Colchester Borough Council

Tendring Colchester Borders Garden Community

Transport and Movement Framework

Part II: Vision and Principles

February 2022

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Transport and Movement Framework
Part II: Vision and Principles

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Produced by:

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1. Introduction

1.1 Integrated Transport Planning Ltd. (ITP) has been commissioned jointly by Colchester Borough Council (CBC) and Tendring Borough Council (TBC), in partnership with Essex County Council (ECC) to provide support on the development of the Phase 1 masterplan for the Tendring Colchester Borders Garden Community (TCBGC).

1.2 With focus on transport and movement elements, ITP is working in a multi-disciplinary team led by Prior + Partners (P+P), in partnership with Gillespies and Hydrock to develop a series of spatial options for the TCGBC, leading to a preferred masterplan. This will act as key evidence for the Development Plan Document (DPD), providing clear place-making and design guidance aligned with key strategic policies to guide sustainable development of the TCGBC.

1.3 This is Part II of the Transport and Movement Framework Report and it builds upon the findings of Part I to develop a vision and masterplanning principles, supported by policy directions and guidance that are sufficiently ambitious to deliver the mode share targets for TCBGC. The report provides guidance as to how these principles and policies should be applied.

1.4 The work set out in Part I and II of the Transport and Movement Framework has supported the development of three spatial options for TCBGC as well as the Strategic Vision.

Structure of report

1.5 This report explores the following themes:

- Section 2 provides a distillation of the key principles underpinning the Transport and Movement Framework, drawn from the Part I report. It provides headline measures to support the achievement of the mode share targets.
- Section 3 sets out the Transport and Movement Framework. It brings in the objectives and principles developed with P+P, supported by the evidence in Part I and illustrates how the work should be applied in Colchester, structured under the themes in the strategic vision to positively shape the development of the masterplan.
- Section 4 provides a summary conclusion and consideration of next steps.

This report should be read alongside Part I of the Transport and Movement Framework.

2. Key principles underpinning the transport and movement framework

2.1 The range of measures set out in Section 3 of Part I have been distilled into 17 headline key principles. Notes have been provided on how each can be secured, who would take delivery responsibility, and the timeframe for delivery. To achieve a sustainable mode share for TCBGC, these measures should be complemented by a package of enhancements in and to Colchester, alongside measures to control parking and access. Much of this is being considered in the Colchester Future Transport Strategy and as part of the Rapid Transit System (RTS).

2.2 Ultimately the development of TCBGC provides an opportunity to deliver significant benefits to existing communities through improved infrastructure and an enhanced public realm.

Placemaking and land-use planning

Principle	How is it secured?	Who delivers it?	Delivery timeframe / phasing
1) High quality and well maintained public realm is central to encouraging sustainable travel	Masterplan, design code, DPD	Developer	The basic building blocks for successfully achieving the mode share targets in the TCBGC. Incorporated into the masterplan and delivered from the start of the project. TCBGC masterplan, design codes and DPD must be robust in order to ensure consistent delivery in TCBGC across development phases over time
2) Mixed-uses allow more local trips to take place on foot and by bike, encouraging social interaction and active spaces	Masterplan, DPD	Developer	
3) Higher density encourages more local trips, supports better services and therefore reduces car use	Masterplan, DPD	Developer	

2.3 These headline measures should be complemented with:

- A masterplan that sensitively incorporates higher density, with the highest density provided within local centres and along Rapid Transit (RT) corridors and lower densities elsewhere

- A high-quality walking and cycling network that connects key destinations within TCBGC seamlessly
- Provision of well located RT halts and mobility hubs to capitalise on higher density locations and provide easy access by all modes

Walking

	Principle	How is it secured?	Who delivers it?	Delivery timeframe / phasing
4)	Removing physical barriers to pedestrian movement and reducing traffic volumes results in a safer, more pleasant walking environment	Masterplan, design code, DPD	Developer	Designed into the masterplan and delivered from the start of the project. TCBGC masterplan, design code and DPD must be robust in order to ensure consistent delivery across development phases over time

2.4 These headline measures should be complemented with:

- A high specification walking environment with generous footways, extensive greenery and no obstructions (e.g. parked cars on footways)
- A design speed of 20mph on streets used by pedestrians and cyclists (lower on residential streets)
- Traffic volumes controlled through careful planning of the street hierarchy and use of measures such as filtered permeability
- A walking network connected with the surrounding countryside, making use of, and upgrading where necessary, local public rights of way
- Play Streets in all residential neighbourhoods and Car Free Zones around all new schools

Cycling & micro-mobility modes (e-scooters, etc)

	Principle	How is it secured?	Who delivers it?	Delivery timeframe / phasing
5)	Providing segregated cycle facilities on busier streets, reducing traffic volumes in residential areas and providing ample cycle and micro-mobility parking encourages these modes	Masterplan, design code, DPD	Developer (on-site), LA with developer funding (off-site)	Designed into the TCBGC masterplan and delivered from the start of the project. Developer funding or direct delivery to provide off-site connections. TCBGC masterplan, design code and DPD must be robust in order to ensure consistent delivery across development phases over time
6)	Cycle and micro-mobility hire schemes with a network of micro-mobility parking hubs allows single journey stages to be made by bike/mm for longer trips, reducing the need to drive, and encourages people to try cycling	Masterplan, DPD, planning obligation	LA with developer funding	Delivered initially to link development plots with local centres and RT stops / mobility hubs and expanded as development progresses to include surrounding settlements in order to provide a more comprehensive service as demand grows

2.5 These headline measures should be complemented with:

- Extensive, well connected and traffic free cycle network within the sites (connecting houses and workplaces with the long-distance network)
- Off-site, a long-distance cycle network, potentially delivered alongside the RT network and connecting to and upgrading existing routes, such as those delivered through the Cycle Cities and Towns programme.
- Cycle and micro-mobility hire hubs at main RT stops and within nearby centres including University and key destinations with Colchester
- Utilisation of cargo bikes for consolidated 'last mile' deliveries for business and residential areas, promotion of cargo-bikes to residents

Public transport

Principle	How is it secured?	Who delivers it?	Delivery timeframe / phasing
7) Providing high quality links into existing public transport networks and forward funding public transport infrastructure provides quick connections to key destinations, driving demand	Masterplan, design code, DPD, planning obligation	Developer (on-site), LA with developer funding (off-site)	Designed into the TCBGC masterplans and delivered from start of development, along with associated off-street interventions. Available from first occupation. A demonstration of the priority afforded to RT. Connected into existing public transport networks. Expanded as additional development is delivered.
8) A high degree of segregation and priority for public transport from general traffic is required to deliver fast and reliable journey times	Masterplan, design code, DPD, planning obligation	Developer (on-site), LA with developer funding (off-site)	
9) Use of powers from the Bus Services Act (such as Enhanced Partnerships) will ensure high quality (comfortable – pleasurable and productive) services and best use of dedicated infrastructure – coordinated with BSIP	LA negotiation with RT operators	LA negotiation with RT operators	Delivered alongside the RT infrastructure
10) Provision of high frequency bus services from opening of new development provides a reliable service to new residents, encouraging use of RT	DPD, planning obligation	RT operators with developer funding	A core network delivered at a 'turn up and go' frequency from first occupation of the GCs. Network expanded as the GCs are built out
11) Integrated ticketing makes it easier to use public transport and allow simple fare structures to be developed that encourage high levels of use	LA negotiation with RT operators	RT operators with developer funding	Introduced as part of Enhanced Partnerships /BSIP (or alternatives) and expanded as the network expands

Principle	How is it secured?	Who delivers it?	Delivery timeframe / phasing
12) Incentivised PT tickets at occupation, to maximise early uptake of existing bus and new rapid transit options	Planning obligation, LA/developer negotiation with PT operators	Developer / LA negotiation with RT operators	Free taster tickets could be provided for an initial period as new residents/employers occupy the site, with the offer continued through each phase of delivery until public transport services, and their use, is normalised within the TCBGC. Contributions via service charges could widen access to reduced fare or free travel within the GC.

2.6 These headline measures should be complemented with:

- The RT service must offer a 'turn up and go' service, with a minimum headway of ten minutes throughout the day (and more frequent during peak travel periods).
- Key destinations must be served rapidly and directly by RT.
- Journey time must give an advantage over the private car through filtered permeability for cars in TCBGC and high segregation/priority for RT on main roads.
- Integrated ticketing across operators in a multi-operator scenario, or otherwise the use of simple fare structures using contactless technology and integration within journey planning / Mobility As A Service apps.
- Free season tickets as part of the Travel Plan packages.
- Mobility Hubs should be introduced with a consistent branding across TCBGC and these should include some or all of the following (depending on location): real-time travel information, RT stops, car club parking, cycle hire, cycle parking, on-demand / RT feeder service transport stops, online shopping drop-off / fulfilment, convenience retail, community facilities.

Parking management

Principle	How is it secured?	Who delivers it?	Delivery timeframe / phasing
13) Parking levels must reflect accessibility by public transport in order to reduce car travel	Masterplan, design code, DPD, planning condition / obligation	Developer	Designed into the TCBGC masterplan and delivered from start of development. Potentially reduced parking levels delivered in later phases depending on location / public transport accessibility
14) On-plot parking should be avoided, and the cost of off-plot parking should not be included in the sale price of properties, in order to encourage use of alternative modes	Masterplan, design code, DPD, planning obligation	Developer, estate management	Designed into the TCBGC masterplan and delivered from start of development. Management by the estate management body in perpetuity
15) Car clubs and car share offer the benefits of car availability without the costs of ownership and the negative impacts on the public realm	Masterplan, design code, DPD, planning obligation	Developer, estate management, car club operator	Designed into the TCBGC masterplan and delivered from start of development. Scaled up as later phases are delivered and including surrounding settlements

2.7 These headline measures should be complemented with:

- Large scale car-free development is unlikely to be appropriate in North Essex, however car parking should be pro-actively managed and the level of provision related to walking, cycling and public transport accessibility.
- Parking should be provided in parking courts or on-street, with reduced levels of on-plot parking.
- Off-plot parking should be leased and regularly renewed, rather than sold.
- Local car clubs with a network of vehicles in Colchester, neighbouring towns and the university to enable local journeys (including one-way journeys).

Traffic management

Principle	How is it secured?	Who delivers it?	Delivery timeframe / phasing
16) Filtered permeability[1] should be designed in during the masterplanning stage and at a development wide level in order to provide the quickest journey times for walking, cycling and public transport	Masterplan, design code, DPD	Developer	Incorporated into the TCBGC masterplan and delivered from the start of the project. TCBGC masterplan, design code and DPD must be robust in order to ensure consistent delivery across development phases over time

2.8 This measure should be complemented with:

- Provision of high-quality alternatives to the car for local journeys, including a dense walking and cycling network and RT stops / mobility hubs
- Cycle and other micro-mobility hire schemes
- Approaches to manage urban logistics, as part of a wider delivery and servicing strategy (freight consolidation centres and the use of alternative vehicles such as cargo-bicycles in last-miles logistics deliveries)

Travel planning and smarter choices

Principle	How is it secured?	Who delivers it?	Delivery timeframe / phasing
17) A range of supporting measures (PTP and promotional events) will encourage walking, cycling and public transport, increasing the benefits of investment in physical infrastructure	DPD, planning obligation	LA with developer funding	Delivered from first occupation and at each new phase of development with reviews and on-going programmes throughout the life of the development

2.9 These headline measures should be complemented with:

[1] Filtered permeability controls access by private car in order to reduce traffic levels in residential streets and to provide journey time advantage to walking, cycling and public transport

- Robust and well-funded Travel Plans including measures such as free cycle hire and car club membership, free public transport tickets, cycle grants, cycle training and PTP.
- Dedicated Travel Plan Co-ordinator based on site until Travel Plan targets are surpassed
- Annual travel and traffic count surveys to inform Travel Plan mode share targets with the data made publicly available and reported to the Councils.

3. The transport and movement framework

3.1 The previous sections have set out the transport context of the TCBGC site, identified places where high levels of active and sustainable mode share have been achieved, summarised the changes that may be expected in the future in terms of technology and demographics. These have been drawn together into a set of key principles.

3.2 Every location is unique, however, and so this section applies those key principles to a set of TCBGC focused objectives. These objectives have informed the development of three spatial options, as set out in the Masterplan Design Options prepared by P+P. This section sets out a framework for how these objectives should be applied.

3.3 The overarching vision transport and movement vision is set out below.

> The Garden Community will be structured around a dense network of traffic-free walk and cycle routes with rapid transit prioritised and supported by a range of innovative mobility measures. This will ensure day to day trips are shorter, quicker and cheaper without a car.

3.4 The vision is supported by four key masterplan principles, which are:

- A place where active and sustainable travel is the natural first choice
- A place with rapid, efficient and cost-effective public transport
- A connected place
- A place where people have priority

3.5 Each of these masterplan principles has its own set of policies. The following section sets out the rationale for the principles, as well as the supporting policies, including their spatial arrangement where possible.

3.6 The principles and policies have informed the development of the three masterplan options set out separately by Prior + Partners. They will also inform the development

of DPD policy and subsequently the development of a future strategic masterplan and design code for the TCBGC.

3.7 To achieve the currently assumed mode share targets set out in Section 4, there must be seamless and high-quality links from the Garden Community to the places people wish to travel by modes other than the car. This means that many of the principles set out this section with regards to walking and cycle links and RTS will need to be applied off-site and not just within the red line boundary.

A place where active and sustainable travel is the natural first choice

Vision

3.8 Journeys will be different. The streets will be designed for people not cars, while dedicated traffic-free links will make walking, cycling and shared transport the natural choice for most trips – whether this may be going to work, dropping the kids off at school on the way or meeting friends at the weekend. It will more direct, quicker and cheaper to travel by active and sustainable modes – linked by Mobility-As-A-Service – and therefore there will be no need to own a car.

Rationale

3.9 A key finding from the review of best practice in Section 3 of Part I is that high levels of active and sustainable travel are possible in the UK and that people typically choose the mode that is quickest, cheapest and most convenient based on the choices available to them. Places like Houten (Netherlands) and Poundbury (Dorset) have successfully delivered the conditions for sustainable travel in new places, with others such as, BedZed (London) and Vauban (Germany) also achieving significantly more sustainable outcomes than surrounding locations.

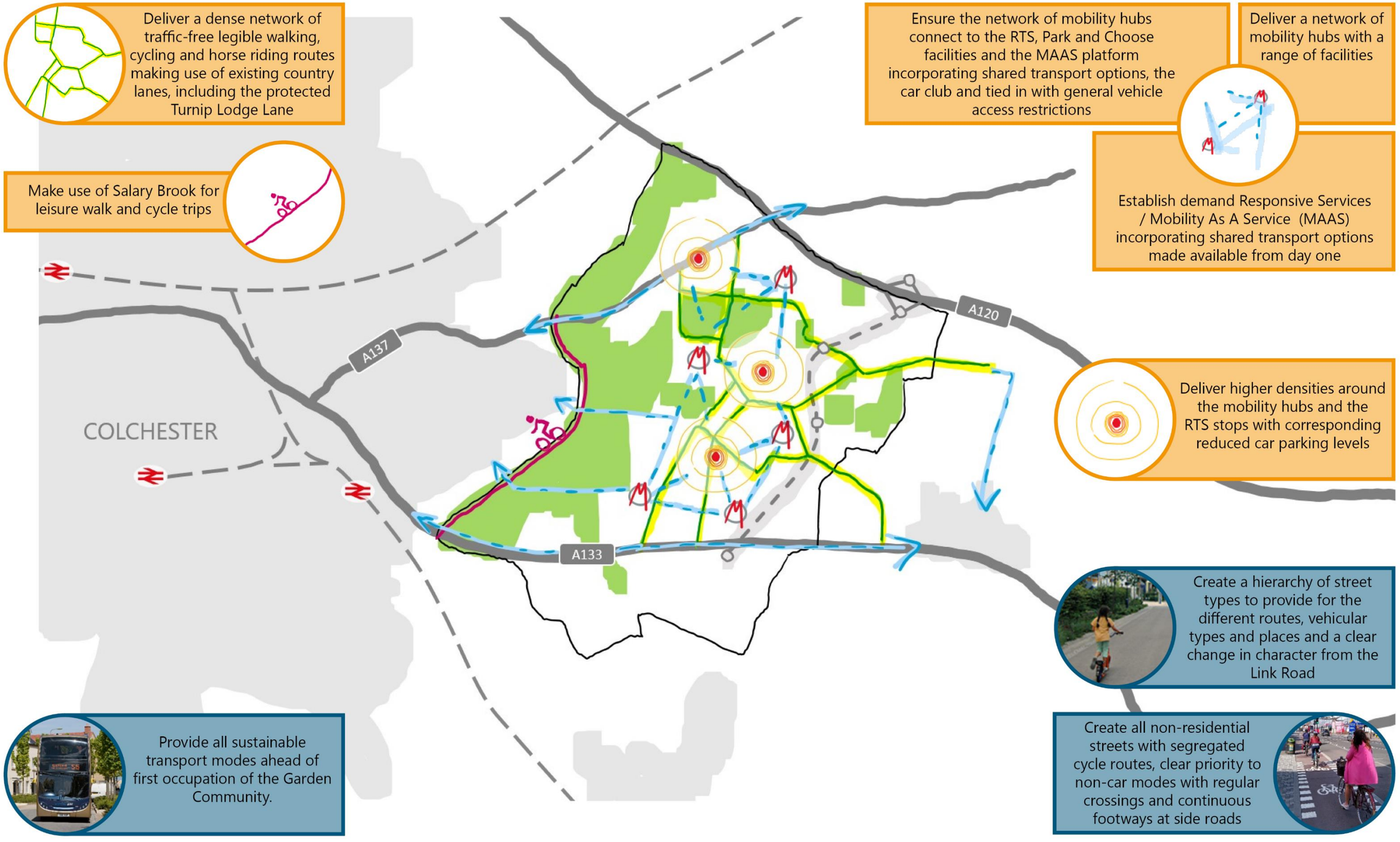
3.10 The analysis has also identified people are more willing to change their travel behaviour at points of life-stage transition, such as when moving house. As shown in BedZed, this can result in residents in new development having significantly more sustainable travel habits than residents in surrounding communities, if the right facilities are provided. It is also the case that a site designed with sustainable principles at its core will attract people who wish to live their lives more sustainably, resulting in more sustainable travel behaviour outcomes.

3.11 As noted above, many of the conditions that encourage active travel and public transport use, such as density, walking and cycling friendly street arrangements and permeability, can be created through the TCBGC masterplanning process. The key principle to deliver *a place where active and sustainable travel is the natural first choice* is central to delivering the kind of place where people will choose to walk, cycle and use public transport before using the car.

Supporting policies

3.12 The policies supporting this key principle are set out diagrammatically overleaf.

Figure 3-1: A place where active and sustainable travel is the natural first choice (orange boxes show potential spatial polices, blue show non-spatial)



Additional information

The importance of density

3.13 As discussed in Section 3 of Part I, density correlates closely to car use, with lower-density places generating more car traffic and longer journey distances. This is because a higher-density built environment puts more everyday facilities within a distance that can be conveniently covered by non-car modes. Density is also critical to the viability of public transport, with at least 50 dwellings per hectare (dph) regarded as a practical minimum to support frequent local bus services[2]. Higher density also increases activity on the street, helping communities to develop and cohere, making the streets feel safer and encouraging more walking, cycling and socialising. Higher density does not mean tall however, with 50dph densities possible within low-rise streets.

3.14 For TCBGC the transport benefits of building at higher density include the ability to fund public transport services such as the RTS and deliver high quality streets that encourage walking and cycling, all of which reduces the amount of traffic generated per home. This minimises the impact that development will have on the surrounding road network. Furthermore, making viable high quality public transport services available to existing communities amplifies mode shift potential and reduces the level of background traffic. As noted in Section 3 of Part I, high quality rapid transport and bus services have contributed to reduced traffic volumes across the UK; including in Crawley, Brighton and Hampshire.

Figure 3-2: Density of 40-50dph at Accordia, Cambridge

[2] Building houses or creating communities? Sustainable Development Commission 2007

Delivering a traffic-free network of walk and cycle routes

3.15 The site benefits from a network of hedge- and tree-lined country lanes that contribute significantly to the character of the area. These can form part of the traffic-free network of routes through the site that will be essential to achieving high levels of walking and cycling mode share. However, they will also function as landscape and wildlife corridors. As such lighting will need to be carefully considered, as will the extent to which natural surveillance can be provided without adversely affecting their character. This suggests additional traffic-free connections across the site, that are well-lit and actively surveilled (overlooked) are needed if they are to be attractive to people making utility trips at all times of the day and night.

Figure 3-3: Traffic free connections in Houten, Netherlands

3.16 In addition to the dedicated routes highlighted above it is anticipated that a traffic-free cycle route would run alongside the RTS and connect to the proposed Park and Choose site. A traffic-free pedestrian and cycle route is also proposed to run alongside the link road and the A133.

Connecting the first and last mile

3.17 The layout of the site in terms of mix of uses and density should ensure that a significant proportion of trips can be undertaken locally on foot or by bike. For longer trips across the site, or those off the site to the university or Colchester, a network of mobility hubs will provide a range of travel options for residents. They will also provide an important link to the RTS for residents not within a short walk of RTS halts and could accommodate demand-responsive services that are routed according to demand. Multi-modal journey planning and booking platforms, known as Mobility-as-a-Service (MaaS), could allow residents to book a range of transport services such as cycle and scooter hire, car clubs, on-demand services and RTS through a single app with the mobility hubs acting as a focus for interchange between services and modes.

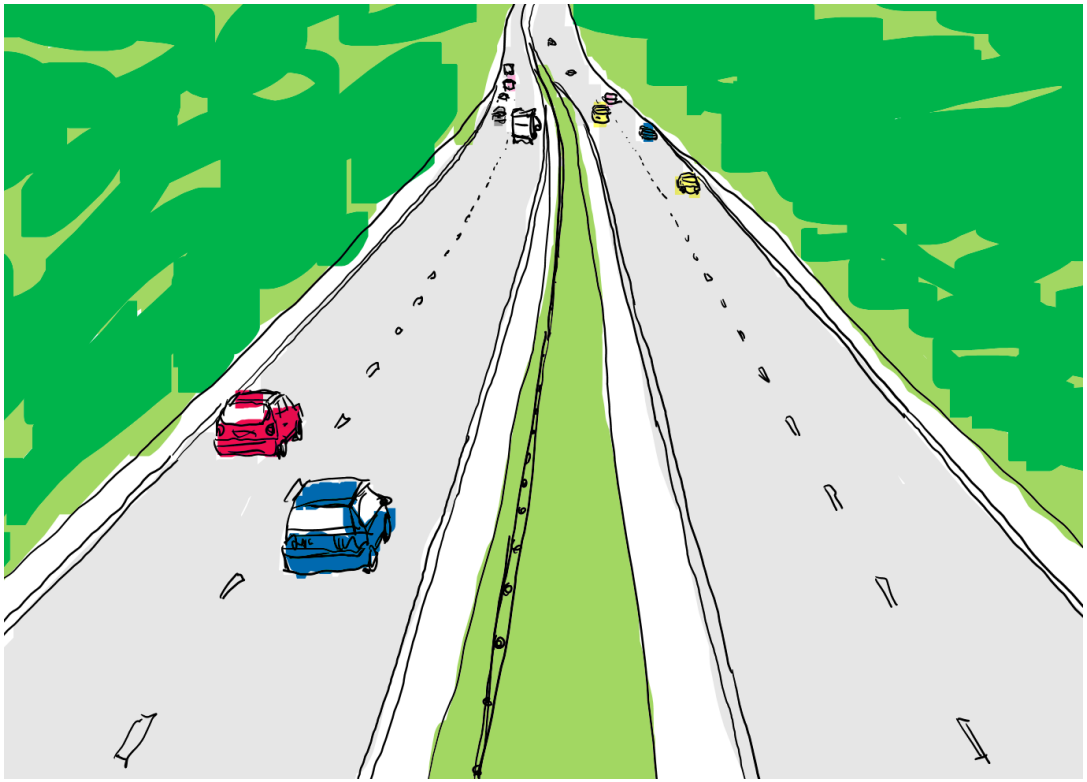
Figure 3-4: Local mobility hub (Berlin)

A street hierarchy that encourages walking and cycling

3.18 The TCBGC should include a hierarchy of streets that are permeable, legible and connected for those on foot and by bike and that give priority to RTS along its alignment. It is essential that as drivers leave the link road – a dual carriageway with a 50mph speed limit - that the streets they enter are designed to safely and swiftly reduce speeds and establish a sense of place. This will include gateway features at three proposed roundabouts.

3.19 A hierarchy of streets will be developed that serve different functions. This hierarchy will be developed as the masterplanning process continues. However, a set of typologies are set out over the following pages that should act as a guide.

Link road: the link road will provide a strategic link between the A133 and A120 and connecting the TCBGC communities via a dual carriageway. Parallel walking and cycle routes will be provided and separated from the Link Road carriageway by green space. The primary means of access to the TCBGC communities will be from the link road. No active frontages. It will have a 50mph speed limit. The Link Road will help support a strategy of filtered permeability within the site as well as connecting employment to the Strategic Road Network and providing access to the proposed Park and Choose site.



Community link: these will be streets that connect to the link road and distribute traffic to local streets. They will contain traffic-free cycle lanes and, where RTS or bus services are present, dedicated running lanes for these modes. These streets will contain local centres and community facilities and have active frontages. In the local centres general access for traffic may be restricted. These streets should have a speed limit of 20mph and a design speed of 10mph in local centres.

Residential street: residential streets where through traffic is controlled and traffic volumes are low. The streets should have a 20mph speed limit and in many cases a design speed of 10mph. They will provide access to homes and a safe environment for walking and cycling, as well as encouraging social interaction. Some streets will provide priority to pedestrians and cyclists and contain no / limited car parking, with vehicular access for loading and pick up / drop off only.

Residential lane: residential streets serving a small number of homes with a character close to a mews or lane. The streets should have a maximum design speed of 10mph. Many streets will provide priority to pedestrians and cyclists and no / limited car parking, with vehicular access for loading and pick up / drop off only.

A place with rapid, efficient and cost-effective public transport

Vision

3.20 A new Rapid Transit network will link the Garden Community to Colchester on high quality vehicles, operating at high frequencies with priority over general traffic. This will make Rapid Transit the first choice for trips into town and for those taking the train to London and elsewhere. This will be a huge benefit for existing communities and for those travelling in to use the Park and Choose site, making the area even more attractive as a place to live, work and visit.

Rationale

3.21 Section 3 of Part I identified key requirements for achieving high public transport mode share that are relevant to TCBGC. These include integration across modes and operators, simple fare structures, high quality vehicles and partnership working with operators. Physical priority for bus and BRT has resulted in increased patronage in locations across the UK; including Crawley, Bournemouth, Belfast and Hampshire.

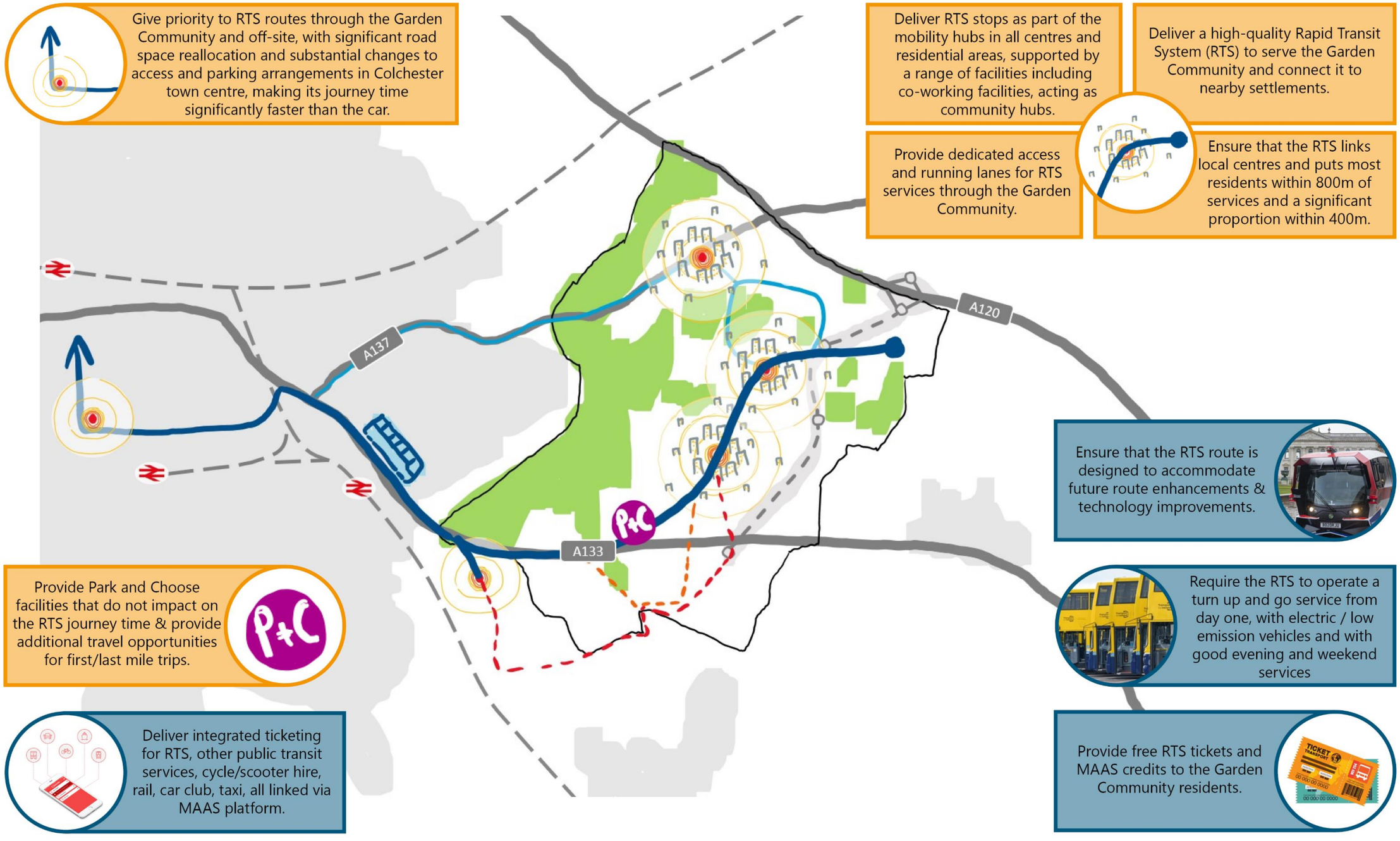
3.22 In Hammarby Sjostad, Sweden, a tram line runs through the centre of the development, providing journey time advantage and securing 52% public transport mode share. In Beulieu, near Chelmsford, bus services were introduced alongside first occupation of homes and through promotion such as taster tickets over 50% of households had a bus season ticket with travel plan monitoring showing a bus mode share of around 20%.

3.23 The TCBGC can deliver the conditions to achieve the outcomes above through the integration of the RTS service, with high degrees of priority on-site delivering journey time advantage over the car. Mobility hubs will ensure high levels of integration across modes and put RTS and local services within close proximity to residents. Connections off-site will be enhanced to give priority towards Colchester and the proposed Enhanced Partnership can improve integration including ticketing across operators.

Supporting policies

3.24 The policies supporting this key principle are set out diagrammatically overleaf.

Figure 3-5: A place with rapid, efficient and cost-effective public transport (orange boxes show potential spatial polices, blue show non-spatial)



Additional information

Routeing of RTS

3.25 The TCBGC area of search includes land to the south of the A133, and east of the link road. The viability of the RTS network will be improved by high quality links to the University and a new Park and Choose (P&C) facility or facilities. A P&C site could allow those driving to Colchester, the University or the Garden Community to park and transfer onto RTS or other supporting modes, such as hire cycles or scooters. The more locations are connected by RTS, the slower the journey time from the Garden Community into Colchester. The slower the journey time, the less attractive the service, and the less likely it contributes to envisaged Garden Community sustainable mobility outcomes.

3.26 To inform RTS routeing choices as part of the TCBGC masterplan a high-level analysis of journey time has been undertaken. It considers route length and the composition of route typologies that make up each option - including the degree of separation from general traffic, and number of halts. Three RTS route options have been considered. The options and the key destinations served are shown diagrammatically below.

Figure 3-6: RTS Option 1 – Housing Infrastructure Fund route

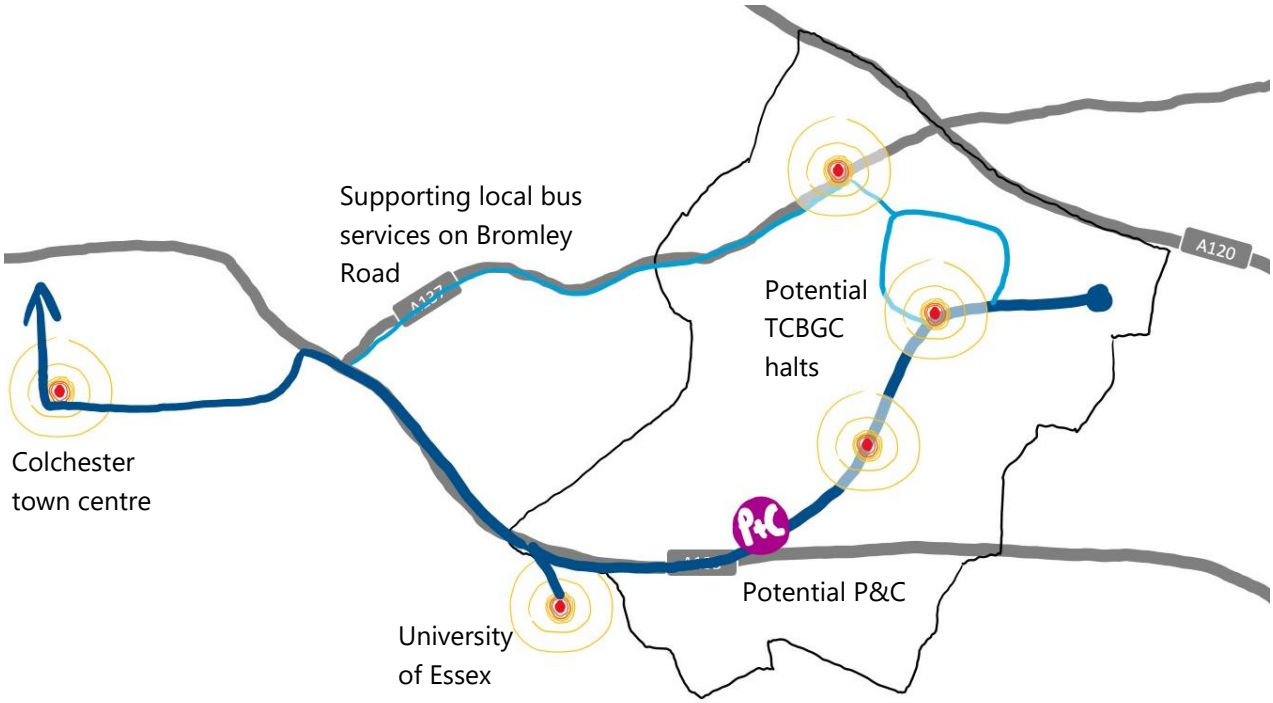


Figure 3-7: RTS Option 2 – Boundary Road and Link Road route

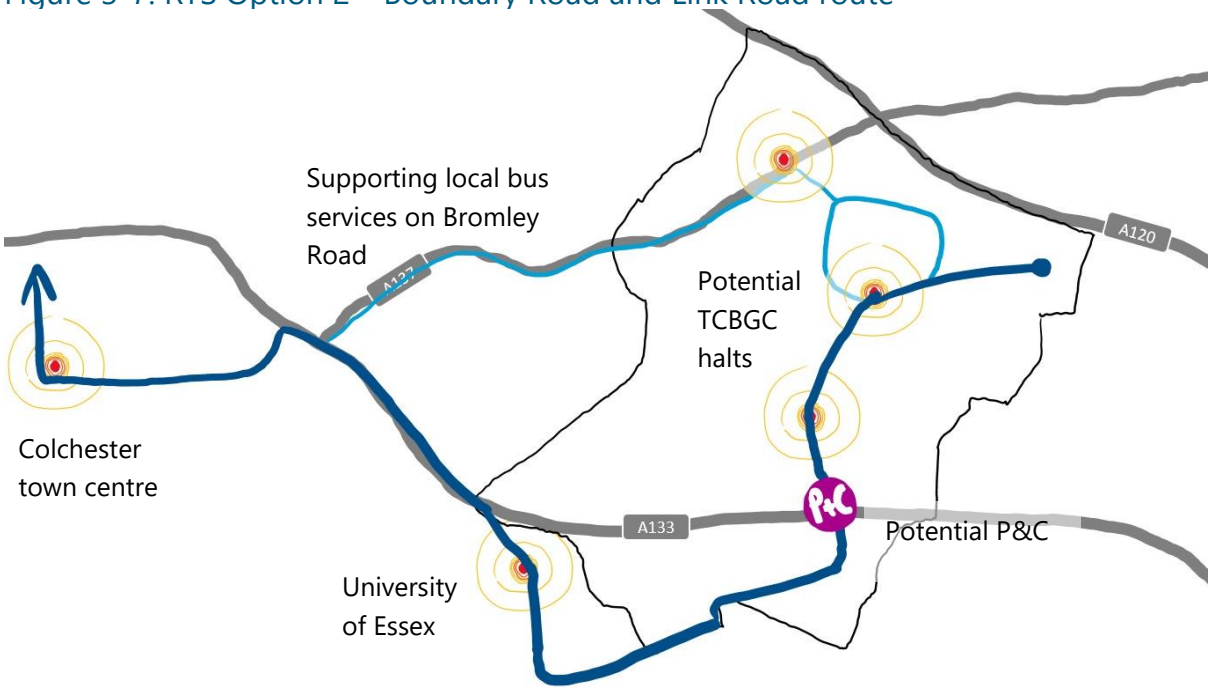


Figure 3-8: RTS Option 3 – A133 and Colchester Road route

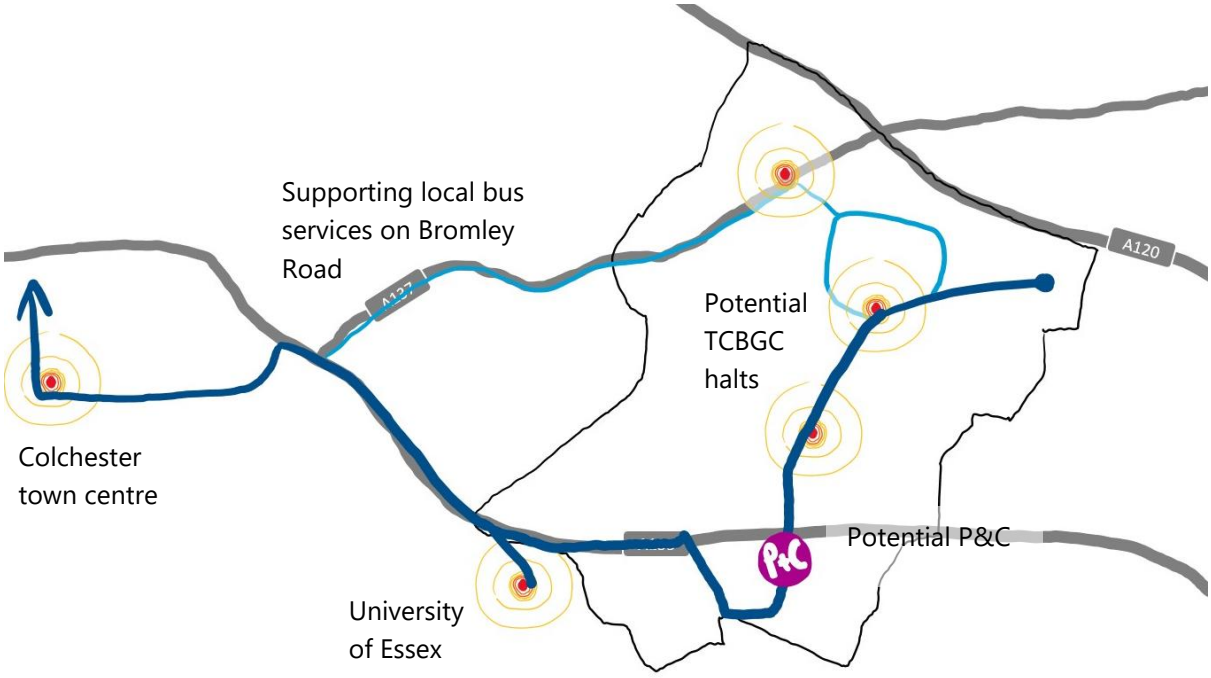


Table 3-1: Description of RTS route options and journey time outcomes

RTS Option	Description	Route length	Number of halts	Journey time
1	Route alignment developed as part of the HIF. Via A133 to Capon Road at the University of Essex, re-joins A133, enters TCBGC west of the link road. P&C accessed adjacent to the A133.	8.57km	9	Around 27 minutes
2	Serves land south of the A133 via Capon Road and Boundary Road before joining Colchester Road, then Brightlingsea Road. Enters TCBGC via the link road. Serves additional stop on land south of A133. P&C adjacent to the A133, by the southern roundabout to the link road.	8.88km	10	Around 29 minutes
3	Serves land south of the A133 via the A133 to Capon Road at the University of Essex, re-joins A133, then Colchester Road via the A133 / Colchester Road junction, then Brightlingsea Road. Enters TCBGC by crossing A133 west of the link road. Serves an additional stop on land south of the A133. P&C is adjacent to the A133.	10.15km	10	Around 32 minutes

3.27 The analysis above highlights that Option 1 provides the most direct and quickest route, with fewer halts. Options 2 and 3 serve the land to the south of the A133, requiring longer routeing and an additional halt. Journey times are therefore longer in these options by between 1.5 to 3.5 minutes. The additional journey time for a vehicle to complete the route in Options 2 and 3 is likely to require additional vehicles to achieve the same service frequency, increasing capital and revenue costs. In Options 2 and 3 overall development densities are likely to be lower due to the inclusion of land to the south of the A133. Lower development densities are likely to impact on viability of RTS by reducing the potential catchment.

3.28 Existing journey times by private car are between 14 and 30 minutes for the same journey, which highlights the need for journey time by RTS to be as low as possible with a high degree to priority into Colchester.

Improved RTS priority off-site

3.29 The HIF proposals will deliver a preferred route and package of measures to provide RTS with improved running conditions in comparison to existing bus services.

Additional off-site improvements may be considered once the HIF work is complete and the TCBGC masterplan is developed. Based on existing HIF proposals, additional potential interventions, designed to further accelerate RTS services and reduce journey times, could include:

- Designation of St Andrews Avenue as a Sustainable Corridor that includes improved cycle connections (segregated tracks and priority at main and side arm junctions) as well as additional priority for RTS
- Traffic restrictions in locations where there is limited opportunity to provide dedicated running for RTS, for example Ipswich Road
- Development of halts to provide mobility hubs, with the detailed developed as the form of the hubs evolves as part of the masterplan work.

A connected place

Vision

3.30 The Garden Community will have excellent strategic connections to Colchester, neighbouring towns and villages and beyond, recognising the chance to grow a new corridor of opportunities. Locally the Garden Community will be seamlessly connected with local destinations such as the University and residents will find it easy to connect to neighbours, both on- and off-site.

Rationale

3.31 The mix of land uses, higher density development and high quality of walking, cycling and public transport connections within TCBGC will ensure that on-site trips are quicker and more convenient by active and sustainable modes. High-speed broadband will also reduce the need to make trips. Nonetheless a significant number of trips will also be made off-site and a significant proportion of these will need to be undertaken by active and sustainable modes to achieve the mode share ambitions.

3.32 As shown in the analysis of movement patterns in Section 2 of Part I, Colchester will be a significant attractor of trips from TCBGC, with key destinations including Mile End (key trip attractor includes Colchester Hospital), Greenstead (key trip attractor includes University of Essex Colchester Campus), and Hythe (key trip attractor includes the Hythe Rail Station and industrial estate). Other destinations include Ipswich and Clacton-on-Sea to the east and Chelmsford and London to the west.

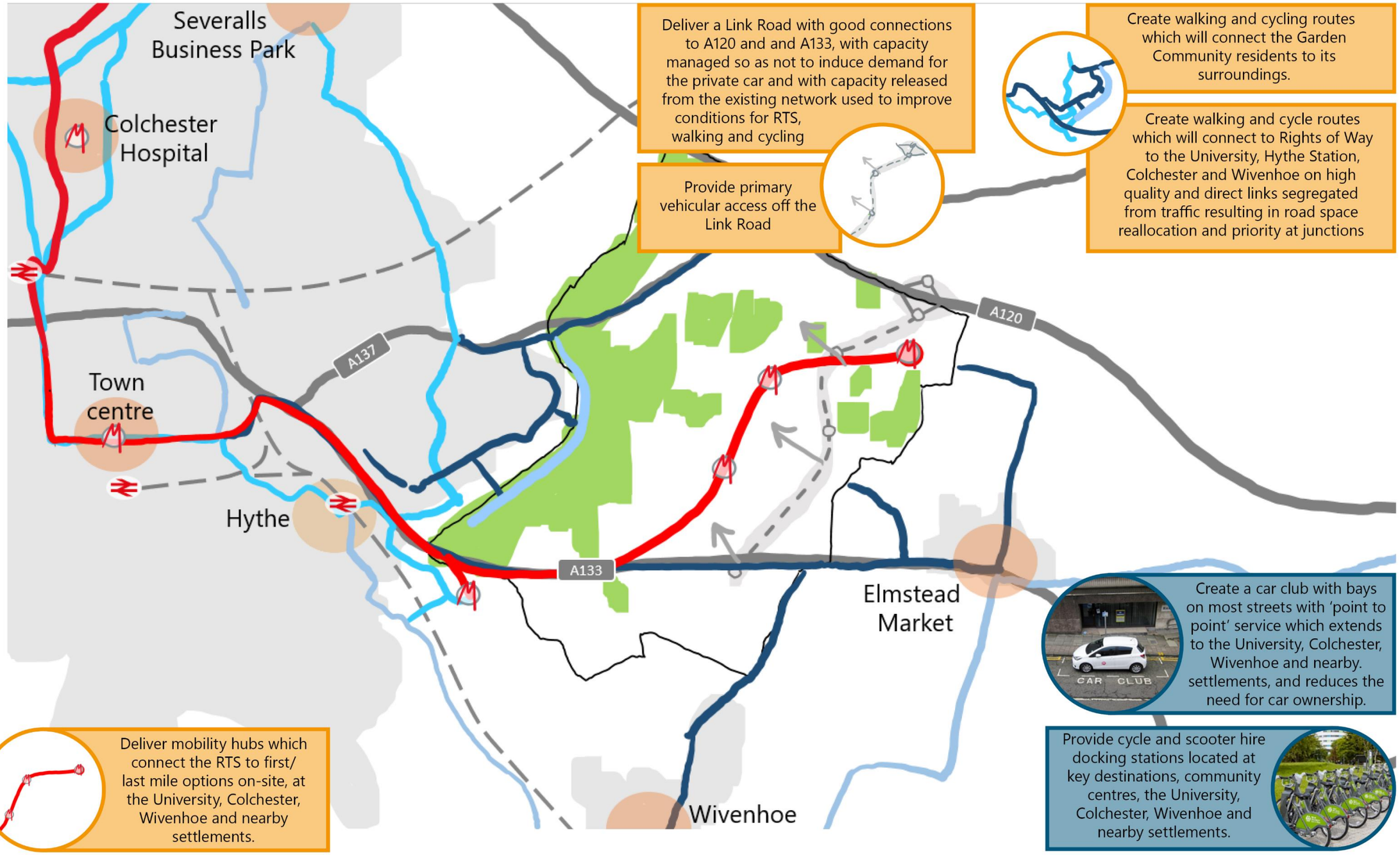
3.33 The proposed RTS route will provide connections to many of these key destinations and will connect to Hythe and Colchester rail stations - facilitating long distance trips to Ipswich, Clacton-on-Sea, Chelmsford and London. The Local Cycling and Walking Infrastructure Plans being developed by Essex County Council will connect the site to Colchester via Hythe. A range of additional local cycle routes, as well as improvements to St Andrews Avenue, will help improve the existing network that exists within the town and connecting many of the key local destinations.

3.34 The link road will provide highway connections to the A133 and A120. The A120 provides for longer distance connections west to Harwich, Clacton-on-Sea and Ipswich and west to Braintree and (via A12) to Chelmsford.

Supporting policies

3.35 The policies supporting this key principle are set out diagrammatically overleaf.

Figure 3-9: A Connected Place (orange boxes show potential spatial polices, blue show non-spatial)



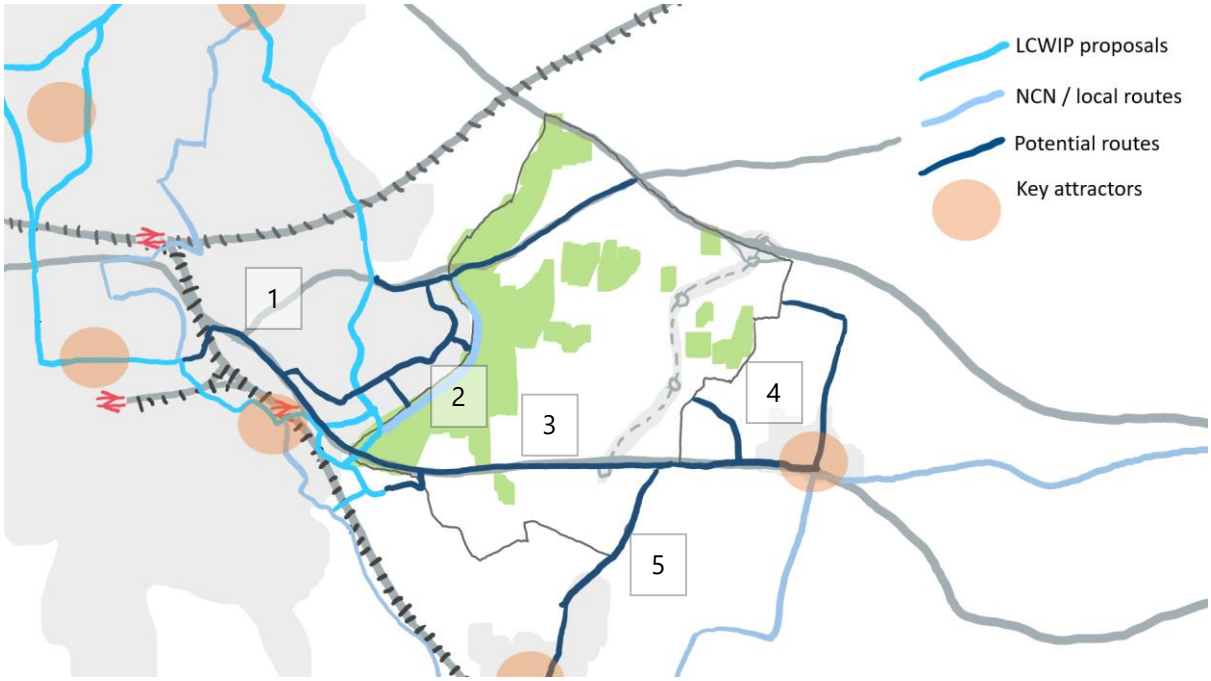
Additional information

Off-site cycle connections

3.36 As part of the analysis of movement patterns summarised in Section 2 of Part I, locations with the highest cumulative origins and destinations were identified within and around Colchester. This gives an indication of the likely locations that people will wish to travel to from TCBGC. These points are shown in Figure 3-9 and Figure 3-10. Elmstead Market has been added as a 'key attractor' due to its connections to the National Cycle Network and local facilities.

3.37 A network of cycle routes has been proposed that connects TCBGC to key attractors. The proposals connect to the existing cycle network and the proposed routes developed as part of Essex County Council's Local Cycling and Walking Infrastructure Plan, in particular routes 1a, 1b, 4 and 7.

Figure 3-10: Potential off-site cycle connections



3.38 A description of the additional potential routes proposed to connect TCBGC is set out below (numbering relates to that shown in Figure 3-10):

1) St Andrews Avenue: traffic-free or lightly trafficked routes along the route with priority at main and side arm junctions. To achieve the high active and sustainable mode share the key routes need to be direct and feel safe, which requires them to be on routes with high levels of natural surveillance and to follow direct routes to

key destinations. Alongside improved priority for RTS St Andrews Avenue could be a key sustainable corridor linking TCBGC to Colchester.

2) Greenstead: this route provides connections from TCBGC via Greenstead to Bromley Road to the north and LCWIP Route 7 to the north, Salary Brook to the east and St Andrews Avenue to the west. The proposed route seeks to minimise elevation changes through this hilly location and is a combination of on-street routes improving on the existing Greenstead Cycle network (such as along Longridge) and off-street routes along existing rights of way with good levels of natural surveillance (such as Ferdinand Walk).
3) A133: This route continues the existing traffic-free A133 cycle route from the University onward to Elmstead Market. It connects TCBGC to the amenities in Elmstead Market and the National Cycle Network and connections from TCBGC.
4) Connections to the countryside: These routes make use of existing country lanes to connect TCBGC to the proposed A133 cycle route and Elmstead Market via Church Road to the north. It also connects to public footpaths from around Elmstead Parish Church, which connect to the countryside to the north and east of TCBGC.
5) Elmstead Road: This route connects TCBGC to Wivenhoe via Elmstead Road.

Delivering maximum benefit from the link road

3.39 Modelling work undertaken by Essex County Council shows that the capacity of the link road will be filled by TCBGC by 2051. The additional capacity of the link road provides opportunities to repurpose the capacity 'freed up' across the wider network. To minimise the risk of induced demand, the release of capacity should be monitored, and measures to manage demand should be considered on the Link Road corridor as the Garden Community develops and transportation requirements evolve over time to balance demand from the TCBGC (i.e. the Link Road changes from a rural strategic route, to a more urban corridor adjacent to the GC development). How this might be achieved in practice will need to be developed further however one possible example could involve dedicating one lane on either side of the dual carriageway as a High Occupancy Vehicle/Zero Emission Vehicle Lane to encourage car-pooling/sharing and electric zero emission vehicles.

3.40 The link road will also provide access to the proposed Park and Choose site, which enables greater levels of controls on private car use to be introduced in the town centre by providing sustainable travel alternatives for drivers, in line with the Future Transport Strategy.

3.41 Research shows that encouraging residents to use public transport and active modes is more challenging if a high capacity, high speed highway alternative already exists close to the development area[3].

[3] Amelia S, 2015. *Urban Transport Without the Hot Air Volume 1: Sustainable Solutions for UK Cities (chapter 9),* UIT Cambridge, Cambridge

A place where people have priority

Vision

3.43 The starting point for the design of the Garden Community will be a network of people-focused streets and traffic-free routes that ensure it is quicker to walk, cycle and scoot than use the car. The streets will be for play and enjoyment first, with traffic and deliveries carefully managed such that the streets are seen as a key setting for community life. While the Garden Community will not design out the car it will purposefully be planned for a different future where reduced private ownership and shared modes are efficient, safe and cheaper. While access will be possible to every house by car, the design of the streets will mean that cars will move slowly and be understood as guests in the streetscape. The streets will be designed such that parking spaces, car parks and car courts can be repurposed as community spaces as car ownership falls in the future.

Rationale

3.44 The best practice review in Section 3 of Part I found that the quality of the public realm, priority for walking and cycling and management of car access and parking have a significant impact on mode share.

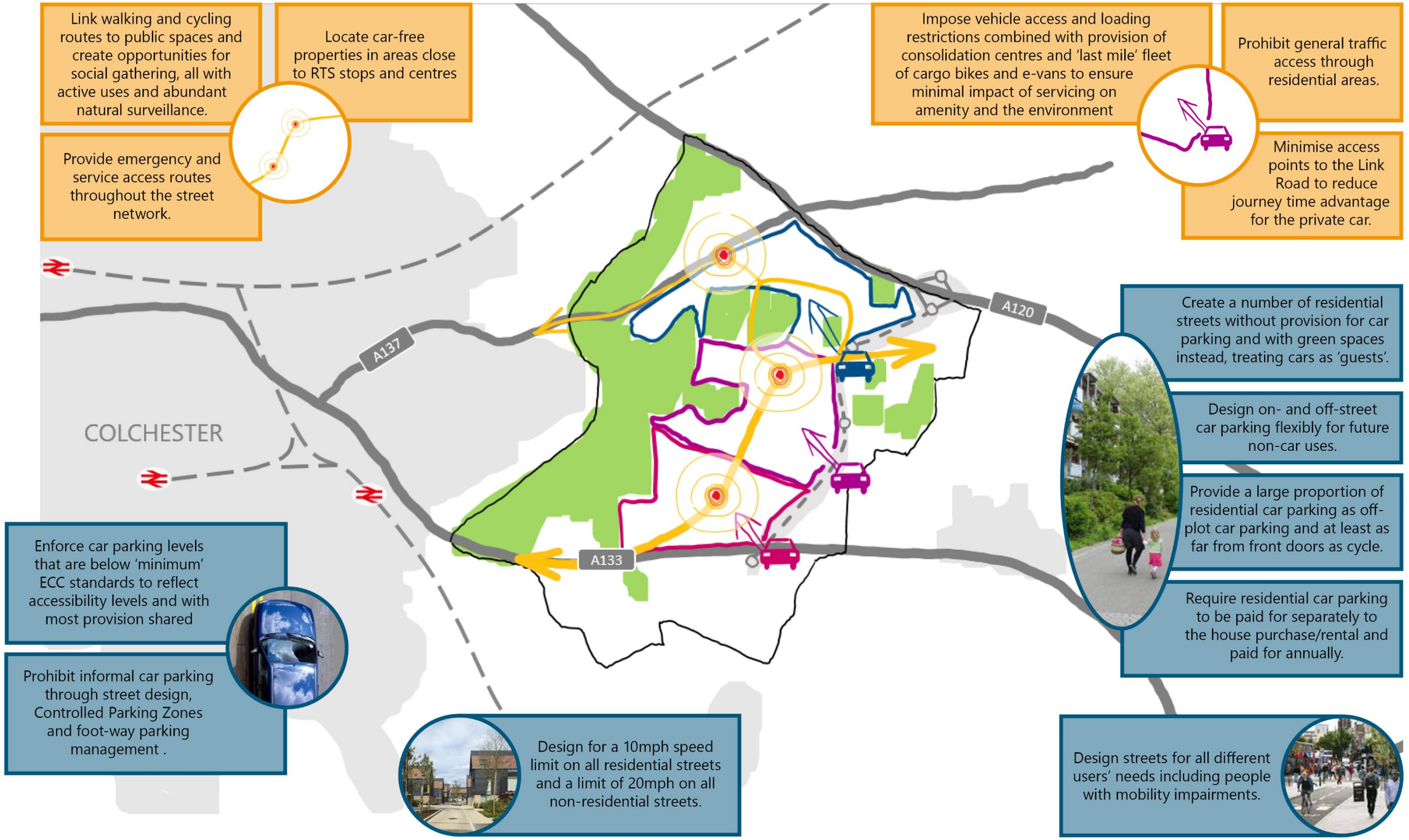
3.45 In Poundbury mixed land-uses and a people-focused public realm mean 32% of residents walking to work, higher than adjacent Dorchester. In Houten, every street is accessible by car but driving across the town is restricted. This means that the time taken to drive is usually much longer than cycling, and naturally reduces the desirability of many streets for driving - other than for access to properties. Combined with a high-quality public realm this means nearly 60% of trips are made on-foot or by bike.

3.46 In the Poole Quarter, higher density development and constrained car parking resulted in over a quarter of residents reducing their car ownership when moving there. In Vauban residents can choose to own cars but they are parked in communal multi-storey car parks at the edge of the development, which are paid for separately to housing costs. This, along with designated parking free streets means car ownership is less than half of what it is in the surrounding settlement of Freiburg. The UK National Travel Survey demonstrates that car ownership is the largest determinant of car use.

Supporting policies

3.47 The policies supporting this key principle are set out diagrammatically overleaf.

Figure 3-11: A place where people have priority (orange boxes show spatial potential polices, blue show non-spatial)



Additional information

Encouraging a different travel culture

3.48 The evidence set out in Section 3 of Part I demonstrates that the culture of a new place can be very different to the area surrounding it. BedZed, Poole Quarter, Poundbury and Vauban all demonstrate the positive impact that a different approach to public realm and parking management have on the travel behaviours of the people that live there. This is both because people respond to the improved transport opportunities and public realm on offer and that people choose to move to the place *because* of the different offer.

3.49 As noted in Section 3 of Part I the evidence suggests that life-stage changes, like moving into a new home, represents a great stimulus for changing behaviour. Therefore, TCBGC represents a great opportunity to build this new culture. What is also clear from the evidence in Section 3 of Part I is that the alternatives need to be in place from day one. If not, people receptive to changing their behaviours will either not be attracted to the GC or will not have the opportunity to embed active travel and public transport use into their lives.

3.50 If these positive behaviours can be delivered through adopting the principles set out in this section then there are clear benefits to existing communities though reduced congestion on the highway network and improved transport services such as RTS and cycle routes.

3.51 Car parking is an important part of this. If standard levels of car parking are provided[4] this will encourage car use, particularly if the car parking is provided on-plot. As noted above the greatest determinant of car use is car ownership. Providing lower levels of car parking, particularly in locations well served by RTS and mobility hubs, and locating as much of that parking off-plot as possible will minimise car use. The delivery of some parking-free streets in such locations, along with some car-free homes, will be a clear demonstration of this new approach and will provide a physical expression of the Garden Community ethos.

[4] Eg at least two spaces per home for homes with two of more bedrooms, as set in the Essex Parking Standards + 0.25 visitor parking spaces

Introducing filtered permeability across the Garden Community

3.52 A key part of prioritising walking, cycling and public transport will be to make it easier, more direct and quicker to travel by these modes than by the private car. This can be achieved by adopting the principle of filtered permeability across the Garden Community. The link road has been designed with three junctions. These should each serve a defined neighbourhood area with no vehicle movement possible between neighbourhood areas within the site except by foot, bike or RTS. General traffic would then have to exit the neighbourhood and use the link road to enter an adjoining neighbourhood. This would mean that point to point journeys would be more direct and quicker by non-car modes.

3.53 Creating a people-focused public realm, which encompasses the design components that would be needed to ensure slower vehicle speeds, the provision of traffic-free and active spaces and the careful management of car parking, will be a crucial component of ensuring that the alternatives to the car are sufficiently attractive.

Managing car parking differently

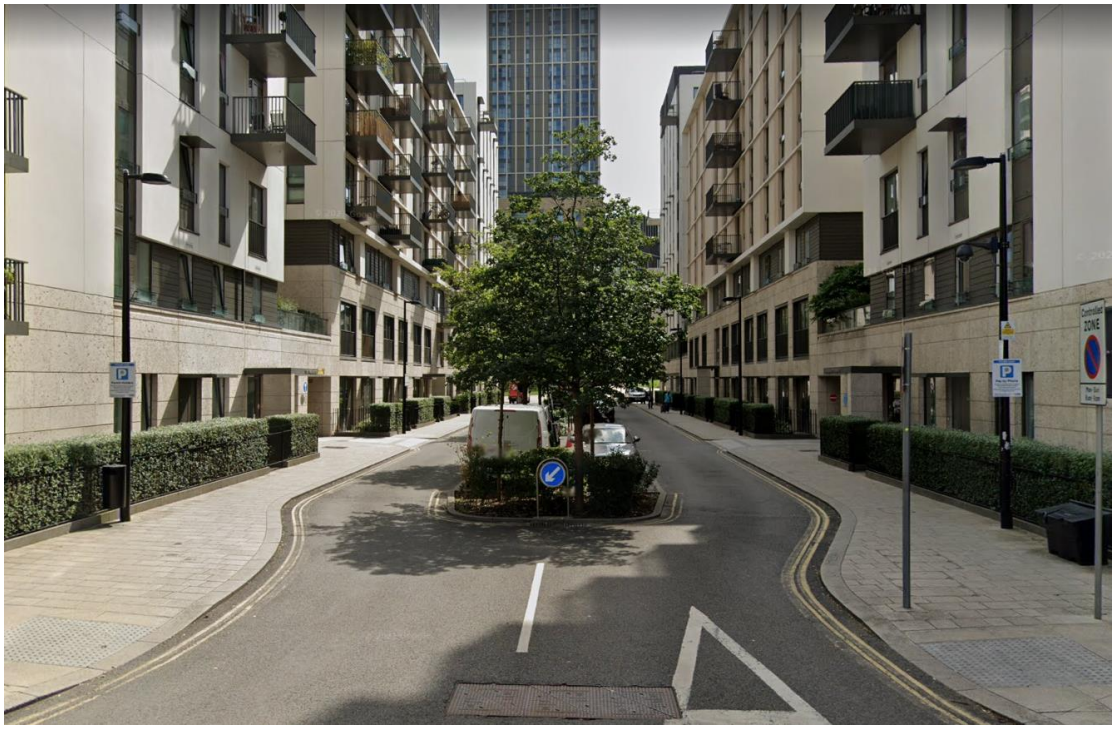
3.54 It is crucial that car parking is managed differently in TCBGC if the mode share ambitions are to be achieved. This is likely to mean providing car parking levels below the standard levels of provision set out in the Essex Parking Standards. The quality of provision for RTS, walking and cycling, as well as higher density and provision of mixed uses, will provide a robust rationale for this.

3.55 Drawing on the evidence in Section 3 of Part I, the key opportunities for parking within the Garden Community include:

- Providing a high level of off-plot parking that is paid for separately to housing and is charged as a regular fee. This ensures that the cost of parking is not hidden with the cost of housing and that those that choose not to have a car are not cross-subsidising those who do.
- The design of the streets should accommodate parking safely where it is provided, reducing the potential for parking on footways. Parking should accommodate or be screened by landscaping. Parking should be designed in such a way so that it can be managed as part of a Controlled Parking Zone.
- On-street parking should be designed so that it can be repurposed for community use or open space should demand for car parking fall in the future.

- The sale of electric vehicles has been growing substantially in the UK, as noted in Section 4, with this trend set to accelerate as fossil fuel powered vehicles are phased out. The Garden Community should plan for near universal levels of EV charging. Off-plot parking in higher density locations with universally accessible EV charging presents an opportunity to maximise the quality and availability of charging locations and to generate a revenue stream from higher voltage rapid charging.

Figure 3-12: Well landscaped on-street parking with potential to be repurposed as useable green space in the future if demand for parking falls (Olympic Park, London)



Managing kerbside space differently

3.56 With an increase in shared travel likely, for example through Demand Responsive Transport services or ride-hailing services such as Uber and Lyft, plentiful pick up and drop off areas should be provided. Such spaces could be shared and managed dynamically as technology develops, allowing real time usage information of such spaces to be shared with shared transport operators, as well as logistics services and visitors. Such dynamic management of the kerbside has the potential to reduce the volume of circulating vehicles and maximise the efficient use of kerbside space in order

to protect amenity (for example by keeping bays clear during school drop off times or at night).

3.57 With the continued rise of online shopping, there will be a need to provide dedicated loading areas and waiting restrictions to enable online shopping order fulfilment to happen without adversely or undesirably affecting the safety or efficiency of movement around the Garden Community by all modes. As above, this space should be designed such that it can be managed dynamically, as technology develops.

4. Conclusion and next steps

4.1 Part II of the Transport and Movement Framework has summarised the range of measures set out in Part I and has distilled these into 17 headline key principles. The report has set out how each of these principles could be secured, who would take delivery responsibility, and the timeframe for delivery. As noted in Section 2, to achieve the anticipated target mode share for TCBGC, these measures should be complemented by a package of enhancements in and to Colchester, alongside measures to control parking and access.

4.2 The Transport and Movement Framework contained in this report has taken the key principles and sought to apply them to the Garden Community through a bespoke vision with masterplanning principles, supported by policy directions and guidance. The principles and policy directions have been supported by guidance on how they should be applied in practice and are rooted in best practice, practically deliverable and sufficiently ambitious to deliver the mode share targets developed for TCBGC.

Next steps

4.3 The vision, masterplanning principles and supporting policy directions and guidance in the Transport and Movement Framework have been developed to support the three strategic options that will be considered as part of evolving the DPD. It is intended that they will evolve following public consultation before being developed into a final DPD, strategic masterplan and design code for TCBGC.

4.4 Further work will be required to develop the framework set out here into DPD policy, a strategic masterplan and supporting design code. This will include the development of ambitious on- and off-site transport and mobility infrastructure, including public transport services and the operational details of RTS. As this work develops refined mode share targets will also need to be developed and set out in DPD policy. The guidance provided in this report provides a direction of travel for TCBGC as well the benchmark for ambition for this work.

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