

1.1.1 This Strategic Transport Review document has been prepared by Hydrock on behalf of East Devon District Council (EDDC) as an initial exercise to help shape and inform discussions regarding the location of a potential new community of up to 8,000 new homes in the western part of East Devon, to the east of Exeter.

1.1.2 This document explores the opportunities and constraints for sustainable transport provided by three potential locations for the new town and, at a high level, given the rapidly-changing nature of such technologies, provides commentary on their comparative suitability for emerging and future modes of transport.

1.1.3 The new community will be shaped by a vision which places an emphasis on active travel, greater connectivity and innovative transport technologies, in line with the Exeter Transport Strategy (2021). This report therefore focuses on the existing and potential accessibility and connectivity of the three Options, including an assessment using principles established within Sustrans' 20-minute neighbourhood concept. It then provides a comparison of the sustainable transport accessibility credentials of the Options.

1.2 Report Structure

1.2.1 The structure of the report is as follows:

- Section 2: Policy Context and Objectives
- Section 3: Walking Connectivity
- Section 4: Cycle Connectivity
- Section 5: Public Transport Connectivity
- Section 6: Existing Employment Context
- Section 7: Future Proofing
- Section 8: Conclusion and Next Steps

1.3 Option Locations

1.3.1 The three Option locations are all in the western part of the EDDC area, to the east of Exeter, and are shown indicatively at Figure 1.1.

- **Option One** is located approximately 7km east of Exeter city centre and 3km east of the M5. The A30 is to the north of the Option and the A3052 is to the south of the Option; Exeter Airport is also located less than 500m north of the Option One's northern boundary.
- **Option Two** is located approximately 9km south-east of Exeter city centre and has the potential to be bisected by the A3052. The village of Woodbury Salterton is located south of the Option's indicative boundary, with Greendale Business Park and Greendale Farm shop located within the Option's area.
- **Option Three** is located adjacent to the A376, in between Clyst St George (to the south-west) and Clyst St Mary (to the north-west). Option Three is 2km east of Topsham, which offers a rail link to Exeter and Exmouth via the Avocet Line.

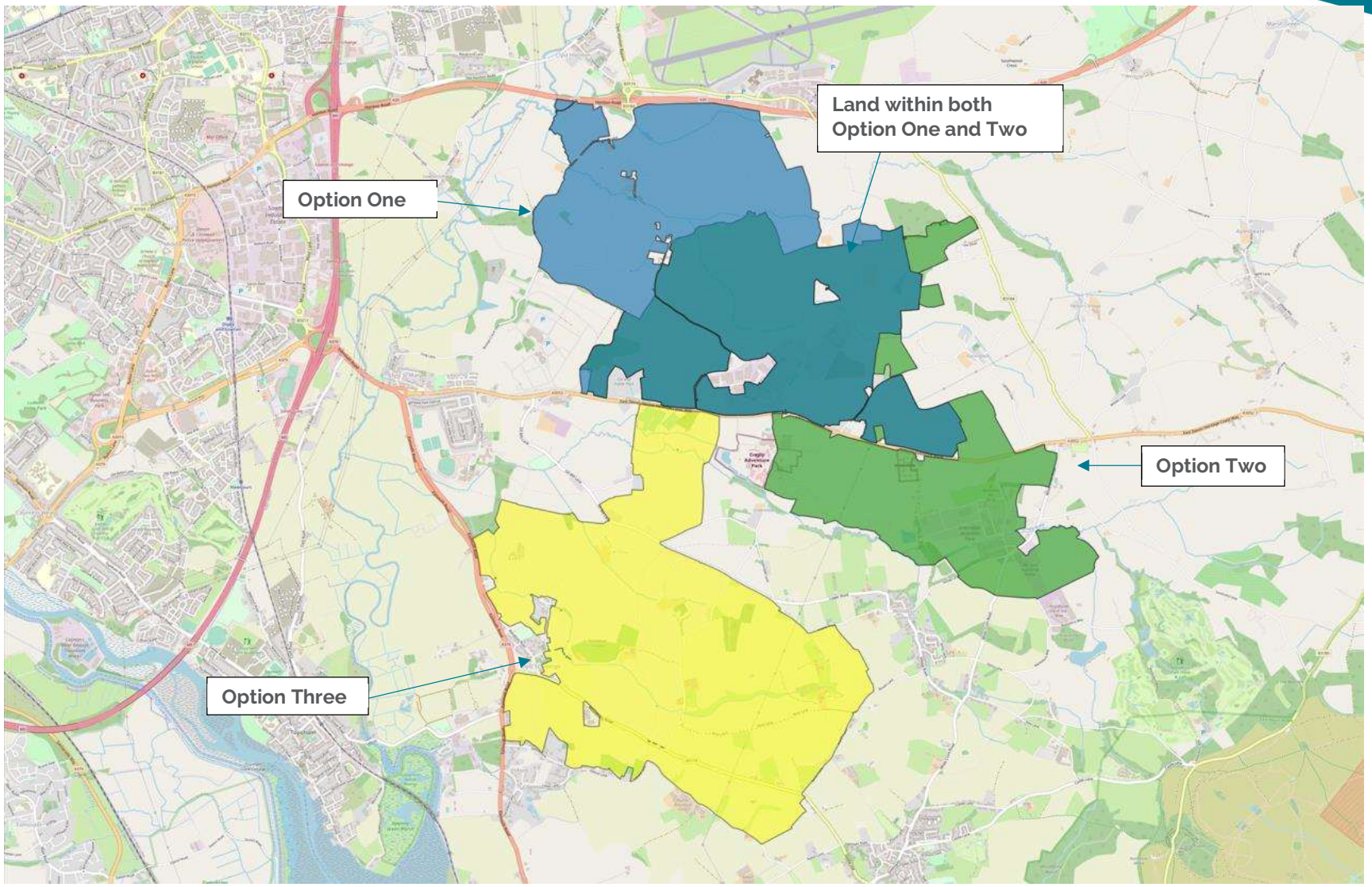

Figure 1.1: Option One Location

1.4 Local Highway Network

1.4.1 The local highway network in the vicinity of the three Options is summarised at Figure 1.2.

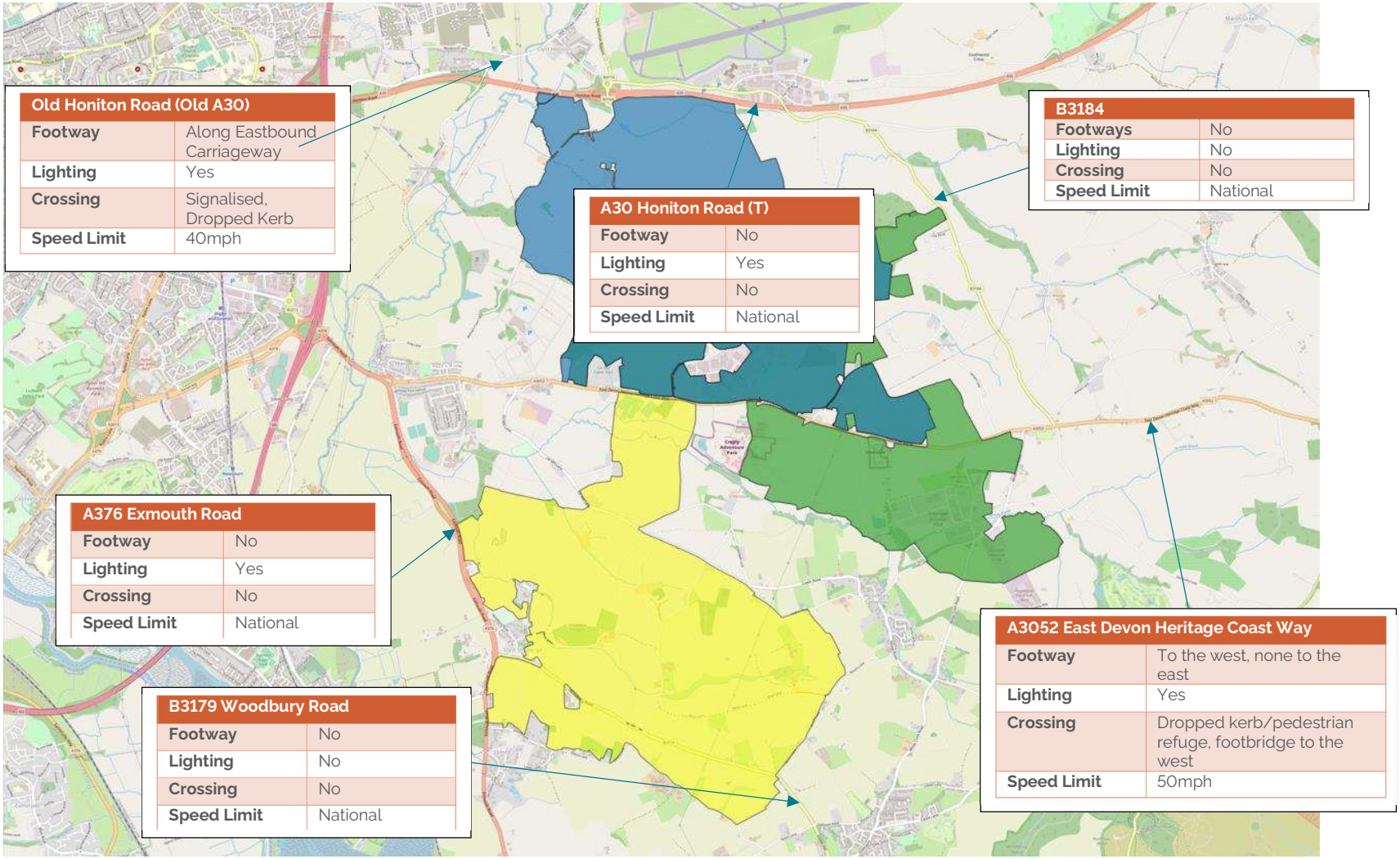

Figure 1.2: Local Highway Network

2. Policy Context and Objectives

2.1 Climate Emergency – 2040 Carbon Neutral Target

2.1.1 We live in a very different world to one that existed 20 years ago. In fact, we live in a very different world to the one that existed in 2019. The COVID-19 pandemic has accelerated a lifestyle change beyond anything that could have been foreseen.

2.1.2 Change was already on the horizon. The climate change agenda and the climate emergency declarations of local authorities necessitate this. EDDC is committed to becoming carbon neutral by 2040, with a five-year strategy and action plan in place to support this goal.

2.1.3 Transport has a fundamental role to play in tackling climate change, as the transport sector has been the largest greenhouse gas (GHG) emitting sector in the UK since 2016.

2.1.4 We risk missing the 2040 target by a substantial margin unless we significantly alter current behaviours, known technologies and our approach to masterplanning and development.

Figure 3: Greenhouse gas emissions by sector, 2019, by proportion (BEIS, 2021)

Figure 2.1: Greenhouse gas emissions by sector, 2019, by proportion[1]

2.1.5 Subject to confirmation by EDDC, it is likely that accelerating and supporting the path towards net zero will form a key element of the vision for the new community.

2.2 National Policy

National Planning Policy Framework

2.2.1 The National Planning Policy Framework (NPPF – as updated 5th September 2023) sets out the government's planning policies for England, focusing on the promotion of sustainable transport at Chapter 9, where it states "*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*."

2.2.2 It encourages transport issues to be considered from the earliest stages, to identify opportunities to promote sustainable travel and make high quality places.

[1] Figure 3, DfT Transport and Environment Statistics 2021 Annual report https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984685/transport-and-environment-statistics-2021.pdf

2.2.3 It recognises that an appropriate mix of uses can minimise the number and length of journeys needed, and that infrastructure can be used to widen transport choice.

2.2.4 It states that development should give priority first to pedestrian and cycle movements and facilitate access to high quality public transport.

2.2.5 The NPPF defines Sustainable Transport Modes as *'Any efficient, safe and accessible means of transport with overall low impact on the environment, including walking and cycling, ultra low and zero emission vehicles, car sharing and public transport'*. Other considerations pertinent to emerging vehicle technologies include the support within the NPPF for next generation mobile technologies including 5G networks and other future connected transport / smart cities applications.

2.2.6 The NPPF also notes that planning policies should *'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'*. This is relevant in the context of the nearby Exeter International Airport, which will need to be consulted in relation to the emerging development options via the Local Plan process in line with government policy.

Department for Transport

2.2.7 The recently published Transport Decarbonisation Plan (DfT 2021), will need to form a central pillar to all future plans to support the sustainable mobility aspirations of the Option allocation process.

2.2.8 The DfT's Gear Change: a bold vision for cycling and walking (2020) sets out the vision to make England a great walking and cycling nation, alongside the actions to make this a reality, grouped under four themes:

- Better streets for cycling and people
- Cycling and walking at the heart of decision-making
- Empowering and encouraging local authorities
- Enabling people to cycle and protecting them when they do.

2.2.9 Alongside the Transport Decarbonisation Plan, this gives a clear indication of the importance of walking and cycling to the Government.

2.2.10 The DfT states as part of The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy (DfT, 2018) that Electric vehicles (EVs) are highly energy efficient and have zero tailpipe emissions. EVs also have substantially lower greenhouse gas emissions than conventional vehicles, even when taking into account the electricity source and the electricity used for battery production. They are therefore a key tool to help to contribute to cleaner air and lower carbon emissions, particularly for those trips that need to be undertaken by car.

2.2.11 Electric mobility will need to form a key element within the overall transport mix supporting the new community.

2.3 Vision and Validate vs. Predict and Provide

VISION & VALIDATE: Define the vision, and develop a strategy that provides the best opportunity of achieving that vision

2.3.1 Historically, transport planning has attempted to predict future traffic conditions based on the travel patterns of existing sites, and then provide additional infrastructure to meet the anticipated demand ('Predict and Provide').

2.3.2 Demand for road space (including parking) increases in line with its supply, and so congestion and other associated negative externalities persist. Traditionally, this Predict and Provide approach has failed to deliver a significant shift towards sustainable modes, with the wider benefits they bring. The continued expansion of road infrastructure to meet demand appears to proliferate unsustainable travel, which is at odds with the current climate crisis. This was recognised by Government as long ago as 1997, when it published the White Paper entitled A New Deal for Transport: Better for Everyone, which stated that '*Simply building more and more roads is not the answer to traffic growth. 'Predict and provide' didn't work*'[2], going on to say that '*The days of 'predict and provide'* are over – we will give top priority to improving the maintenance and management of existing roads before building new ones'[3].

2.3.3 The new approach, which is labelled by some as Vision & Validate, or Decide & Provide, is set out by the Chartered Institution of Highways and Transportation, the Town and Country Planning Association, the industry standard database TRICS, and by Government (through the Department for Transport (DfT)) in the documents summarised below.

2.3.4 This supports EDDC's proposed identification of an overarching vision for the new community, encompassing transport/accessibility considerations, which enables the delivery of that vision to be the key focus of analyses and infrastructure interventions which support transport and movement to/from and within the new settlement.

2.3.5 More detail regarding Vision & Validate / Decide & Provide and its impact on the level of vehicle trips associated with the development is provided in a separate Trip Generation Methodology Note (ref. 22462-HYD-XX-XX-RP-TP-1001).

Chartered Institution of Highways and Transportation (CIHT) – Better planning, better transport, better places (August 2019)

2.3.6 CIHT advises that '*the current planning practice is not delivering the best outcomes … far too many examples still exist where the long since discredited approach of 'predict and provide' is used to the detriment of planning better places*'.

2.3.7 It goes on to say that '*we must fully abandon predict and provide models of transport planning and assess against health and well-being, lifestyle, and environmental criteria including carbon emissions*'. It explains the better approach of 'Decide and Provide', or 'Vision & Validate'.

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[2] Lives Shaped by Transport, Chapter 1.
[3] Making Better Use of Trunk Roads, Chapter 3.

Town and Country Planning Association; Garden City Standards – Guide 13; Sustainable Transport (September 2020)

2.3.8 TCPA guidance is to "take a '*vision and validate' approach, not predict and provide, which historically has meant building more roads for more cars*".

2.3.9 It goes on to highlight the "*growing twin emergencies of climate change and obesity*", both of which, it says, have significant implications for transport. It says that there is an opportunity to embed positive changes in people's travel behaviour and transform permanently how many people move around. It states that "*decarbonisation of travel must be the focus*".

TRICS Guidance Note: On the Practical Implementation of the Decide and Provide Approach (February 2021)

2.3.10 The TRICS guidance states that "*in contrast to the forecast-led paradigm of Predict and Provide, we need to embrace the vision-led paradigm of Decide and provide – decide upon a preferred future and then provide the means to help realise that future*".

2.3.11 It advises that "*if we continue to reproduce past transport solutions based on previous travel behaviour, it is inevitable that transport planning will continue to seek to provide infrastructure that meets previously predicted needs, rather than meeting, and indeed shaping, the transport needs of the future*".

Transport Decarbonisation Plan (DfT 2021)

2.3.12 This approach has been confirmed as the correct course of action within the Transport Decarbonisation Plan (DfT 2021) where it is stated:

"We need to move away from transport planning based on predicting future demand to provide capacity ('predict and provide') to planning that sets an outcome communities want to achieve and provides the transport solutions to deliver those outcomes (sometimes referred to as 'vision and validate'). … From our recent experiences of the COVID-19 pandemic as well as in the commitments in this plan, it is clear that we have the opportunity to change the way we think about movement and to challenge our behaviours."

2.4 Triple Access Planning

2.4.1 The Vision & Validate approach recognises that transport is a derived demand, resulting from how we design for access and how people are able to fulfil their accessibility needs. The Triple Access system refers to the way in which the transport system provides access through physical mobility, the land-use system provides access through spatial proximity, and telecommunications provide digital connectivity.

2.4.2 The Covid-19 pandemic has shown how the increased use of digital systems can become normalised, in turn reducing both the demand for motorised mobility and the related policy requirements to address the resultant demands. Refocussing policy towards prioritising active-travel based access has the potential to increase demand for and the provision of nearby in-person activities and services.

2.4.3 Focussed on outcomes, the Triple Access Planning system is led by the vision, in this case for the East Devon New Community, which has the ability to influence not only the infrastructure of physical mobility, but also to influence spatial proximity and to require digital connectivity - a powerful tripartite approach to deliver economic, environmental and social gains.

2.5 20-Minute Neighbourhoods

2.5.1 The principal of co-locating dwellings with employment and key services and facilities is not new, and the benefits of residents being able to choose to walk or cycle for their daily needs is well understood. The approach is not about limiting or restricting people's movements or use of vehicles, but about creating a situation where walking and cycling become attractive, logical and realistic options for travel. For example, a 10-minute bike ride to a local shop on a safe and direct cycle route may become more attractive than a half hour drive to a larger shop. The larger shop remains an option, and may well be used for big, weekly shops, but there is a local facility for top up and utility shopping.

2.5.2 There are a number of concepts that capture this ideal and provide a framework for its delivery. One such example is Moreno's 15-minute City, popularised through the Paris Mayor's election campaign in 2020.

2.5.3 Moreno created a concept for a city in which residents can access their daily necessities by foot or by bike within 15 minutes in order to tackle car hegemony and create more sustainable, human-centric urban environments. Facilitating active travel not only nullifies the negative externalities associated with car travel, but also offers a number of physical health benefits while also reducing commute times to enable a healthier work/life balance.

2.5.4 The concept won the 2021 Obel Award for outstanding architectural contributions to human development. Moreno's ideas have already been implemented in Paris, and have informed urban planning in other international cities such as Buenos Aires, Chengdu and Melbourne.

2.5.5 Within Melbourne, 20-minute neighbourhood pilot programmes were launched in 2018 and have since been delivered successfully across three areas. The 20-minute neighbourhood concept fostered in Melbourne refers to the ability for people to meet most of their daily needs within a 20-minute walk from home. The pilot studies demonstrated that place-based planning is effective, and led to the recommendation that the 20-minute neighbourhood principle should become embedded in decision making at the policy level.

2.5.6 Sustrans promote a similar vision of a 20-minute neighbourhood, which has gained significant traction in the UK, as illustrated by publications such as the RTPI's Briefing Paper 20 Minute Neighbourhoods (2021).

2.5.7 Key to the concept is ensuring that most of people's daily needs can be met within a short walk or cycle. This results in multiple benefits including improved mental and physical wellbeing, reduced traffic congestion, improved noise and air quality and a stronger community.

2.5.8 For Sustrans, in contrast to the Melbourne concept, this means a 20-minute return walk, 10 minutes there and 10 minutes back, which is consistent with the 800m 'Walkable Neighbourhood' described in Manual for Streets.

2.5.9 Although now superseded by CD143, TA91/05 Provision for Non-Motorised Users states at paragraph 2.3 that '*Walking is used to access a wide variety of destinations including educational facilities, shops, and places of work, normally within a range of up to 2 miles*' (3.2km). Paragraph 2.2 of TA91/05 stated that 2 miles is '*a distance that could easily be walked by the majority of people*' and (at paragraph 2.3) that '*Walking and rambling can also be undertaken as a leisure activity, often over longer distances'*. In relation to shorter trips in particular, the CIHT publication Planning for Walking (Section 2.1) states that across Britain about '*80% of journeys shorter than 1 mile are made wholly on foot'*.

2.5.10 Consequently, whilst a 10-minute walking distance to key everyday facilities should be the target for new neighbourhoods, the 20-minute neighbourhood concept can be based around that length of walk each-way to wider locations including employment and less-frequently visited facilities (e.g. healthcare provision).

2.5.11 Cycling allows people to move more quickly than walking. With appropriate and safe cycling facilities provided, the size of a 20—minute neighbourhood could effectively be increased, although walking should still be the priority where possible.

2.5.12 The integration of land-use planning and transport planning is a key mechanism to facilitate 20-minute neighbourhoods, and it is anticipated that this will be reinforced through EDDC's emerging vision for the new community, and enacted as part of its future design.

2.5.13 It should also be noted that the phasing of the new development will have an impact on this. It is important that the build out of the new community is balanced, so that employment, retail and leisure opportunities are delivered in parallel with new housing. This will enable people to establish sustainable travel and local living habits from the day they move in.

2.6 Local Policy

East Devon Local Plan (2013-2031)

2.6.1 The East Devon Local Plan (2013-2031) sets out a vision for East Devon's 'West End', with an aim to provide large-scale development to complement the role of the City of Exeter. Large scale development at the Exeter and East Devon 'Growth Point' has already commenced, with the area now host to developments including Exeter Science Park, SkyPark and the Cranbrook new community. The Local Plan emphasises the need for the West End development to be '*inter-related*' and '*at the forefront of sustainable design*', in keeping with the 15/20-minute concepts explored earlier in this chapter.

2.6.2 In January 2011 Devon County Council outlined its commitment to improving public transport and other forms of green travel. The subsequently published '*Devon Metro – fulfilling the potential of rail*' outlines an aim to promote opportunities to enhance rail travel into Exeter. Whilst the new Cranbrook station has gone some way towards achieving this, there is still potential to increase uptake especially in the context of the new community, including optimising connectivity to rail.

2.6.3 The East Devon Local Plan also identifies potential for development along the A3052 corridor, which runs from Junction 30 of the M5 eastward into East Devon and through the centre of the area of the three potential new community Options. The Local Plan states that for this location development would *'require very significant infrastructure improvements to address resulting congestion' and 'public transport access would need to be enhanced'*.

2.6.4 Strategy 18 of the document identifies the Exeter Airport Business Park as a hub for future development. At 7.47 the Local Plan states that the business park *'has proven to be a very successful business location'* in recent years, going on to conclude that its expansion would help to cater for a range of business uses locally. The importance of the airport has previously been noted with regard to the requirements of the NPPF, and this report considers potential linkages between the Option sites and the airport / business park.

Exeter Transport Strategy (2020-2030)

2.6.5 The Exeter Transport Strategy sets out a vision for improved travel choices, utilising technological opportunities to facilitate the creation of better places for people and influence travel behaviour in a positive way. It focuses on improving travel choices and provides the first stages in the transition of transport towards net zero.

2.6.6 The strategy sets out three key themes:

- **Greater connectivity** focusing on travel into the city from outside Exeter's boundaries. This theme is especially pertinent in the context of the proposed new community in East Devon, just outside Exeter's eastern boundary. The theme considers the need to provide a consistent standard of frequency of both rail and interurban bus routes, as well as provision of strategic cycle trails between key settlements (such as the proposed Clyst Valley trail). The theme also stresses the importance of providing park and ride facilities at all main corridors into the city to facilitate sustainable travel from those residing in 'rural hinterland'.
- **Greater places for people**, specifically provision of high-quality travel options and improving quality of life within the city. This includes a target for 50% of trips to be made by walking and cycling. There is also an aim to work with bus operators to provide a low-carbon network of buses.

- **Greater innovation** which will involve the council working with private sector partners to test and implement innovative technology solutions. This will be done with the aim of making travel easier and enabling efficient and flexible operation of the city's transport networks. A key aspiration is to expand electric vehicle car clubs as well as the electric cycle hire network and low carbon buses.

East Devon Villages Plan (Adopted July 2018)

2.6.7 The East Devon Villages Plan forms part of the 'Development Plan' for East Devon, along with the Local Plan and neighbourhood plans. The Villages Plan defines '*built-up area boundaries*' around various settlements, as well as including plans of the extent of authorised uses at the Hill Barton and Greendale Business Parks, which are located within the vicinity of the three potential new community Options.

East Devon New Community Committee Papers

2.6.8 An EDDC strategic planning committee meeting took place on 8th March 2022, focusing on the provision of a new community and infrastructure. An outcome of the committee meeting was the recommendation that members *'agree in principle to the inclusion of a new community as part of the spatial strategy within the working draft Local Plan subject to this being reviewed as further evidence comes* forward'. This recommendation followed a previous request (8th February 2022) from members for a further report on the proposed option of a new community in order to support it.

2.6.9 The committee meeting report states that consultants have been commissioned to produce work which will help assess the Options for a new community - namely, the appointment of a CBRE-led consortium including Tibbalds and Hydrock, leading to the production of this report.

2.6.10 The commission could include:

1. *Review of options for the choice, form and location of new community proposals – a number of large-scale proposals have been promoted through the initial call for sites process. The commission will help to ensure that there is a robust evidence base to inform the selection of development proposals in terms of the ability to secure key outcomes in line with the NPPF considerations.*
2. *Vision– to work with Council officers and members to develop a 30-year vison for a new community in the district which sets out the Council's requirements in the form of a set of criteria against which the options and their proposed delivery vehicles can be assessed.*
3. *Initial Options Appraisal – to use the vision and criteria developed at stage 2 to assess the major development options and make an initial recommendation to be considered alongside a draft Local Plan for consultation.*
4. *Masterplan – Following consultation on the draft Local Plan and consideration of responses to each of the options if a proposed site for allocation is identified then the consultant team will then be expected to undertake a master planning exercise for this site in consultation with key consultees and through a process of community engagement.*
5. *Preferred delivery option/model – this will include all necessary stakeholder engagement to help define the preferred option for the delivery vehicle to bring forward the preferred new community option.*
6. *Business case – to include final modelling of infrastructure costs, indicative viability assessment and long-term stewardship and legacy arrangements.*

3. Walking Connectivity

3.1 Overview

3.1.1 Whichever option is taken forward by EDDC as the preferred location for the new community will require a network of convenient, direct, permeable, safe and easy to navigate pedestrian routes that are able to accommodate the needs of all users.

3.1.2 These routes will vary in their nature - e.g. running alongside carriageways, in public open space, and adjacent to cycle routes. They should be consistent with the requirements of guidance including Manual for Streets (or its successor documents) and provide a level of priority over motorised modes in line with the Highway Code.

3.1.3 The development should include areas of low- or no-traffic, following the principles of shared-space, or play streets, and green / tree-lined streets promoted in guidance and required by policy.

3.2 Existing Walking Infrastructure

Option One

Internal Connectivity

3.2.1 A number of existing roads bisect Option One, providing access to existing development within the area including small settlements, farms and Hill Barton Business Park. These roads link the A30 to the north to the A3052 to the south. These roads are generally rural in nature and, whilst they have not been designed to accommodate pedestrian movements, pedestrians can utilise these routes, which are generally lightly trafficked and relatively flat. However, the narrow nature of these routes leaves little space for pedestrians as illustrated by Figure 3.1.

Figure 3.1: Bishop's Court Lane - Option One

3.2.2 There are no existing Public Rights of Ways (PRoW) within the potential area of Option One.

3.2.3 The B3184 lies to the east of Option One, connecting the A30 to the A3052, and a further existing north-south route is located to the west of Option One. Both of these routes are rural in nature, particularly the western route, and connect to the A30 at Exeter Airport grade separated junction.

External Connectivity

3.2.4 Key routes to Exeter from Option One include the A30 dual carriageway to the north and the A3502 to the south. The A30 is a car dominated link and does not offer any sort of pedestrian facilities westward towards Exeter.

3.2.5 However, pedestrian permeability is present towards the north, with crossing points provided to the north of Bishop's Court Lane as well as a footbridge over the A30, before further pedestrian facilities including crossing points and footways are provided along the Clyst Honiton Bypass towards Skypark. From here, pedestrians can travel west towards Exeter via continuous footways along Old Honiton Road (the old A30), which links to Exeter Science Park with M5 J29 and Sowton Industrial Estate / Exeter Business Park beyond.

3.2.6 This direction also provides a strong connection to the growing community at the new town of Cranbrook. Development of Cranbrook is ongoing, and is planned to provide a vibrant town centre with a range of retail, community and leisure opportunities, alongside employment opportunities.

3.2.7 To the south, pedestrian infrastructure along the A3502 is of a good standard near to Clyst St Mary to the west (including the Winslade Park employment development). Continuous footway is provided along the A3502 from the junction with Valley Road through to Exeter, including pedestrian/cycle facilities at M5 Junction 30. The footway along the A3502 is of good standard, evolving to an off-road segregated footway as the road becomes more vehicle-dominated towards Junction 30 of the M5. Crossing points are provided throughout, including a footbridge over the road to the south of Clyst St Mary, and signalised Toucan crossings connecting pedestrians/cyclists through J30 to Sowton Industrial Estate. The A3502 offers realistic potential for pedestrian trips to be made from Option One westwards towards Clyst St Mary and Exeter.

3.2.8 To the east of M5 J30, Clyst Road and Old Rydon Lane provide an alternative route towards Exeter for cyclists in particular, with Old Rydon Lane being a designated quiet route with recently-installed contraflow cycle facilities to the south of Exeter Chiefs' Sandy Park stadium.

3.2.9 In contrast, connectivity towards the east along the A3502 is poor, reflecting the lack of existing pedestrian demand to travel east-bound.

3.2.10 The preceding text describes the existing level of provision locally, recognising its deficiencies, advantages and opportunities, and appreciating that provision to serve the new community will need to be substantially enhanced as part of strategic initiatives to optimise and incentivise the use of sustainable modes of transport. This is also reflected in the assessment of Options 2 and 3. The required interventions to provide high-quality access will be explored in the Transport Assessment for the preferred site (once agreed by EDDC).

Option Two

Internal Connectivity

3.2.11 Option Two is potentially bisected by the A3052 which, as previously mentioned, enables pedestrian permeability towards the west. However, in the vicinity of Option Two, the A3052 does not offer any pedestrian facilities (aside from a footway from Greendale Farm Shop to a bus stop) and is not currently suited to accommodate pedestrians.

3.2.12 White Cross Road cuts through Option Two in a north/south alignment connecting to the A3052. White Cross Road also does not offer any pedestrian facilities; however, the lane is wide, lightly trafficked and considered a shared space as it serves the frontages of a number of local residences as shown at Figure 3.2. Again, this conclusion will be checked and updated in the context of traffic modelling information from the DCC model.

Figure 3.2: White Cross Road Street View

External Connectivity

3.2.13 The A3052 is the sole direct route connecting Option Two to Exeter. As mentioned, the A3052 does not provide any supporting pedestrian facilities within the vicinity of the Option. This means that existing pedestrian permeability from Option Two is very poor.

3.2.14 There are no PRoWs within the vicinity of Option Two, either internally or externally.

3.2.15 The lack of existing pedestrian permeability in any direction from Option Two sets it behind Option One and Three, which both facilitate pedestrian permeability to the west to a significantly greater extent.

Option Three

Internal Connectivity

3.2.16 Oil Mill Lane runs in a north-west/east alignment cutting through Option Three, with an unnamed road connecting Oil Mill Lane to Clyst St George and Woodbury Road to the south of the Option. Both roads, as shown at Figure 3.3, are rural lanes without footway provision.

3.2.17 The route along Oil Mill Lane is a pleasant country lane, with wide verges. It is a route suitable for walking given the lack of strategic function of the route, with traffic volumes expected to be low, and it is conducive for a pleasant and safe pedestrian environment.

3.2.18 The unnamed road is narrower, with limited verge provision between the Devon hedge banks.

Figure 3.3: Routes in the Vicinity of Option 3

3.2.19 PRoWs exist to the north of the Option in the form of public footpaths, connecting Oil Mill Lane to Clyst St Mary as shown in red at Figure 3.4. However, there is no existing PRoW connectivity to the south of Option Three.

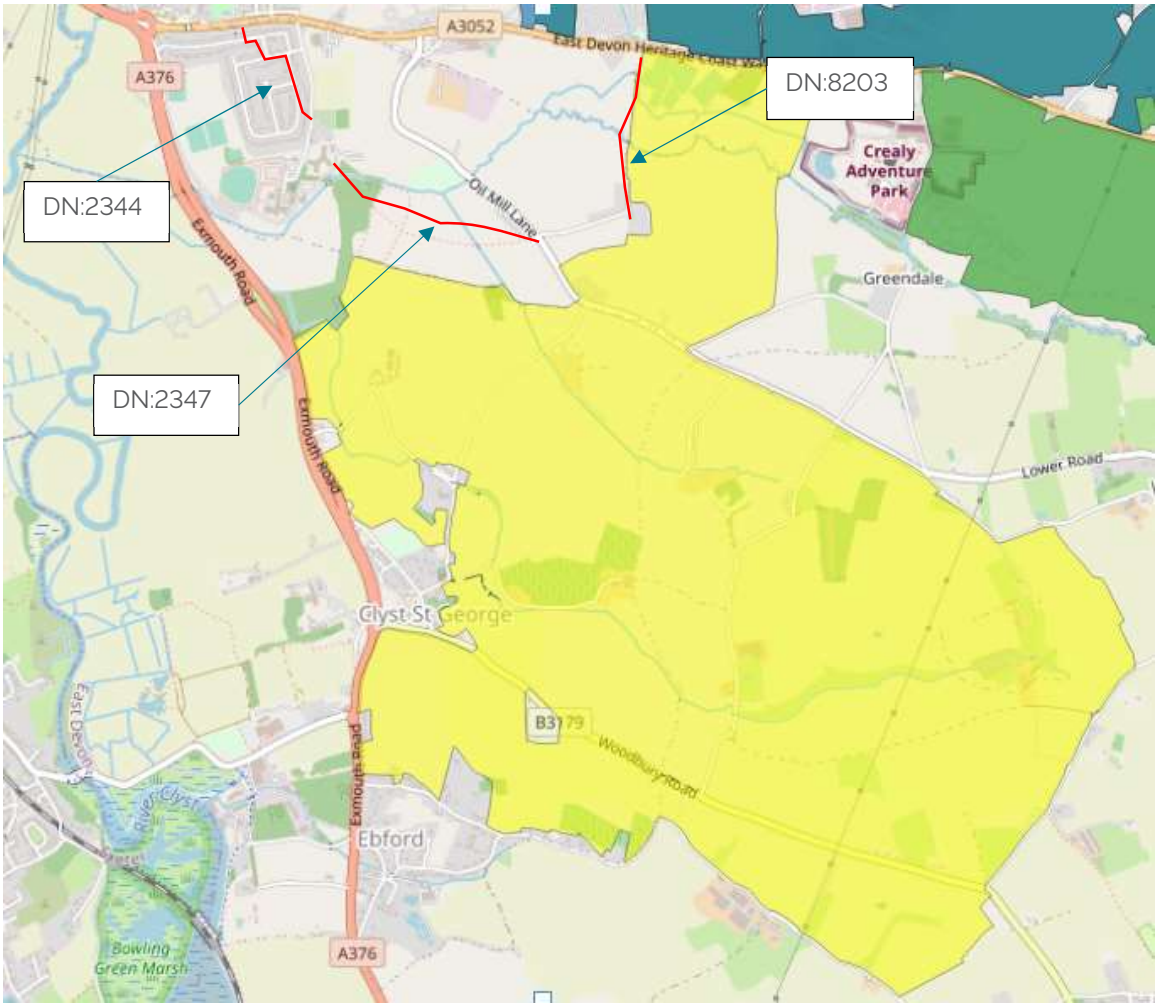

Figure 3.4: PRoW's within the vicinity of Option Three

External Connectivity

3.2.20 The A376 runs in a north/south alignment along the western flank of Option Three, offering a route to eastern Exeter to the north-west. However, the A376 is a dual carriageway and does not contain pedestrian facilities between Clyst St George and Clyst St Mary.

3.2.21 The A376 does provide a link south-bound from Clyst St George towards Topsham, facilitating pedestrian desire lines from Option Two towards Topsham village centre.

3.2.22 The A3052 to the north of the Option, as previously mentioned, offers a continuous route from Clyst St Mary westwards towards Exeter, including crossing points, footbridges and segregated footways. The Winslade Park employment development lies relatively close via the A3052.

3.2.23 The B3179 Woodbury Road is narrow and rural in nature and does not contain footways.

3.2.24 Option Three facilitates pedestrian desire lines towards Exeter to the north-west and towards Topsham to the south-west.

3.3 Clyst Valley Trail

3.3.1 Devon County Council and East Devon District Council are in the early stages of designing the multi-use Clyst Valley Trail Route, which will connect a number of East Devon's local villages/towns with Exeter.

3.3.2 The 13km route will be accessible for all users, and passes through picturesque parkland and river valleys.

3.3.3 The precise route of the trail is subject to a public consultation, which closed in mid-2022. However, the indicative route is shown overleaf at Figure 3.5.

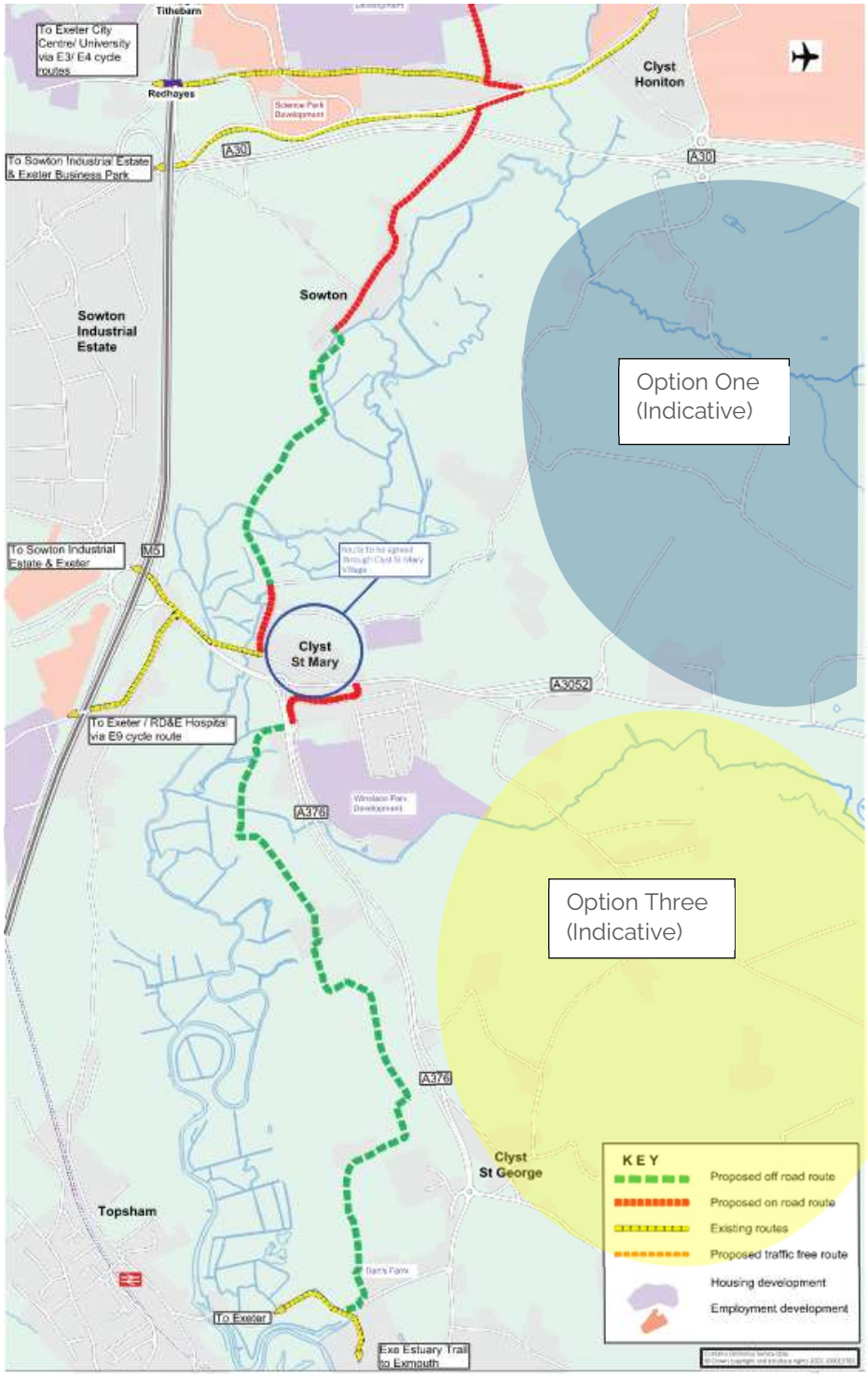

Figure 3.5: Indicative Clyst Valley Trail Proposals in Context of Options

As Figure 3.5 shows, the proposed Clyst Valley Trail will offer added pedestrian (and cycle) permeability for external north/south movements for both Options One and Three. The route will also enhance permeability towards Exeter as it ties in to existing pedestrian infrastructure towards both Junction 29 and 30 of the M5 (see Figure 3.6).

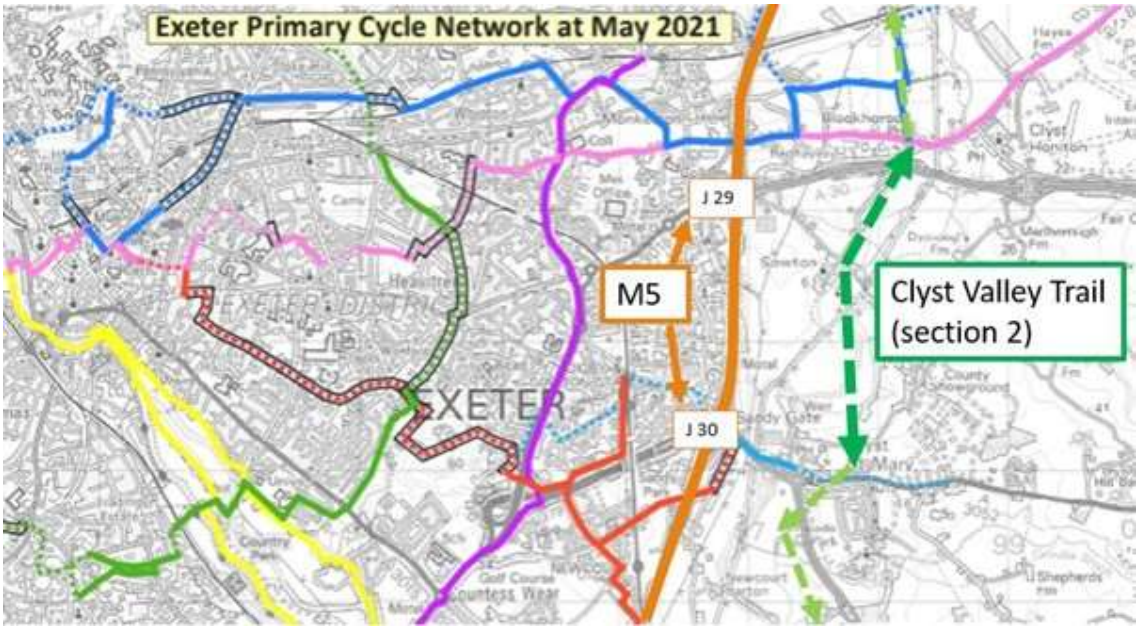

Figure 3.6: Existing Cycle Infrastructure and Proposed Clyst Valley Trail (image from public consultation website[4])

3.4 Existing Usage

3.4.1 Strava is a tool to track physical exercise, and is used by many runners and walkers to track their activity, whether for leisure or commuting. Strava produces heatmaps showing their users' recorded activities. The heatmap shown in Figure 3.7 has been filtered to include runners/walkers only, and shows that the local highway network is currently well used by them.

[4] https://www.devon.gov.uk/haveyoursay/consultations/clyst-valley-trail/

Figure 3.7: Strava Pedestrian Heat Map

3.4.2 Internal routes within all three options are well-used by Strava runners/walkers.

3.4.3 The A3052, which links all three Options to Exeter, is well-used towards the west, as is Clyst Road, which provides a link between the A3052 and Clyst St Mary to Topsham to the south. There is also notable use of Honiton Road to the north of Option One, possibly by residents of Cranbrook accessing Exeter by sustainable modes.

3.5 Walking Travel Times

3.5.1 Table 3.1 displays existing travel times by foot from the centre of each of the three Options to a selection of key local destinations.

Table 3.1: Walking Times to Key Local Destinations

Destination	Travel Time (mins)		
	Option One	Option Two	Option Three
Hill Barton Business Park	11	16	22
Exeter Airport/Airport Business Park	16	38	49
Winslade Park	34	49	25
Sowton Industrial Estate	49	66	40
Topsham	69	65	32
Exeter City Centre	104	118	90

3.5.2 Table 3.1 shows that all three Options have limited destinations available by foot. There will be a need to provide a range of services and facilities both within and connecting to the new development in order to facilitate walking as a modal choice, in keeping with the 20-minute neighbourhood concept and Manual for Streets guidance.

3.6 Pedestrian Infrastructure Opportunities

3.6.1 All three potential Options are located in a currently rural area which has limited existing pedestrian infrastructure and will require significant upgrades to sustainable access infrastructure as part of the new community development. Proximity to destinations of interest is therefore a fundamental consideration, as ae terrain and gradient.

3.6.2 **Option One and Option Three** – Through their respective connections to the A3052, Option One and Option Three have continuous footway connections through to Exeter (via the A376 Sidmouth Road). This is advantageous in facilitating pedestrian desire lines to the city, and ensures that a range of services and facilities within the eastern side of the city would be accessible from the Options by foot within the 3.2km walking distance threshold specified within TA91/05.

3.6.3 **Option One** – Similarly, existing connections from Option One to the Skypark to the north offer realistic potential for trips. There is an opportunity to extend these routes to the south so that they can connect to all areas of Option One.

3.6.4 **Option Three** – Given that internal routes within Option Three are considered suitable for pedestrians and provide connectivity towards the south-west (Clyst St George), there is potential for pedestrian trips to be made to Topsham railway station. The connecting route, Topsham Road, has a footway along one side of the carriageway and therefore there is realistic potential for multi-modal travel opportunities from the Option.

3.6.5 **Option One and Option Three** – As Figure 3.8 shows, the topographies of both Option One and Option Three are relatively flat with levels of no greater than 35m. Therefore, both Options offer realistic potential for efficient internal walking networks to be established within the Options to enhance intra-site connectivity.

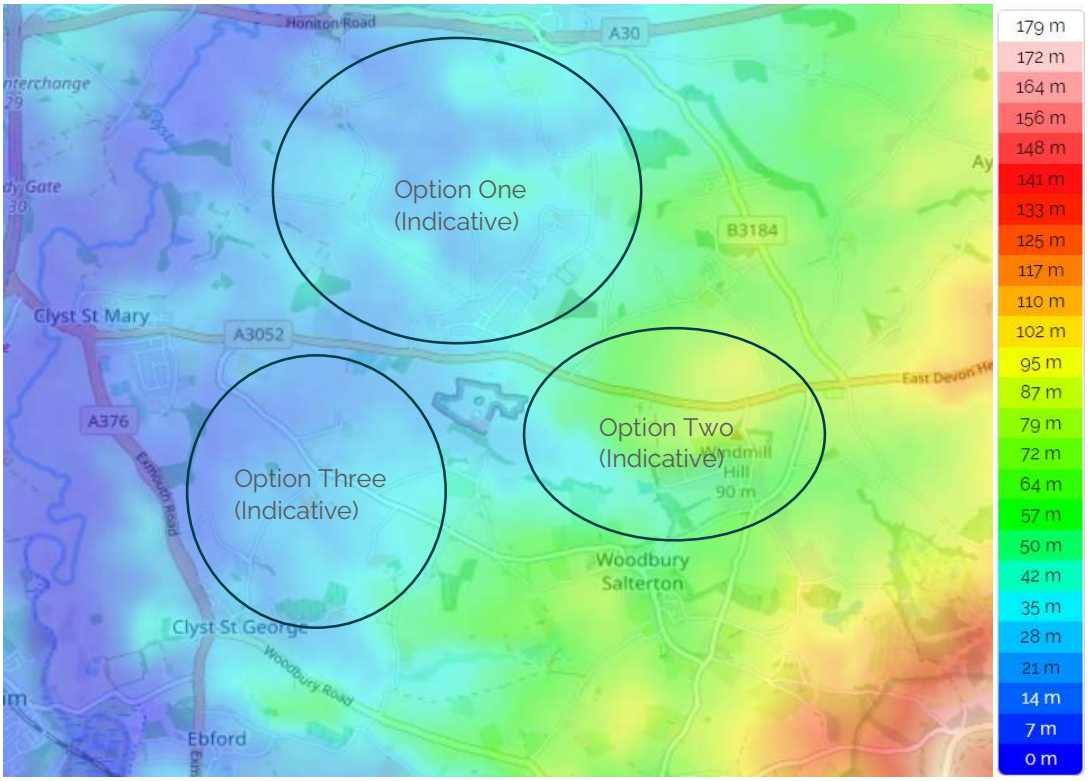

Figure 3.8: Indicative Options by Topography

3.7 Pedestrian Infrastructure Constraints

3.7.1 **Option Two** – As illustrated above, Option Two is slightly hillier than Option One and Option Three as shown in Figure 3.8, with levels varying significantly. This is further illustrated by Figure 3.9, which displays a north/south cross-section, and Figure 3.10 which presents an East/West cross-section of the indicative Option area.

Figure 3.9: North/South Cross-Section of Option Two

Figure 3.10: East/West Cross Section of Option Two

3.7.2 As Figure 3.9 and Figure 3.10 show, heights within Option Two range from 40m to the west, to 90m to the north. This poses a challenge to intra-site connectivity, and means that walking times from one side of the Option to the other are likely to be higher, whilst walking as a modal choice is likely to be less attractive.

3.7.3 Figure 3.11 provides a further illustration of the gradient variations at the Greendale Farm Shop which is located within Option Two.

Figure 3.11: Gradient at Greendale Farm Shop (Option Two)

3.7.4 **Option Two** – Option Two is also relatively isolated in comparison to Options One and Three, with little in the way of services and facilities within walking distance and Exeter itself located some way away. Given the distance between Option Two and Exeter, pedestrian trips to/from the eastern flank of the city from Option Two are likely to be limited due to the time that it takes to travel to Exeter by foot (approximately 66 mins from Option Two to Sowton Industrial Estate).

3.7.5 **Option One** – In the absence of any supporting pedestrian facilities along the A30 to the north of Option One, pedestrian desire lines for those residing within the northern portion of the Option wishing to head into Exeter will be diverted, requiring an elongated route into the city via either Clyst Honiton / Old Honiton Road or the A3052.

3.8 Walking Summary

3.8.1 The following table summarises each Option's existing walking connectivity, recognising that a suite of strategic improvements will be needed in order to deliver an attractive and safe network suitable to provide pedestrian access to whichever option site is ultimately taken forward by the Council:

Table 3.2: Summary of Option Walking Connectivity

	Option One	Option Two	Option Three
Internal Connectivity	» A number of narrow, rural roads. » No existing PRoWs	» No pedestrian facilities along the A3502 in vicinity of the Option. » Lightly trafficked 'shared space' offers north/south internal connectivity.	» Some internal connectivity albeit with a lack of pedestrian facilities. » Some PRoW connectivity within the northern portion of the Option.
External Connectivity	» Permeability towards the north. » Permeability via elongated route to the north-west (not via A30). » A3502 offers route to south-west but poor connectivity to east. » Enhanced pedestrian permeability provided by the proposed Clyst Valley Trail.	» No connectivity to west along A3502. » Lack of external pedestrian connectivity.	» Pedestrian links south-west to Topsham. » A3502 again offers an adequate route west to Exeter. » No facilities along the A376. » Enhanced pedestrian permeability provided by the proposed Clyst Valley Trail.
Opportunities	» East Exeter accessible by foot. » Opportunity to extend existing/recently constructed routes located to the north (Skypark) down to the Option area. » Flat gradient facilitates internal connectivity. » Good proximity to Cranbrook area	» None identified.	» East Exeter accessible by foot. » Opportunity for direct ped route between Option Three and Topsham train station. » Flat gradient facilitates internal connectivity.
Constraints	» Lack of ped facilities on A30 means that desire lines towards Exeter to north-west are elongated.	» Hillier topography poses a challenge for intra-site connectivity. » Isolated.	» None identified.
Option Score (/5)	**4**	**1**	**4**

4. Cycle Connectivity

4.1 Overview

4.1.1 With regard to cycling, TA91/05 stated (paragraph 2.11) that '*Cycling is used for accessing a variety of different destinations, including educational facilities shops and places of work, up to a range of around 5 miles. Cycling is also undertaken as a leisure activity, often over much longer distances*.' At paragraph 2.9, TA91/05 stated that 5 miles (8km) is a distance '*that could easily be cycled by the majority of people*'.

4.1.2 This is consistent with the statement in LTN02/08 Cycle Infrastructure Design (in paragraph 1.5.1) which states that '*for commuter journeys, a trip distance of over five miles is not uncommon*', and that '*Novice and occasional leisure cyclists will cycle longer distances where the cycle ride is the primary purpose of their journey. A round trip on a waymarked leisure route could easily involve distances of 20 to 30 miles. Experienced cyclists will often be prepared to cycle longer distances for whatever journey purpose*.' Though LTN02/08 has since been superseded by LTN1/20, this guidance remains relevant in the absence of any contrary guidance.

4.1.3 Whichever site is taken forward by EDDC for the new community, it will need to be served by high quality, safe and direct cycle routes that accommodate the needs of all users and provide appropriate priority over motor vehicles, in line with LTN1/20, the NPPF and the recently-revised Highway Code.

4.2 Existing Cycling Infrastructure

4.2.1 National Cycle Network (NCN) Route 2 is located approximately 1.5km south-west of the centre of Option Three. The NCN Route 2 is a long-distance cycle route which cuts across the south coast of England, connecting Cornwall with Kent. Locally, the route is part of the Exe Estuary trail, and provides a largely traffic-free connection into Exeter city centre and on to Dawlish to the south along the western side of the Exe estuary. Along the eastern side of the Exe estuary, the route provides a connection to Exmouth town centre.

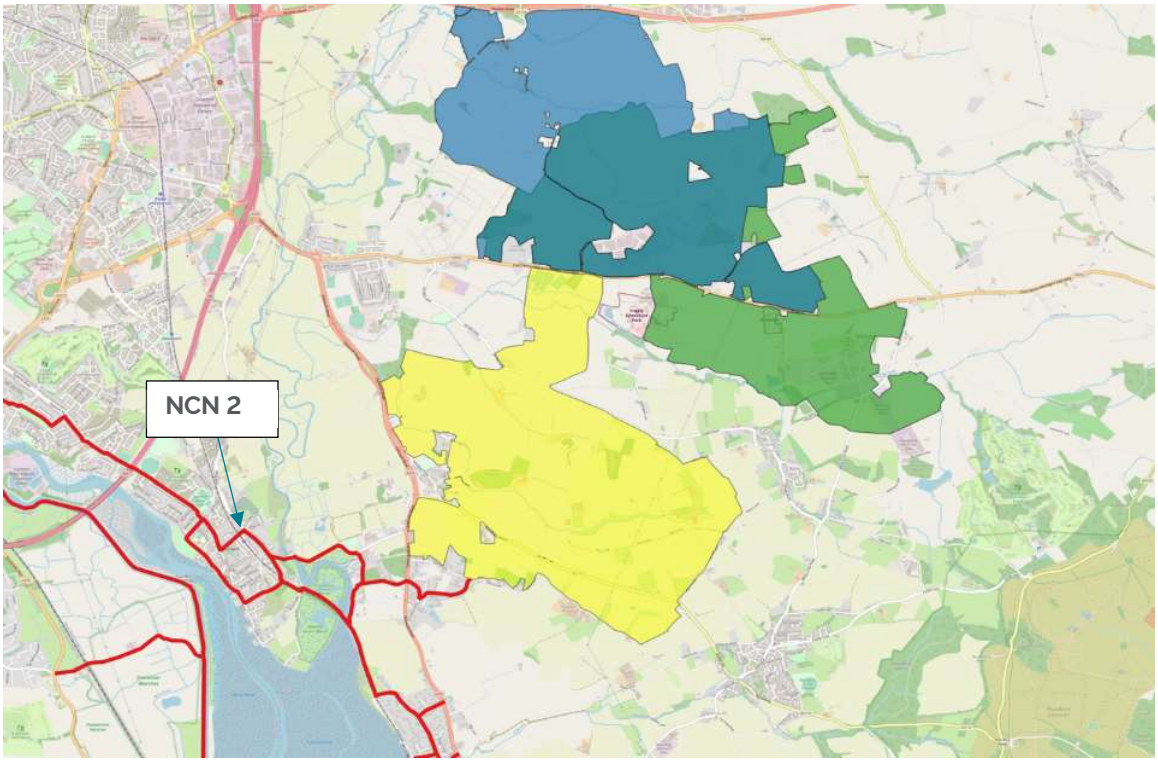

Figure 4.1: NCN in Vicinity of the Options

4.2.2 A shared footway/cycleway is present along the Old Honiton Road to the north of Option One, connecting the new community of Cranbrook to Exeter via Clyst Honiton. As previously discussed, this popular route provides a connection to the Science Park and into Exeter city centre via high-quality provision. It also extends towards Cranbrook.

4.2.3 An extract from Devon County Council's cycle map is provided at Figure 4.2, showing the existing cycle infrastructure in terms of designated routes and on-road/advisory routes and PRoWs within the vicinity of the three Options. Beyond the immediate vicinity of the three Options, Figure 4.3 shows the continuation of local routes, and general cycle connectivity within Exeter as set out within the Exeter City 2019 cycle map.

4.2.4 Roads to the west (between Exeter and Option One and Three) have relatively flat topography, as shown by Figure 3.8, which further facilitates cycling.

Figure 4.2: Extract from DCC Cycle Map

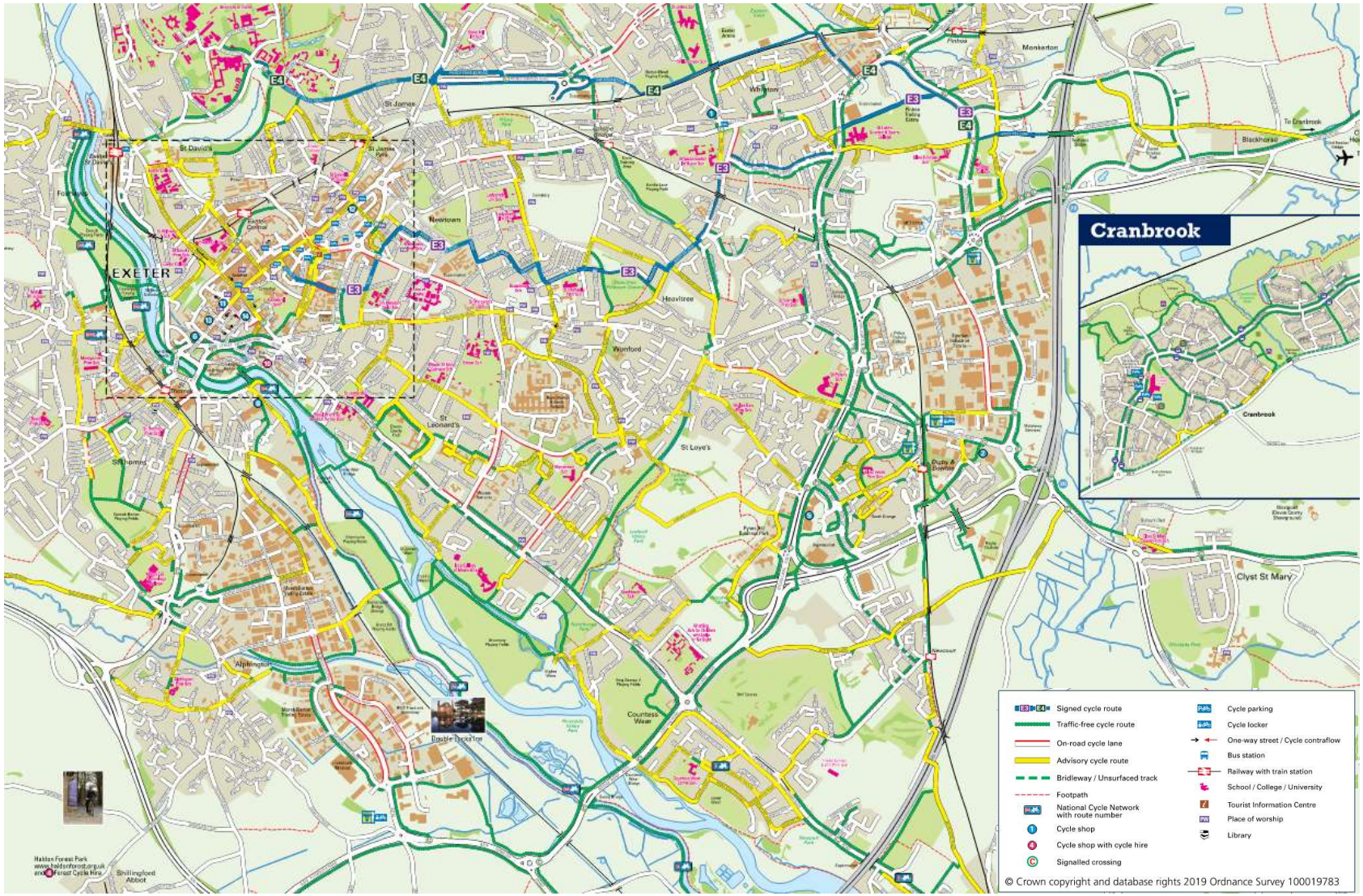

Figure 4.3:Extract from Exeter Cycle Map 2019

4.3 Proposed Infrastructure

4.3.1 In early 2023, a public consultation was held on proposals for new and improved cycling and walking routes that will be included in the Exeter Local Cycling and Walking Infrastructure Plan (LCWIP).

4.3.2 The requirement for local authorities to produce a LCWIP is set out in the Government's Cycling and Walking Investment Strategy. Developing a LCWIP follows a consistent process to identifying cycling and walking improvements required at a local level and allows Devon County Council to bid for future funding and ensure improvements are incorporated into future development.

4.3.3 The Exeter Transport Strategy 2020 – 2030 sets out the ambition for 50% of work trips originating in Exeter to be made by foot or cycle by 2030. This aim received high levels of public support during the Exeter Transport Strategy consultation.

4.3.4 The Exeter LCWIP will set out the infrastructure needed to enable people to change their travel habits and make progress towards the aim for 2030. An overall plan of the proposed network (at the time of consultation) is shown below:

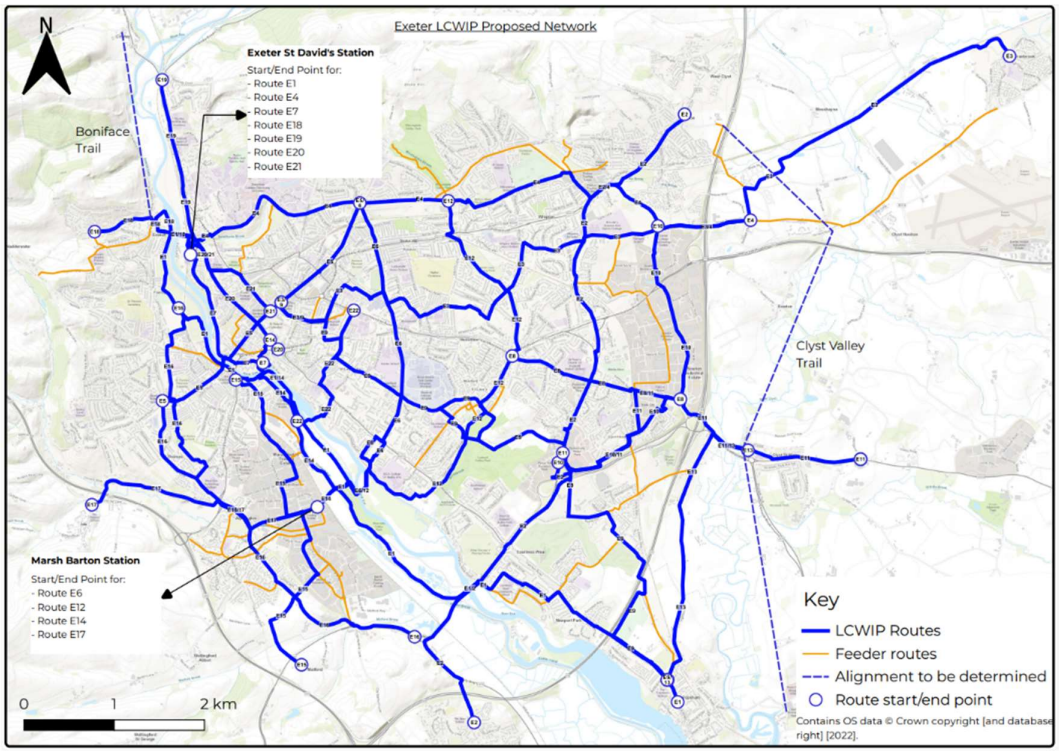

Figure 4.4: Exeter LWIP Proposed Network

4.3.5 It is understood that the LCWIP for the area containing the options sites is currently under development by DCC. Officers from EDDC have supplied the following preliminary map:

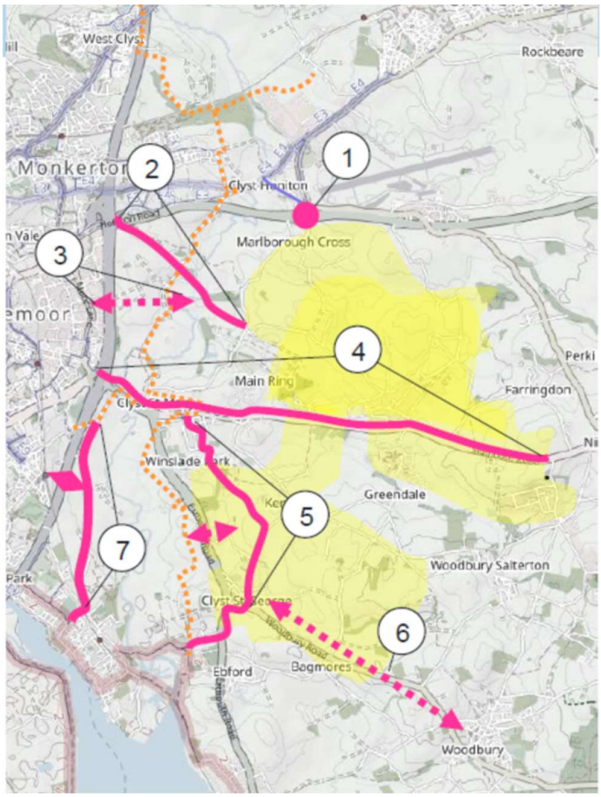

Figure 4.5: East Devon Preliminary LCWIP map

4.3.6 These maps suggest that links to all of the options areas are being considered, with both Options One and Three offering two strong links, whilst Option Two only has one link. Option One benefits from its proximity to Cranbrook, whilst Option Three has a similar relationship with Topsham.

4.4 Existing Usage

4.4.1 Strava is used by many cyclists to track their cycle activity, whether for leisure or commuting. Strava produce heatmaps showing their users recorded activities. The heatmap shown in Figure 4.6 has been filtered to include cyclists only, and shows that the local highway network is currently well used by cyclists.

4.4.2 This is especially evident in north/south routes within Option One, as well as internal routes within Options Two and Three.

4.4.3 Cycle connectivity to/from Exeter appears to be particularly focussed on the A376, with cyclists passing under the M5 Junction 30 via the Sandygate Roundabout. Routes to and from Cranbrook are also well used.

Figure 4.6: Strava Cycling Heat Map

4.4.4 The findings of the Strava analysis are corroborated by observed cycle movements during Hydrock's site visit on 8th July 2022 and through our wider local experience of the network. Cyclists were observed utilising existing routes within the vicinity of all three Option areas, as evidenced by Figure 4.7.

Figure 4.7: Cycle Movements Observed During Site Visit

4.5 E-Bike Potential

4.5.1 Recent studies[5] into the cost/benefit of E-bikes and a complementary cycling-oriented infrastructure found that it had a positive net present value, specifically leading to travel time savings. Another study[6] also suggested that, if used to replace car travel, E-bikes have the capability to cut carbon dioxide emissions in England by up to 50% (approximately 30 million tonnes per year).

4.5.2 E-bikes increase the typical range available for most people who cycle by providing pedalling assistance up to a speed of 15.5mph, with studies suggesting that E-bikes are on average 21% faster than a conventional bike[7]. With an average range of 40-80km, E-bikes offer a genuine choice of sustainable travel for commuter and leisure-based trips to/from the proposed new communities.

[5] Cost-benefit of bicycle infrastructure with E-bikes and cycle superhighways; Rich et al; Case Studies on Transport Policy; June 2021
[6] E-bike Carbon Savings – how much and where?; Philips et al; CREDS; May 2020
[7] Physical Activity when riding an electric assisted bicycle; Bernsten et al; International Journal of Behaviour Nutrition; 2017

4.5.3 When analysing the impact of E-bike speed on travel times and range, the benefit of the modal choice becomes more apparent. LTN 1/20 Cycle Infrastructure Design (paragraph 2.2.2) states that '*Two out of every three personal trips are less than five miles in length – an achievable distance to cycle for most people*'. A five-mile (or 8km) cycle equates to a journey time of 25 minutes when travelling at 320 meters per minute (12mph, speed taken from the Cycling England Design Guide). When applied to E-bikes, which assist pedalling up to 15.5mph, a 25-minute cycle can yield a range of 10km, which is a 25% increase.

4.5.4 Both E-bikes and E-scooters represent a genuine game-changing mode choice for sustainable travel, with the following benefits arising:

- Topography is flattened. Motor assisted travel means that hills/gradients (such as those in the vicinity of Option Two) are no longer a discouraging factor
- Health, fitness and wellbeing are improved, particularly with E-bikes which are pedal assisted
- Journey time can be improved, especially when compared with car travel on congested routes
- Effort is less and riders arrive at their destination without the appearance of a hard physical workout
- Off-road options exist for E-bikes, which offers potential for e-bike users to utilise the Exe Estuary Trail
- Financial benefits relative to car or bus travel
- Easy to store
- Tax efficient when bought in conjunction with the Cycle to Work scheme
- Eco friendly

4.5.5 In order to facilitate e-bike usage, the proposed new communities could include:

- Docking stations at the on-site mobility hub for the community E-bike and E-scooter hire schemes.
- Alternative storage facilities at the mobility hub to allow electric folding bikes to be stored securely in lockers
- Mobility hub cycle repair facilities for standard and e-bikes
- Vouchers towards the use of such vehicles, secured via the Travel Plan and distributed by the site Travel Plan Coordinator

4.5.6 The proposals align with the aims of the Exeter Transport Strategy (2020-2030), which sets out aspirations to facilitate greater innovation by working with the private sector to develop technology solutions. Specifically, the document references a desire to expand the on-street electric cycle hire network, something which the proposed new community could facilitate.

4.5.7 E-cargo bikes could also be introduced within the proposed development, particularly as a last mile logistics solution. These bikes can carry loads of up to 250kg, and offer a sustainable modal choice alternative for the last mile for logistics/distribution companies. Zedify demonstrate how such a service can operate commercially, and have recently opened a large logistics hub in Bristol. They now make over 48,000 zero emissions deliveries in Bristol, offering an existing regional presence in the south-west which could potentially translate to Exeter.

4.6 Travel Times by Bike

4.6.1 Table 4.1 sets out travel times by bike to a range of key local destinations.

Table 4.1: Travel Times to Key Local Destinations by Bike

Destination	Travel Times (Mins)		
	Option One	Option Two	Option Three
Hill Barton Business Park	3	4	6
Exeter Airport/Airport Business Park	4	10	12
Winslade Park	11	10	6
Sowton Industrial Estate	12	17	10
Topsham	17	16	8
Exeter City Centre	26	30	23

4.7 Cycle Infrastructure Opportunities

4.7.1 **All Three Options** – Given the existing use of the various Options' internal roads for cycling as evidenced by Strava, there is potential to promote cycling as an active travel mode within all three of the potential Options. These existing internal routes would need to be further reinforced with appropriate cycling infrastructure such as designated cycleways to attract more users and accommodate the increased demand from the new settlement.

4.7.2 **All Three Options** – The topography of the general area in which all three Options are located is relatively flat, which is likely to facilitate cycling and encourage its uptake. Whilst a slight gradient has been identified at Option Three, it is not significant enough to detract from a potential cycle route being located within the vicinity of the Option.

4.7.3 **All Three Options** – There is also potential to provide a dedicated cycleway along the A3052, which would benefit all three potential Options facilitating cycle desire lines west into Exeter. At present the road appears to have wide verges which could potentially accommodate a dedicated cycleway. Further improvements at the Sandygate Roundabout to the west would also benefit all three Options.

4.7.4 **Option One** – The Honiton Road shared footway/cycleway which currently connects Cranbrook to Exeter could be extended to the south to connect to Bishops Court Lane so that it can serve Option One. This would offer those to the north of Option One a direct route to Exeter by bike. There is also the potential to create a series of north-south cycle links through the development site itself, facilitating strong links to Cranbrook.

4.7.5 **Option Three**– Further cycle improvements (cycleways etc.) could also be delivered along the A376 which would benefit cycle connectivity to/from Option Three.

4.7.6 **Option Three** – Given the proximity of Option Three to Topsham, there is an opportunity to provide a cycle corridor between Clyst St George to the south-west of the Option and Topsham Railway Station. The route would be 1.9km, and encompasses a small stretch of the A376 Exmouth Road, Topsham Road, Bridge Hill and Elm Grove Road. A potential cycle corridor would facilitate multi-modal travel to key local destinations including Exeter and Exmouth via the Avocet Line. This would have wider benefits for residents of Exeter and Topsham.

4.8 Cycle Infrastructure Constraints

4.8.1 **Option Two** – There are no existing routes (cycleway or dedicated cycle routes) in the vicinity of Option Two.

4.8.2 **Option One** – The comparable size of Option One leads to increased cycle travel times. Some areas of the Option would be beyond a 10-minute cycle of the centre of the Option area, though they would still be within the 8km distances discussed at paragraph 4.1.1. This could to some extend be addressed through development phasing and masterplanning, ensuring that essential services were centrally located and delivered at an early stage of the development phasing.

4.9 Cycling Summary

4.9.1 A summary of the cycling connectivity of all three Options is provided at Table 4.2, again recognising that the role of this report is to assess the current and potential future level of provision, with the detail of that provision following within the Transport Assessment for the preferred site.

Table 4.2: Cycle Connectivity Summary

	Option One	Option Two	Option Three
Existing Infrastructure	» Shared cycleway/footway along Honiton Rd to north. » Flat topography.	» None.	» NCN Route 2 is located in proximity to Option Two providing a connection to Exeter and Exmouth. » Flat topography.
Existing Usage	» Internal routes appear to be well-used.	» Internal routes well-used.	» Internal routes and A376 appear to be well-used.
Opportunities	» Opportunity to reinforce already popular routes with flat topography. » Potential to provide a dedicated cycleway along A3052. » Honiton Rd cycleway (to the north) could be extended to serve Option One. » Good opportunities for north-south routes linking to Cranbrook » Two connections within emerging LCWIP	» Opportunity to reinforce already popular routes. » Potential to provide a dedicated cycleway along A3052. » Single connection within emerging LCWIP	» Opportunity to reinforce already popular routes with flat topography. » Potential to provide a dedicated cycleway along A3052. » Opportunity to provide a cycle corridor connecting to Topsham railway station. » Two connections within emerging LCWIP
Constraints	» Large area of the Option increases cycle times from the centre point to surrounding areas.	» Lack of existing cycle infrastructure in the vicinity of Option Two.	» None.
Summary Score (/5)	**4**	**2**	**4**

5. Public Transport Connectivity

5.1 Overview

5.1.1 The new community will require high-quality, frequent and direct public transport provision linking with nearby settlements, employment, education, retail and other services beyond those which will be provided within the settlement.

5.1.2 The level and convenience of provision should make public transport an attractive proposition for all parts of the community, reinforcing the vision that the private car should be the mode of last choice for residents and visitors.

5.1.3 Mirroring the wider transition away from internal combustion-engined vehicles, the public transport fleet should focus towards a zero-emissions strategy.

5.1.4 This section examines the existing accessibility of the sites, how this could be improved and whether these improvements would offer benefits to existing communities and public transport users.

5.2 Existing Public Transport Infrastructure

Bus

5.2.1 There are a number of existing bus stops within the wider area of the three Options. These are shown at Figure 5.1.

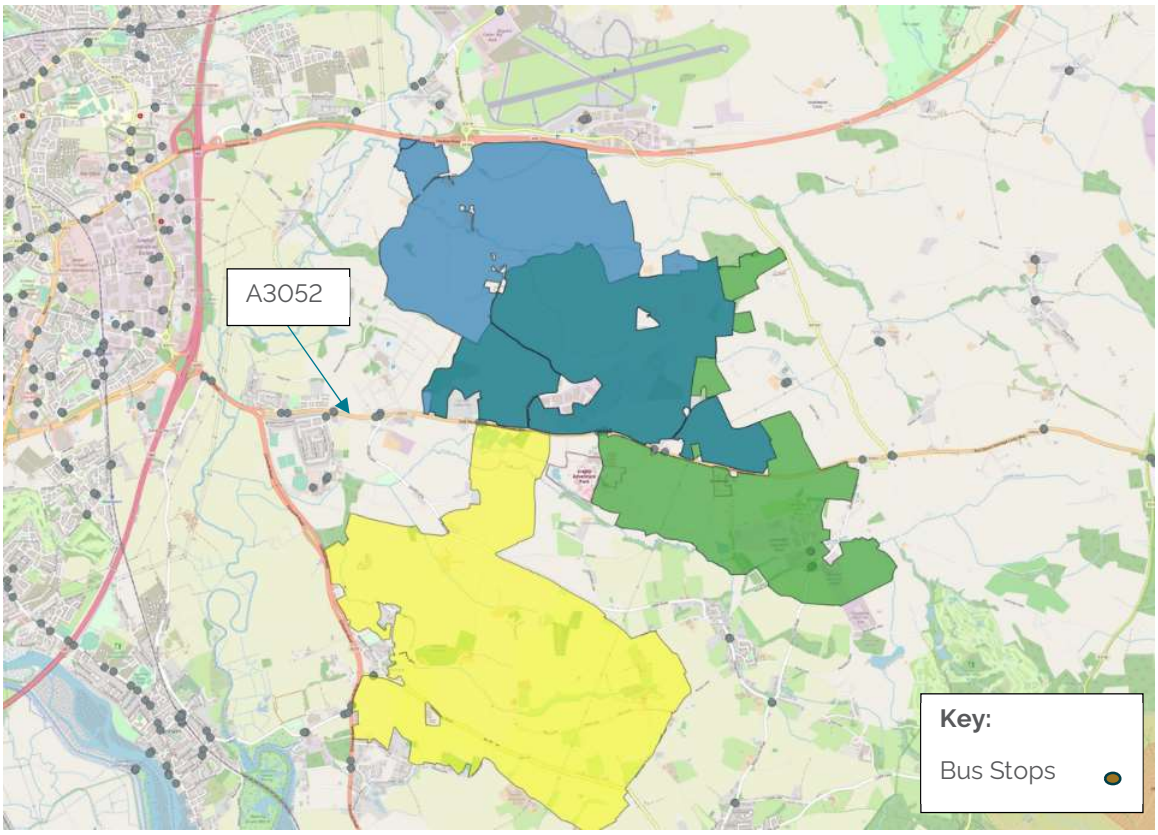

Figure 5.1: Location of Local Bus Stops

5.2.2 Stops are primarily located along the A3052, which offers strong public transport connectivity westwards towards Exeter city centre via the 9, 9A and 52 services. To the east, the 9 and 9A services also connect to other regional destinations including Honiton, Sidmouth and Lyme Regis. The 9 and 9A services run at frequent intervals, varying between 14 and 85 minutes, whilst the 52 service offers just one service between Seaton and Exeter daily.

5.2.3 Stops to the east of the map and the stop to the south-west at Clyst St George are served by the 56/56A service (the route of which is shown below at Figure 5.2). The 56/56A services vary in route, offering services to a range of varying destinations including St David's, Exmouth, Exeter City Centre, Clyst Honiton and Woodbury. Services are generally frequent, ranging from 20 minute to 60-minute intervals.

5.2.4 An illustrative summary of the existing bus routes within the context of the Options are shown below at Figure 5.2.

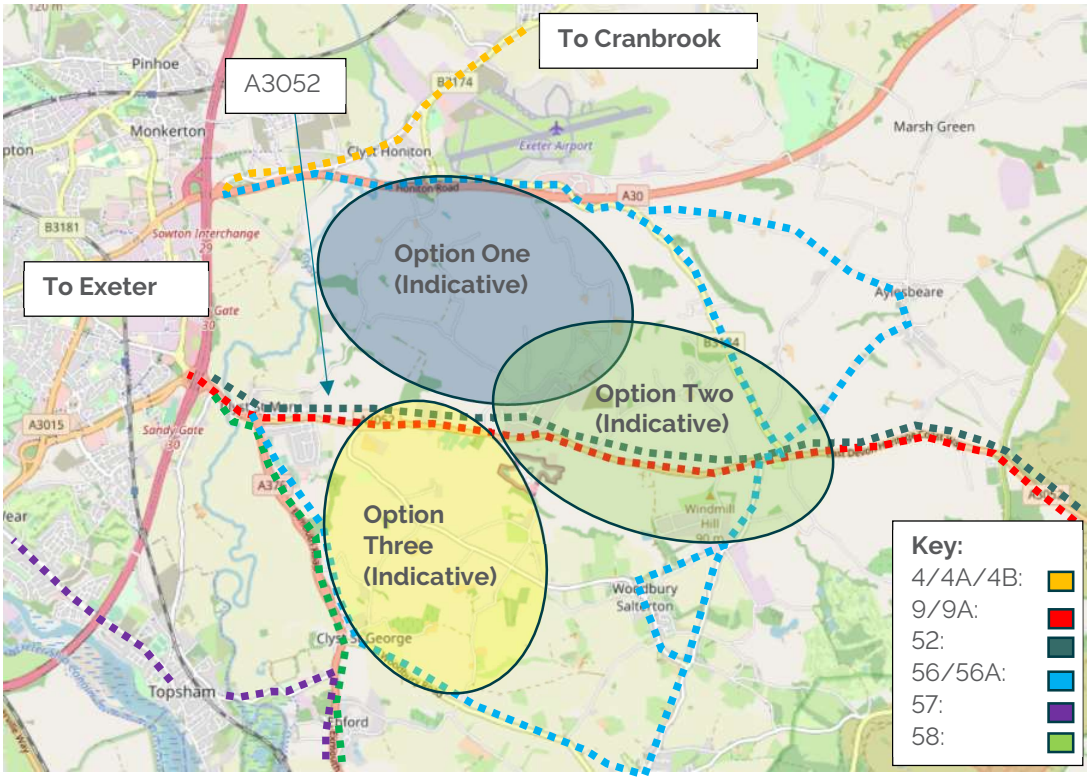

Figure 5.2: Indicative Local Bus Route Map

5.2.5 As Figure 5.2 shows, routes 9/9A and 52 would be able to serve at least a portion of all three of the new community Options without any diversion. Similarly, the 56/56A route, which currently operates in a circular loop within the vicinity of all three Options, could also serve a portion of each of the Options. The A3052 is a key bus corridor in the context of the emerging new community Options.

5.2.6 However, given the scale of the proposed new community, a bus route through any potential Option would be required in order to adequately serve the new community and to embed the principles of sustainable access from the outset.

5.2.7 **Option One** – To the north, route 4/4A/4B currently runs through Clyst Honiton, linking to Cranbrook north of Option One. A potential fourth variation of this route could enable it to serve Option One, and provide a direct link between the potential new community and Cranbrook.

5.2.8 Similarly, the 56/56A service could potentially be diverted to travel through Option One, utilising a potential north/south link road in order to serve the new community.

5.2.9 **Option One** benefits from existing bus priority infrastructure (bus lanes) at Junction 29 of the M5.

5.2.10 **Option Two** – Option Two is well served by existing routes 9, 52 and 56, which could potentially be diverted into the Option. Additional bus stops adjacent to any proposed access towards the centre of the Option would facilitate uptake of these existing services.

5.2.11 **Option Three** – The 57 and 58 route could serve Option Three, though with no existing bus stops along the A376 or within the immediate vicinity of the Option potentially diverting these services, and providing an additional stop close to Clyst St George would be required.

5.2.12 **All Three Options** – It is apparent that all three Options are well-connected by bus via the A3052 links. Options Two and Three also have added connectivity when compared to Option One due to their proximity to stops served by the 56/56A. It is apparent that the northern portion of Option One is relatively isolated from any existing bus infrastructure, and a new dedicated service will likely be required.

Rail

5.2.13 There are a number of railway stations located within the vicinity of the three Options, including Cranbrook, Pinhoe, Digby and Sowton, Newcourt and Topsham. The location of these stations in relation to the three Options is shown below at Figure 5.3.

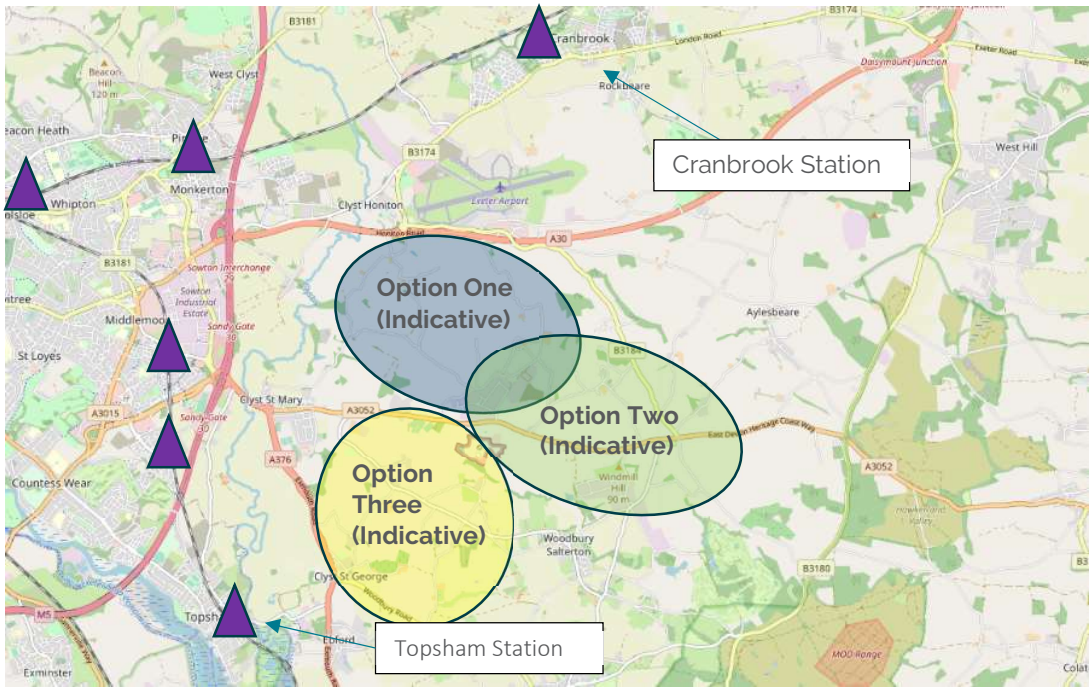

Figure 5.3: Local Railway Stations

5.2.14 **Option One** – The Digby and Sowton, Pinhoe and Cranbrook railway stations are the closest stations to Option One, located 4km, 4.3km and 3.5km from the centre of the Option respectively. When taking into account existing routes, the Cranbrook station is the closest to the Option, and can be accessed via the footbridge over the A30 and footways along the Clyst Honiton Bypass.

5.2.15 The Cranbrook railway station offers South Western Railway services between London Waterloo and Exeter. Services run between 06:19 and 23:53, frequenting the station at hourly intervals throughout the day. Having opened in 2015, the Cranbrook Train Station is the newest station on the West of England Main Line.

5.2.16 **Option Two** – Option Two is the most isolated of the three Options in terms of its proximity to railway stations, with no stations within a realistic walking distance. The Digby and Sowton train station is the closest to the Option, located approximately 5.6km to the west. Digby and Sowton can be accessed via the A3052 either by car or bike.

5.2.17 The 9/9A services also connect Option Two to the Digby and Sowton train station, providing a frequent bus link to the station which can facilitate multi-modal travel from all three Options. The Digby and Sowton railway station, like Topsham, also offers half hourly services along the Avocet Line. Services run seven minutes behind Topsham, with the first train departing at 06:08 and the last at 00:38 on weekdays.

5.2.18 **Option Three** – Topsham railway station is the closest station to Option Three, located just 2.3km from the centre of the Option. From Clyst St George, Topsham railway station can be accessed along continuous footway via the A376, Topsham Road, Bridge Hill and Elm Grove Road. The Topsham railway station offers half-hourly services along the Avocet Line (GWR), which connects Exmouth, Paignton and Exeter. Services run from 06:01 until 00:31 on weekdays, or 07:01 and 00:01 on Saturdays.

5.3 Public Transport Travel Times

5.3.1 Table 5.1 sets out the existing travel times from each of the three Options to a range of key destinations via public transport. Travel times are taken as direct journeys from the nearest existing public transport node as illustrated at Figure 5.1.

Table 5.1: Travel Times to Key Destinations by Public Transport

Destination	Travel Time (mins) Option One	Option Two	Option Three
Exeter Airport/Airport Business Park	-[8]	15	43
Winslade Park	29	5	33
Sowton Industrial Estate	18	21	15
Topsham	45	54	3
Exeter City Centre	20	23	17
Exmouth	43[9]	33	22

5.4 Public Transport Opportunities

New Bus Service Viability

5.4.1 **All Three Options** – There is potential for a new commercially viable bus services to serve a community of this scale. Generally, new bus services must generate c.£200,000 per vehicle per year in revenue[10].

5.4.2 The £200,000 of revenue comprises of passenger revenue, plus any developer subsidy if required. When assessing the commercial viability of a route, it is important to consider the potential patronage, to estimate the potential revenue.

5.4.3 The TRICS database has been reviewed in order to assess the predicted level of bus journeys associated with an 8,000-dwelling private housing development with similar characteristics to the proposed East Devon new community. The results of the TRICS search indicates that historically comparable sites would have generated approximately 1,491 daily two-way trips via bus.

5.4.4 Based on a Stagecoach Exeter adult day ticket price of £4.50, this results in a revenue of c£3,350 per day, or an annual figure of c.£840k. Subject to confirmation with the operator, this would appear to provide the demand for a service that could commercially run four buses, without considering existing demand along the route.

[8] Quicker to walk
[9] Multi-modal (Bus and Train)
[10] 2022 figures based on other Hydrock projects nationally.

5.4.5 Given the differing locations of each of the potential Options, each Option will have a different journey time to the end destination of the potential new service. Travel times to Exeter City Centre as set out at Table 5.1 have been used to illustrate the indicative bus frequencies along the routes from each Option.

5.4.6 The illustrative bus timetable plan for Option One has been produced as shown at Figure 5.4

5.4.7 This illustrates that two buses would be required to run a continuous service between Option One and Exeter City Centre, with a 20-minute frequency, or three per hour.

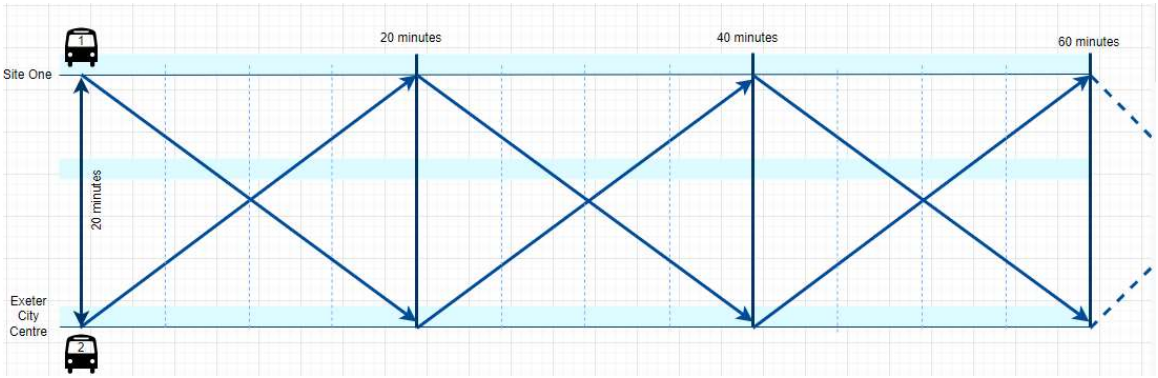

Figure 5.4: Option One Bus Service Timetable Plan

5.4.8 It should be noted that it is generally good practice to allow for some variation in journey times to ensure a punctual and reliable service. This should be accounted for in that existing public transport journey times have been used, but an elongated route extending into the centre of Option 1 may not be wholly achievable with just two vehicles.

5.4.9 Figure 5.5 shows the potential bus service timetable plan for Option Two.

5.4.10 With a 23-minute journey time, two buses would not be able to provide a 20-minute frequency each hour. Across a 12-hour day, the number of services would be 31, equating to approximately 2.6 services an hour and a departure time that varies hour to hour.

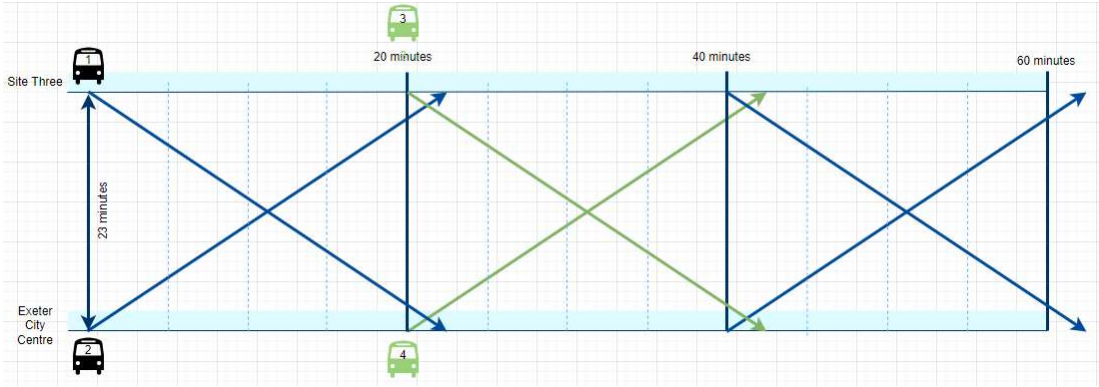

Figure 5.5: Option Two Bus Service Timetable Plan

5.4.11 This means that additional vehicles would be required in order to provide a regular, 'clockface' service (i.e. buses consistently arrive at the same minutes within each hour). A clockface service is simpler for people to use and therefore likely to be more possible. The requirement for additional vehicles and inconvenient journey times means that, not only would there be additional costs, but also, there would be greater redundancies and inefficiencies in how the route would operate.

5.4.12 Figure 5.6 shows the potential bus service timetable plan for Option Three. With a 17-minutes journey time, two buses can maintain a 20-minute service (three per hour), with the Option of building in a three-minute layover to improve reliability and maintain a fixed bus departure time across each hour.

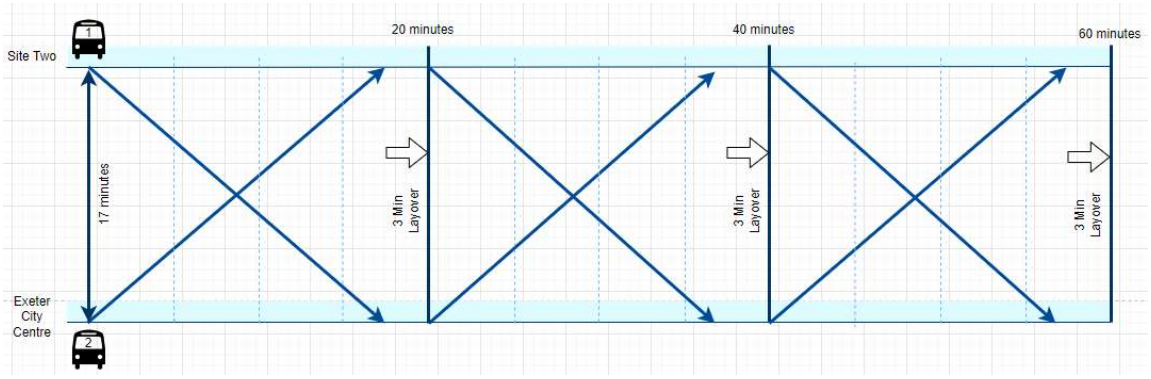

Figure 5.6: Option Three Bus Service Timetable Plan

5.4.13 **Option Three** is therefore considered to provide the best Option for a new bus service, followed by Option One and then Option Two. However, due to the size of the development, all three Options are considered likely to be able to provide a commercially viable service.

5.4.14 With the potential revenue sufficient to cover four buses, c.10-minute frequency could be achieved, that would be a significant enhancement to the existing bus Options within the area, approaching a 'clock-face' high-frequency level of provision suitable to encourage significantly-improved patronage.

5.4.15 Increased service frequency may also encourage uptake further down/higher up along the route, and offer a net benefit to other communities located between the proposed new community and Exeter, such as Clyst St Mary. Financially, the services may alleviate the need for the relevant local authority to subsidise a service to these areas, given that the proposed new community will meet the threshold for an operator to fund the service independently.

Other Bus Opportunities

5.4.16 **Option One** - Given the lack of bus coverage to the north of Option One, there is potential to install a bus-gate adjacent to the A30 slip road/Bishops Court Lane. The bus-gate could serve the new community, with the potential for a new service, or a new variation of an existing service, which would provide a direct link to Exeter via the A30. Journey times should also become more consistent and reliable.

5.4.17 **Option One** - Alternatively existing services that serve Cranbrook to the north, such as the 56/56A, could be diverted to serve the new community, with potential for a bus-gate to the north of Option One.

5.4.18 **Option One** - The provision of a north/south bus corridor would enhance internal and external connectivity within Option One. Within Option One, this potential corridor would connect the A30 to the A3052. It could be served by diverting existing services such as the 56/56A to the north, or a new service could be created to connect the new community to Exeter, potentially via a circular route in order to maximise the community coverage of the new service.

5.4.19 **Option Three** – relative to existing bus services, Option Three also offers a good opportunity for a circular route running along the A376 and A3052.

5.4.20 **Option One and Option Three** - There is potential to provide a new park and ride site along one of two strategic corridors into Exeter (either the A30 or A3052) in line with the aims of the Exeter Transport Strategy. A number of park and ride sites already exist in around Sowton, though a new facility to the east within one of the potential Options would intercept traffic before it crosses the M5, and therefore alleviate traffic and congestion in and around Junctions 29 and 30, where the existing park and ride facilities are located. It would be best practice for the facility to comprise of a wider mobility hub, enabling interchange between car, bus, cycle, micromobility, and from internal combustion engined vehicles to zero-emissions (including on-site EV charging).

5.4.21 **Option Three** - To facilitate access to the 57 and 58 services from Option Three, a slight diversion could be implemented, with a new bus stop installed to the south of the Option adjacent to Clyst St George. This would significantly enhance the public transport offering in the vicinity of the Option, providing an alternative option for travel for those located to the south who are further away from the A3052 links.

5.4.22 **All Three Options** - A more consistent 9/9A service frequency would provide more reliable connectivity to all three new community Options. This would be of benefit to all three Options and would tie in with the aims of the Exeter Transport Strategy, which targets a consistent standard of sustainable transport.

5.4.23 Given the size of the Options, a potential park and ride facility is most feasible within Option One, followed by Option Three. A potential new bus service could serve both the new community and the park and ride facility.

Rail

5.4.24 **Option One** - As previously mentioned, there is potential to provide a bus link between Option One and Cranbrook station. This link would facilitate multi-modal travel to a range of local, regional and national locations, significantly enhancing the connectivity of the Option.

5.4.25 **Option Three** - If Option Three were to be selected as the preferred Option, there is the potential to increase the frequency of services along the Avocet Line in line with the aims of the Exeter Transport Strategy for a consistent standard of sustainable transport.

5.5 Constraints

5.5.1 As with the preceding sections, it is appreciated that current provision would be insufficient to provide for the requirements of a new community of the scale proposed, meaning that significant infrastructure enhancements will be needed. Existing constraints have been considered in the context of the extent to which they would need to / could be overcome through such enhancements. The nature of the required enhancements will be examined in greater detail in the Transport Assessment and masterplanning work for whichever site is preferred by EDDC.

Bus

5.5.2 **All Three Options** - Existing bus stops along the A3052 vary in standard, with some consisting of flagpoles and on-carriageway bus cages as shown at Figure 5.7. Alongside diversion of services, upgrades of existing bus stops are considered likely. It is our understanding that upgrade works are proposed to the stops located on the A3052 adjacent to Crealy Theme Park, though improvement schemes should be extended to encompass other stops located on the A3052. Upgrades should ensure that stops are accessible for all users (raised platforms), and should encourage uptake of bus as a modal choice (shelters, seating, real-time digital bus information) for all three potential Options.

Figure 5.7: Inadequate Bus Stops along A3052

Figure 5.8: Cat and Fiddle Bus Lay-by

5.5.3 **All Three Options** - Will be reviewed in terms of their comparative traffic impacts / effects of traffic on public transport accessibility following the completion of traffic modelling by DCC and its consultants.

Rail

5.5.4 **Option Two** – Option Two is not within walking distance of any railway stations, in contrast to the other Options which both have railway stations located in closer proximity. The links from the Option to the nearest station, Digby and Sowton, are dependent upon the A3052, meaning that journeys from the Option to the station could be vulnerable to any potential congestion, the potential for which will become clearer following the strategic modelling, which is yet to be undertaken by DCC and its consultants.

5.5.5 **All Three Options** – A rail capacity study, separate from this commission, will be required to confirm if the existing stations can accommodate the potential growth in customers.

5.6 Public Transport Summary

5.6.1 A summary of the public transport connectivity of the three Options is provided at Table 5.2.

	Option One	Option Two	Option Three
Existing Bus Infrastructure	» Bus Stops located adjacent to the south of the Option along A3052. » Routes 9/9A and 52 pass to the south of the Option. » Route 56/56A passes to the north of the Option.	» Bus stops located along the A3052 which bisects the Option area. Further stops located to the south of the Option. » Routes 9/9A, 52 and 56/56A pass through the Option.	» Bus stops located adjacent to the north of the Option along A3052 and to the south of the Option along B3179. » Routes 9/9A and 52 pass to the north of the Option. » Routes 56/56A and 58 pass to the west of the Option. » Route 57 passes some 500m south-west of the Option.
Existing Rail Infrastructure	» Three rail stations located within 4.3km of the Option. » Stations offer GWR and South Western services to local, regional and national locations.	» Closest station, Digby and Sowton, located some 5.6km west of the Option. » Offers half-hourly GWR services along Avocet Line.	» 2.3km from Topsham rail station. » Accessible via continuous footway from the Option. » Offers half-hourly GWR services along Avocet Line.
Bus Opportunities	» Journey time to Exeter City Centre ensures that a potential new service would be efficient, but with limited resilience. » Potential to install a bus-gate adjacent to the A30 slip-road. » 4/4A/4B existing service could be diverted to serve the new community. » Potential to increase frequency of 9/9A. » Potential to implement a north/south bus corridor within Option area. » Potential to install a park and ride facility within the Option. » Option to create north south route through development site	» Potential to increase frequency of 9/9A. » Journey times make provision of a clockface timetable challenging	» Journey time to Exeter City Centre ensures that a potential new service would be efficient. » Potential to divert 57 and 58, and install a new bus stop to the south-west to serve the new community. » Potential to increase frequency of 9/9A. » Potential to install a park and ride facility within the Option.

	Option One	Option Two	Option Three
Rail Opportunities	» Potential to provide a bus link (4/4A/4B) between the Option and Cranbrook rail station.	» None.	» Potential to increase the frequency of services along the Avocet line.
Bus Constraints	» Poor standard of existing stops/infrastructure along A3052, though some are due to be upgraded.	» Poor standard of existing stops/infrastructure along A3052. » Potential bus service to Exeter would be inefficient.	» Poor standard of existing stops/infrastructure along A3052, though some are due to be upgraded.
Rail Constraints	» None.	» Relatively isolated from rail facilities.	» None.
Scoring Summary (/5)	**4**	**2**	**4**

Table 5.2: Summary of Public Transport Connectivity

6. Existing Employment Accessibility Context

6.1 Overview

6.1.1 Whilst the new community will contain a mix of uses, including employment, and will focus on the minimisation of external trips, it is a benefit in terms of the future vision for the new community to be near to existing employment areas.

6.1.2 Proximity to employment facilitates sustainable transport modes, ensuring that they become viable and realistic modal options for commuters - particularly in combination with infrastructure upgrades supporting the new community. In all Option locations, sustainable transport links to these employment areas will need to be upgraded to be sufficiently attractive to ensure they are used from the outset of the development.

6.1.3 From discussions with EDDC officers, it is understood that employment in the Exeter area (outside of the city centre) is anticipated to gravitate towards the airport area.

6.2 Comparative Proximity to Employment

6.2.1 Figure 6.1 shows the location of the three Options in the context of major local employment centres.

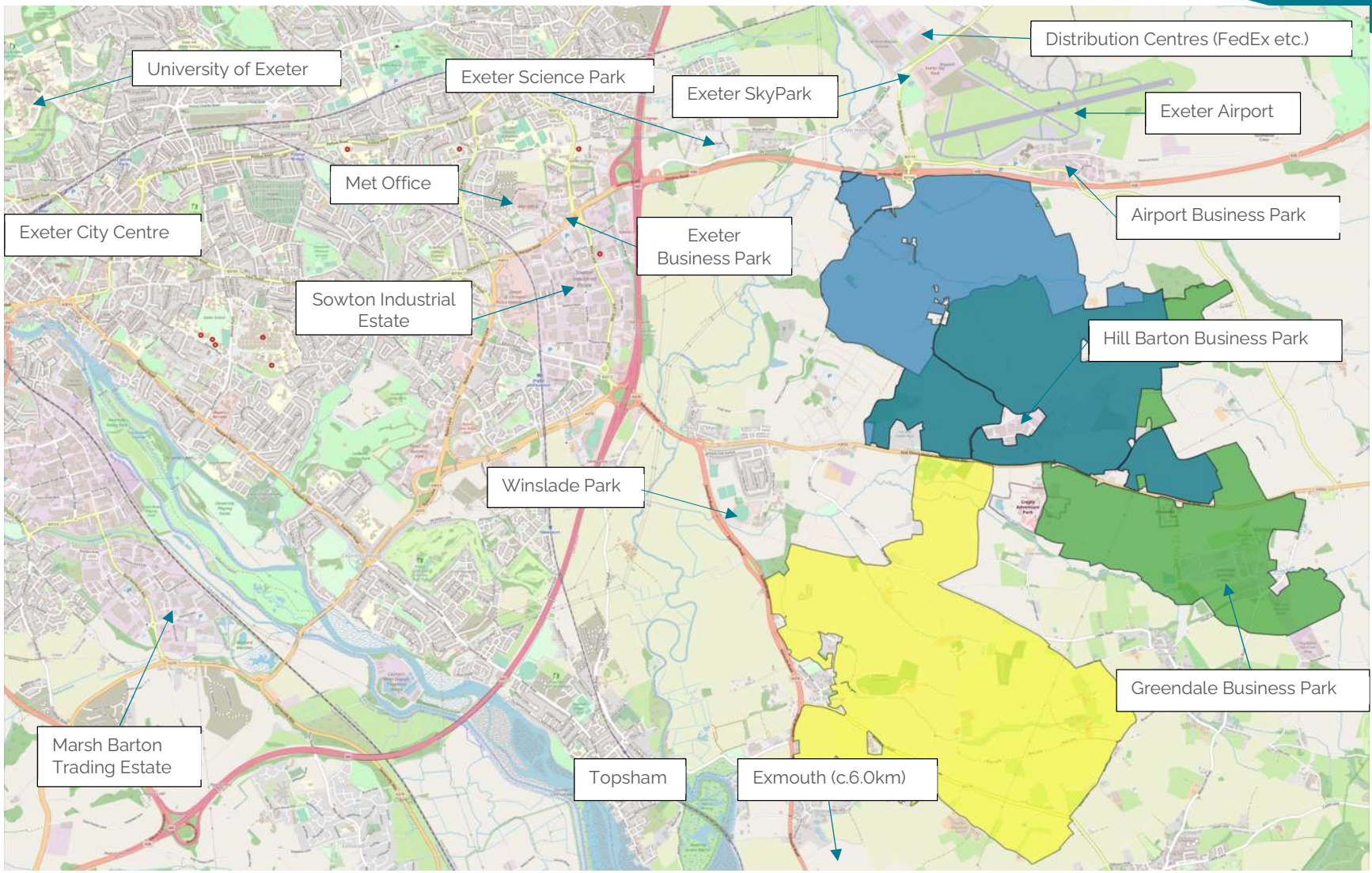

Figure 6.1:Proximity of Options to Major Employment Centres

6.2.2 Table 6.1 provides a summary of the distances from each Option to the major local employment areas. As infrastructure associated with the potential new community has not yet been built out, distances are taken as direct (as the crow flies) distances from the centre point of the Options.

Table 6.1: Distances to Major Employment Centres

Employment Centre	Approximate Distance (km) from the centre of each Option		
	Option One	Option Two	Option Three
Exeter Science Park*	3.1	5.1	3.9
Exeter SkyPark*	2.4	4.3	4.4
Distribution Centres to North of SkyPark (FedEx etc.)	3.5	5.3	5.5
Exeter Airport	1.3	3.0	3.9
Airport Business Park	1.3	3.0	3.9
Hill Barton Business Park	0.9	1.3	1.8
Sowton Industrial Estate*	3.9	5.3	3.2
Winslade Park	2.6	3.6	1.0
Met Office	3.9	5.9	4.1
Exeter Business Park*	3.8	5.8	4.1
Greendale Business Park	2.6	0.5	3.2
Exmouth	10.7	9.4	8.8
Topsham	5.5	5.2	2.6
Marsh Barton Trading Estate*	8.2	8.9	6.3
Exeter City Centre*	8.3	9.4	7.2
University of Exeter*	8.9	10.2	8.1

**Designated as Key Business Locations by ECC*

6.2.3 **Option One** – Option One is located in close proximity to Exeter Airport, with the centre of the Option just 1.3km south of the airport, a significant employer in the region. Local industrial/business parks/estates including Sowton Industrial Estate (3.9km), Hill Barton Business Park (0.9km) and Greendale Business Park (2.6km) are all located within relative proximity to the centre of the Option. The latter two business parks feature within the East Devon Villages Plan (adopted July 2018) for further development concerning business use for future years.

6.2.4 Exeter Science Park is located 3.1km north-west of the centre of Option One, whilst Amazon, Lidl and DPD's distribution centres are immediately north of Exeter Skypark, 2.4km north of the Option.

6.2.5 Further afield, Exeter City Centre is located some 8.3km east of Option One.

6.2.6 **Option Two** - Greendale Business Park is located within the proposed Option Two indicative boundary, providing an existing employment opportunity within the potential new community. Hill Barton Business Park is just 1.3km north-west of the Option's centre.

6.2.7 Exeter Airport, Exeter Skypark and Exeter Science Park are all located between 3-5.1 km north-west of Option Two, whilst Topsham is located some 5.2 km south-west of Option Two. Exeter city centre itself is approximately 9.4 km east of the Option.

6.2.8 When comparing the Options, Option Two offers fewer employment opportunities within its vicinity. Aside from the Greendale and Hill Barton Business Parks, all other employment centres are located at least 3km from the Option, with no clear or efficient routing strategy to reach these centres. Furthermore, all employment opportunities are distributed to the west of the Option, increasing Option Two's reliance on the A3052 as the sole transport link to travel to these locations.

6.2.9 **Option Three** – Option Three is located in close proximity to Topsham town centre (2.6km south-east of the Option), which offers a rail link connecting to Exeter City Centre 7.2km north-west of the Option.

6.2.10 Exmouth town centre is located 8.8km south of Option Three, and is also accessible from Topsham train station as well as via the A376 which runs along the western side of the Option.

6.2.11 Option Three is also located 6.3km east of the Marsh Barton Trading Estate, which is designated as a 'key business location' by Exeter City Council (ECC)[11]. Similarly, Option Three is located some 4.4km to the south of Exeter Skypark.

6.2.12 In the more immediate vicinity of Option Three is the Sowton Industrial Estate (3.2km north-west), the Hill Barton Business Park (1.8km north-east), the Greendale Business Park (3.2km east) and the Winslade Park co-working facility.

6.2.13 Both Option One and Option Three are advantageous in that they offer a wide range of employment opportunities within circa 4km.

6.3 Employment Opportunities

6.3.1 **All Three Options** - All three potential Options are located in close proximity to both Greendale Business Park and Hill Barton Business Park. Both business parks have expanded from small sites to substantial business parks, which each cover over 20 hectares and employ 'a substantial number of people' according to the East Devon Villages Plan. Plans for the future growth of the two business parks are also outlined within the Villages Plan, with limitations set regarding the extent of authorised business use which will ensure that Greendale Business Park would not encroach onto land designated for new community development within Option Two.

[11] 'Key Business Locations', Exeter City Council, July 2018 (https://exeter.gov.uk/business/available-land-and-premises/key-business-locations/)

6.3.2 **Option One** - The location of Option One is advantageous in that it is proximate to these business parks, whilst also being located within 3km of other major employment centres with significant future growth potential such as Exeter Science Park and Exeter Skypark (Amazon, Lidl and DPD distribution centres)

6.3.3 **Option Three** - Option Three offers opportunity for multi-modal travel to two major employment centres in Exeter and Exmouth via Topsham. With Option Three located just 2km east of Topsham, journeys can be made to the train station in the village, with the second leg of the journey to be made via train along the Avocet Line.

6.4 Employment Constraints

6.4.1 **All Three Options** - All three Options are located a significant distance away from Exeter city centre (between 7km and 10km), meaning that employment opportunities within the city centre are not within the walking and cycling distances outlined within TA91/05. This distance becomes more achievable with the increase in e-bikes, and so may be reduced as a constraint in the longer term, as well as being accessible for keener and more experienced cyclists.

6.4.2 **Option Two** - For Option Two, aside from employment opportunities provided by Hill Barton and Greendale, the closest employment centres are located a minimum of 3km from the Option. It is apparent that the Option is relatively isolated and prospective residents would have to commute quite significant distances when travelling to work unless this was provided on Option.

6.4.3 **Option Two** – without significant internalisation of employment trips, the main commuting route relies upon the A3052, which could make it prone to congestion as a result of the higher volumes of traffic originating from the new community. As a commercial location for employment, Option Two is also more limited, as the A3052 is the only main route that offers direct access to the site.

6.4.4 **Options One and Three** – both offer greater opportunities for on-site employment and commercial development, as both are served by more than one main road (the A30 and A3052 for Option One and the A376 and A3052 for Option Three). This gives them more reliable accessibility by road for delivery and distribution of goods, making them more attractive and viable sites for future business occupants. Both sites lie a similar distance from the M5, with the Option Three being further away.

6.4.5 It is apparent that there are more constraints associated with access to employment opportunities at Option Two than at Option One or Three.

6.5 Employment Summary

6.5.1 A summary of the local employment accessibility context of the three Options is provided below at Table 6.2.

Table 6.2: Employment Summary

	Option One	Option Two	Option Three
Proximity	» Located in proximity to Exeter Airport, Science Park and SkyPark as well as Greendale Business Park. » Hill Barton Business Park located within the Option.	» Greendale Business Park located within the Option. » Hill Barton Business Park located in proximity to the Option. » Few other employment centres within the vicinity of the Option. The majority are at least 5km away.	» Located in proximity to Hill Barton Business Park and Topsham town. » A number of other employment centres located within medium range (3-5km) of the Option.
Opportunities	» Proximity to Hill Barton and Greendale Business Parks. Both parks have plans in place for growth within the East Devon Villages Plan. » Close to major employment centres with significant future growth potential in Exeter SkyPark, Science Park and Airport. » Good road links are likely to make it an attractive site for future business occupants, increasing on-site employment choices.	» Proximity to Hill Barton and Greendale Business Parks. Both parks have plans in place for growth within the East Devon Villages Plan.	» Proximity to Hill Barton and Greendale Business Parks. Both parks have plans in place for growth within the East Devon Villages Plan. » Potential to facilitate multi-modal trips to major employment centres including Exeter City Centre and Exmouth via Topsham railway station and the Avocet Line. » Good road links are likely to make it an attractive site for future business occupants, increasing on-site employment choices.
Constraints	» Distant from Exeter City Centre.	» Reliant upon A3052 as a link to reach employment centres. » Aside from Hill Barton and Greendale, the closest employment centres are located at least 3km from the Option. » Distant from Exeter City Centre.	» Distant from Exeter City Centre.
Scoring Summary (/5)	**5**	**3**	**4**

7. Future Proofing

7.1 Electric Vehicles (EVs)

Policy

7.1.1 The DfT states as part of The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy (DfT, 2018) that Electric vehicles (EV) are highly energy efficient and have zero tailpipe emissions. They also have substantially lower greenhouse gas emissions than conventional vehicles, even when taking into account the electricity source and the electricity used for battery production. Defined by the NPPF as a sustainable mode of transport, EVs are therefore a key tool to help to contribute to cleaner air and lower carbon emissions, particularly for those trips that need to be undertaken by car.

7.1.2 Whilst the current East Devon Local Plan (2013-2031) does not contain any formal policy regarding electric vehicle provision within new developments, the document does stress that 'charging points for electric vehicles should be made available in new developments throughout the district'. The emerging East Devon Local Plan working draft, which shapes the likely future policy on the matter, provides more detail, stating that 'Development needs to provide Electric Vehicle Charging points in accordance with the latest Government guidance'. It goes on to state that rapid charging points will be particularly important in the public domain, with a further desire to provide spaces for public electric car charging points and for car clubs.

7.1.3 The government's 'Approved Document S' sets out requirements for EV provision. The requirements are summarised below:

- For residential EV provision must be provided for the number of spaces or the number of dwellings, whichever is lower.
- For other uses, one space must be provided (above 10 spaces) and 20% must have cable provision.
- An exception to this is covered car parking, where there is no requirement other than cable routing.
- There are also exceptions based on the cost of the connection and infrastructure.

Existing Infrastructure

7.1.4 To complement the above policy requirements, and provide some context to the existing EV landscape in East Devon, Figure 7.1 provides a snapshot of existing EV charging point provision within the vicinity of the three potential Options.

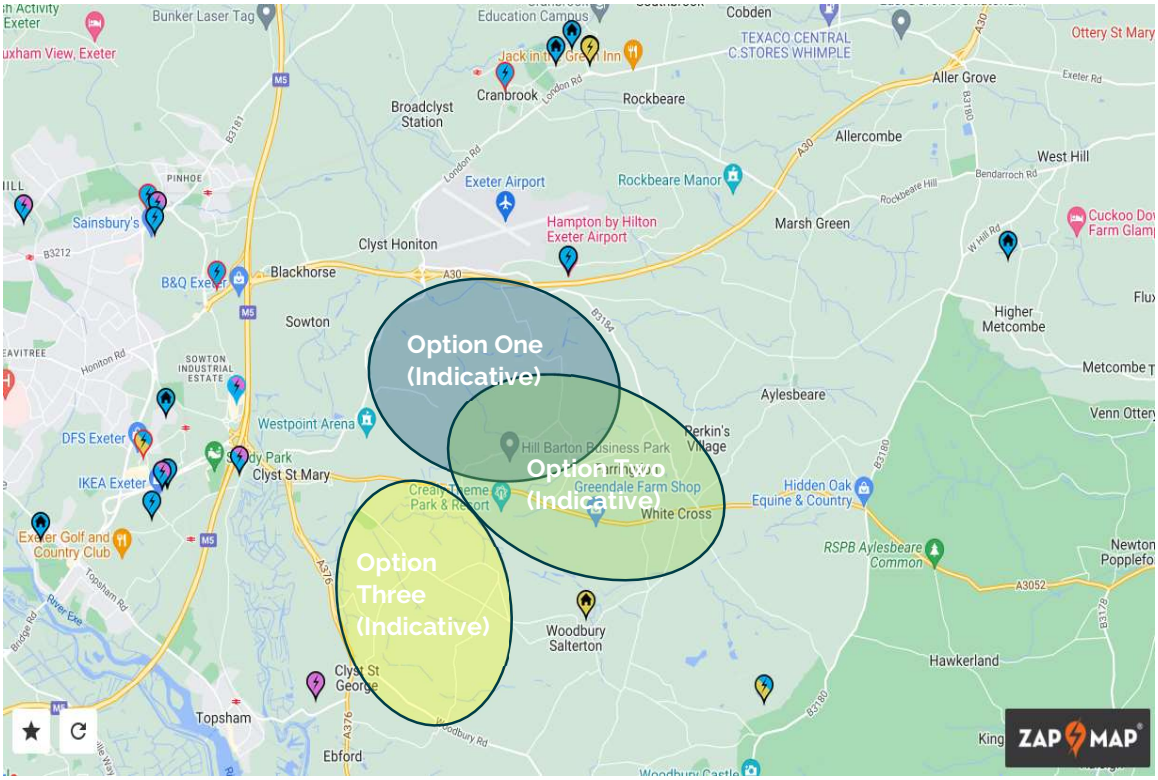

Figure 7.1: Zap Map of Existing EV Charging Infrastructure in East Devon

Existing and Future Demand - current settlements

7.1.5 Data regarding EV ownership within the EX5 postcode, and potential future trends for existing development have been explored in order to 'set the scene' for consideration of appropriate provision within the East Devon New Community (EDNC).

Off-street Charging Grants

7.1.6 Reference has been made to statistics for households receiving government grants for off-street EV charger installations12.

7.1.7 East Devon has the highest number of grant-funded home EV chargers of any Devon authority, at 865 units up to July 2022. Within the same timeframe, 3,885 home chargers have been funded across Devon.

[12] This data has been used as the best-available proxy in preference to Driver & Vehicle Licencing Agency (DVLA) data, as a majority of EV owners have access to a private charge-point, whereas DVLA statistics reflect where a vehicle is registered, rather than where it is used – e.g. lease or fleet vehicles will be registered at the owning company's offices, as opposed to the driver's address.

7.1.8 The data enables the following comparison:

- EX5: 188 chargers / 8,916[13] households = 21 chargers per 1,000 households
- Exeter: 383 chargers / 52,500 households = 7 chargers per 1,000 households
- East Devon: 865 chargers / 66,800 households = 13 chargers per 1,000 households

National EV Growth Projections

7.1.9 National Grid projections for EV uptake present four scenarios based on the level of EV sales and infrastructure availability. In this case, we have used the most optimistic projection in order to highlight the possible level of charging demand[14].

7.1.10 Applying the highest National Grid EV uptake projection to the number of vehicles in the EX5 area indicates that there could be up to:

- 934 EVs in EX5 by 2025
- 4,007 EVs in EX5 by 2030
- 9,206 EVs in EX5 by 2035

EV mileage

7.1.11 Average vehicle mileage declined prior to and during the Covid pandemic. National Travel Survey (NTS) data shows that vehicles travelled an average of 5,300 miles annually in 2021, equivalent to 102 miles per week. However, this data needs to be treated with caution, as it does not capture the higher mileages of new vehicles, and particularly vehicles used on company business.

7.1.12 Analysis by the RAC Foundation in 2020 showed that new vehicles averaged 10,377 miles per year during the first three years after registration. Battery Electric Vehicles (BEVs) travelled an average of 9,435 miles per year in the same period. This data pre-dates the effect of the Covid pandemic on mileage and, applying average reductions in vehicle mileage across that timeframe (NTS: 22% reduction in total milage from 2020 to 2021), the equivalent figures would be 8,088 miles for all vehicles and 7,354 miles for BEVs. The resultant average BEV mileage equates to 141 miles per week.

Frequency of charging

7.1.13 The average battery capacity of contemporary EVs for sale in the UK is 68 kWh, with an efficiency of 3.2 miles/kWh.

7.1.14 Based on the above, contemporary EVs will, on average, need to charge at least once every 10.8 days.

7.1.15 However, this is not a worst-case, as older EVs typically have lower battery capacities, EV drivers will typically not let batteries deplete towards 0% before charging, and higher-mileage drivers will need to charge more frequently.

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[13] Forecast from 2011 and 2021 Census data - NB that charger data is from July 2022, which post-dates the Census and cannot therefore fully reflect ongoing household growth in the EX5 area (e.g. at Cranbrook).
[14] It has to be caveated that achieving this level of growth is highly dependent on factors including materials/semiconductor availability, vehicle pricing/availability, and the roll-out of charging more widely - i.e. the number of EVs could be significantly lower.

Off- and on-street chargers

7.1.16 To cater for charging demand in the EX5 area, there will need to be a combination of household EV chargers, on-street and destination charging locations.

7.1.17 Research by the RAC Foundation[15] indicates that:

- 68% of homes in England have, or could have, off-street EV charging
- 71% of East Devon homes meet this criterion
- For comparison, the figure is 58% for homes in Exeter

7.1.18 For the highest National Grid uptake scenario in 2035:

- 6,536 EVs in the EX5 area will likely have access to off-street charging (actual or potential) - 71%
- 2,670 EVs in the same area will be reliant on on-street or destination charging - 29%

Summary

- The EX5 postcode area currently has 21 funded household chargers per 1,000 households - three times the number in Exeter and significantly higher than the average (13 per 1,000 households) for East Devon.
- There could be more than 9,200 EVs in the EX5 postcode area by 2035.
- The average contemporary EV will need to charge once every 10.8 days - this will be more frequent for older EVs, higher-mileage drivers, and those that do not wish to deplete their battery below a certain level
- East Devon has a slightly higher than average proportion of homes which are able to accommodate off-street charging (e.g. on driveways).
- By 2035, there could be 2,670 EVs in the EX5 area which do not have off-street charging, meaning that a combination of household, on-street and destination chargers will be required to meet demand.

7.1.19 The above figures are based on demand from existing development in the area and are intended to inform EV provision within the new community. Importantly, the exact number of cars (and, hence, EVs) in the new community will be a function of wider trends and also the vision for the settlement/measures to reduce the need for car ownership/use. This will be explored further in the Transport Assessment for the preferred site, once this has been confirmed by EDDC.

7.1.20 **Options One and Three** - due to their proximity to the M5, these sites may provide an opportunity for some strategic publicly accessible charging to help facilitate longer-distance travel by EVs in the South West.

[15] This data needs to be treated with caution as it relates to the area available within properties for the theoretical installation of a driveway, which is not guaranteed to be acceptable or affordable to potential EV owners, or even practical in terms of accessibility onto the highway.

Electrical Power Considerations

7.1.21 The availability of electrical power for EV charging is addressed in Hydrock's separate report covering utilities matters. It is understood that Options 1 and 2 are marginally better than Option 3 in terms of the existing electrical supply; however, all of the sites will require extensive utilities works to provide sufficient power, meaning that this is not a decisive factor between them from an EV charging perspective.

Shared Mobility

7.1.22 The number of privately-owned/leased EVs is rising rapidly in response to technological advances, fossil fuel costs and the ban on the sale of new internal combustion engined cars in 2030. Alongside this, EVs have a key role to play in shared mobility solutions such as the Co-Cars scheme active in the local area - 2019 data from Co-Cars indicates that the scheme had removed 150 cars from Exeter's roads and 149 tonnes of CO2 every year.

7.2 E-bikes

7.2.1 The important current, developing and future role of e-bikes is described in Section 4.5 of this report, which notes their ability to effectively overcome topographical and physical constraints for users.

7.2.2 Privately-owned e-bikes have increased rapidly in number, with the cost of purchase reducing dramatically. Alongside this, publicly-accessible e-bike hire schemes such as the popular Co-Bikes network in and around Exeter form a key part of the shared mobility network needed to deliver on the Council's vision for the new community. Figures from Co-Bikes cite more than 1,300 bike rentals per month on their network in 2019, with a 30% reduction in car usage and 15% increase in walking/regular cycling[16].

7.3 Micromobility

7.3.1 Micromobility modes of transport refers to small, lightweight vehicles which include bikes and e-bikes (see above), e-/scooters, e-/skateboards and other emerging modes such as powered unicycles and Segways.

7.3.2 Whilst it is currently illegal to use privately-owned e-scooters on the highway, their use is increasingly commonplace (particularly in large urban centres). Alongside this, legal, government-backed trials are running in locations in the south west including Taunton, Bristol and Barnstaple, alongside a range of other Local Authority areas nationally. Data from these trials will help to inform the wider roll-out of shared rental scooters.

7.3.3 It is understood that the Modern Transport Bill will seek to legalise government-approved private e-scooters for use on the public highway, informed by the findings of the ongoing rental trials across the UK. Alongside this, the Bill may introduce a new low-speed vehicle class, intended to encompass a range of micromobility technologies, minimising the need for subsequent legislation to cover similar technologies.

[16] Co Bikes & Co Cars: Electric Shared Mobility - Exeter City Futures.

7.3.4 It will consequently be important for the design of the new community to facilitate and, as far as possible, avoid 'designing out' new and emerging travel technologies. Mirroring the significant positive impact of e-bikes, carefully designed provision for government-approved e-scooters and other micromobility technologies will play a key role in the overall transport and accessibility mix for the new community.

7.4 Autonomous Vehicles (AVs)

7.4.1 The rate of progress in autonomous vehicle (AV) technology, combined with UK AV trials and governmental statements regarding its commitment to enabling the use of AVs on the highway in the future, all indicate the need to design the new community to facilitate autonomy as far as is possible and desirable.

7.4.2 Alongside private and shared-use AVs - e.g. cars, taxi shuttles - consideration also needs to be given to facilitating autonomy in the public transport fleet.

7.4.3 AVs are not limited to passenger-carrying vehicles. AV technologies are already being seen in ground-based and airborne drone systems undertaking last-mile and longer-distance freight deliveries.

7.4.4 The Transport Assessment for the preferred Option site, once it is approved by EDDC through the ongoing plan-making process, will address this in further detail, drawing upon emerging best-practice and Hydrock's engagement with AV manufacturers.

7.4.5 Details will likely include identifying 'win-win' solutions - e.g. reduced AV roadspace requirements leading to better pedestrian/cycling environments, alternative future uses of roadspace/parking, alongside integration of V2X (vehicle to infrastructure/other vehicles), and potential future lighting/materials/construction requirements.

7.4.6 Whilst there are no immediate proposals for fully autonomous transport solutions - e.g. AV pods or autonomised public transport vehicles running on the highway - the objective will be to ensure that such developments are enabled rather than precluded by the design, where this is to the benefit of all users.

7.4.7 Whilst the legalities of AV operation in the public highway are addressed by government, there will also be potential interim solutions which can be enabled by the masterplan design - e.g. walk/cycle facilities which are also suited to low-speed AV passenger shuttles and delivery pods.

7.4.8 The nearby location of Exeter International Airport raises the interesting potential for integrated airborne/last-mile drone deliveries, should that be acceptable to the airport and associated authorities. As noted, the airport would be an important consultee with regard to the new community proposals, and this would be particularly relevant in relation to the potential for any future airborne delivery systems operating at these sites.

7.5 Materials

7.5.1 As part of the high-level masterplan for the chosen location, consideration should also be given to the use of new materials, whether in the highway (where permitted, now and in the future) or in non-highway settings (where materials choice can be freer).

7.5.2 Examples might include recycled pavement materials, art or lighting in the pavement surface, and the use of energy-generating kinetic footways (potentially with inbuilt data collection as part of a smart cities approach).

7.5.3 As previously noted, materials choice should also reflect best practice for existing sustainable and motorised modes of transport - e.g. minimising street clutter and maximising clarity for users with visibility difficulties, with clear differentiation and strong 'edges' which would also serve to assist future AV use.

7.6 Summary

7.6.1 **Options One and Three** – lie closer to Exeter and the M5, and are therefore likely to have some slight advantages in terms of their ability to accommodate or facilitate new developments in transport technology.

7.6.2 However, as these new technologies are still emerging, their exact impact is still unknown, and many of them will be facilitate by measures incorporated within the new development itself. As a result, there is likely to be little difference in the sites' abilities to future proof for new developments in transport technology and no scoring metric has been applied for this attribute.

8. Conclusion

8.1.1 This strategic Sustainable Access Review document has been prepared by Hydrock on behalf of EDDC as part of an initial transport information gathering exercise to help shape and inform discussions regarding the location of a new community of up to 8,000 new homes in East Devon, to the east of Exeter.

8.1.2 This report has investigated the connectivity of three Options, exploring their accessibility across walking, cycling and public transport modes as well as their proximity to existing employment functions within East Devon. Opportunities for development have been identified as well as constraints associated with the Options, and consideration has been given to local context and the potential integration of new and emerging transport technologies.

8.2 Conclusion

8.2.1 Table 8.1 provides a summary of the three Options' walking, cycling and public transport credentials, as well as their situation in relation to existing employment opportunities.

Table 8.1: Option Connectivity Summary

	Option One	Option Two	Option Three
Walking	» Good existing external connectivity to north and west. » Opportunities to expand on recently installed infrastructure to the north. » Desire lines to Exeter to north-west are elongated. » Good proximity to Cranbrook area	» Poor external connectivity. » Hilly topography poses a challenge for intra-site connectivity.	» Good existing external connectivity to west and south-west. » Opportunity for pedestrian route between Option and Topsham.
Walking Score	4	1	4
Cycling	» Recently installed cycle infrastructure to the north. » Opportunities to expand existing infrastructure to serve the Option. » Potential to provide a dedicated cycleway along A3052. » Two connections in emerging LCWIP	» Potential to provide a dedicated cycleway along A3052. » Lack of existing infrastructure within vicinity of the Option. » Single connection in emerging LCWIP	» NCN Route 2 located in proximity to the Option. » Potential to provide a dedicated cycleway along A3052 as well as along route to Topsham railway station. » Two connections in emerging LCWIP
Cycling score	4	2	4
Public Transport	» Realistic potential for an efficient new service.	» Potential new service would likely be inefficient. » Existing routes pass through the Option via the A3052.	» Realistic potential for an efficient new service. » Opportunity to extend/divert services.

	» Limited opportunity to extend/divert existing services. » Close to Cranbrook railway station. » Opportunity for a circular bus route » Option to create north south route through development site	» Isolated from rail services (nearest station is approx. 5.6km away).	» Located close to Topsham railway station. » Opportunity for a circular bus route
Public Transport Score	4	2	4
Employment	» Option One has the most significant employment centres, with serious future growth potential, located within a suitable walking/cycling distance.	» Greendale Business Park located within the Option, whilst Hill Barton Business Park is located in close proximity. » Aside from these, the Option is relatively isolated from other employment centres. » Reliant upon the A3052 to reach employment centres.	» Option Two has a limited number of employment centres within suitable walking/cycling distance. » However, its proximity to Topsham railway station can facilitate multi-modal trips to major employment centres including Exeter city centre and Exmouth.
Employment Score	5	3	4
Scoring Summary (/20)	**17**	**8**	**16**
Rounded Average Score	**4.3**	**2**	**4**

8.2.2 Internal pedestrian connectivity within all three Options is presently relatively undeveloped, with a lack of pedestrian infrastructure across all routes.

8.2.3 External pedestrian connectivity for Options One and Three is facilitated by the A3052, which offers continuous footway west to Exeter. In this regard, Option Two is comparatively isolated with no such external pedestrian connections. Options One and Three also have pedestrian connections to Exeter Skypark and Topsham respectively.

8.2.4 Options One and Three benefit from proximity to either dedicated cycleways or cycle routes (NCN 2). Option Two is comparatively constrained by a lack of any such route within its vicinity. However, there are a number of opportunities to enhance cycle infrastructure provision across all three Options.

8.2.5 Public transport provision is of a high standard along the A3052 to the south of Option One and to the north of Options Two and Three, with opportunities to enhance existing service provision along this route. Option One provides the greatest opportunities for a park and ride facility, with the potential addition of a bus-gate to provide bus priority for the service.

8.2.6 Option Three has the strongest connectivity to a railway station, followed by Option One. Option Two is notably more remote from rail, with a reliance on a bus/car connection to the station.

8.2.7 Option One is well-connected to a range of major employers with significant future growth potential. Out of the three Options, it represents the best offering for employment. Aside from proximity to Greendale and Hill Barton Business Parks, Option Two is comparatively isolated from an employment perspective.

8.2.8 As such Options One and Three are closely matched from an existing connectivity and accessibility perspective, outperforming Option Two.

8.2.9 Therefore, the highest summary score (4) has been assigned to Options One and Three, due to their strong performance across all measures. Both options score consistently across walking, cycling, public transport and employment, and offers a well-rounded choice for the new community.

8.2.10 Option Two performs comparatively worse than Options One and Three across all four measures, and its overall summary score of 2 reflects this. A lack of existing infrastructure in the area of Option Two is compounded by the Option's relative isolation in regards to employment and public transport, largely due to its distance from Exeter's eastern boundary.

8.3 Next Steps

8.3.1 As part of the next steps, a trip forecasting exercise will be undertaken. This will include trip generation taking into consideration travel minimisation and internalisation calculations within an overarching Decide and Provide approach whereby a 20-minute neighbourhood is used to support significantly increase usage of sustainable transport modes.

8.3.2 Trip distribution will be reviewed utilising strategic modelling (provided by others), allowing for comparative network impacts.

8.3.3 Overarching commentary will then be provided on the above, alongside a tabular review.

8.3.4 Once a preferred Option has been identified a High-Level Transport Assessment will be undertaken on that particular Option.