

Cranbrook HNT: From learning to action

Addressing points learnt from research by Space Syntax and Public Health Devon.



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Foreword

The development of Cranbrook as a new town presents unrivalled opportunities to achieve place-making that is fit now and for the future for the people of Cranbrook; to shape a town that facilitates a happy and healthy life.

Through the NHS England Healthy New Town programme, a national spotlight is focused on Cranbrook as one of ten Healthy New Town demonstrator sites in England.

For Cranbrook to be a place of wellness, where the built infrastructure supports people to be physically and mentally well, requires fundamental shifts in thinking, systems and partnership. Partners will need to act collaboratively and proactively to design-in health and wellbeing at an early stage.

This report is based on the tried and tested work of the world-renowned spatial planning consultants Space Syntax in collaboration with Public Health Devon and East Devon District Council. The use of an Integrated Urban Model of Cranbrook and Exeter has enabled the design, layout and connectivity to be tested and predicted to ensure the future vitality and viability of the proposed town centre. It also aims to encourage active transport as well as exploring matters regarding the location of health care provision.

Delivering a vibrant town centre, with health and wellbeing support services in accessible locations and an urban layout that prioritises walking and cycling, will contribute significantly to building a healthy community. The report provides options for the future design of Cranbrook and will need to be considered along with ongoing and significant changes in society, such as the decline of the high street and the need to develop new models for health care services.

The Cranbrook Healthy New Town Executive group publish this important report with the aim to support informed decision-making for Cranbrook. The report will form part of the evidence-base for the Cranbrook Masterplan and Development Plan Document currently being produced by East Devon District Council. Additionally it can inform regional and national decision-making when designing new towns or settlements.

It is our aspiration that the report findings help to shape the next phases of delivery for Cranbrook; future-proofing the town for the people who live there. Cranbrook will be a place designed for life, for activity, wellness, social connection, enterprise and employment.



Dr Virginia Pearson (Chair of the Cranbrook Healthy New Town Executive Group)
Chief Officer for Communities, Public Health, Environment and Prosperity, Devon County Council

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Introduction

Space Syntax was commissioned under the Healthy New Towns programme to analyse the masterplan for Cranbrook being developed by East Devon District Council and make recommendations based on their predictive understanding of the way in which people, communities and the built environment interact. The original commission has developed further into a collaboration with Public Health Devon that uses a virtual model of the nearby city of Exeter to learn more about how the built environment affects people's health so that what is learnt can be applied at Cranbrook, helping to avoid poor health outcomes in this new community where possible.

Space Syntax analysis of Cranbrook has been refined from the model used for the first stage of their work to take account of land-use and commuter and other peak traffic movement. This has developed a better understanding of the way in which the route structure at Cranbrook affects its function.

The work of both Space Syntax and the collaboration with Public Health Devon has revealed several points of evidence and design that range in their level of impact on the function of the town. Some are relatively easy to deal with, others not, but all could have a major effect on the ability of the town to adequately service its community or their ability to enjoy the range of activities they might expect of a town that, at around 20,000 people, will be approaching Tiverton, Devon, in population size.

Cranbrook has many notable strengths with excellent public transport links, large areas of parkland in and around it, an active and motivated community and a developer consortium working in partnership with public sector agencies to provide social infrastructure early in the town's development. The work carried out by Space Syntax gives the opportunity for Cranbrook to capitalise on these strengths to become a truly attractive place to live. This is particularly important given that it highlights issues similar to those faced by the previous generations of new towns that the Healthy New Towns programme was in part set up to avoid.

This report provides options to address research results and advice from Space Syntax and the Public Health Devon data analysis team. These options take account of the outcomes of a workshop that brought together the different organisations involved in the Cranbrook Healthy New Towns Built Environment programme to review the evidence. The report follows with a series of actions that can be considered and taken by the stakeholders within the Cranbrook HNT programme.

Although all options to change outcomes and benefit the future health and wellbeing of the community are possible in theory, in practice the ability to address some of the points raised by the research is constrained by a number of factors including existing development and the course that development is already taking, topography, existing planning permissions, land ownership and other interests. This means that in practice, decisions are based on a range of evidence and a number of factors with, often conflicting, interests.

Impact of the Built Environment on Health Outcomes

The link between the built environment and health is complex and hard to unpick. However, the increasing availability of data and computing power is allowing far greater insight into these links than was previously possible.

Like many large-scale residential developments built in the UK after the Second World War, Cranbrook is relatively low density, with land-uses in separate zones and a street network with generally low levels of connectivity. This development pattern results from private car ownership, the way in which the planning and development industries work, as well as the influence of the Garden Cities movement that guided the development of the previous generation of new towns¹. The research carried out by Space Syntax and the Public Health Devon data team is beginning to suggest that this pattern of development may be related to increased levels of frailty, adding to the concerns surrounding New Town developments, such as levels of unemployment and social deprivation².

The collaboration between Public Health Devon and Space Syntax has highlighted correlations between obesity and car dependence, and between deprivation and lack of choice of services within a ten minute walking distance. Evidence is already available about links between urban green space and health^{3,4,5}, development density and obesity⁶, mix of uses, connectedness, activity and health⁷, and attractiveness of a place with your rate of aging⁸. Added to the work by Space Syntax and Public Health Devon into links between where people live and loneliness, it becomes possible to develop a clearer picture of what a development that addresses some of the major causes of ill-health may be like and what steps need to be taken now for Cranbrook to be closer to being that ideal settlement.

¹ *Transferable lessons from the New Towns*. London: DCLG, 2006. Accessed 17.05.18 from: http://www.futurecommunities.net/files/images/Transferable_lessons_from_new_towns_0.pdf

² Karimi K. Vaughan L. (2014) An evidence based approach to designing new cities: the English New Towns revisited. In M. Carmona (editor) *Explorations in urban design: an urban design research primer*. (pp. 261-276) Farnham UK, Ashgate

³ *Urban green spaces and health*. Copenhagen: WHO Regional Office for Europe, 2016.

⁴ Lin, Ying-Hsuan, et al. "Does awareness effect the restorative function and perception of street trees?" *Cognitive Science* 5 (2014): 906.

⁵ Hartig T. Mitchell R. De Vries S. and Frumkin H. (2014) Nature and health. *Annual Review of Public Health* 35, 207–228.

⁶ Sarkar C. Webster C. Gallacher J. (2017) Association between adiposity outcomes and residential density: a full-data, cross-sectional analysis of 419,562 UK Biobank adult participants. *The Lancet Planetary Health*, Volume 1, Issue 7, October pages e277-e288

⁷ Sinnett D. et al (2012) Creating built environments that promote walking and health: a review of international evidence. *Journal of Planning and Architecture* 38

⁸ Park, M., Verhoeven, J. E., Cuijpers, P., Reynolds III, C. F., & Penninx, B. W. J. H. (2015). Where You Live May Make You Old: The Association between Perceived Poor Neighborhood Quality and Leukocyte Telomere Length. *PLoS ONE*, 10(6)

Space Syntax

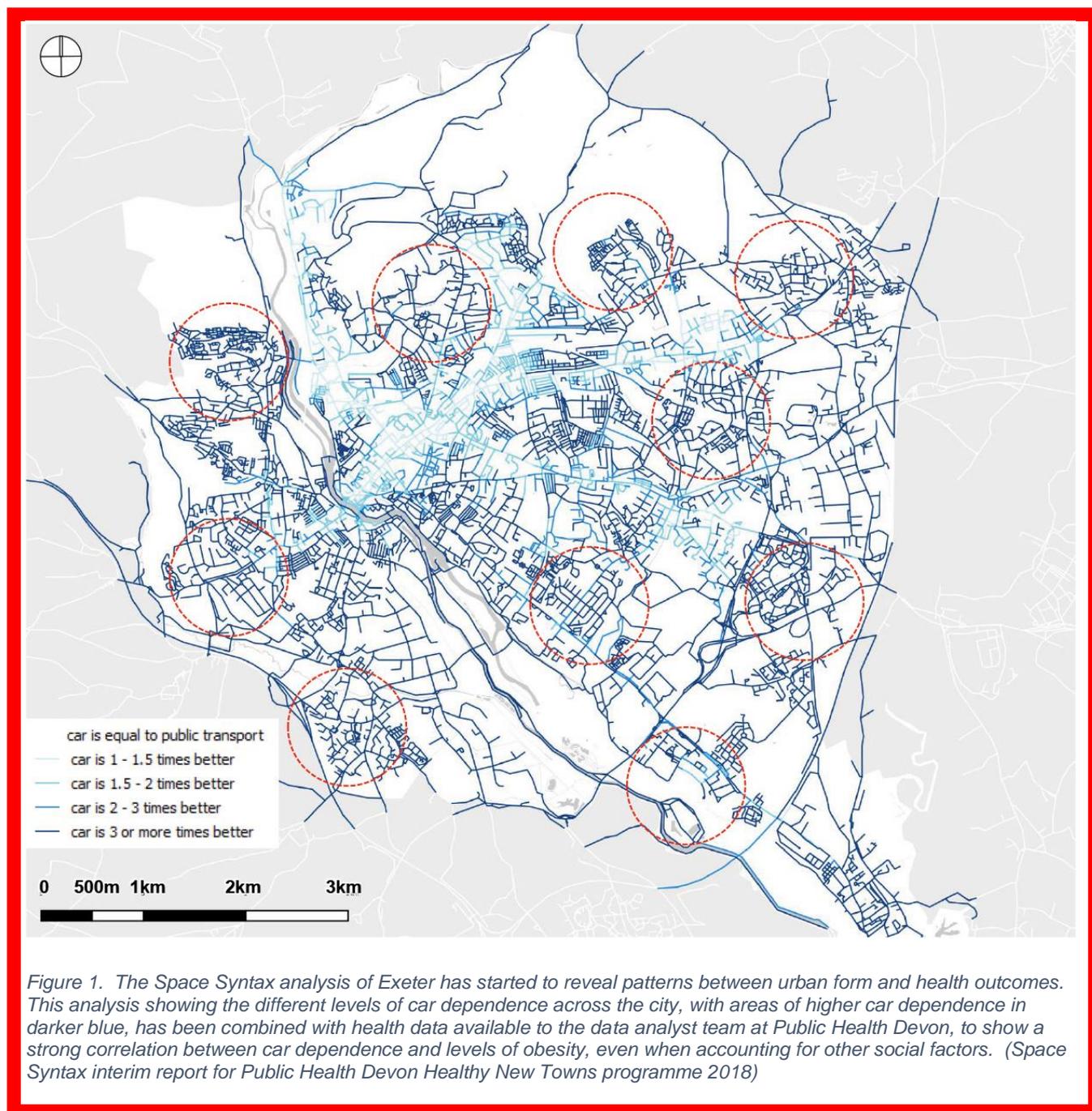
Space syntax theory and technology was developed in the 1970's by Bill Hillier and Julienne Hanson at the Bartlett School of Architecture, University College London. It is a method of analysing spatial layouts helping architects and designers understand the likely impact of the design of buildings and urban settlements on the behaviour of people and communities who live in them.

The space syntax methodology has been tested, developed and critiqued by a number of research teams since it was first developed. The main tool underpinning this analysis is a virtual model of the axes within the urban grid, the layout of streets and other routes, to understand the alignments of visibility and movement. This can find how easy it is to get to one part of that grid from any other and can produce a diagram showing the range of accessibility across the grid, with the most accessible areas shown in red and the least in dark blue. The measure of accessibility is consistent across all models enabling correlations between connectivity and human activity to be extrapolated to other areas, including proposed development.

The company, Space Syntax, was set up by Bill Hillier to apply this research commercially and use this capability to improve the performance of existing settlements and new developments at scales ranging from individual shopping centres to entire countries. Space Syntax has continually tested and refined its methodology in real world conditions and has become one of the most highly respected and influential consultancies in the built environment, enjoying a global profile.

Space Syntax' research has revealed a series of strong correlations between connectivity and human activity including movement, crime, land use, property values and carbon emissions. Particular points from their research that are relevant to Cranbrook are:

- **People tend to travel along routes with the fewest sharp changes of direction, even if these routes are longer**
- **Household crime like burglary occurs in poorly connected areas, such as cul-de-sac's**
- **Retail, and other land use dependent on footfall survives in the best connected areas when combining connectivity at local scale (2km) and regional scale (10km). In London, 80% of all retail is in the 10% most connected areas**
- **Land and property value is higher in better connected locations**
- **Areas with poor levels of connectivity produce higher carbon emissions**



The Marmot Review

Sir Michael Marmot was commissioned in 2008 to lead an independent review into the most effective ways of reducing health inequality in England. The report fundamentally shifted how health and health inequality are discussed in the UK and globally.

His report, 'Fair Society, Healthy Lives' (2010) showed that health inequality resulted from social inequality and that indirect influences on health had a strong impact including housing, income, education and social isolation, all of which are linked to economic and social status. These indirect influences were termed the 'wider determinants of ill-health'. The review found that health inequality was largely preventable and that health inequality cost the UK (in 2010 figures) between £36 billion and £40 billion in lost revenue from tax, welfare payments and costs to the NHS.

Addressing health inequality needs action across all the social determinants of health including education, employment, income, quality of homes and strong communities. Marmot recommended six policy objectives:

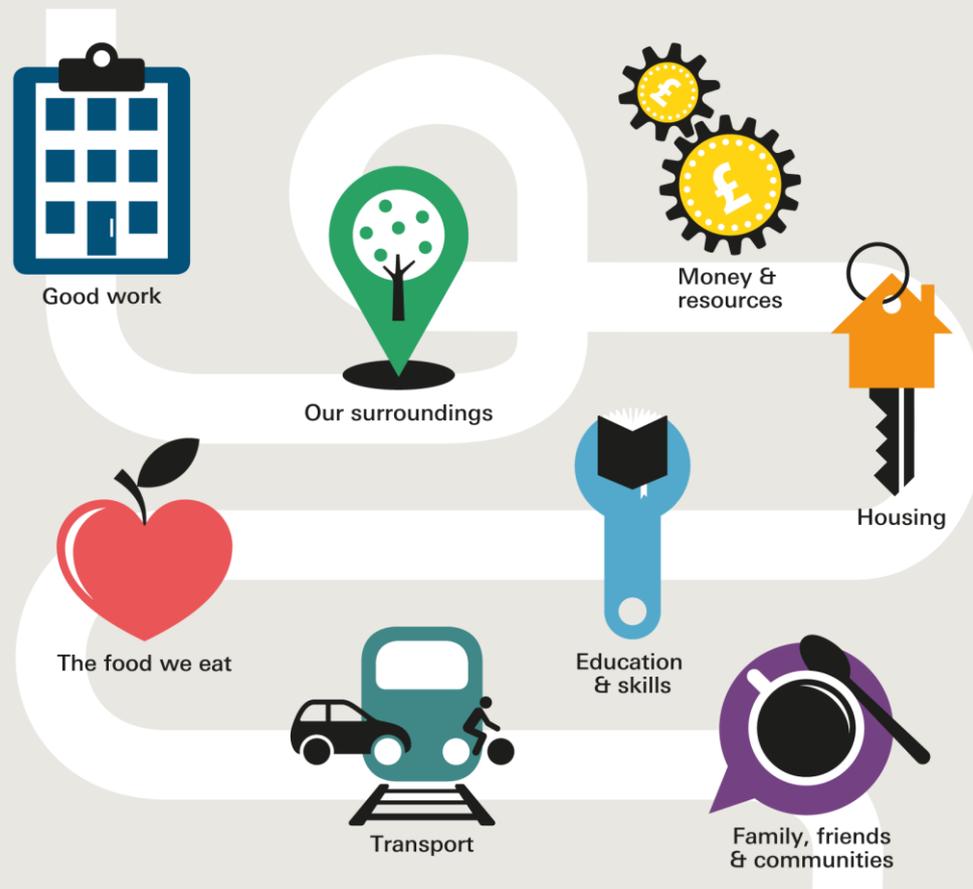
- 1. Give every child the best start in life**
- 2. Enable all children, young people and adults to maximise their capabilities and have control over their lives**
- 3. Create fair employment and good work for all**
- 4. Ensure healthy standard of living for all**
- 5. Create and develop healthy and sustainable places and communities**
- 6. Strengthen the role and impact of ill-health prevention.**

What makes us healthy?

AS LITTLE AS

10% of a population's health and wellbeing is linked to access to health care.

We need to look at the bigger picture:



But the picture isn't the same for everyone.

The healthy life expectancy gap between the most and least deprived areas in the UK is: **19** YEARS



References available at www.health.org.uk/healthy-lives-infographics

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Figure 2. NHS policy is now moving towards addressing the causes of ill-health rather than curing health conditions once they have already developed. This diagram from the Kings Fund shows how a range of factors affect health and the effect of 'wider determinants of ill-health' identified by Marmot in his 2010 review of health inequality in England.

Options to address the points raised by research

It is important to note that the learning points set out in this report are based on the Space Syntax and Public Health analysis only. In making decisions on the best course of action for the community it is also important to consider Cranbrook in the context of the wider Exeter geography, and the learning points from this work in the context of wider health and wellbeing policy and evidence which must also be taken into account.

This section will provide a short description of each of the issues that have been identified by Space Syntax and Public Health Devon at Cranbrook. It will then provide a series of options with a brief assessment of the impacts of each one.

Do nothing

- This option will review the status quo, maintaining actions and plans as currently proposed

Do something

- This will go some way to the addressing the actions implied by the research

Do a lot

- This will take all the actions identified or implied by the research to address the learning

For each of these scenarios there is a review of potential benefits and risks. Given that this report is being prepared within the Healthy New Towns programme these are seen from the point of view of health and wellbeing, including the wider determinants of ill-health⁹, as identified by the Marmot report.

⁹ Marmot, M. Fair society, healthy lives: the Marmot Review: strategic review of health inequalities in England post-2010. (2010)

1 Footfall dependent activity and the location of the town centre (presentation 36-45)

- Space Syntax research suggests that town centre land-uses that need footfall and passing trade such as shops, pubs, cafés, should be located within the top 10% most connected areas at both local and regional level to be most likely to be sustained and thrive. The indicated location for the Cranbrook town centre is not within this 10% and would not be best located to support footfall dependent land uses. However, the town centre would more readily support civic activity to which people make pre-planned trips and that do not rely on passing trade
- Cranbrook is split into three areas by the Country Park, Southbrook Lane, and the floodplains in and around both. These form barriers to east west movement within Cranbrook, further reducing the level of activity the town centre can sustain
- The London Road has the highest level of connectivity in the vicinity of the town centre and is therefore the best location to sustain footfall dependent land uses in the overall masterplan area

Much has changed to the development context since the Cranbrook town centre was first proposed. The assumption contained within the original planning application was that, at its heart, would be a relatively large super-market. Since the economic downturn and the rise of internet shopping this assumption has looked increasingly outdated and a new purpose and vision for the town centre is needed that takes account of these wider contextual changes. The evidence from Space Syntax provides an opportunity to undertake this with evidence that can help make any revised town centre more likely to succeed.



Figure 3 Analysis of how well connected routes are in Cranbrook at local and regional scales. Level of connectedness is shown by colour with dark blue being the least connected and red the most. This shows that the only area of the town centre that has a high level of connectivity is along the London Road, making this the most likely part of the town centre to support retail and other footfall dependent uses. To replicate a town with a successful town centre the London Road would be where the centre would be located.

1.1 Do nothing

Leave the town centre indicated as it is and ‘develop a vision for the town centre and interpret into planning policies which will deliver this vision’¹⁰. Encourage footfall dependent uses to be located in the best connected parts of the town centre, and locate civic and non-footfall dependent uses in the remaining areas that are less well connected.

To the north, east and west of the town centre housing development has either already been completed or is in the process of being built. This means that there is limited scope to change things to improve the connectivity of this area.

The town centre area forms part of an Enterprise Zone which also includes the Sky Park, which provides rate relief to businesses within it. In addition, the Town Centre may be subject to a proposed Local Development Order (LDO)¹¹ in the future. The proposed LDO would be likely to make it easier for property managers to change the use of buildings from those that are less economically viable to those that are, though these changes would be limited by the terms set within the LDO. Unless the LDO precludes such a change, it is likely that an LDO would facilitate a change away from uses that do not have the necessary footfall to survive, to uses that are not as footfall dependent.

1.1.1 Benefits

Continuing with the location and actions that are already proposed maintains consistency in marketing the town centre and reduces uncertainty to the developers. The benefits of the Enterprise Zone designation can be realised if businesses choose to locate within the designated town centre area.

1.1.2 Risks

Space Syntax analysis of the town centre location has demonstrated that it has a relatively low level of connectivity and will therefore expect to have relatively low levels of footfall and passing trade. The nearby London Road would have relatively high levels of passing trade. Their observation of activity in towns and cities is that footfall dependent activity, such as retail, social and cultural activity, is nearly always in the most connected areas at both local (2km) and regional (10km) scales. Those that are not tend to migrate to these areas over time. Although the town centre at Cranbrook is relatively well connected at local level, its low connectivity at regional level makes it unlikely to support socio-economic activity beyond that of a local or neighbourhood centre. This misses the opportunity for Cranbrook to develop to a level where it can serve the wider sub-regional community.

These footfall dependent uses are what create a vibrant town centre and generate the informal social opportunities that allow people to build social bonds and networks. With the Space Syntax research raising concerns over the long term sustainability of these in the town centre, and no alternative

¹⁰ East Devon District Council (2018) Strategic Planning Committee agenda 10th March 2018. Available online, accessed 07.04.18 at: <http://eastdevon.gov.uk/media/2411938/200318strategicplanningcombinedagenda.pdf>

¹¹ LDO's were developed to simplify the planning process in areas defined by the Local Authority, extending permitted development rights for particular land uses. This can include changes of use as well as new development. An LDO is a discretionary tool and it would be the Local Authority that sets which types of building use would have permitted development rights.

location identified for them, Cranbrook may not be able to offer the choices that people would associate with living in a town, potentially replicating problems seen in the previous generation of new towns. Uses that are not footfall dependent, such as offices, could survive in the town centre and provide limited footfall during the day, particularly at lunchtime, but this will not compensate for the lack of passing trade to enable the diversity of shops and other activities that would be associated with a town centre. The vision for an evening, night-time or weekend economy as expressed in the East Devon Local Plan would be unlikely to be fulfilled.

Low levels of footfall dependent activity will reduce the socio-economic or cultural opportunities that are necessary to support the development of a strong community, a unified community identity or strong social networks. There is a recognised connection, described by the Institute of Health Equity¹², between the healthy function of a high street and the health of a community, with vibrancy and choice of shops and services being particularly important; lack of retail choice, for example, has been linked to increased levels of deprivation in surrounding communities, though the precise mechanism at work is as yet unknown.

Without a wide range of services, people living at Cranbrook are less likely to visit their town centre, relying on trips to other centres, particularly Exeter, increasing car use and reducing active travel. Without the social activity normally linked to high levels of footfall there is an increased risk of loneliness and social isolation developing in the surrounding community.

It seems doubtful that a new vision for the town centre will change these outcomes without addressing the underlying issue of its location.

¹² Institute of Health Equity (2017) Healthy High Streets: good place making in an urban setting. Available online, accessed 09.04.18 at: <http://www.instituteoftheequity.org/resources-reports/healthy-high-streets-good-place-making-in-an-urban-setting/healthy-high-streets-phe.pdf>

1.2 Do something

Leave the town centre where it is but allow or encourage footfall dependent uses to develop or migrate to the neighbourhood centres that are in better connected locations on the London Road. Maintain the vision as expressed in the committee report.



Figure 4 Indicative location of footfall dependent uses if they are allowed or encouraged in the neighbourhood centres on the London Road (red-dotted rectangles). Civic uses would remain in the town centre, along with the local scale services that could be supported in the long term at this location.

1.2.1 Benefits

The town centre can support civic uses and other functions that are not dependent on passing trade. Town halls, leisure centres, health and wellbeing centres, libraries and office spaces all fit this description where people take planned journeys to them. Allowing more passing trade dependent uses to develop in the neighbourhood centres on the London Road would mean businesses could benefit from people from outside Cranbrook coming past, broadening the visibility and appeal of those businesses and enabling greater numbers to exist than would be the case if they were in a location where passing trade is made up mainly of people from within Cranbrook itself.

This would allow the developers and other partners to continue discussions on the location of buildings such as the health and wellbeing hub, town hall, library and leisure centre. These uses in themselves are not footfall dependent as people make planned trips to them. Buildings with these functions often have extensive frontages that neutralise large areas of town centre where there might otherwise be

larger number of narrow frontages that would help provide the diversity that people find attractive^{13 14}. Designing them to have active frontages and incorporating retail units within their footprint can increase capital and revenue costs to a point where they become commercially unviable. Such uses may increase the level of footfall but this would not make up for normal, day-to-day passing trade.

The vision and planning policies to support it would help define the town centre itself, and it's civic and business uses, but will not overcome the lack of footfall or help businesses that depend on footfall.

1.2.2 Risks

Although this option is likely to support more socio-economic activity than doing nothing, splitting footfall dependent businesses between two neighbourhood centres at either end of the town reduces the scale of either business cluster, reducing the ability of either to develop the 'critical mass'¹⁵ necessary to become sustainable or genuine replacements for a vibrant town centre, and therefore to be able to attract more people from in and around Cranbrook. This will reduce the number of 'linked trips', something exacerbated by the separation of these areas from the civic uses that would remain in the designated town centre. With reduced linked trips Cranbrook residents are more likely to continue to use their cars, rather than walking and cycling, due to the need to go to different locations for different things.

In addition, the western neighbourhood centre indicated in the masterplan is unlikely to remain in that location in the final masterplan for the town, due to site constraints that would prevent it being able to develop on both sides of the road. Objections to it being located on the London Road have been raised during consultation raising concern about retail uses detracting from the town centre. The developers in control of the land have indicated an alternative location within the southern development area opening off the London Road, opposite the existing westernmost roundabout into Cranbrook.

¹³ Hosler, A. S. (2009), "Retail food availability, obesity, and cigarette smoking in rural communities", *The Journal of Rural Health*, Vol.25, pp. 203-210;

¹⁴ Hallsworth A G and Worthington S (2000), "Local resistance to larger retailers: the example of market towns and the food superstore in the UK", *International Journal of Retail & Distribution Management*, Vol. 28 Issue: 4/5, pp.207 – 216.

¹⁵ For town centre to have long-term sustainability there needs to be a 'critical mass' of activity. This is particularly true of retail and shops offering comparison goods and is something that has been observed across locations. For retail, a strong correlation has been demonstrated between the number of surrounding shops there are within a 50m radius and the chances of a shop closing. For more details see Kickert C. vom Hofe R. (2017), "Critical mass matters: The long-term benefits of retail agglomeration for establishment survival in downtown Detroit and The Hague", *Urban Studies*, Vol. 55 Issue 5, pp. 1033-1055.

1.3 Do a lot

Enable footfall dependent land-uses on well-connected routes with high potential footfall while maintaining what will likely predominantly be a 'civic core' within the area currently indicated as town centre. Formalise a connection to this commercial area from the Town Centre by extending the town centre boundary to include the area adjacent to it, south of the London Road. Introduce a relatively narrow strip of land for this purpose on both sides of the London Road running east from the entrance to the current town centre at Court Royal. Retaining civic, business and cultural uses that do not depend on footfall in the current town centre, but reducing its area could allow more housing within its existing boundary.

Commercial activity comprising car maintenance and sales, veterinary practice, and gastro-pub are already located alongside residential development on the stretch of road running east from the current entrance to the town centre at Court Royal demonstrating the attractiveness of this location for businesses. If policies and design codes to support commercial activity and footfall dependant uses in the future on this stretch of the road were well defined, ad hoc development that would damage future prospects and living conditions of retained residential properties could be prevented. Recognising that town centres have always grown around both businesses and homes, the existing homes fronting the London Road in this area could remain as they are or change use to benefit from the passing trade as this centre develops over the time.

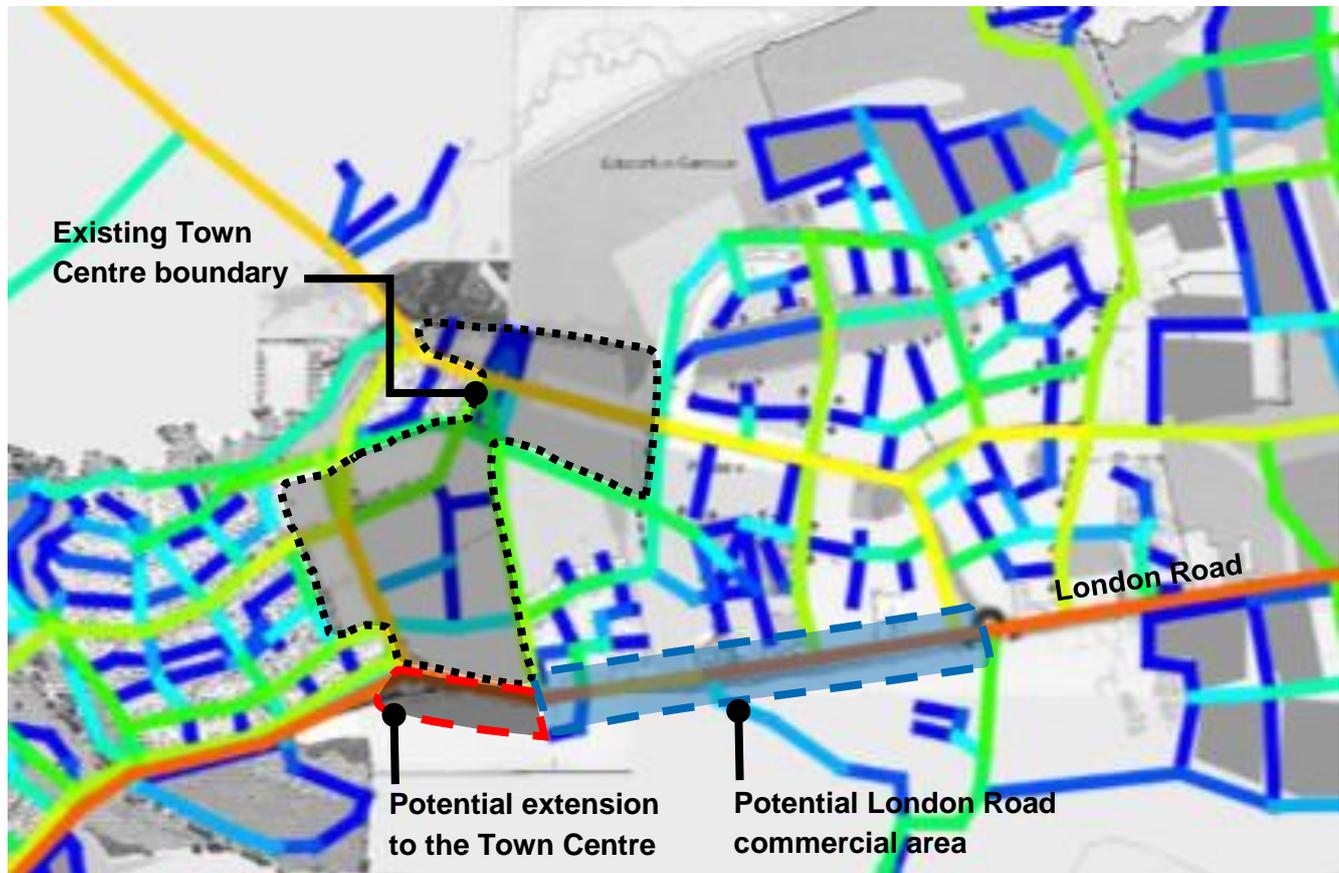


Figure 5. The town centre boundary could extend to formally include the area immediately adjacent to it, south of the London Road. A new commercial area along the London Road can be identified for support for mixed-use development, particularly for footfall dependent uses. This would enable a 'civic core' to be retained in the Town Centre, linked to a functioning commercial area to create mutual benefit.

1.3.1 Benefits

Enabling footfall dependent uses to develop in an area where they most benefit from passing trade makes their long-term survival and prosperity more likely. The London Road at this point is such a location. With these uses adjacent to the civic uses within the original town centre they are more likely to benefit from linked trips as well as passing trading. With footfall dependent uses concentrated in one place alongside the civic uses and lower concentrations in the two neighbourhood centres, it makes it more likely that this area could develop the critical mass needed to thrive as a social, commercial and cultural centre. In doing so Cranbrook is more likely to develop a strong unified community identity.

A centre that has developed the critical mass necessary to thrive will become attractive in its own right, encouraging further business and social activity. This will provide more jobs, shops, restaurants and bars within Cranbrook, increase the level of active transport and decrease the need for Cranbrook residents to leave their town to access jobs and services. With more employment in the town there is

likely to be greater job security for Cranbrook residents, addressing one of the main causes of ill-health and inequality identified by Marmot (2010).

More activity at the town centre bringing more people together encourages informal social interaction, the building of social bonds and a social support network, reducing the incidence of loneliness. With linked trips being possible at the heart of their town people living in Cranbrook are more likely to use their town centre for their social, retail and leisure needs making them less likely to depend on their cars and walk or cycle instead.

This part of the London Road is not within any current or proposed plans for the expansion of Cranbrook in its own right. Although there are existing houses and businesses it is perhaps the location that would best support footfall dependent uses.

Allowing footfall dependent uses to develop where there is most likely to be footfall, the vision and planning policies to achieve it would help define and support the town centre as a whole, its civic and business uses and also the footfall dependent businesses by providing confidence that a consistent vision is being pursued.

1.3.2 Risks

This option is a major change from current plans. Existing planning permissions and homes and land availability along this part of London Road constrain what can happen in the short and possibly medium term. The land south of the roundabout is at a higher level than the roundabout itself and presents potential logistical problems with access. South of London Road the land falls away fairly sharply towards Rockbeare making the appearance and precise location of any development particularly important, though it should be noted that there is already development along this escarpment edge that is visible from Rockbeare, though this is predominantly residential and relatively low rise.

The diversity of land-ownership along this stretch of London Road makes it difficult to co-ordinate design and delivery for development in this location, though this may also be a benefit as it would provide design diversity and delivery would be based on commercial grounds, rather than by planning obligation. The existing residential properties could result in a 'gappy' commercial frontage unless or until they are converted to commercial use. Existing residents may not welcome becoming part of a more commercially active area, though this may not be the case for the businesses. Safeguards would need to be put in place through planning policy to ensure adequate protection of residential properties from noise and other nuisances.

The developer consortium in control of the town centre may not publicly welcome such a change as it is a departure from their current proposals. However, this proposal does not fundamentally relocate the town centre but allows for commercial activity to establish adjacent to it. This supports the town centre by aiming to ensure that any migration of footfall dependant uses is to adjacent land rather than sites elsewhere in Cranbrook or further afield and thereby maintaining a link and encouraging linked trips.

This option has not been appraised as part of a public consultation so is likely to need consultation before the Development Plan Document and masterplan for Cranbrook are adopted.

2. Density and design of urban blocks (presentation 77-85)

- Higher residential density is linked to lower obesity, higher activity
- Urban blocks should be larger the further from the town centre they are to concentrate movement on fewer routes where residential density is lower, and allow greater permeability around a town centre to improve the sustainability of footfall dependent land-uses
- Urban blocks should have a narrow face towards main spine routes to increase access to these routes
- Blocks should have higher densities on this 'front' face, gradually reducing further away from it
- Blocks should be designed to provide good frontage and overlooking to green spaces

To support good health and wellbeing outcomes, residential densities need to increase around neighbourhood and town centres and along main public transport routes and nodes. This increases public transport use, active travel, and increases the sustainability of town and neighbourhood centres. The Space Syntax / Public Health Devon research suggests that lower density development, including recent suburban development, is linked to increased frailty even in relatively wealthy areas.

Urban blocks are the smallest area of towns that are surrounded by streets. Designing them alongside the street network so that their size and form is suited to their location relative to the rest of the town can increase levels of walking or cycling and create more attractive places. Different housing types can be located around the block to create higher density development that puts housing where it most benefits from streets and services and also enable a meaningful discussion about density, where figures can often be abstract and misleading, as shown in figure 10¹⁶. East Devon District Council are already successfully using this guidance, and other similar guidance in negotiating planning applications with the developers at Cranbrook, improving legibility in the most recently permitted schemes.

To achieve higher densities will need a move away from the house-builders core suburban product. Existing housing types that have higher inherent density such as terraces, town houses and well-

¹⁶ Referring to densities can be misleading, a more effective methodology would be to refer to housing typologies, which allow for a clearer indication of the envisaged development for a site. A demonstration of the different development types that can be achieved on a site with the same density is shown in figure 10 below.

designed low level apartments remain some of the most popular in the UK market, attracting higher relative values than suburban housing¹⁷, in part due to its place making value and ability to support the nearby shops and services that enable people to live the lives they want to live.

¹⁷ Boyes Smith N. (2017) *Beyond Location: a study into the links between specific components of the built environment and value*. Manhattan Institute. London

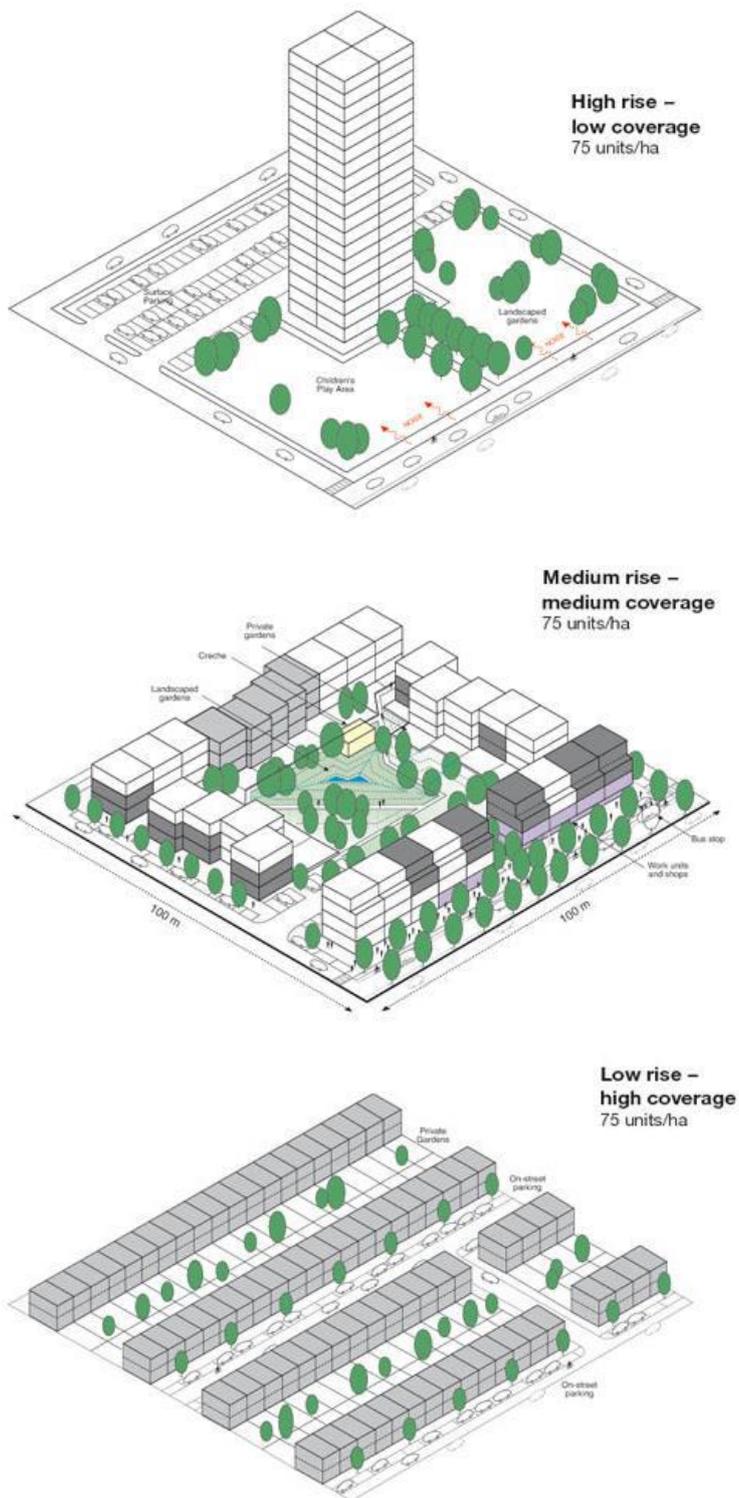


Figure 6. Housing density figures lack meaning as the same figure can be achieved in profoundly different ways. Using house types to describe what is wanted is far more meaningful as people understand what the outcome will be like and can make an informed judgement. Density figures are only really helpful in understanding development numerically, which is not how people encounter them.

2.1 Do nothing

Leave the density figures as they are in the masterplan, maintaining largely suburban scale development across Cranbrook with higher densities only along the main spine route within Cranbrook¹⁸ and not along the London Road.

2.1.1 Benefits

With no need to deviate from standard house types the house builders will be able to stick to their core product risking no slow-down in delivery. Home buyers targeted by the house builders will continue to buy a product with which they are familiar and there is no need for additional marketing to sell an unfamiliar product.

2.1.2 Risks

Maintaining the current housing density will reduce the chances of vibrant town and neighbourhood centres developing by putting people further away from services, reducing footfall, increasing car dependence and levels of social isolation, reducing service choice, community cohesion and rates of internal employment, increasing levels of deprivation and obesity and reducing good health and wellbeing outcomes¹⁹.

Block design with a relatively high number of cul-de-sac's, indirect routes, and poor distribution of house types results in poor connectivity and internal legibility, reduced levels of enclosure and creation of attractive places, reduced levels of walking and cycling and reduced viability of town and neighbourhood centres.

2.2 Do something

Increase densities and refine block design around neighbourhood centres and along main spine routes in the expansion areas of Cranbrook, using standard house types currently seen in Cranbrook only.

¹⁸ Housing density immediately adjacent to the main spine road at Cranbrook is between 60-70 dwellings per hectare. Away from this road they are between 34-46 dwellings per hectare. (CHECK NF RESPONSE)

¹⁹ For a good level of services to be maintained in a neighbourhood or town centre depends on there being a threshold level of people within easy walking distance. This has previously been estimated at averaging 50 dwellings per hectare in a 540 metre radius of a centre by the Department of Transport (REF) in relation to public transport sustainability, Richard Rogers (REF) and the Urban Task Force (REF) for retail and other services.

2.2.1 Benefits

Improving the urban block pattern and densities in the areas yet to be developed will help support neighbourhood centres within them and improve levels of walking and cycling. There will be some improvement in walking and cycling to the main town centre, but this is likely to be at a fairly low level due to the improved areas being relatively far away from the town centre itself as development has already taken place on the adjacent parcels. Achieving higher densities in well-designed urban blocks can help define open spaces better, creating a better sense of place, better overlooking and passive surveillance, and making these spaces more attractive.

2.2.2 Risks

Changing the block patterns and increasing densities in the expansion areas could support the neighbourhood centres at the expense of the town centre itself, especially if no changes are made to the delivery of the town centre. This would make it more likely that Cranbrook develops as two distinct communities with neither achieving the critical mass necessary to support higher level socio-economic function or support a vibrant evening or weekend economy.

Using only standard house types to achieve higher densities reduces the ability to create distinctive areas or a sense of place within Cranbrook and can reduce the legibility of an area due to a lack of distinctive design.

2.3 Do a lot

There is no reasonable 'do a lot' option.

3 Location of health (and other) services (presentation 47-53)

In considering the location of health (and other) services, it is crucial to consider the outcomes of the Space Syntax and Public Health analysis alongside the national policy direction for health which has a much greater emphasis on: improving wellbeing, prevention and early help where possible; and delivering safe and sustainable clinical care where necessary.

In relation to the Space Syntax and Public Health analysis this has shown:

- Placing services in the town centre puts them within 15 minutes' walk of 21% of the population
- Distributing services across neighbourhood centres increases access to around 98% of the population within a 15 minute walk

3.1 Do nothing

The current proposals are for services to be provided from a single multi-agency hub in the centre of Cranbrook, in line with current NHS strategy. This maximises quality for people using the service, provides cost efficiencies and, potentially, enables a wider range of services in the local area.

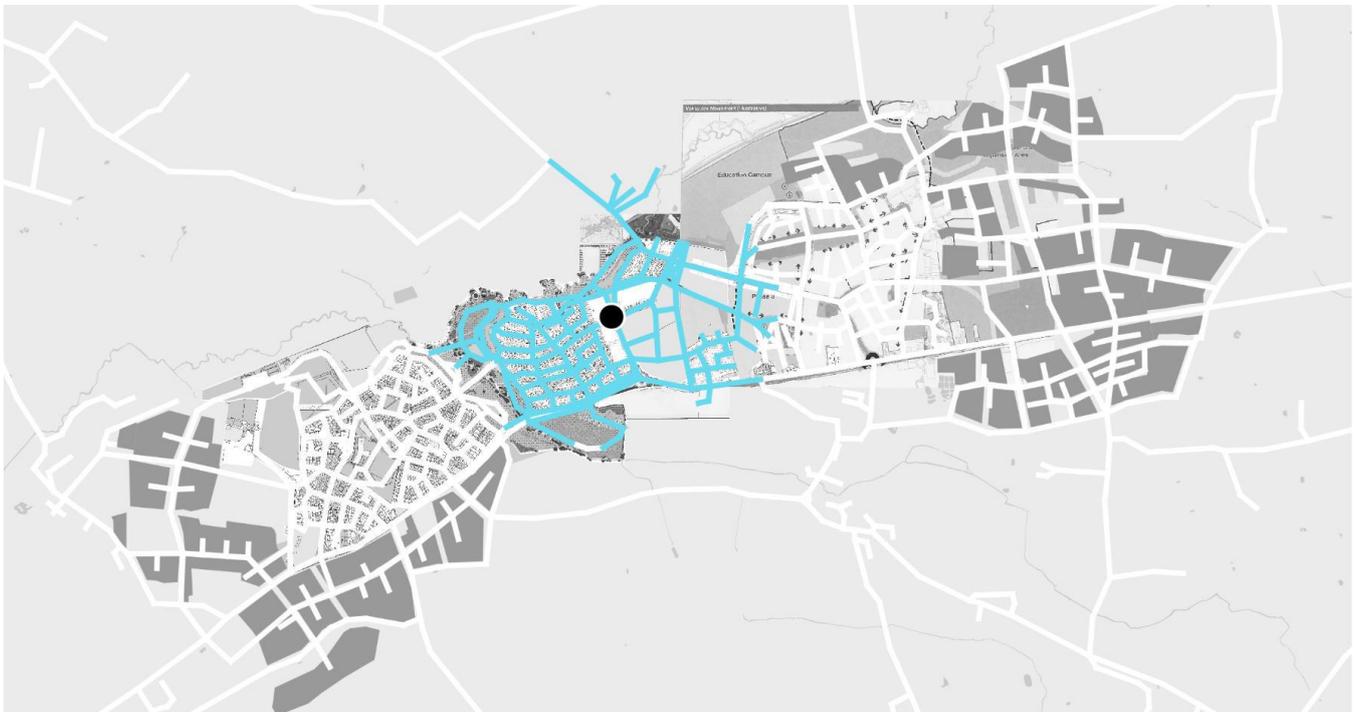


Figure 7 Image showing the area (in blue) of Cranbrook within a 15 minute walk of a central health hub

3.1.1 Benefits

Locating healthcare services in one place is in accordance with the NHS Five Year Forward View and General Practice Forward View creating service benefits and economies of scale. With the potential to pool resources it may be possible to provide services that would not otherwise be available, reducing the need for residents to travel further afield to access these additional services. The hub could be used as a sub-regional health, wellbeing and clinical care facility. Its wider range of services could enable linked health related trips, increasing the chance for people to gain a range of health related advice.

3.1.2 Risks

Clustering all healthcare services in one place and reducing walking access to such a high proportion of the Cranbrook community could potentially discriminate against those less able to travel and could also encourage car use.

This option also takes a more traditional approach to health and focuses attention on clinical care rather than the preventative wellbeing activity that would see the real benefits to health in the community. In doing so it does little to address demand on GP services making it more likely that surgery access for individuals becomes constrained as population and demand rises.

3.2 Do something

Maintain a multi-agency health hub at the centre of Cranbrook to enable a wide range of services. Embed facilities suitable for wellbeing and early help activities closer to people's homes. This could include extending support within Healthy Living pharmacies and for some wellbeing activities in community buildings in neighbourhood centres and the proposed mixed-use town square. Figure 7 shows this distribution, the central dot indicates the health hub.

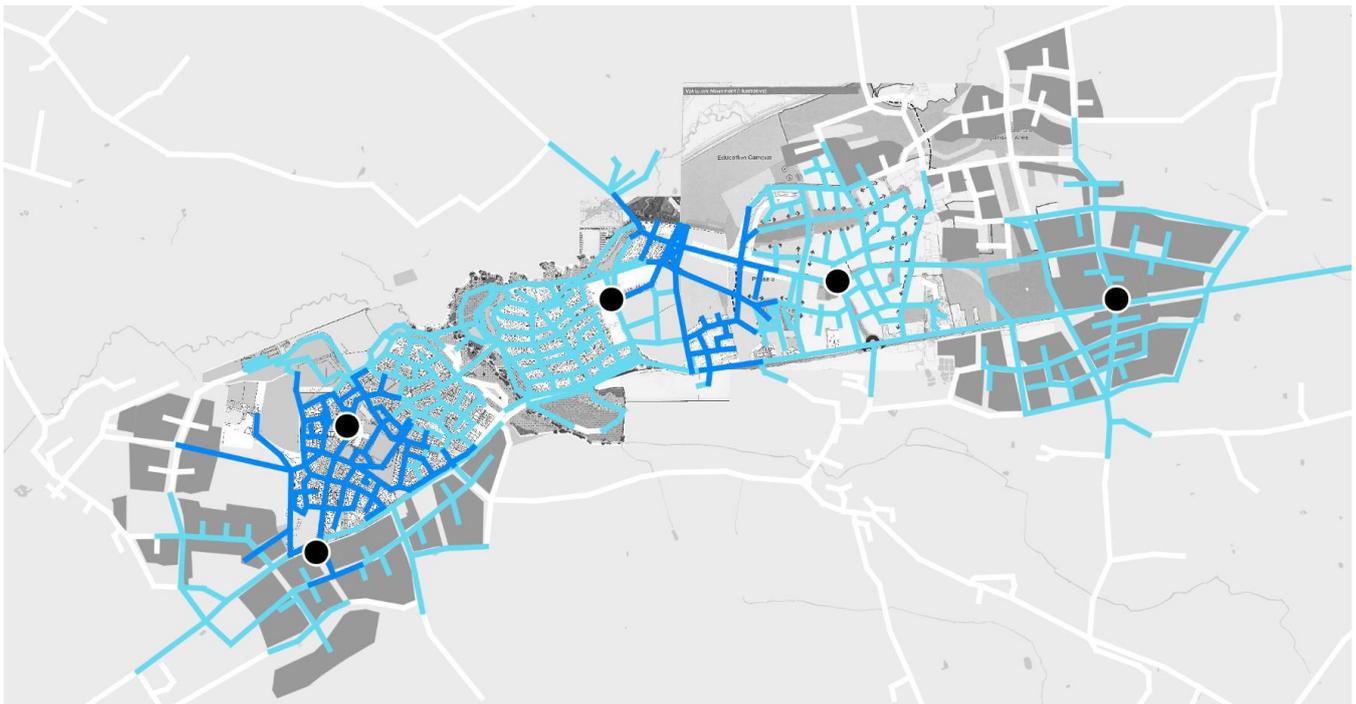


Figure 8 The level of access to health services if distributed across the neighbourhood centres and the proposed mixed-use town square. The darker blue areas show where people would have a choice of services within a ten minute walk of their homes.

3.2.1 Benefits

This option increases the proximity of prevention and wellbeing services, which is of considerable importance to the long-term wellbeing of the community and provides for quality General Practice at scale and accessible to the community of Cranbrook.

By ensuring space is provided in buildings that are already in other uses and not dedicated clinical buildings, achieving a healthy town is more accessible. Substantial unnecessary costs are not introduced and the services envisaged for the stand-alone health hub can still be provided.

With wellbeing support activities able to operate out of each neighbourhood centre the surrounding community would have access to a wide range of healthy lifestyle advice within walking distance making it more likely that health issues can be picked up early, discouraging car use, increasing trips to the neighbourhood centres and helping make them more vibrant.

3.2.2 Risks

There would be a minor increase in costs, though with wellbeing services being placed where people can get to them easily these are likely to be heavily offset by savings in health care later on. There are no substantial risks identified.

3.3 Do a lot

There is no reasonable 'do a lot' option.

4 Pedestrian / Cycle infrastructure (presentation 69-74)

- The proportion of separated cycle and pedestrian route compared to primary road network is very high. Separating cycle and vehicle routes could replicate one of the problems of the previous generation of New Towns where people are discouraged from using these routes as there is less passive surveillance from users of vehicles. This can reduce the number of people choosing to walk or cycle achieving the opposite of the design intent
- Some of the pedestrian / cycle only routes are well connected and would be better suited as main connector streets that include motor vehicles to help support the town

4.1 Do nothing

Maintain a high proportion of segregated cycle and pedestrian routes, including those that are well connected.

4.1.1 Benefits

The segregated cycle and pedestrian routes in Cranbrook include existing narrow lanes (green lanes) that are very attractive as they have high, well-established hedgebanks on either side of them. Remaining routes have been designed more as leisure routes through areas such as the country park.

4.1.2 Risks

Keeping the green lanes as pedestrian and cycle routes only reduces the support they provide to the neighbourhood and town centres as the level of people using them is not expected to be high. With fairly low levels of use expected, especially with relatively low density development around them, people could feel unsafe on these routes further reducing the level of use. This could encourage more car use instead of the design intent.

The routes through the parks and other green space may also see low levels of use, but as they have been given a leisure rather than transport purpose the impact may not be great.

4.2 Do something

Reduce the number of separated pedestrian and cycle routes, improve the design of streets based on their level of connectivity to safely and attractively include pedestrians and cyclists. Retain the green lanes as they are.

4.2.1 Benefits

Reducing the number of routes that are separated from the vehicle network will create greater passive surveillance along routes, providing a greater sense of security for users. Active travel is more likely to be used for utility journeys, such as commuting or shopping, as the routes provide greater passive surveillance from other users and are likely to be more direct. The green lanes would remain as attractive routes within Cranbrook maintaining a good structure of green spaces across the town.

4.2.2 Risks

As most of the separated routes are for leisure use, closing some and incorporating them onto vehicle routes could discourage people from cycling and walking as it reduces the opportunity for leisure cycling. Maintaining the green lanes as they are risks their maintaining low levels of expected use.

4.3 Do a lot

Keep the separated cycle and pedestrian routes in parks, improve the design of streets to incorporate pedestrians and cyclists better. Enable vehicles to use the green lanes, potentially widening them to fulfil their use potential.

4.3.1 Benefits

The improvements to street design would help enable more people to walk and cycle safely for utility journeys, such as to work or go shopping, along the most direct routes and where other users will provide a sense of security. Keeping all other routes will maintain the ability to use active travel for leisure and provide confidence to families with children to go cycling and walking within their town.

Making green lanes available for all users, upgrading them where necessary, will help the town and neighbourhood centres by drawing more people to them along the best connected routes.

4.3.2 Risks

There are few risks associated with improving street design and retaining the leisure routes for cycling and pedestrians. There may be increased infrastructure cost, though careful design could avoid this.

As the green lanes are narrow, allowing vehicles onto them will either prevent people walking or cycling along them or mean that the lanes have to be widened to include both. Widening the lanes will lose a lot of well-established and attractive hedgerows and trees, reducing the level of ecology and the attractiveness of the area in a way that replacement planting cannot offset for several decades. A number of green lanes in the existing permitted area now have development either side, making upgrade extremely difficult. Finding another way of improving connectivity without destroying this valuable green infrastructure would be recommended.

5 Rail crossings (presentation 87-90)

- All options that close a rail crossing increase stress on already overstretched crossings and most reduce traffic through the town centre, further reducing its viability. No closure of a crossing is recommended
- Improving the Crannaford Crossing would improve the prospects for the town centre raising questions about whether to spend money upgrading the Station Road Bridge or the Crannaford Crossing and lane north of it

5.1 Do nothing

At present the masterplan for Cranbrook shows the Crannaford Crossing and Southbrook crossing as being for cyclists and pedestrians only. The existing Crannaford crossing is a half-barrier level crossing, while that at Southbrook Lane is a single lane tunnel under the railway embankment.

5.1.1 Benefits

Closing these crossings to vehicles may make them more attractive as walking and cycling routes, encouraging people to cycle to use the lanes north of the railway for leisure use, accessing the nearby Killerton House or Ashclyst Forest. The capital cost of doing so is negligible.

5.1.2 Risks

Closing the Crannaford and Southbrook crossings to traffic will exacerbate the traffic levels on Station Road which is already under strain. It will limit the ability of the town centre to sustain shops and other services reducing good health and wellbeing outcomes.

5.2 Do something

Change the masterplan to show traffic access at Crannaford and Southbrook crossings. Maintaining the crossing at Crannaford may mean upgrading it in the short to medium term as there are potential safety concerns, especially considering its proximity to the Education Campus. Network Rail's preferred upgrade options at Crannaford range from a full barrier crossing to a new bridge. It is not currently deemed feasible to upgrade the Southbrook crossing.

5.2.1 Benefits

This will help maintain connections to the town centre and will spread the traffic load across the three crossing points, increasing the resilience of the road network, increasing the chances of a vibrant town centre developing, improving health and wellbeing outcomes.

5.2.2 Risks

Work to upgrade the Crannaford Crossing or improve the Station Road Bridge will be very expensive due to the safety and security constraints or working next to a mainline railway.

The condition of the lanes north of the crossings would remain the same and increased traffic levels will increase the chances of congestion on the lanes.

Actions to address issues

6 Design principles

The outcomes of the Space Syntax / Public Health Devon work allows a process of redesign that aligns movement, land use and density. The conditions for good health and well-being are the same as for strong socio-economic growth so the vision for Cranbrook can be developed to achieve both. The forthcoming masterplan and Development Plan Document for Cranbrook provide the most meaningful opportunity to deliver the conditions for this to be achieved.

To be most effective, the development and delivery of these principles needs to be aligned with national guidance and standards such as the recent Town and Country Planning Association guides for creating successful new communities²⁰, Manual for Streets²¹ and Building for Life²² among others. Aligning the Space Syntax and Public Health Devon work with a wider evidence base will considerably improve its ability to be interpreted and delivered within frameworks already understood by the development industry.

²⁰TCPA Guide 8: Creating health-promoting environments is particularly relevant. Accessed 20th March, 2018. <https://www.tcpa.org.uk/guidance-for-delivering-new-garden-cities>

²¹ Ministry of Housing, Communities and Local Government. Manual for Streets. 2007. Accessed 20th March 2018 <https://www.gov.uk/government/publications/manual-for-streets>

²² Design Council / Cabe. Building for Life, 3rd edition. 2015. Accessed 20th March 2018 <https://www.designcouncil.org.uk/resources/guide/building-life-12-third-edition>

6.1 Design principles should deliver:

1. Good socio-economic and cultural activity to address the wider determinants of ill-health
2. Good physical and mental health for the Cranbrook community
3. Positive influence on the future health outcomes of people at Cranbrook
4. Provide and design the infrastructure to help people make more positive choices in life for their health and a more active lifestyle
5. Secure, predictable incomes
6. The ability to create a strong community and social networks

Health:

7. Make spaces available in neighbourhood centres for wellbeing, prevention and early help health related activities and explore digital access opportunities
8. Put outdoor leisure activities and multi-functional spaces along cycle / pedestrian footpaths to encourage their use
9. Maps of public footpaths/bridleways to local countryside, easy cycleway into Exeter
10. Affordable e-bike rental schemes

Employment:

11. The town centre, in particular, needs to provide jobs for local people and opportunities for sustainable business, and encourage start-ups
12. Create space for learning – work with education providers to provide courses

Community:

13. Spaces and places for people of all age groups
14. Sports facilities for organised and “free” play
15. Create adequate space for childcare provision
16. A school south of London Road in the Treasbeare area may help it become more integrated with the rest of Cranbrook
17. Make it easy for people to navigate and move around within their town
18. Rethink London Road as a street to communicate a focus on people and as a place of activity and connection rather than vehicles
19. Create an information hub – a physical building or an App, possibly integrated with Alexa or similar interactive technology

Future:

20. A Town Square would generate community and perhaps attract retail
21. Use Space Syntax information to optimise connections and land use for health & wellbeing, the community, and allow potential to adapt over time.

6.2 Proposed design principles:

1. Locate and support footfall dependent uses in the most connected areas within the town centre and adjacent, at both local and regional scales to develop meaningful levels of economic, social and cultural activity
2. Minimise dead ends and improve connectivity and legibility of routes throughout the town, maximising access to services
3. Locate most homes within one or two street segments of the main spine road
4. Design mixed-mode streets to integrate or separate pedestrians, cyclists and vehicles safely and attractively depending on the location and design purpose of the street
5. Have smaller urban blocks towards the centre, larger at edges
6. Achieve higher density using housing and building typology rather than density figures
7. Urban blocks should have their narrow face onto main routes to improve permeability and access to services
8. Housing types with the highest densities should be at the front of blocks, facing main routes, with lower density housing types used further away
9. Provide on street parking throughout
10. Ensure green spaces are well enclosed and overlooked by housing or preferably a mix of uses.

7 Management and leadership

1. The evidence suggests a need to review public sector strategy for Cranbrook to refine strategic aims and vision for Cranbrook, and develop consensus, coordination and leadership from the public sector organisations
2. To successfully address policy and design, an intelligent, nuanced and cross-agency understanding of issues is needed to develop a consistent and coordinated approach to address them
3. Strategic and operational coordination between public and private sectors is critical. Developers and the community at large must be engaged
4. The HNT programme provides multiple opportunities to influence locally and nationally including the potential for an integrated and sustainable partnership. Developing solutions and embedding Cranbrook focused work which has a positive impact on the realisation of Cranbrook as an exemplar healthy town is a shared aspiration. This sits alongside existing integrated strategic planning and health and well-being and economic development work across East Devon and wider Devon.

8 Planning Policy

1. The Space Syntax and Public Health Devon outputs provide strong evidence and opportunity to influence the Cranbrook Development Plan Document for the better. Planning Policy can be reviewed or prepared based on the outcomes of this work to better steer the developers and locate uses
2. Prepare a Frontage Policy and policies map to locate footfall dependent land uses in areas indicated with high levels of movement demonstrating clear links to Health and Wellbeing policies within NPPF, Local Plan, Sustainable Travel Plan
3. Develop Cranbrook specific 'Manual for Streets' style guidance based on Space Syntax research and recommendations
4. Ensure all existing rail crossings remain open.

9 Other actions

1. Provide space for wellbeing, prevention and early help healthcare activities in neighbourhood centres linking 'Make Every Contact Count' (MECC) and 'Move More Cranbrook'
2. Investigate the use of the Ebbsfleet 'Quality of Life' wheel to ensure that all decisions improve quality of life for the community at Cranbrook
3. Develop understanding and evidence of 'Place Premium' for Cranbrook to improve negotiating position for design and infrastructure investment.

Appendices

Appendices are provided as separate documents.

Appendix 1. Space Syntax / Public Health Devon workshop presentation

Appendix 2. Workshop report