Chapter Three: Development Principles

25. Introduction

25.1 Development Principles

25.1.1 This chapter uses the constraints and opportunities information contained within Chapter Two and other qualitative factors from a range of existing evidence base documents, including the Strategic Housing Land Availability Assessment (SHLAA) and Urban Extensions Studies. These are encapsulated in summary diagrams to assess the potential sectors where development could be located around the towns.

25.1.2 Once these broad sectors are established, they are broken down into smaller sub areas based on the adjacent town structure. These sub areas are then assessed for their potential level of integration to the existing town. The assessment is based on the route structure analysis, informed by the axial lines analysis alongside Green Infrastructure (GI) routes, and examination of any movement barriers (See Chapter 2).

25.1.3 Any areas which already have planning permission are included as part of the existing town, even if they are not yet built. Sites which have been previously identified in plans and policies are assessed in order to establish the key issues, if any, which will need to be addressed to allow development to integrate well with the existing town.

25.1.4 The assessment has focused on connectivity and does not consider other qualitative factors such as landscape, coalescence, infrastructure issues and other constraints since this is covered elsewhere in other documents. It instead focuses on the level of possible movement integration. However, the summary tables have identified other important issues that could be relevant if a site is brought forward.

25.2 Integration assessment methodology

25.2.1 The methodology for the integration assessment of segments and sub area is set out in the table on page 77

25.2.2 The USS assessment explores how integrated any growth at the edges would be, grading each sector from A-E. The assessment is based on how easily new development could connect to the local street and GI networks, what barriers there are (such as major roads, rail, rivers) and how easily such barriers could be overcome. It also suggests where there are barriers how these can be improved and enhanced to become more of a feature to the town with new development, such as the rivers and open spaces. For instance, a Grade E (poor) score would highlight a sector where there are no possible connections to a local connected network, the only connecting point would be via a vehicle only route and the adjacent town structure is cut off by dead ends and loops, none of which front onto the single connecting route. There would be no clear grid network, no GI routes and significant barriers between site and amenities, which cannot be overcome without significant difficulty such as large areas of built form, Highways Agency level roads, and flood plains.

25.2.3 The assessments indicate the key issues that any site coming forward in the sector would need to resolve to improve its connectivity. A poorly scoring site would therefore need more work and infrastructure to improve its connectivity, but it does not mean that such a site should not necessarily come forward, but further work and mitigation is needed to enable it to integrate well with its context.

25.2.4 Each town has been split into sectors based on existing and future routes.

		What?	How?	Why?
USS chapter 3 methodology – Sector assessment Methodology	9	Divide the town into segments for more detailed consideration.	Using the historic and radial routes identified in steps 2 and 4 above, divide the town into segments (number to vary according to scale and complexity of the town) for more detailed consideration.	Dividing the town in this way enables identification of the opportunities and constraints to potential integration of any strategic (or non strategic) growth in any given direction.
	10	Discount any segments in which there are 'show stoppers' to development	Identify any broad areas/segments which are unlikely to accommodate development due to an existing significant constraint – e.g. the River Nene and its floodplain	There would be no benefit in assessing these.
	11	Assess each of the segments against the agreed matrix, and conclude an 'integration capacity grade'	Complete the matrix for each segment. Some segments will need further subdivision where contrasting morphological character areas exist around the edges of the segment, and therefore result in different integration capacity grades. The assessment if based on how easily new development could connect to the local street and GI networks, what barriers there are and how easily such barriers could be overcome. **Integration capability to context grading** **Grade A - best possible** • Connects to at least one brown route (radial) which has significant amounts of active frontage. • Connects to multiple red routes with active frontage in an existing grid which could be continued. • Green and blue (GI and river) links to the countryside and the town centre. • Enhances walking and cycling network. • No significant barriers identified between the site and the centre and its nearest local centre. **Grade B** • Connects to at least one brown route. • Connects to 1 or 2 red routes and an existing grid. • Green link into countryside and town centre or local centre. • Can link into existing walking and cycling network • Barriers between site and centre can be overcome easily **Grade C** • Connects to one brown route • Connects to a red route • Potential to create more red routes by connecting to existing dead ends (no built form blocking the ends) • Connects to area with partial grid • Can connect into a GI framework – but not fully linked up with other destinations • Barriers between site and centre or local centre can be overcome, but not easily **Grade D** • No red connecting points • Adjacent town structure is loops and cul-de-sacs with blocked ends • No grid network to connect to. • GI acts as a barrier rather than a connector. • Significant barriers between town and site which can only be overcome with difficulty in part. **Grade E – least integration potential** • No red connecting points • Only connecting point is vehicle only route (green) and adjacent town structure is all dead ends and loops, none of which front onto the single connecting route. • No grid network • No GI routes	This objective method of assessment enables direct comparison of the potential integration for any development in different directions for growth within and between settlements based on the current situation. It also identifies opportunities and constraints to be overcome if development were considered desirable in these broad locations.

			• Significant barriers between site and amenities which cannot be overcome – no scope for bridges, major noise bunds, built form.	
	12	Summarise the findings of steps 10 and 11 on a diagram	Use agreed colour coding system to illustrate relative integration capacity and grading each sector from A-E. Grade A = Yellow, Grade B = Orange, Grade C = Red, grade D = Purple and Grade E = Blue.	To summarise the findings of the research

26. Wellingborough

26.1 Connections

26.1.1 The key existing routes split the town into potential sectors for growth. These have been highlighted in 135.

26.1.2 Highlighted in yellow in 7 is a proposed link from the town to the proposed Wellingborough East Sustainable Urban Extensions and the alignment of the proposed Isham Bypass (IWIMP).



Figure 135 Historic structuring routes, used to define segments.

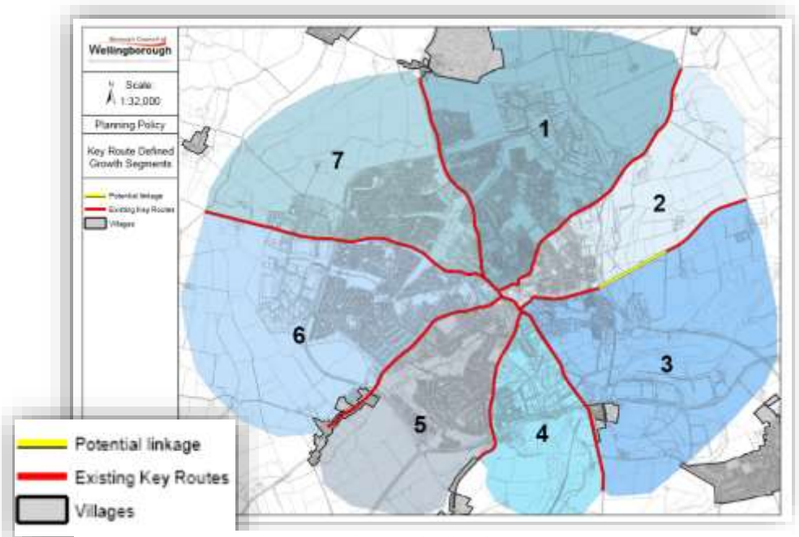


Figure 137 Sectors

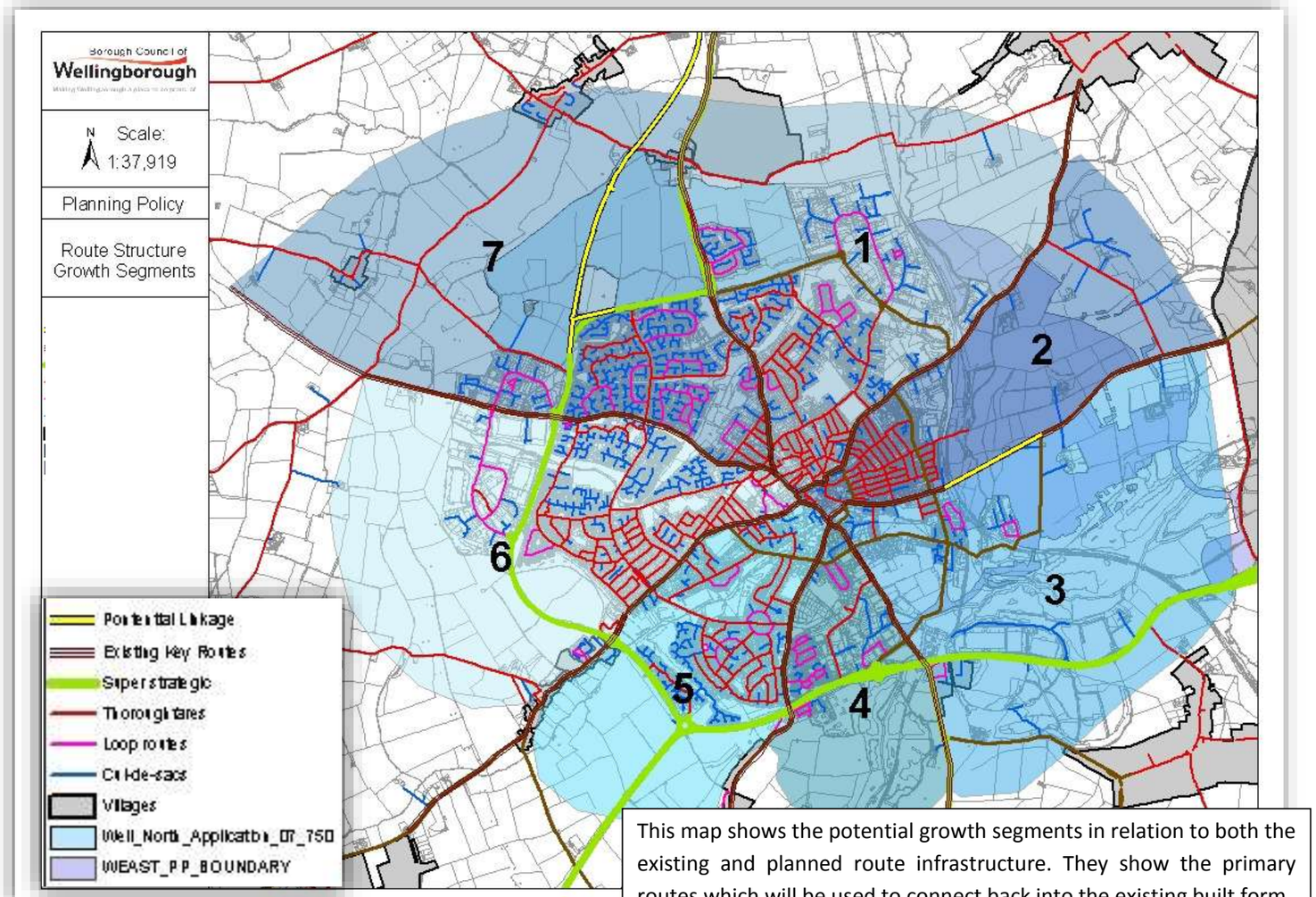


Figure 136

This map shows the potential growth segments in relation to both the existing and planned route infrastructure. They show the primary routes which will be used to connect back into the existing built form.

26.2 Summary of Constraints

26.2.1 Figure 138 shows the growth segments overlaid on a map showing physical and natural constraints. Based on the map it is concluded that opportunities for growth in Wellingborough are within segments 1, 2, 5, 6 and 7. Opportunities for growth within segment 3 & 4 are severely limited by the river, floodplains, impact on the SSSI and local wildlife reserves and the major dual carriageway. Opportunities for growth within segment 3 are also limited by the railway line.

26.2.2 The route structure analysis map (Figure 139) shows clearly defined areas which are categorised by the streets form and connection. From this the town has been split into 7 sectors according to its street pattern and layout. These character areas relate to different periods of development and distinct neighbourhoods. Road patterns and street layout as well as the ease of access and availability to amenities and open space are key features which go towards defining each of the character areas.

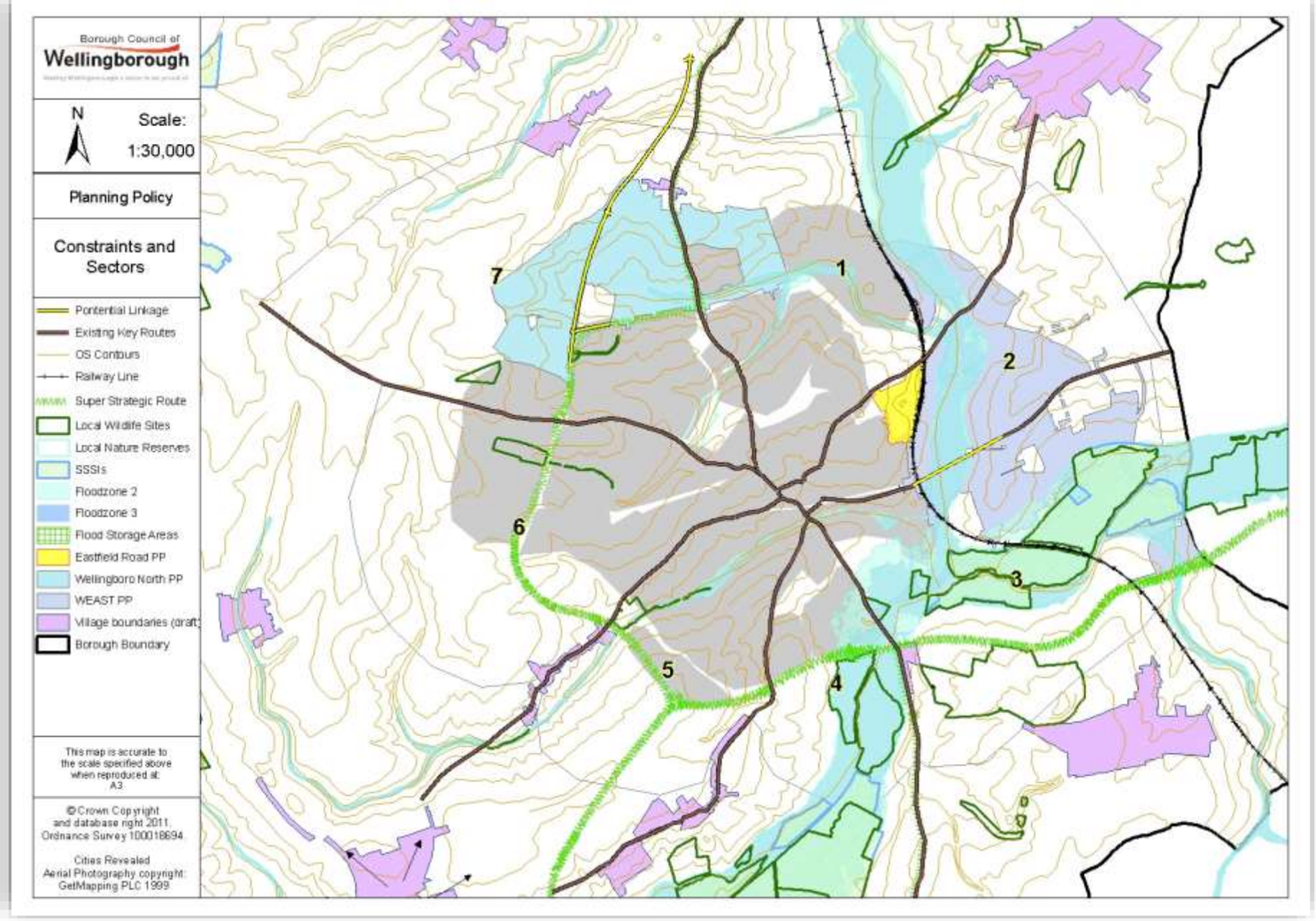


Figure 138 Sectors and constraints



Figure 139 Route Structures map

26.2.3 **Error! Reference source not found.** shows the potential broad areas of growth, based on the constraints. These zones do not have strict boundaries, but set out the general location for assessment. Using the growth sectors along with the relationship to the existing character areas, each area has been assessed in the table below in terms of its connectivity, scope for improvements, issues to do with barriers and what local characteristics might usefully be considered in any future designs.

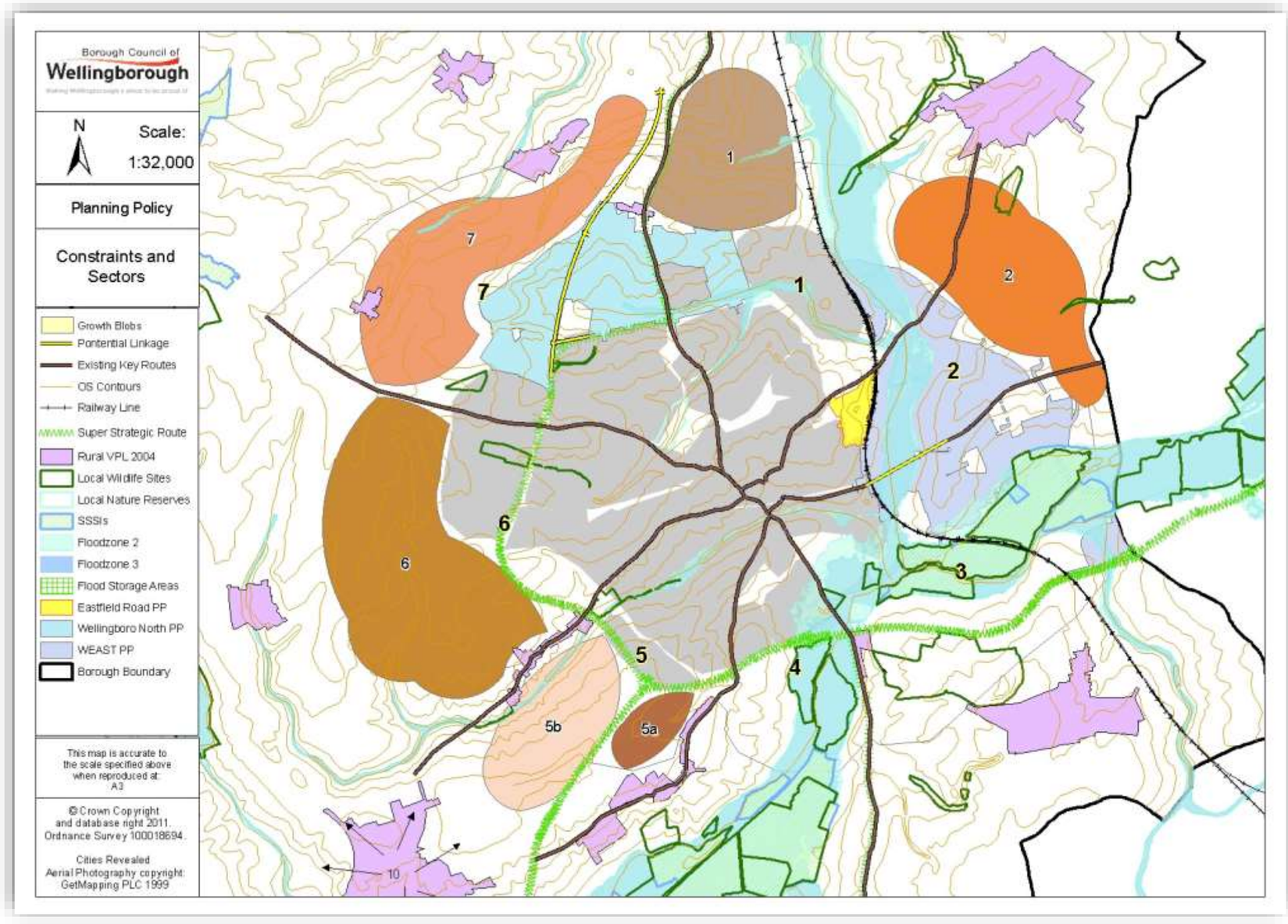


Figure 140 Potential areas for further assessment

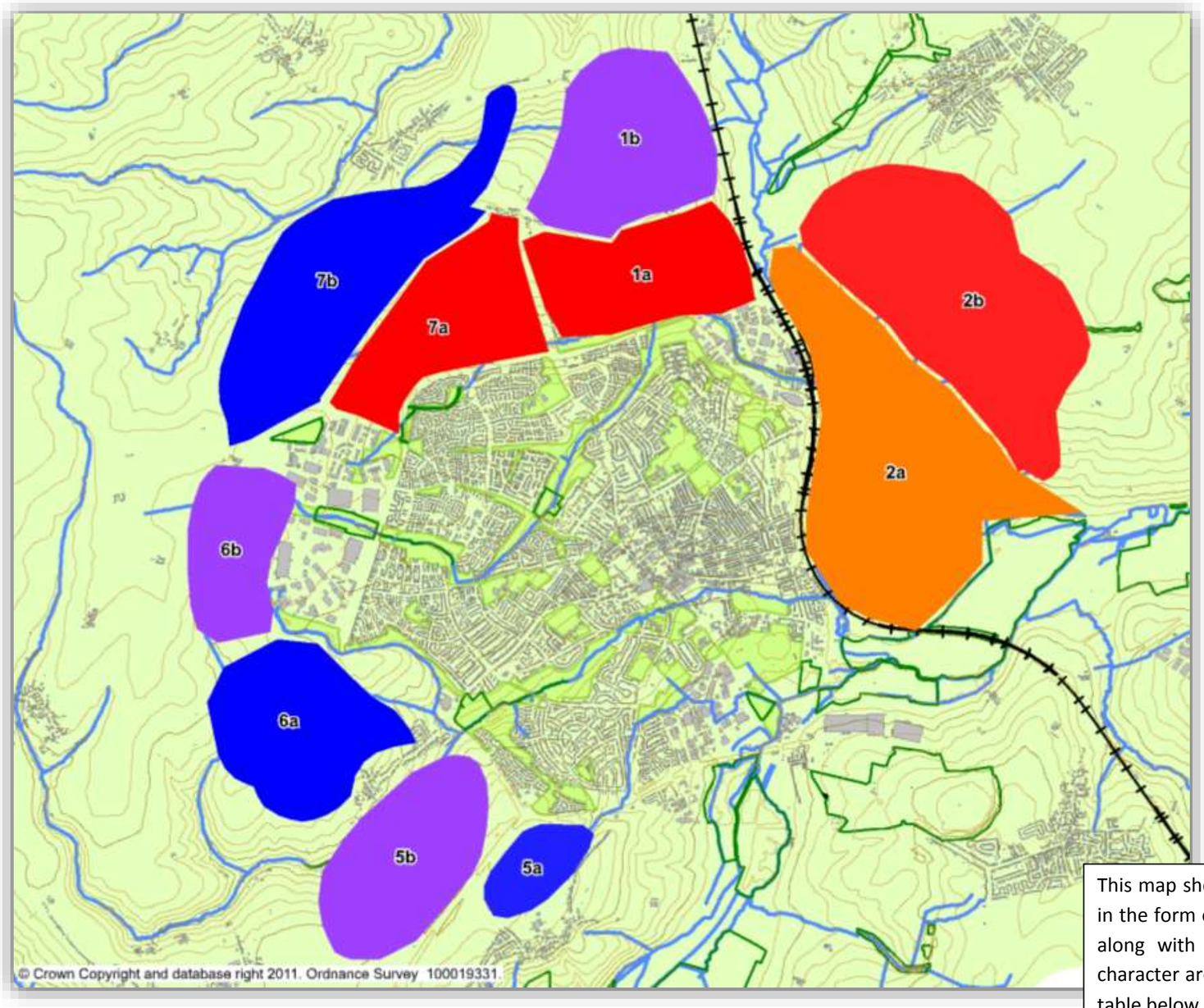
Segment	Connections			Barriers	Comments	Integration Capacity grade
	Brown Routes	Red Routes	GI			
1A	2 (A509 and A510)	1 Nest Farm Road	Yes several corridors exist. Two underpasses under the road leads to open space on Southern side. Very good potential to extend these corridors particularly to the North of this segment. Potential to link existing corridors with the Golf course and also the wider strategic GI network linking to the River Ise.	Major barriers to the NE of this segment include the railway line and river with floodplain. Difficult to overcome. No clear grid in immediate context. A509 to west a major barrier as high speed and multi lane, but significant changes proposed as part of NW Wellingborough SUE. A510 and lack of frontage development forms additional barrier. The A510 has very much the character of a "motor vehicle only" green route. Built form of Finedon Road industrial estate does not provide opportunity to connect east.	Difficult to assess ease of connection into the SUEs as masterplans and planned road layout could change before implementation. Ability to connect cycle networks on the East and West of the segment in the existing area and to planned cycle networks within East and North SUE. Would need to ensure that SUEs are built with further expansion in mind. Benefits could be nature and river related development to the NE. Potential to better integrate the Finedon Road industrial estate into the fabric of the town. Opportunity to better connect Redhill Grange, which is cut off by major roads at present, but strong local opposition to more development around Redhill Grange.	C
1B	1	2	GI corridors exist but none that currently lead directly into the town centre – but there is potential to do so and to link to those provided within 1A	Physical distance to town centre problematic. Topography – beyond ridge would result in separation both physically and visually. Open space, setting to Great Harrowden would result in a sizeable green buffer which would further isolate from the town.	Difficult to assess ease of connection into SUEs as masterplans and planned road layout could change before implementation. Ability to connect cycle networks on the North in the existing area and planned cycle networks within the North SUE. Would need to ensure that SUEs are built to allow for better integration with villages to the north. Impact on landscape and views likely to be significant. Concerns over coalescence (although this is not factored into the grading) Potential links along river and railway line.	D Implementation of SUE could improve some elements, but not the distance or need for significant green spaces around Gt Harrowden.
2A	2	2	Currently no GI routes through the existing built form, limited scope for GI with the existing built form, potential to green Midland Road as a quite well treed route into the town centre. GI corridors are prominent in the plans for the urban extension to the East with potential to continue these into the wider strategic GI network linking to the River Ise to the south. Also, to the north, potential for GI linkage through disused open space and semi natural areas within Finedon Road/Nest Lane site.	Major barriers to the West of this segment include the railway line and river with floodplain. Difficult to overcome. Benefits could be nature and river related development to the East.	Difficult to assess ease of connection into the SUEs as masterplans and planned road layout could change before implementation. Ability to connect cycle networks on the East and West of the segment in the existing area and to planned cycle networks within East and North SUE. Would need to ensure that SUEs are built with further expansion in mind. Creation of a new radial linking to the Irthlingborough Road would allow for the town to grow out along a radial, in common with the existing way it has grown. Potential to improve town's gateway entry points (both by road and rail). Challenges relating to high infrastructure demands and timing. Improving access to river and countryside to east.	C but consented Wellingborough East scheme would enhance to B.

2B	2	2 but would likely increase with construction of 2A	Currently no GI routes directly into town. GI corridors are prominent in the plans for the urban extension to the west but no GI within existing built form and limited scope for GI within the existing built form, potential to green Midland Road as a quite well treed route leading into the town centre.	Physical distance to town	Difficult to assess ease of connection into the SUEs as masterplans and planned road layout could change before implementation. Ability to connect cycle networks on the East and West of the segment in the existing area and to planned cycle networks within Eastern SUE. Would need to ensure that SUEs are built with further expansion in mind. Topography slopes towards the town. – Positive Need for connected networks in 2A to create grid for this are to connect to. Physical distance to town, but would be well connected to other smaller towns to the east.	D - Difficult to assess given lack of context. Physical distance and topography are issues but also opportunity to control the road layout in segment 2A which would have a big bearing on how connected this secgment would be. Would assess as D, but scope for C based on masterplanning of segment 2A.
5a	0	0	There is a link to green infrastructure corridor which leads to the town centre – although not directly. Potential to continue this but this is limited by the A45 as a major dual carriageway.	Major barrier of A45 dual carriageway and high speed, particularly for pedestrians and cyclists. Topography slopes away from the existing town. Connected grids in local context but separated by green space or difficult to access due to built form.	Difficult to access any existing road network except for the A45. Ability to connect to existing cycle networks will be difficult. Topography slopes away from the town, creating a sense of separation. Impact on landscape – SSSI/SPA/views. Scope to connect to local settlements but coupled with concern about coalescence.	E
5b	0 Northampton Road is near but does not directly link to segment	0	There is a good green infrastructure corridor which leads direct, to the town centre, but this is cut off by the A509.	Major barrier of A509 which is dual carriageway, high speed, and exacerbated by level changes. Small floodplain. Topography slopes away from the existing town. Lack of connected grid within the A509 to connect to.	Difficult to access any existing road network except for the A509 and A45. Northamptons Toad is a good direct radial, so getting pedestrian and cycle access to this would be critical, which would necessitate changes to A509. If A509 barrier could be reduced, could allow better countryside access along GI routes, which is already of high quality within the town. Segment runs alongside stream, and slope down to it. Concern about landscape and views, impact and coalescence issues. High quality walking/cycling green link offers most scope for increasing connections but would need significant changes to A509 to allow for better integration across it. Improvements to create more connections on the town side of the A509 would be hard to achieve but would help make a choice of routes available.	D

6a	0 Northampton Road is near but does not directly link to this segment	1 Mears Ashby Road (but this connects west, raher than back to the town)	GI routes within the town are at some distance, and blocked by the A509 and existing development.	Major barrier of A509, particularly for pedestrians and cyclists. High speed and multi laned. No nearby connected grid but development of Park Farm Way/Shelley Way site could create possible connections. No connecting streets nearby (Mears Ashby Road connects west)	Concerns over coalescence with Wilby, but could provide additional connections to Wilby and countryside access. Access would be from A509 which is a significant barrier. Red route is long way west and not part of town. Could create new links to existing GI framework, but this would be through other development sites and would be hard to achieve.	D/E
6b	1 Sywell Road at northern end, nothing at southern end	0	Existing GI corridor through Park Farm Way industrial estate could be extended. GI corridor to south	Major barrier of A509. Particularly for pedestrians and cyclists. High speed and multi laned, compounded by level changes and existing built form/street layout. No nearby connected grid – industrial estate has potential to create a connected network, but within the A509, the network is not connected and not easily resolved. Distance from town becoming more of an issue, and approach through industrial estate.	Access to the existing road network would need to be from the A509 or through the existing industrial estate, for HGV traffic , but could be via the Sywell Road radial. Easier to overcome the current A509 as a barrier as it is a one lane each way route which could be downgraded to make it easier to connect any new development with the existing town, but note that Northamptonshire County Council plans show this road being duelled to cope with future traffic, so the barrier is likely to worsen, unless designed to mitigate the barrier. Development in this direction could better connect the town to the employment area and create a more mixed use neighbourhood. Good existing cycle network which would be easy to link into.	D
7a	1 – Wellingborough road (A509 north)	1 Gleneagles Drive	Existing built form has prominent green infrastructure corridors. GI corridors are prominent in the plans for the urban extension to the North although they tend to be orbital routes and fewer connections direct to town centre. Potential to continue these with potential to link to local nature reserve and sports pitches.	IWIMP is planned into the Northern SUE with planned development either side, but access across still limited by nature of proposed road. Would be at some distance from town centre.	Sector 7 is large and encompasses the consented NW Wellingborough SUE and beyond. In terms of the SUE area, the A509 forms a major barrier, as does the lack of many connecting streets within the A509. Resolving these issues and capitalising on GI links will need to be secured through the detailed planning stages to achieve a better integration level. The IWIMP in particular will need careful design both to allow integration within the consented area and in any future development. No cycle networks currently planned into Northern SUE. Would need to ensure that SUEs are built with further expansion in mind. Beyond the SUE, the score is much harder to rate as the street plan is not yet fixed. Obvious issues would be distance, topography, and the design of the IWIMP.	D, but C with planned improvements to A509.
7b	0	1 – Hardwick Road	GI corridors could be continued out	Would be at some distance from town centre and IWIMP might further cut off.	This is a very large segment and its integration would be so dependent on segment 7a, it is very hard to judge. However, it would be physically at some distance, would have the A509 barrier issue in common with other segments. Segment 7A layout can be controlled to help connectivity here however.	E

26.3 Conclusions

26.3.1 The best connected sectors are 1a, 2a and 7, all of which have consented schemes in place on all or part of them, indicating that these areas do have the greatest potential to integrate into the existing fabric of the town. Since the layout and street connections within these areas can be designed to create as connected a grid as possible, this means expansion of these areas could have scope for well connected streets, but they would be at some physical distance from the town centre.



Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

This map shows the potential areas of growth in the form of blobs. Using the growth sectors along with the relationship to the existing character areas each has been assessed in the table below in terms of its connectivity.

Figure 141 Integration Potential

27. Corby

27.1 Connections

27.1.1 This section draws upon the baseline analysis of Corby's movement and connectivity to ascertain the future opportunities for well connected growth.

27.1.2 This plan to the right (Figure 142) shows the basic route structure for Corby indicating the key radial routes into the centre of the town.

27.1.3 These radial routes have been used to divide the outer edges of Corby into sectors for analysis. For the purposes of this study, these sectors will be used to look at the potential options for future sustainable growth to the town.



Figure 142 Structuring routes



Figure 144 Segments

27.2 Potential directions of growth

27.2.1 Within the Corby vicinity, a large sustainable urban extension has been granted planning permission. These are shown on the constraints map opposite (Figure 143). Potential directions of growth are then shown on the following map (Figure 145).

27.2.2 Segment 5 and part of segment 1 are of high landscape value associated with Rockingham Castle and the Welland Valley and Jurassic Way, and were identified as of high environmental sensitivity, so this segment has not been analysed in detail.

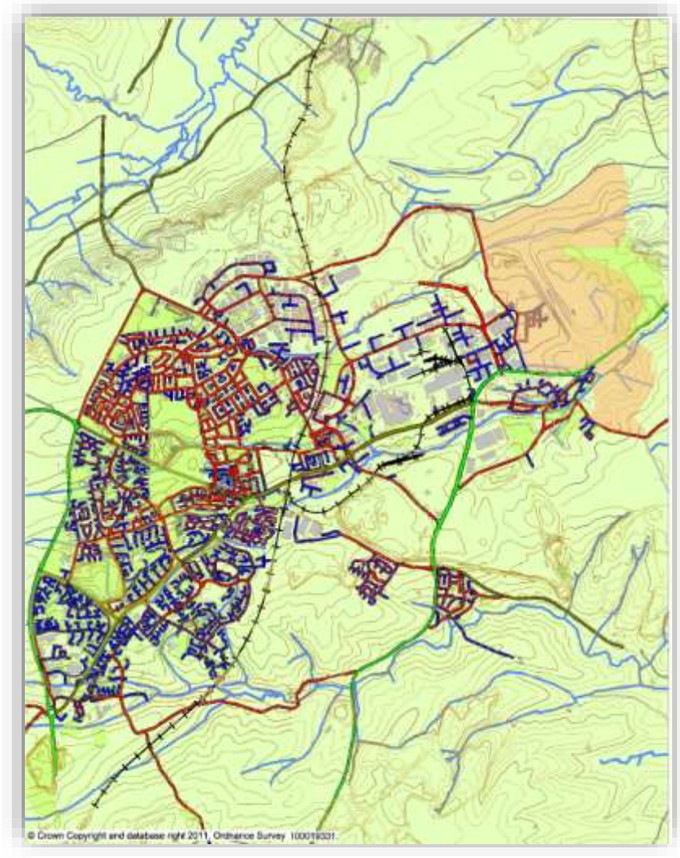


Figure 143 Combined route structure plan

Segments	Connections			Barriers	Comments	Integration capacity grade
	Brown Routes	Red Routes	GI Corridors			
1	0	0 (Gretton Brook Road)	Sub regional GI Local GI Close to strategic GI links, but no GI link to the centre. Potential to create a GI link though to the town centre by connecting up existing open spaces, tree planting on streets etc and creation of a planned walking/cycling route through Corby rugby/football club and other open spaces and streets to connect with Thoroughsale Woods,	Water course and flood plain (not extensive) Will need to consider connections to strategic/SHLAA sites Kirby Hall and grounds Jurassic Way Welland Valley Industrial area has a semi connected grid, but very large blocks which are not of a human scale and therefore less likely to be used for walking/cycling through.	Important historic constraints to the landscape and visual impact on the higher ground Score could be improved in the future dependant on the connections provided within the potential strategic/SHLAA sites Good GI connectivity E-W Poor connectivity to the town centre Adjacent to industrial character area Would need to create a connected network to Princewood Road and improvements to Gretton Brook Road. Opportunities in the area to create a new link into the town alongside disused railway line and GI link via Thoroughsale Woods.	D
2a	0	1	Harpers Brook to Geddington and Harpers Brook to Weldon Park GI corridors identified as potential GI routes through this sector, but do not connect to the town centre.	A43 – difficult to cross, little frontage, high speed road A6086 poor link for pedestrians and cycles Town centre at some distance (15 mins bike ride) Woodland buffer to Stanion and A6006 would mean it would be difficult to connect to this nearby settlement.	Opportunity to create new link into town on disused railway and to provide more pleasant GI link into town. Development within this segment could benefit from connections provided within the adjacent developments. This could therefore increase the score in the future. Segment is predominantly rural in character	D

2b	1	0?	GI routes within Priors Hall SUE could be continued into new areas, but would need to connect back into town centre also – along Willowbrook for instance.	Distance – starting to be a considerable distance from Corby town centre. A43 is a poor route, at present, for pedestrians and cyclists. Large employment zone to west of Priors Hall forms a barrier to movement particularly to the town centre by walking and cycling.	Opportunity to create good link into countryside. Very dependent on the development of Weldon Park and Priors Hall to allow for future expansion and to ensure that they themselves are as connected as possible to the urban structure of Corby.	D – but potential to improve based on masterplans of adjacent SUE.
2c	2 key roads provide the links to this area but neither, and particularly A43, are designed with pedestrians and cyclists in mind.	0 – undeveloped, but potential to create.	No connecting routes.	Distance – at some considerable distance from Corby town centre. A43 – poor route, at present, for pedestrians and cyclists. Creates barrier to employment areas. Woodland a barrier to movement to Weldon Park.	Opportunity to create GI link along the Stanion to Deene Park GI corridor, and other links back to centre of Corby.	D
3a	0 -	1 (to Little Stanion)	No GI corridor, but potential identified for improvements to Harpers Brook corridor.	The railway is a significant divide between the sector and the town centre and would be difficult to connect across to create a connected grid. Routes on the western side of railway line are convoluted, mainly cul-de-sacs and difficult to create a primary route to the sector. Adjacent to substantial proposed employment development (Eurohub). Eurohub makes it difficult to connect through to the town and does not provide a particularly inviting key route into the town. Water course and associated floodplain. A43 forms barrier to Stanion and does not provide a better link to Corby in terms of walking, cycling and public transport.	Whilst geographically close to the town centre, the railway line combined with a lack of any direct radial routes would make this segment very difficult to access. Significant street connections would be at the eastern edge and would be a very long way round. Bridleway links exist across the railway line, and ensuring they would feel safe to use after dark and in all weathers would be critical. At present they are not surveilled. Opportunity for better links along the railway line as this offers the most direct route to the town centre. The new A43 does have footpaths along it, but is not a radial route back into Corby (serving instead as a bypass) so does not improve connectivity to the town centre. Eurohub and Little Stanion offer nearby employment and facilities, but are themselves not well connected to the town centre. Again, there is	D

					a footpath connection, but this is poorly surveilled and so unlikely to be used after dark.	
3b	0	1-2	No GI corridor to the town centre but potential to create links along Harper's Brook tributary	A6003 a vehicle only route from Southern gateway south. Railway forms a barrier – but there are two crossings. A6014 not pedestrian/cycle friendly road and would be the key connection.	Distance from radials is key, as west of railway line is relatively close to radial route, but elsewhere access would be more convoluted. Railway offers most direct route to town centre – explore potential for local stops and cycle/footpaths alongside in the long term.	C
4	0	1	No defined GI link but potential to improve access to Jurassic Way and new route along Harpers Brook. No existing GI link to town centre.	A6003 – fast, no frontage, few crossing points, no provision for pedestrians Water main easement alongside road Street pattern in adjacent existing town structure does not create many through routes, or clear hierarchy of streets. Existing built form turns its back on the A6003 – including the two schools.	Major road separating the segment from the rest of Corby. Downgrading this road in the future and addressing the lack of frontage could make future development more successful. Connections across this road will be important to prevent isolation and not being connected to the town. Gainsborough Road is most direct potential route to the town centre. Scope to create new connections and points to link the new and old communities together at both school sites. Cottingham Road is direct route with space to create cycling route but need to cross roundabout. Development needs to be carried out in association with links and improvements to the existing town structure – creating connections across the road (eg links to Beanfield estate – continue pedestrian/cycle links across such as off Bridgewater Court and creation of frontage on eastern side of A6003). Water easement could form a potential GI orbital route around Corby.	D

27.3 Conclusions

27.3.1 Corby presents the most challenges to create development which will connect well with the existing town and its town centre. This is due to its own historic pattern of growth, with residential and industrial areas already quite isolated from one another in two distinct zones, and the town centre. The railway also forms a significant barrier, particularly when combined with the street patterns which abut it, as do the various roads which surround the urban edges and dissect the town.

27.3.2 However, Corby also has high ambitions for growth and this is in large part about the regeneration and rebalancing of the town. In summary therefore, whilst it poses the most challenges to develop in a way that is well connected, it also offers the potential largest rewards of solving the problems within the existing structure of the town.

27.3.3 Sector 2c roughly corresponds to Deenethorpe airfield where the landowner is promoting a new village with a range of local services. It is therefore different to the other sites which seek to become part of the town's fabric, as it would be intentionally separate, so its score is inevitably lower. However, in order for this area to be sustainable in the broadest sense, the new village would need to allow people to access their nearest large service centre, Corby, in the most sustainable way. This score highlights this is as an issue which will need to be addressed to overcome both the distance and quality of approach to Corby and vice versa.

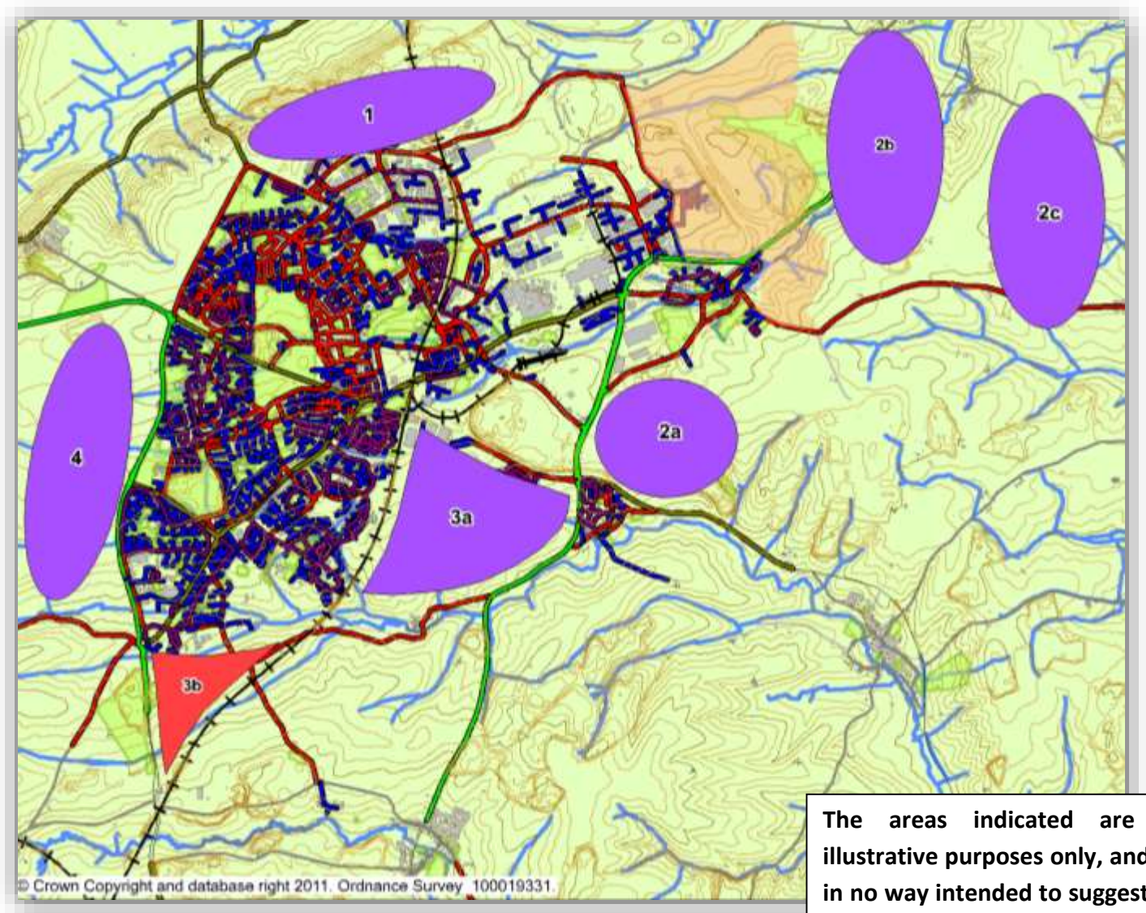


Figure 145 Integration Potential

The areas indicated are for illustrative purposes only, and are in no way intended to suggest the scale or extent of potential growth in these directions.

28. Kettering

28.1 Using the evidence set out within this study, a number of conclusions can be drawn about the physical opportunities and constraints to any further growth to Kettering, focussing particularly on movement and integration with the existing fabric of the town.

28.2 Potential directions of growth are highlighted within sectors divided by the key structuring routes. Sector 3 is effectively within Burton Latimer and assessed as part of that settlement.



Figure 146 Summary of the town structure

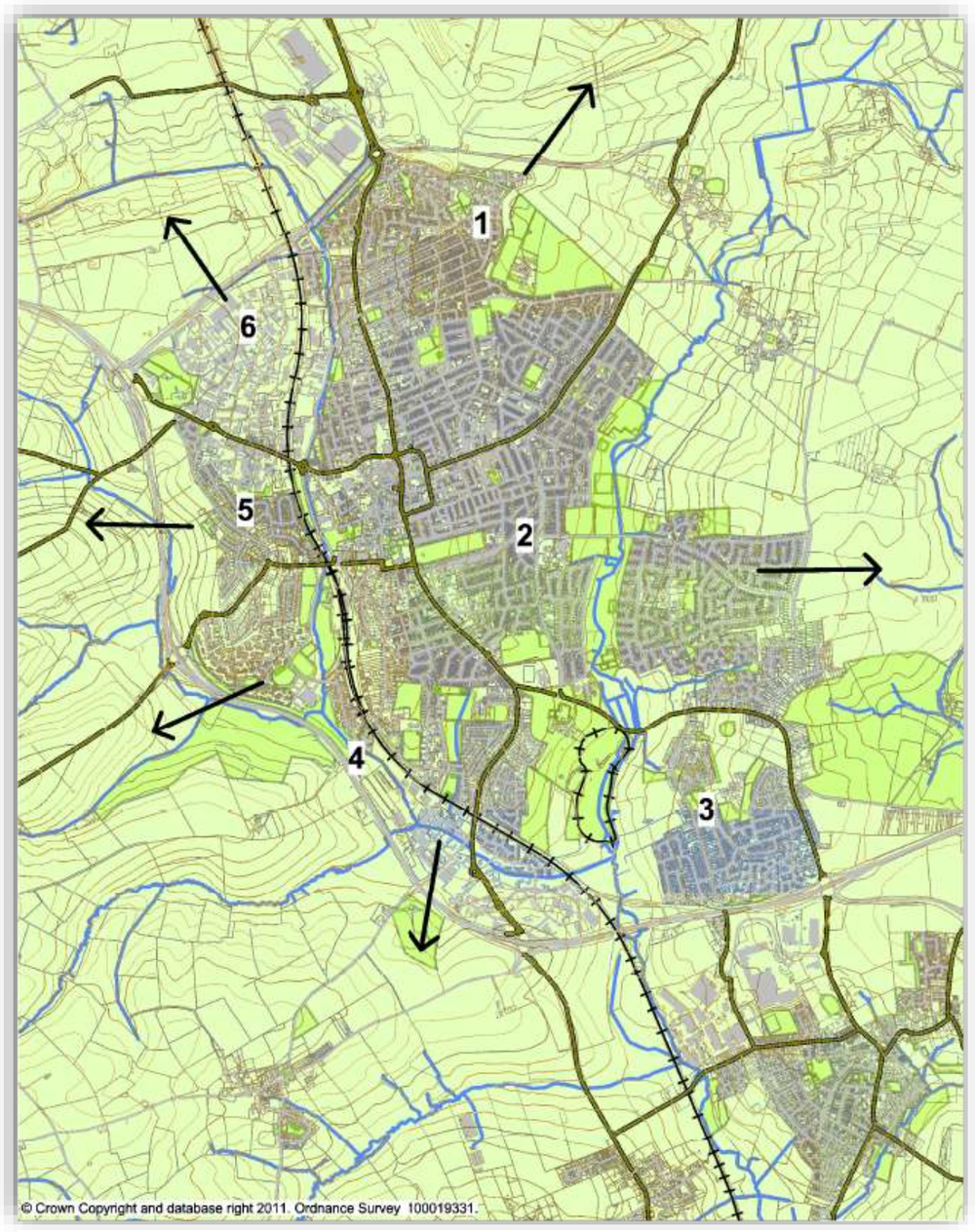
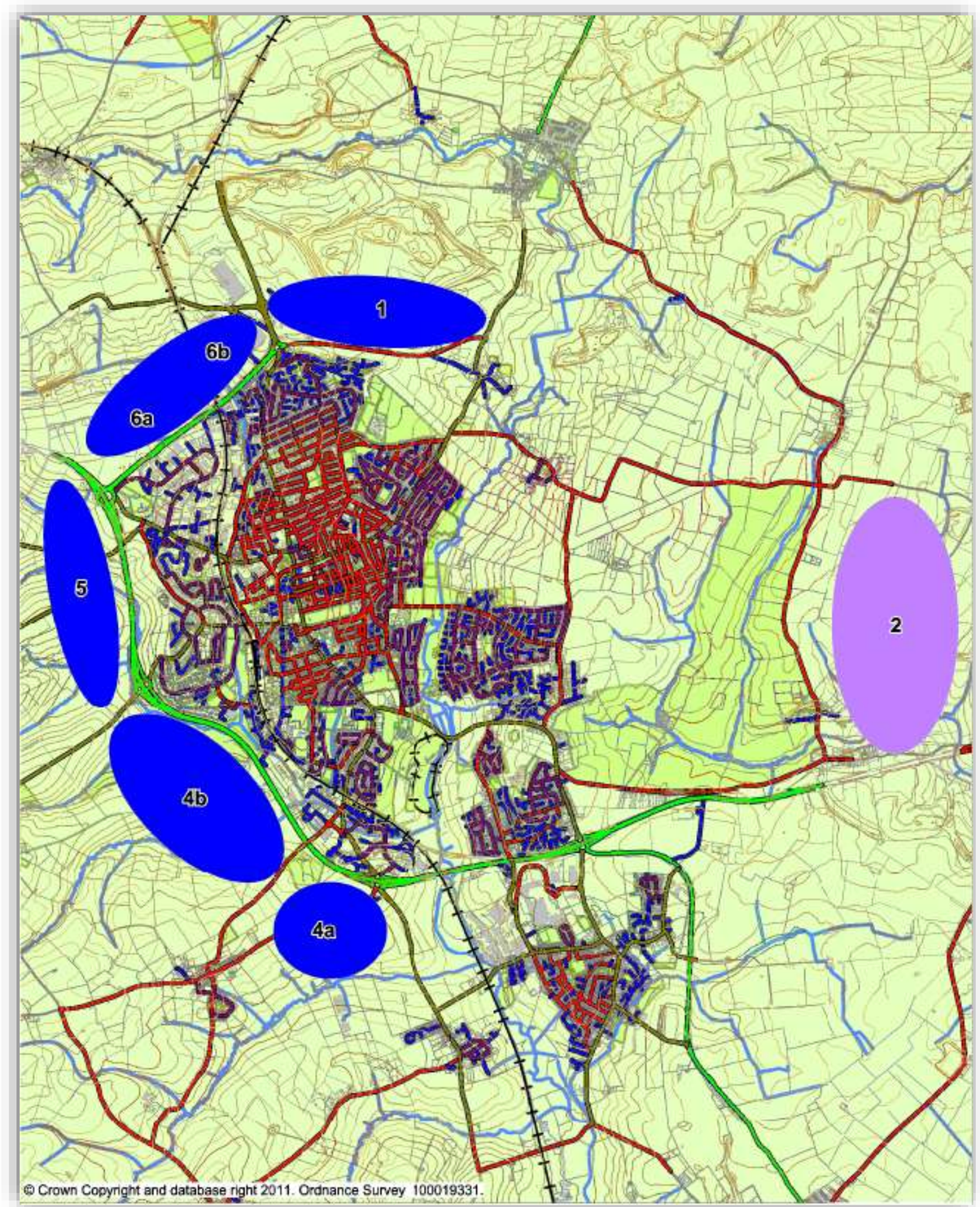


Figure 147 Potential directions of growth

Segment	Connections			Barriers	Comments	Integration capacity grade
	Brown Routes	Red Routes	GI			
1	1	0	No	A43 – High speed route, difficult to cross Estate to south of A43 has no available connecting points Green buffer to south of A43 further isolates.	Site is within 2 brown radial routes, but access to the eastern of these would be obstructed by high landscape sensitivity area. Scope to create connections to existing business park would ned to be maximised. Links to Rockingham Road for pedestrians and cyclists would need to be significantly improved.	E
2 (expanded Ket East)	1?	?	No	Ise Valley Distance from town centre would be considerable – well beyond a 15 minute cycle time	Radial route (A6003) connects to consented Kettering East area but unclear if/how it will continue through the site. New road connecting to St Marys/East Ave could potentially be a new radial, depending on how Kettering East is brought forward, but again, not clear how this would link in to the wider Kettering East site. GI links with Kettering East – but not set and main GI route is along Ise Valley Main issue is the distance from the rest of Kettering.	D
4a	1	2	No	A14 creates significant barrier Development around retail park/Kettering Park hotel does not provide connected grid which this could link to	Two red routes are within area 4a, but only one of these connects across the A14. Connects to a red and brown route with little frontage at most southerly end. Brown routes across the a14 are not accessible to all modes, so without much intervention, these routes have a more limited role.	E
4b	1	2	No	A14 Urban form within A14 is cul-de-sacs with little opportunity to add on (railway line forms additional barrier, lake and green space around Kettering Conference Centre).	1 red route is very direct to town centre, but otherwise site is cut off by A14. Brown routes across the a14 are not accessible to all modes, so without much intervention, these routes have a more limited role.	E
5	0	1	No	A14 Urban form within A14 is cul-de-sacs with little opportunity to add on	Potential to create a connected network within A14 with development of remaining open area (West Hill). Brown route across the A14 is not accessible to all modes, so without much intervention, this route has a more limited role and in any event is cut off by the Cransley Park development.	E
6a	0	0	No	A43 to the south. No route structure within A43 to connect to as is all dead ends Railway limits connection to radial to east	A43 has a lower highway status and so should be easier than the A14 to link into the town's structure, but this would require the nature of the road to wholly change, with multiple access points on it, frontage along etc. Railway line offers potential for public transport link.	E
6b	1	0	No	A43 to the south. No route structure within A43 to connect to as is all dead ends	A43 has a lower highway status and so should be easier than the A14 to link into the town's structure, but this would require the nature of the road to wholly change, with multiple access points on it, frontage along etc. Railway line offers potential for public transport link.	E

28.3 Conclusions

28.3.1 Kettering is heavily constrained by all the major roads around its perimeter. These combined with the layout within these roads mean that connections across them, to new development areas, would be very difficult to achieve. The area with the best score is beyond the permitted area for Kettering East, based on the assumption that the layout of Kettering East can be controlled to enable as many connections as possible. However, this area is at some distance to the centre of the town and would require the key routes to the centre to be direct and high quality for all modes, but particularly for bicycles.



Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

Figure 148 Integration assessment

29. Burton Latimer

29.1 The key historic structuring routes are used to define segments within the town.

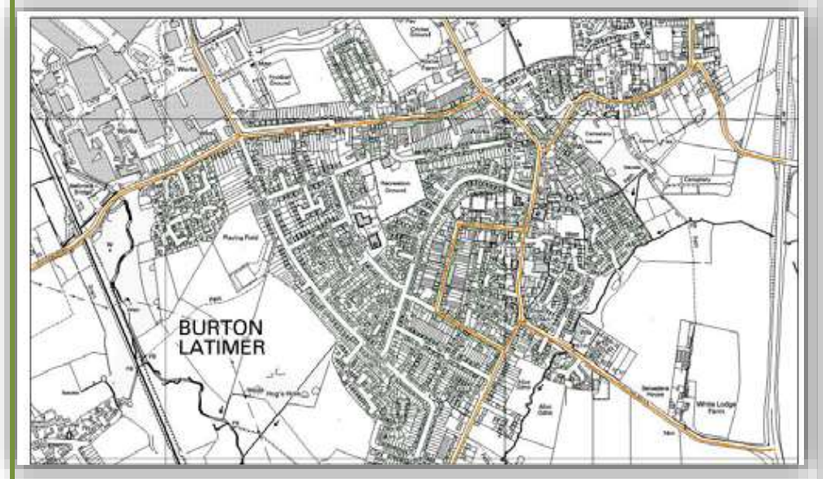


Figure 149 Structuring routes

29.2 Summary of opportunities and constraints

29.2.1 Segment 2 is effectively fully developed and segment 7 has a swathe of flood plain running through it. Assessment areas are identified in each segment, based on the corresponding urban structure within the segment/character areas.

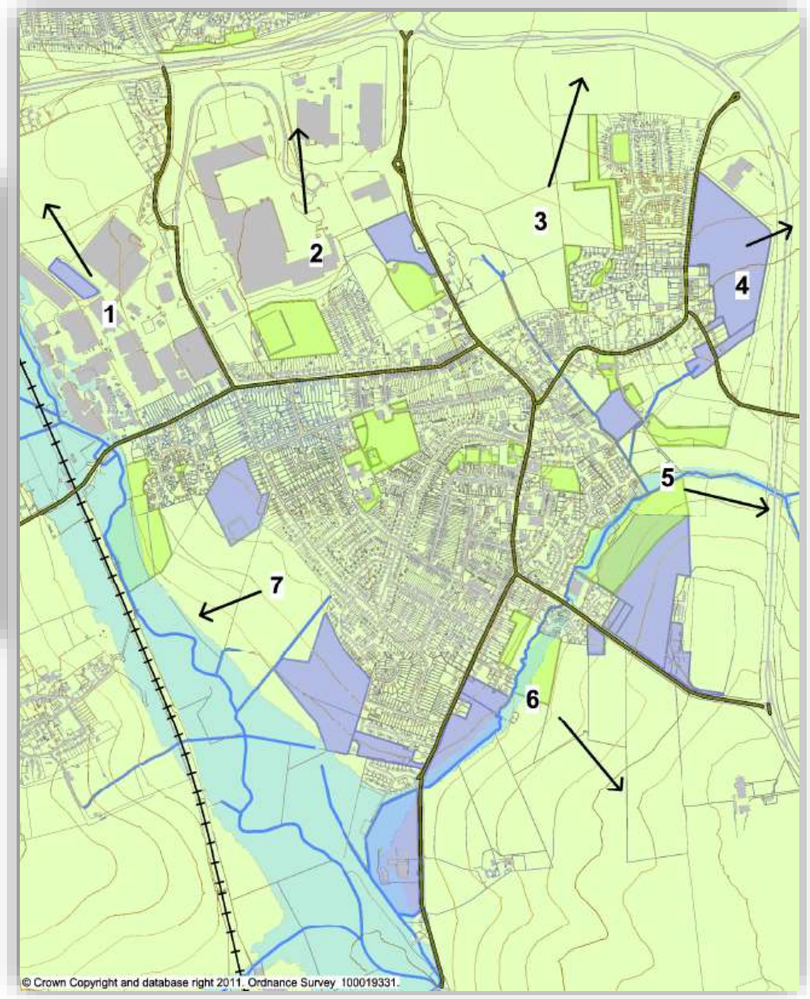


Figure 150 Directions of growth

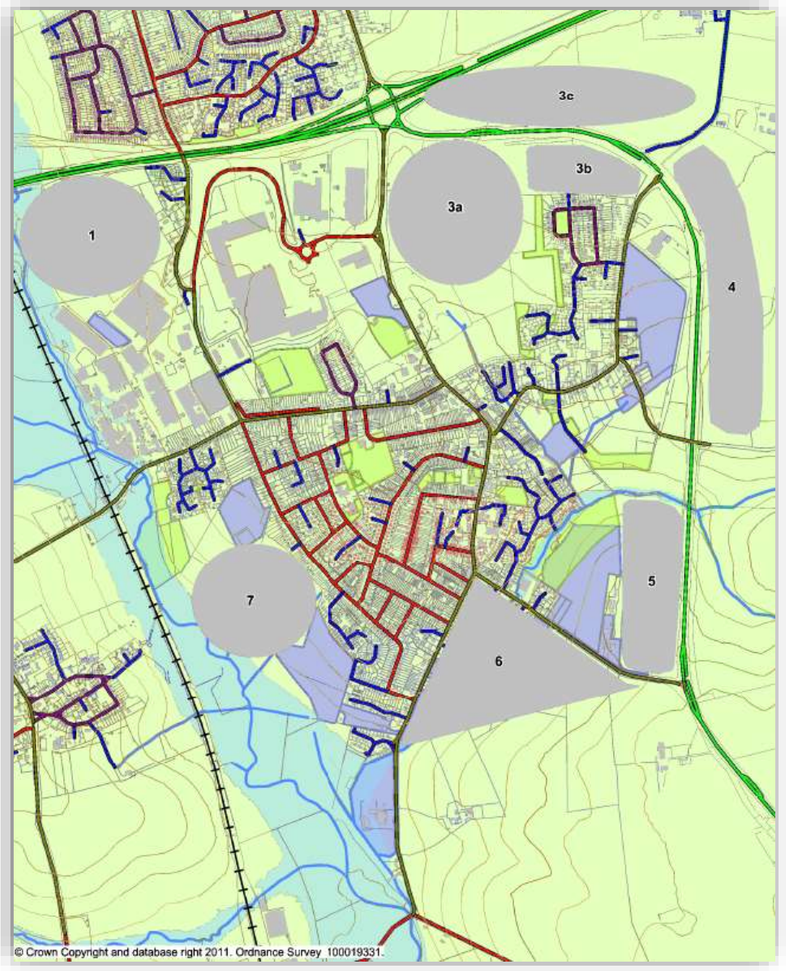
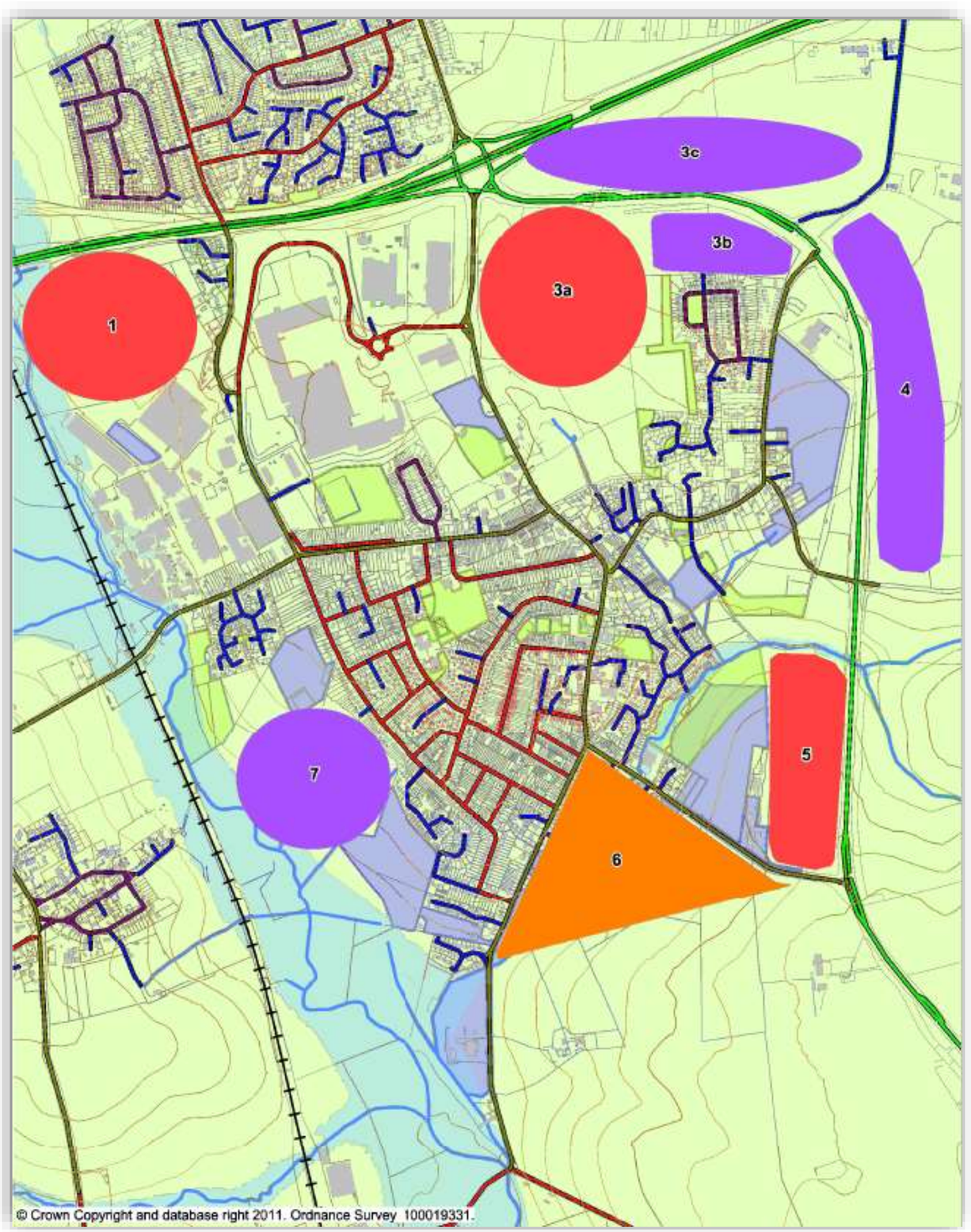


Figure 151 Integration potential

Segment	Connections			Barriers	Comments	Integration capacity grade
	Brown Routes	Red Routes	GI			
1	1	0	River Ise bounds the site to the west, so a much better link could be created.	A14 to north River Ise to west and railway Industrial development to south Agricultural land	Segment would infill existing space between Burton Latimer and Kettering. There is one single access point and it would be difficult to integrate this site with the surrounding development. The site slopes down to the west towards the River Ise and so the layout would have to reflect this. Could link into existing short cul-de-sacs off Polwell Lane. Would need to include a mix to transition between the A14, existing industrial estate and surrounding finer grain housing	C
3a	1	0	Footpath runs through the segment. Could be a north-south footpath, but poor crossing point of A6	A14 and A6 to north Burton Latimer Hall (listed) to south and its associated open space and setting Kettering Road to west. Difficult to connect to existing cul-de-sacs around due to built form layout or woodland.	Segment is close to the A14 and Burton Latimer Hall. Has previously been identified as important open space creating a buffer between Kettering and Burton. If designed well and sufficient planting is included the impact on the listed building could be mitigated. Close to town centre and there are existing footpaths to the south to connect to. Burton Latimer Hall provides example of street enclosure and frontage, but would be hard to create a connected grid to surrounding existing cul-de-sacs.	C
3b	1	0	Footpath to the west of the site.	A6 to the north Elm Road development to the south.	This is a small segment which would essentially be an extension to Elm Road. It would feel very remote from Burton. It could link on to one existing cul-de-sac, but not a connected network. If 3a came forward alongside this, it could provide another local east-west link.	D
3c	1	0	Footpath runs N-S but poor crossing point of A6	A6 to south, A14 to north Lack of a connected grid to south	A6 is a major barrier and town is some distance from this sector. Cranford Road alignment changed and no connected grid within segment 3 to connect to town centre. Would rely solely on radials. Would need to improve pedestrian links south through open space and access across A6, as well as improve quality for pedestrians and cyclists of radials as relied on them heavily.	D
4	1	0	Footpath link to Wood Street across A6 (but difficult to cross)	A6 is a major barrier alongside noise buffer and layout of new housing to west of A6 does not allow street connection across A6	No grid to connect to. Only one radial, but is at distance from town centre. Feels disconnected from town.	D
5	1	0	Stream to the north, along with the setting of the cemetery. A footpath runs through the area north to south.	Footpath to north Conservation Area to north A6 to east Existing development to west with known poor links to town centre	Potential to link to GI route to north and to create a route out to the countryside along the stream. Would need to create a local grid with recently consented development to west, although only likely to be a loop system back to Higham Road. Potential though to create a linking route for peds and cycles through the open spaces to link to Church Lane. Very difficult to add to, to the west, as A6 forms major barrier so unlikely to be able to secure a connected grid across it.	C
6	2 (Could be various, depending on size of site)	0	One footpath from Finedon Road runs south from Burton.	Existing development to the north A6 to the east	Potential to create a GI link alongside stream running south. Would need to link on to existing cul-de-sacs off Higham and Finedon Roads. Development would need to create access point as close as possible to High Street/Higham Road junction and to provide linkages across the stream to Finedon Road. Potential to create a grid system to replicate that to the west. Significant landscape impact however as site slopes uphill away from stream.	B
7	0	2	River Ise is to the west, Hog's Hole could form part of the area and a footpath runs through the area.	Recently approved development to the north River Ise and railway to the west Hog's Hole to the south	To the north and south of this site applications have recently been approved. Hog's Hole would have to be protected and the site is not particularly close to the centre of Burton Latimer. The connections to the site are poor too. Site would undermine the existing GI of the Ise Valley and would likely be a cul-de-sac.	D

29.3 Conclusions

29.3.1 The highest score is in sector 6 which has a combination of proximity to the town centre, proximity to 2 direct radials in to the centre, the possibility of creating a GI link along the stream and the potential to create a connected grid.



Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

Figure 152 Site integration assessment

30. Desborough

30.1 The key historic structuring routes are used to define segments (Figure 155) within the town, and potential directions for growth.

30.2 The directions of growth are highlighted on Figure 154 alongside the composite map of all the structuring elements (Figure 153).

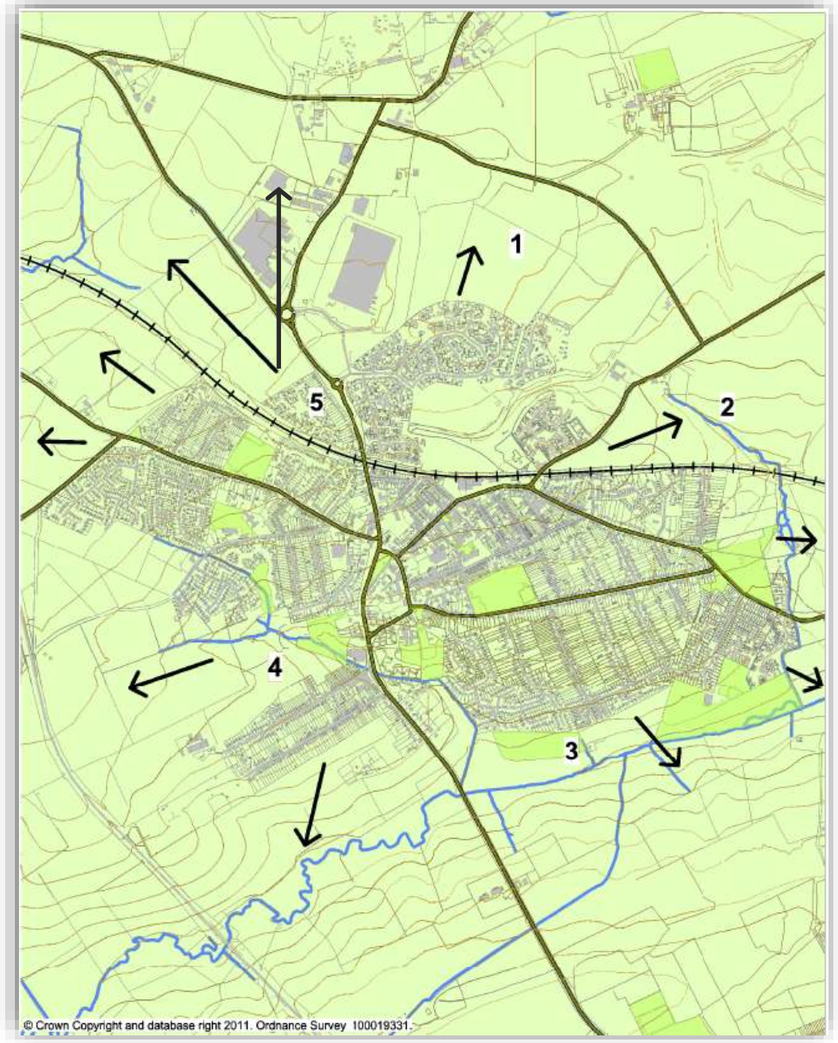


Figure 154 Potential directions of growth

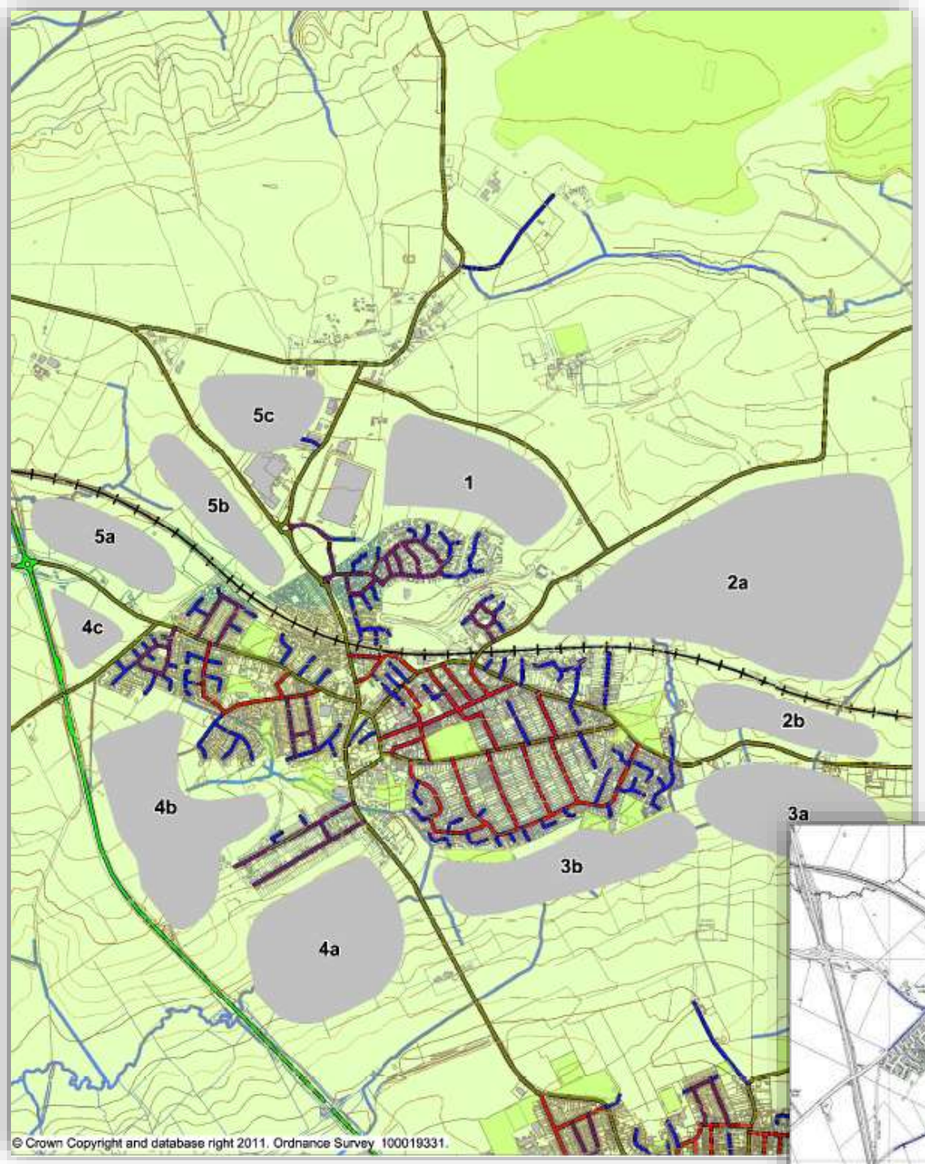


Figure 153 Composite map showing all the structuring elements.

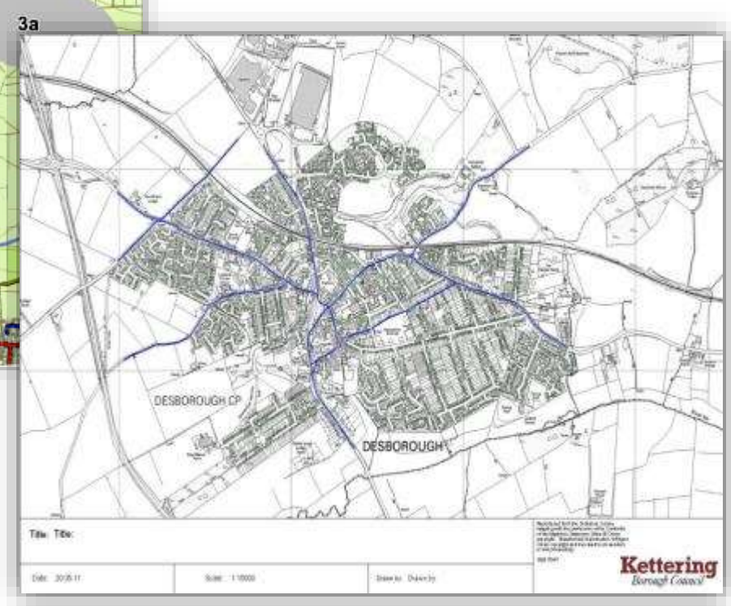


Figure 155 Structuring routes

Site	Area	Connections			Barriers	Comments	Integration Capacity Grade
		Red	Brown	GI			
1	a	1	0	A significant amount of open space and a new leisure centre have been delivered as part of The Grange development. The Plens (Wildlife site) is found to the south of Area A, within the existing Grange development. Two wildlife sites are located between Back Lane and Pipewell Road. Development could connect to existing footpaths and the wider network. These footpaths do not directly link to the centre. There is no pedestrian link across the railway line which connects Area A to the town centre. There are links to the surrounding countryside and villages. Sub-Regional GI Corridor Jurassic Way runs through the town, north to south. Local GI corridors are found to the north of Area A.	Railway line is a significant barrier to pedestrian movement towards the centre. There are links which connect to the surrounding roads which then lead into the centre. Open space – north of Yaffle Crescent (The Grange), between Pipewell Road and the proposed SUE. Commercial area (Magnetic Park) to the west of Area A. Pipewell Road to the east.	The site could connect into Back Lane (red route) which links two key brown routes through Desborough (Harborough Road and Pipewell Road). The only links into the existing built form are to loops and cul-de-sacs (The Grange development) which are currently divorced from the centre. If no link is progressed to Back Lane the routes into/out of the site would be convoluted and deter sustainable travel choices. 15 minutes walking (within 1200m of the centre). The site has some potential to connect to the centre via footbridge. If this cannot be delivered, walking and cycling routes out of the site will be convoluted and indirect, discouraging sustainable journeys. SUE application (Desborough North) is currently with the LPA. Although there is one link to a red route this is to the northern edge. To the south the development would link into a series of loops and cul-de-sacs. No grid to connect into. Railway line is a significant barrier.	D
2	a	0	1	The Area is not immediately adjacent to any GI corridors. Wildlife Site to the east. There does not appear to be any footpath that Area A could directly link into.	Railway line to the south of the site. Existing open space/Wodland at Gaultney Wood Wildlife Site. From GIS appears to be a watercourse running south from Gaultney Wood Farm.	Beyond the railway line is residential, cul-de-sac style development. There does not appear to be many opportunities to create links to the centre which would be better than using the brown route (Pipewell Road); a link across the railway into Area C may be of little value. Area B is 10-15 mins walking time of the town centre (800-1200m buffer). There is one connection to a brown route but none to red. Railway line again constitutes a barrier and there are few opportunities for good pedestrian links. The brown route is however a direct route into the centre once on this.	D
	b	0	1	Open space (including allotments and cemetery) on the western edge of Area B. Footpath link through site and the open space into Copelands Road/Rushton Road, west of the site. Proximity to the wider footpath network which serve key designations including Rothwell.	Railway line to the north. Rushton Road to the south. Wildlife site to the west (The Cedars). TPO area to the west between the site and cemetery/allotments.	A minimum of 15 mins walk, some parts of Area C are further away. No red routes to connect to. Due to its position between a brown route, railway line and open space, there is no existing built form to connect into.	D

				Ise Valley Sub-Regional GI corridor further to the south.			
3	a	0	1	Link within the site which connects to the wider footpath network e.g. Rothwell and north of Desborough. Within the Ise Valley Sub-Regional GI Corridor.	Rushton Road to the north. River Ise to the south. Part of Area 3A falls within Flood zones 2 and 3. Wildlife site within this area. TPO on the western edge of area to the rear of Sycamore Drive. Existing development.	TPO represents a key barrier on the western edge. Beyond this is an area of built form which is of a cul-de-sac style. If a link could be made into this area it would be of no value. The brown route travels direct into the centre. There could be an opportunity to develop a GI link from the site along the Ise. No red routes to connect into.	D
	B	0	1	Opportunity to develop a foot/cycle link into the town centre. Links available to the wider network. Ise Valley Sub-Regional GI Corridor within this area.	River Ise to the south. Part of site falls within Flood zones 2 and 3. Local Nature Reserve and Wildlife Site (Tailby Meadow) to the south of the leisure centre site.	Adjacent to an existing residential area. Although there are no links to red or brown routes the connections to a red route are via relatively short blue links. Connections can be made into the existing built form. Part of area is likely to become available for redevelopment in the short-term. Opportunities to develop links along the Ise into the centre. Opportunities for water sensitive urban design approach. Impact on Ise Valley	C
4	a	0	1	Ise Valley Sub-Regional GI Corridor.	River Ise. Part of site falls within Flood zones 2 and 3. Existing linear frontage development.	No opportunity to link into existing built form. Within 15 mins walking time. Many opportunities to develop good footpath links; footpath link on opposite side of Rothwell Road to Area F which travels into the centre of Desborough. Close to a link which takes you to Rothwell. Brown route travels to the centre of Desborough.	D
	b	0	0	Footpath through the site. Jurassic Way Sub-Regional GI Corridor.	TPO (woodland) and pocket park (Pioneer Avenue) stream divides segment.	Although this site would link to a blue route (the remainder of Harrington Road running west is non-vehicular) this is a relatively short stretch (Harrington Road) which links into a red route leading to the centre. Potential to integrate the open space/TPO into a development? Scope to create GI link along stream between town and Jurassic Way and south to the Ise. Scope to enhance gateway to town around Federation Avenue. There appears to be potential to join up existing blue routes and create red routes in this area.	C

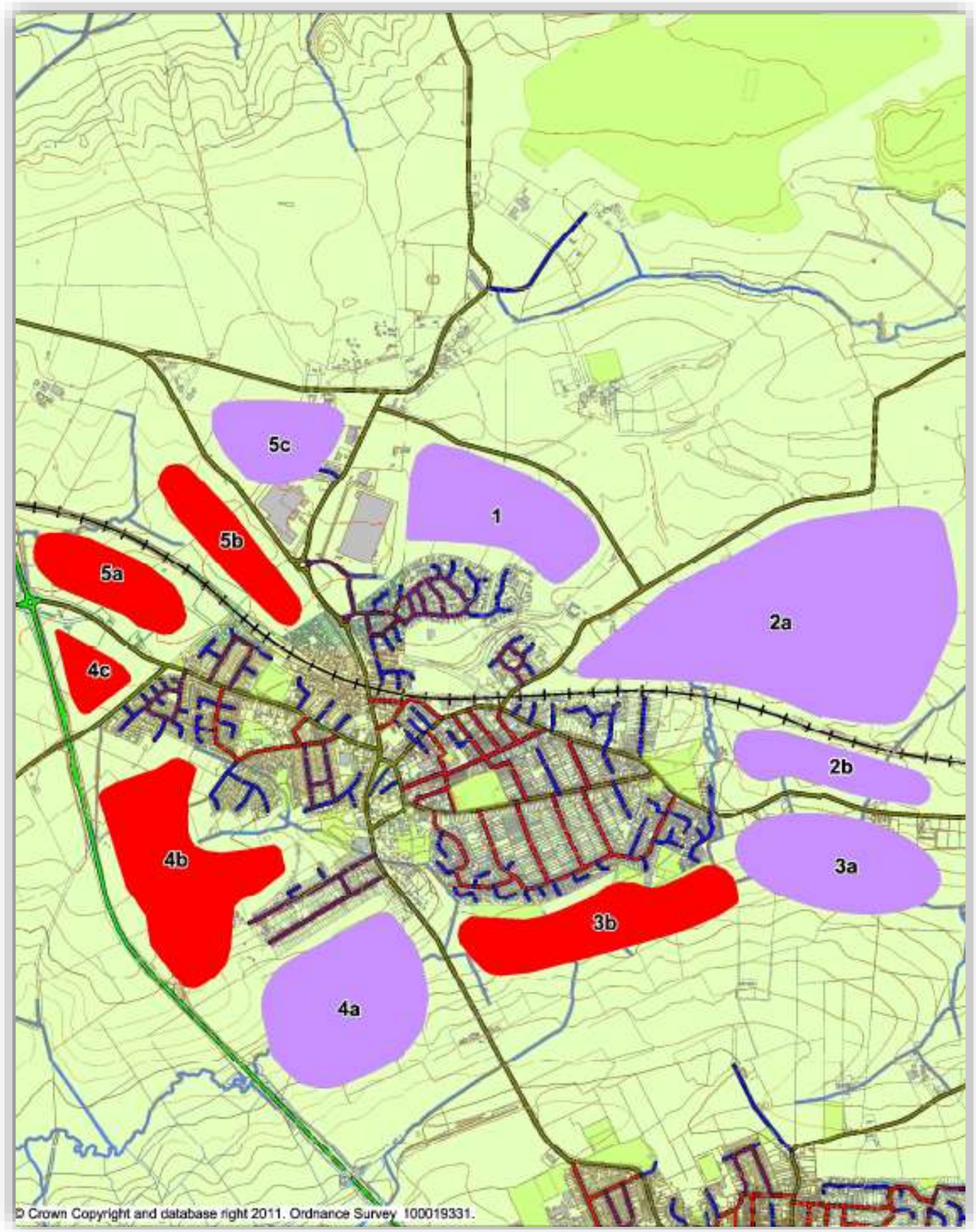
	c	0	2	Footpath links west, beyond the A6. Good footpath connection to the Magnetic Park commercial area, north of Desborough Town Centre.	Triangular site – enclosed by the A6 to the west and two brown routes. A6 provides a barrier to accessing footpath links to the wider countryside.	Opportunity to develop active frontages along the two brown routes. The brown routes run from the western side of the town into the centre. The street layout in the town centre (Gold Street/High Street/old A6) needs to be altered to improve west-east pedestrian movement.	C
5	a	0	1	Footpath within site linking up to Magnetic Park. This connects to other links which lead northwards to local wildlife areas. Link to centre is via the brown route.	Railway line to the north east. Braybrooke Road (brown route) to the south west.	Areas B and C could be developed together providing frontage development and a gateway to this part of the town. Appears to be little opportunity to connect into existing built form, no connections into blue routes will be possible and in any case will be of little value. Same comment regarding the town centre's street layout applies to this area.	C
	b	0	1	Footpath within site linking up to Magnetic Park. This connects to other links which lead northwards to local wildlife areas. Link to centre is via the brown route.	Railway line to the south west. Brown route (Harborough Road) along the north eastern edge).	Direct access onto a brown route but no red routes to connect up to. Part of the area is within 10 mins walking distance of the town centre (remainder of the area is within 15 mins walking of the centre).	C
	C	0	1	Potential links to Brampton Wood	Large industrial units and limited street connections together with railway line	Improvements to Harborough Road for walking and cycling. Improve connections to Section 1	D

30.3 Conclusions

30.3.1 The sectors with the best prospects to integrate with the town are to the north-west, west and south. The railway line and old A6 at present form significant barriers meaning the town is already quite poorly connected so new development would need to work even harder to address these existing issues as well as ensure that it was connected within its own site.

30.3.2 Sector 3B is the closest to the town centre and offers the most potential for creating GI links. Sectors 4 and 5 also offer scope with potential to create frontage onto the structuring routes and to link up existing cul-de-sacs into a connected network.

30.3.3 The proposed urban extension to the north of the town is disconnected by virtue of the railway line and the layout of the Grange. These issues will need to be addressed in the planning of this area. Scope exists to utilise the green infrastructure (GI) connection through Desborough Green Space and to link to the town centre across an additional railway bridge, alongside creating as direct as possible connections to surrounding streets. The quality of the Harborough Road for walking and cycling would also be beneficial to enhance as this will remain the principal route into the town centre.



Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

Figure 156 Integration potential

31. Rothwell

31.1 The key historic structuring routes are used to define segments within the town, and potential directions for growth.

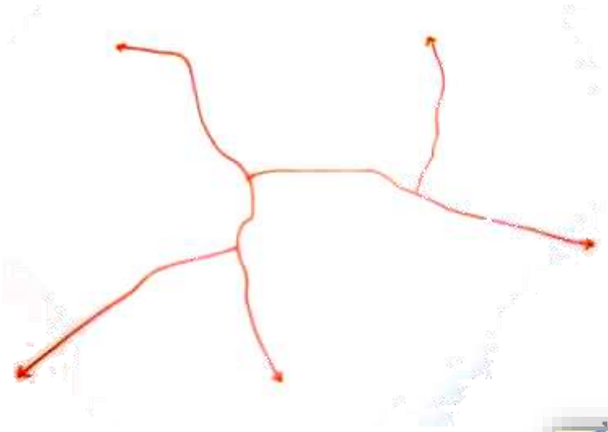


Figure 157 Structuring routes



Figure 158 Potential directions of growth

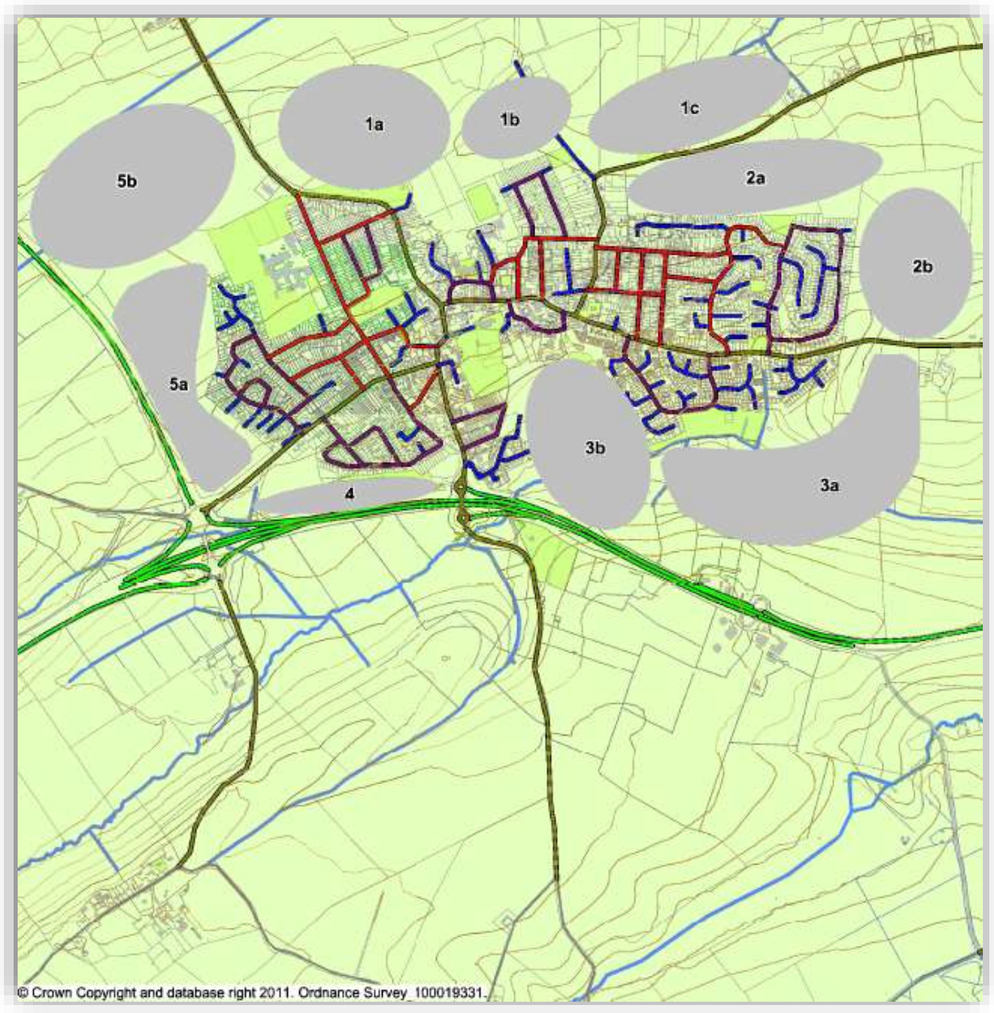


Figure 159 Assessment areas

Segment	Area	Connections			Barriers	Comments	Integration capacity grade
		Brown Routes	Red Routes	GI			
1	a	1	2	Footpaths runs through the site. Sub Regional GI corridor (Ise Valley) to north of the site.	Cricket ground Football grounds Rothwell Junior Schools Ise Valley to the north	Segment would wrap round open space and extend Rothwell into open countryside to the north of Rothwell. This could affect wildlife migration and GI so development would need to be carefully planned. Development should not extend too far to the north in order to protect the Ise Valley and avoid possible coalescence with Desborough.	B
	b	0	0	Footpaths runs through the site. Sub Regional GI corridor (Ise Valley) to north of the site.	Football ground (potential housing site) Ise Valley to the north	Segment has greater potential if football club site or Rothwell North comes forward then the site would benefit from an increased number of connections, which could improve linkages into the segment.particular scope to create new e-w link.	C
	c	1	0	Footpath runs through the north-western part of the site. Sub Regional GI corridor (Ise Valley) to north of the site.	Allotments. Site is potentially very visible from Desborough (and Rushton?) and could result in coalescence between the settlements. Ise Valley to the north.	This segment would feel very detached from Rothwell without segment D coming forward. Rushton Road is a low trafficked road which would not form a barrier if development sites C and D were linked.	D
2	a	1	0	Access can be gained by a number of 'cut' throughs. Site links to the wider GI network.	None	There is only one obscured potential 'red' connection to this segment but in order to come forward at least one existing residential property would need to be demolished. However, there are opportunities to connect into other 'estate' roads despite leading onto a less direct road network. There are two potential footpath improvements which would link into the far western side of the segment.	D
	b	1	0	None	Ground levels slope significantly downwards into Rothwell. (Site may have been quarried?)	Despite having no connections into neighbouring residential estates, this segment would benefit from its connection to the main radial route which links straight into Rothwell Town Centre. However, the distance along this main radial (Glendon Road) would equate to over 15mins walking for most of this site which may affect the sustainability of this area of the town for future development. Despite this, it is very achievable in cycling terms (5mins) and is on a main bus route.	D
3	a	1 (although most of the site suffers from blocked access onto this main radial due to existing development)	0	Slade Green Infrastructure corridor runs through this site. A public footpath runs between sites F and G.	Columbus Crescent (designated open space). Slade Brook. The Slade brook is in a cutting and ground levels slope downwards towards the Slade.	Although there are no 'red' connections adjacent to this segment there are several blue/ 'dead-end' routes which could connect into this site and be improved. The area of open space which separates it from the neighbouring residential development is well used and combined with the Slade Brook, it could provide a attractive feature which could be crossed via cycle and foot. Only the very eastern part of the site connects directly to the main radial route which links straight into Rothwell Town Centre. The distance along this main radial could equate to over 15mins walking time to the town centre. However, it is very achievable in cycling terms (5mins) and is on a main bus route, along Glendon Road. There is a potential foot and cycle link onto Glendon Road, closer to the town centre and well within the 15mins walking distance to the town centre.	D
	b	0 (there are no connection points onto the main radial route)	0	Slade Brook Green Infrastructure corridor runs through this site. A footpath runs in between sites G and F and around the	Manor Park and Rothwell Recreation Ground (designated open space). Impact on Listed Buildings and the Rothwell Conservation Area.	Segment could connect into several blue / 'dead-end' roads and walking access into the town is possible along public footpaths and through green designated open space. Development of this site may negatively impact the setting of the Grade I Listed Holy Trinity Church and other neighbouring Listed Buildings as well as the Manor Park and the character and appearance of the Rothwell Conservation Area.	E

				northern section of this site.	The Slade brook is in a cutting and ground levels slope downwards towards the Slade. There is planning permission on part of the site?		
4		2	1	A footpath runs through the site	Allotments. Noise from A14 and A6 which abut the site and act as barriers to further development.	Potential connections to existing red routes are difficult and in between properties, it is unlikely that a reasonable vehicle access to this red route (Meadow Road) can be achieved without the demolition of residential properties. Walking and cycling routes are more likely to be achieved.	C
5	a	1	1	None	Topography of the site slope downwards towards the town.	Segment could connect into several blue / 'dead-end' roads. Connection onto main radial route (Harrington Road) would provide fairly easy access into Rothwell Town Centre although is likely to at least 15 minutes walking distance but is close to a main bus route.	D
	b	1	1	Rothwell Gullet Nature Reserve to the north of the site.	Rothwell Gullet Nature Reserve to the north of the site.	Connection to red route is obscured but possible in between Montsaye School and Doctors Surgery. However, a connection here is unlikely to achieve much more than existing connection to the main radial (Desborough Road). Connection onto this main radial route would provide fairly easy access into Rothwell Town Centre although is likely to be at least 15 minutes walking distance but is close to a main bus route.	D

31.2 Conclusions

31.2.1 The best scoring areas relate to the north of the town, partially encompassed within the urban extension area.

31.2.2 Infill to the south in sector 4 would allow development close to direct radials, but the central part of the sector would be difficult for all mode connections and would have to rely heavily on walking and cycling links to connect to the centre of the town.

Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

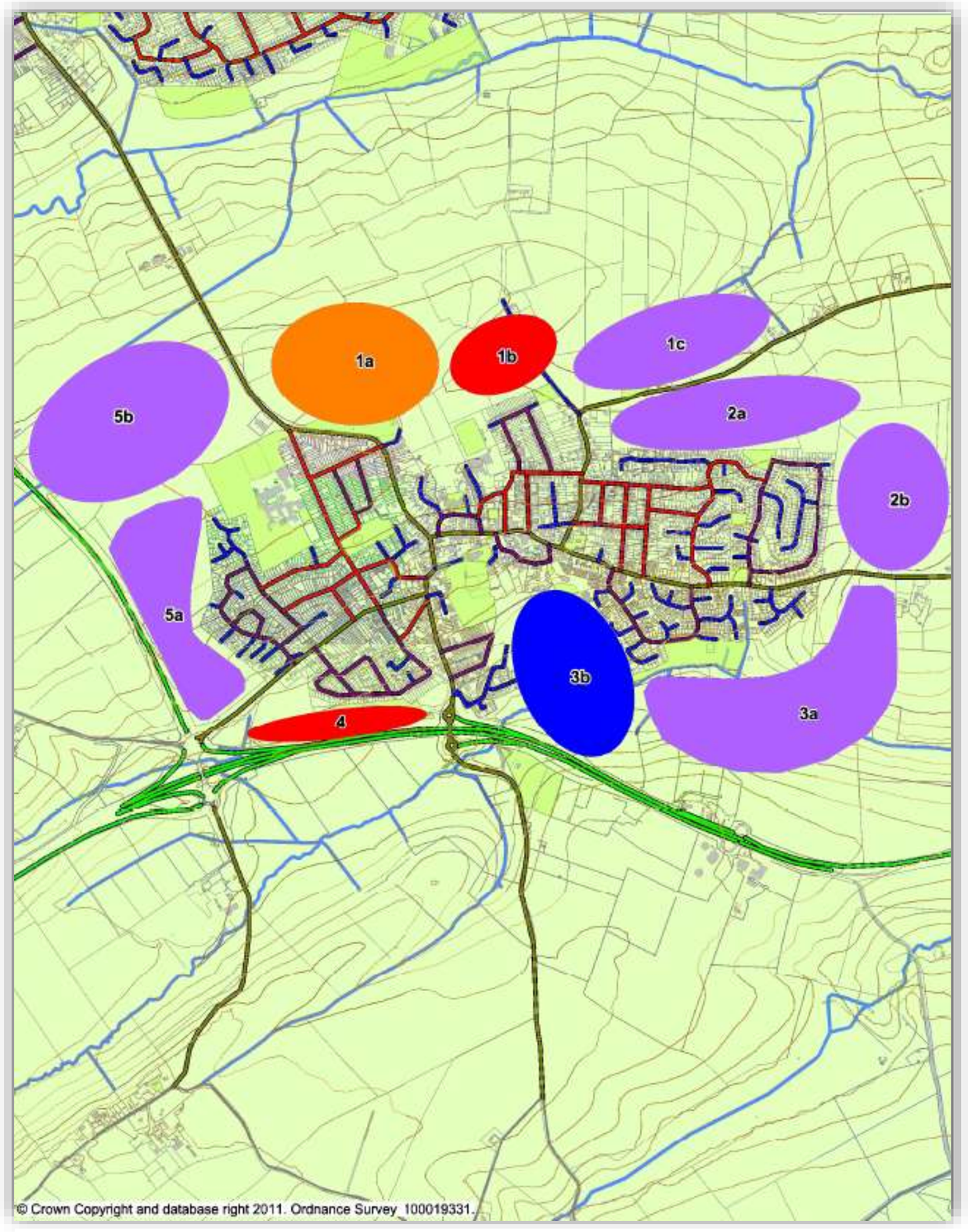


Figure 160 Map showing composite map integration assessment

32. Raunds

32.1 Using the evidence set out within this study, a number of conclusions can be drawn about the physical opportunities and constraints to any further growth to Raunds, focussing particularly on movement and integration with the existing fabric of the town.

32.2 Summary of Constraints

32.2.1 Based on the opportunities and constraints identified above, it is concluded that there is limited opportunity for development within segment 7. Opportunity would be restricted to infilling on existing areas of open space. This segment is not therefore assessed in the table below, although it is acknowledged there may be potential to enhance the overall movement structure given the location of the open space.



Figure 162 Structuring routes

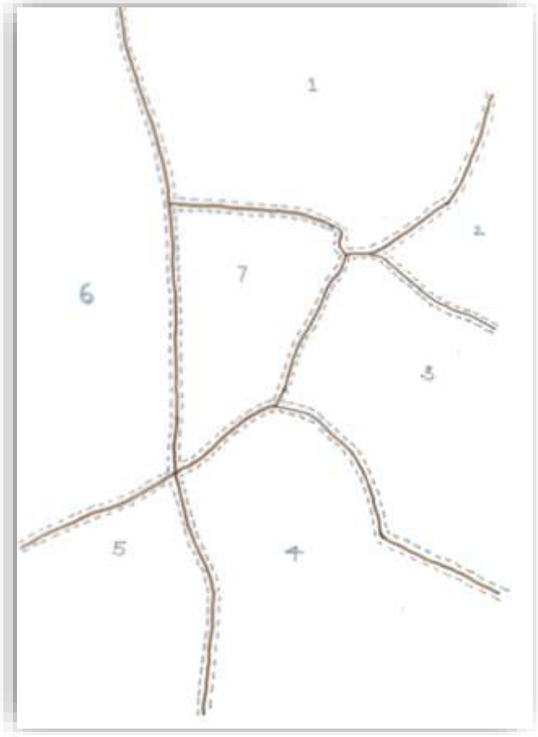


Figure 161 Segments

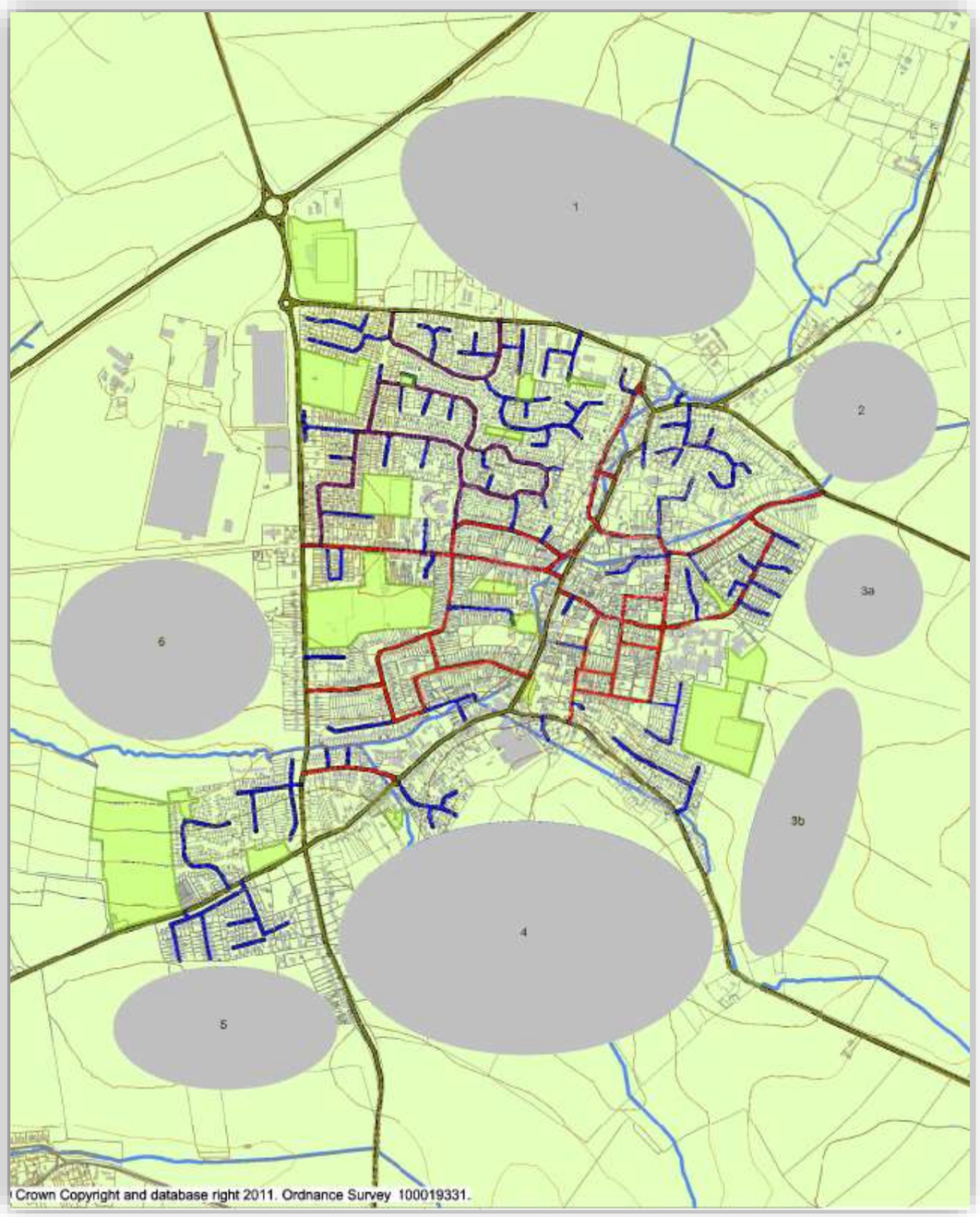


Figure 163 Areas for assessment

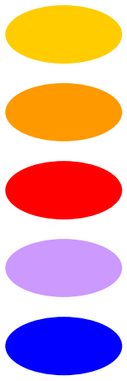
Sector	Connections			Barriers	Comments	Integration capacity grade
	Brown routes	Red routes	GI			
1	2	1	Not to the town centre, though there are rights of way into the surrounding countryside.	Brick Kiln Road – not a substantial barrier but would need to be made more pedestrian friendly. Loop and cul de sac development in the north western quadrant of the settlement (segment 7) limits multimodal permeability and route options to the centre and other destinations within the town. However there is a planning obligation towards improving pedestrian/cycle connectivity from this site through this area and along Brick Kiln road, which would improve the situation.	The most significant barrier is the loop and cul de sac development, which limits route options. This could be considered to fall within integration capacity grade D. The extent to which this forms a barrier is reduced travelling eastward through the segment by virtue of the direct principal route (and red route) to the town centre where a significant number of the town's services and amenities can be accessed. Improvements for walking and cycling to the town centre along the principal routes would help encourage these modes	B
2	2	1 – connecting to a grid pattern	Not to town centre, though there are rights of way into the countryside.	An area of cul-de-sac development in the western most part of this segment limits multi modal route options to the centre.	The barrier to movement created by the area of cul-de-sac development is partially mitigated by the direct principal (brown) routes to the town centre, and the connection to a grid street pattern via Butts Road. There is also an existing public right of way through the area of cul-de-sac development. Improvements for walking and cycling to the town centre along the principal routes would help encourage these modes.	B/C
3a	1	0 (directly though potentially scope to link into the grid via the ends of cul-de-sacs)	Not to the town centre, though there are existing rights of ways to the surrounding countryside.	No significant barriers identified, though potential to link via existing cul-de-sacs would need to be considered in further detail.	The integration capacity grade for this area is predicated on the assumption that some multimodal links would be achievable via the existing cul-de-sacs which form the edge of the existing built up area. Should multimodal connections via these existing cul-de-sacs not be achievable in practice, the integration capacity grade for this area would need to be revised. Existing rights of way link around the edge of existing built form to connect this area into the adjacent grid pattern.	C
3b	1	0	Not to the town centre	Manor School and playing fields act as a barrier to the creation of links into the grid street pattern. Cul-de-sac development south of Manor School.	The overall integration capacity of this area might be enhanced if part of a comprehensive scheme linking into area 3a.	D
4	2	0		Topography is a significant issue in this area of town. The increase in levels to the south are such, there is no opportunity for creation of a direct multi modal link or grid network, which would lead directly into the town centre, or into the existing grid network around the town centre. This would require significant earthworks and potentially punching through existing development which fronts Grove Street and Thorpe Street. Potential multimodal connections appear limited due to southern built edge. Some limited cul de sac development (Weighbridge Way) may provide opportunity to link to Grove Street.		D

5	2 (subject to scale and form of any development)	0	No	Cul-de-sac development to the north, though there doesn't appear to be development at the ends, so some potential to link through.	Wouldn't connect into an existing grid, though subject to linking into existing cul de sacs a grid could be created. Distance to town centre and topography would need to be considered.	C
6	1	2	Yes - Meadow lane to the north forms a right of way connecting Raunds town centre and Stanwick Lakes.	Existing development fronting London Road limits potential multimodal connections into the existing movement network. Topography – level changes to the town centre.	Potential to use existing open space to the east as a green link toward the town centre?	B

32.3 Conclusions

32.3.1 Sectors 1 and 2 are considered to offer the greatest ease of integration because although they are adjacent to areas which are poorly internally connected, they do relate to the key radials with their clear route to the centre. Northdale End, which has outline consent, bridges areas 1 and 2, so the wider segment outside the consented boundary is analysed in the table below.

32.3.2 Sector 6 also offers a direct link to the town centre, although the topography would mitigate against this. There is the potential for establishing a green infrastructure link to the town centre through the existing open spaces.



Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

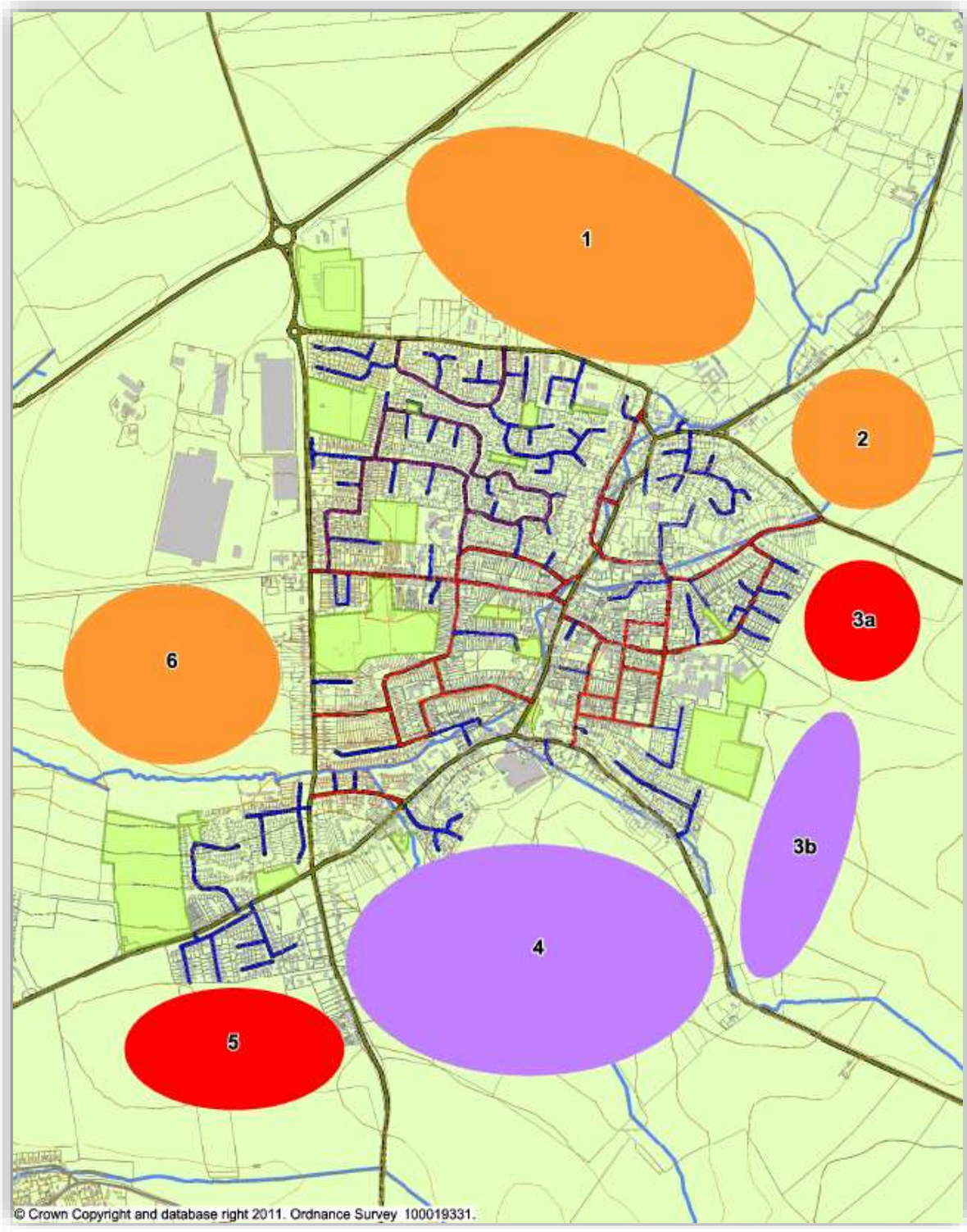


Figure 164 Integration assessment

33. Irthlingborough

33.1 Using evidence set out within this study, a number of conclusions can be drawn about the physical opportunities and constraints of any further growth at Irthlingborough, focussing particularly on movement and integration with the existing urban fabric of the town.

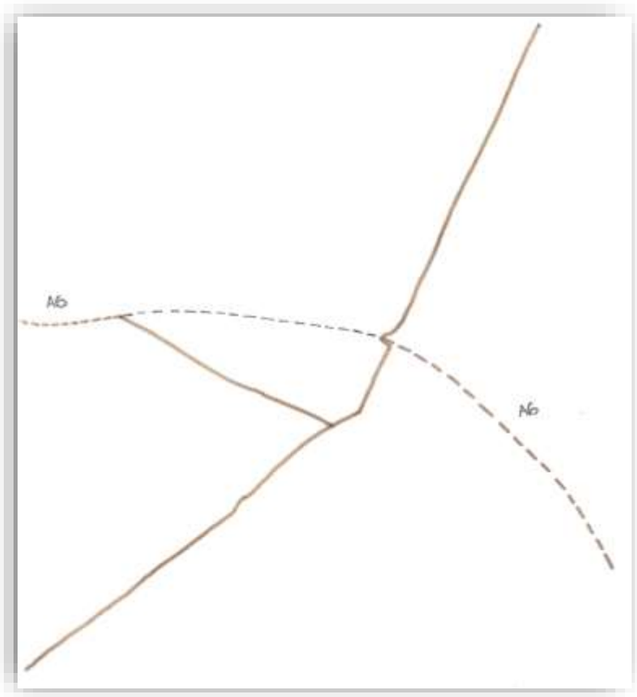


Figure 165 Summary of the structure



Figure 166 Sectors for assessment

33.2 Potential directions for growth

33.2.1 The main constraint is the River Nene and its associated flood plain and lakes. Although the A6 was identified as a 'green route' within the route structure analysis (ie vehicular only and not very pedestrian/cycle friendly), it also forms, in part, a relatively historic route linking Irthlingborough to surrounding settlements. For the purposes of this exercise, therefore, the A6 has formed part of the structure summary.

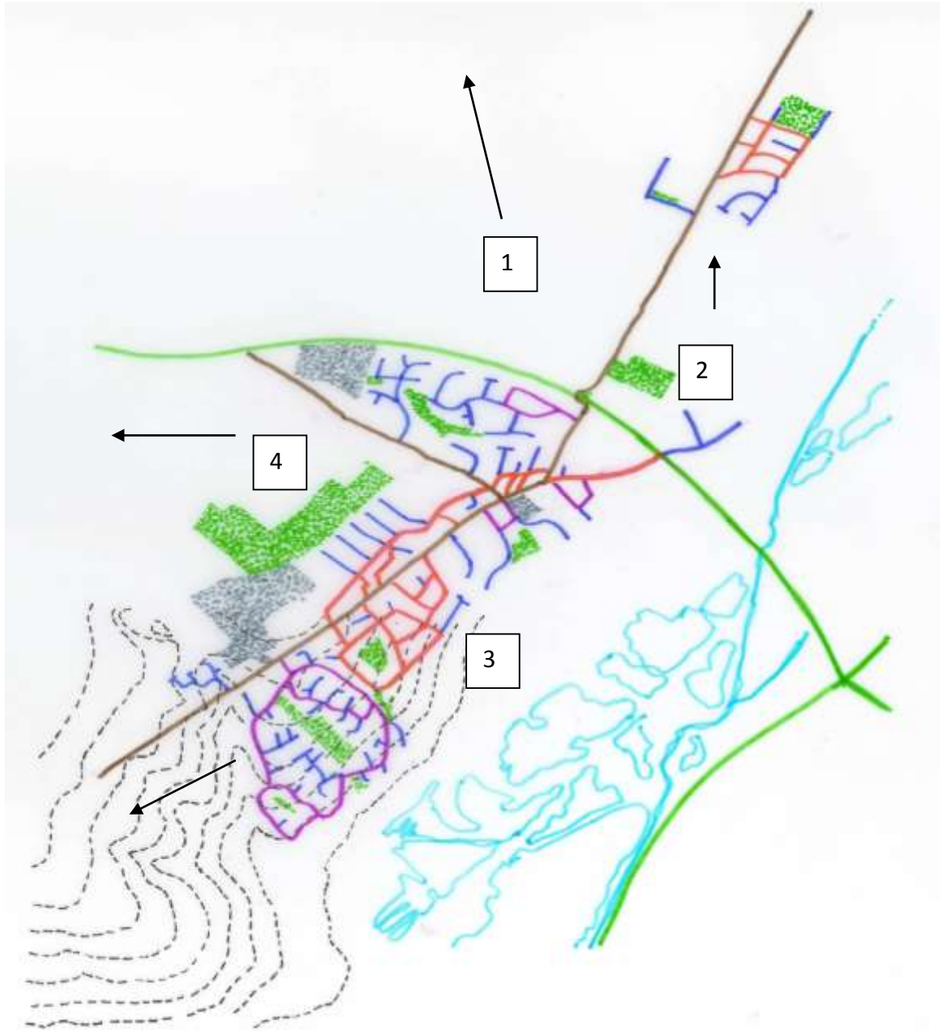


Figure 167 Potential directions of growth

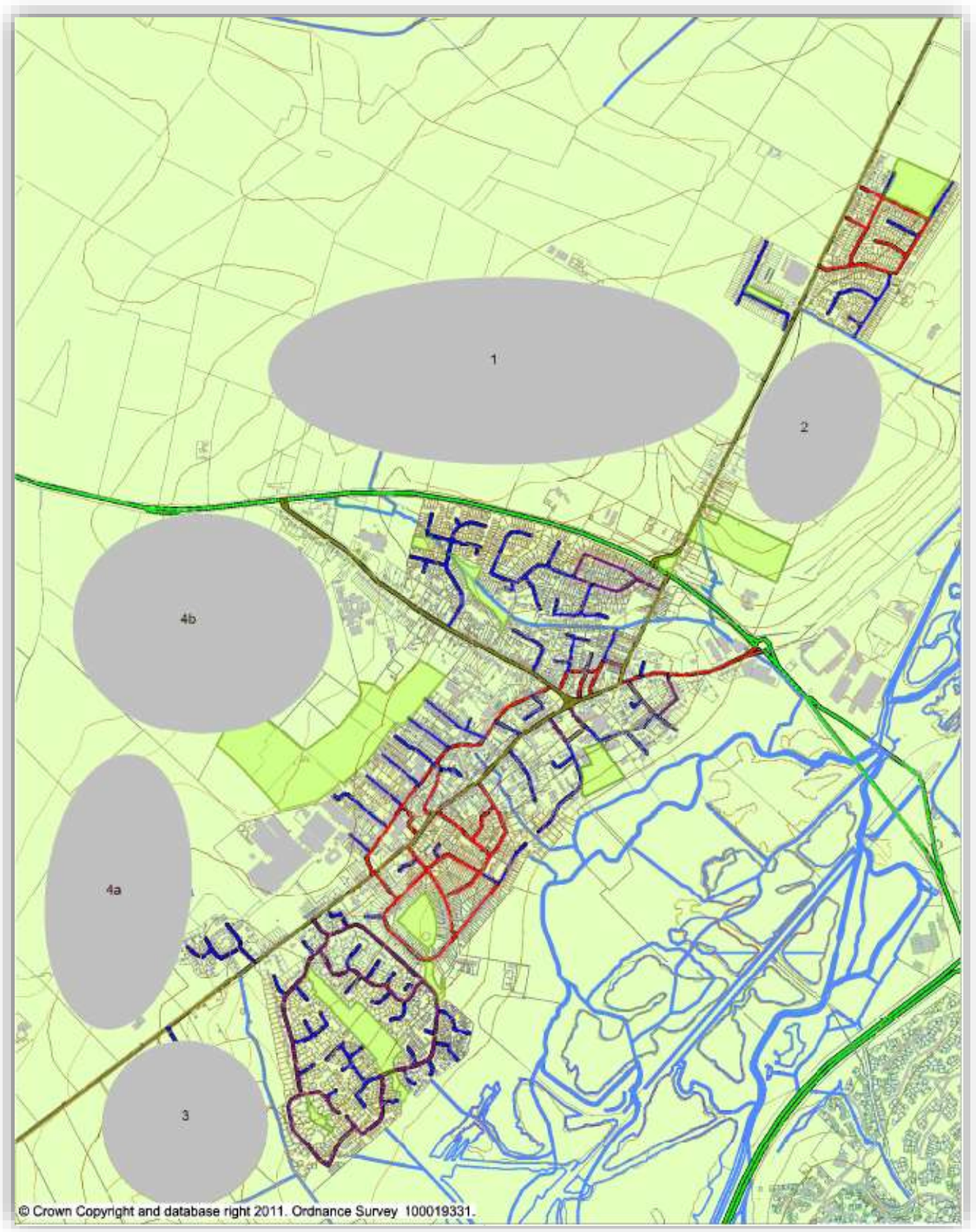
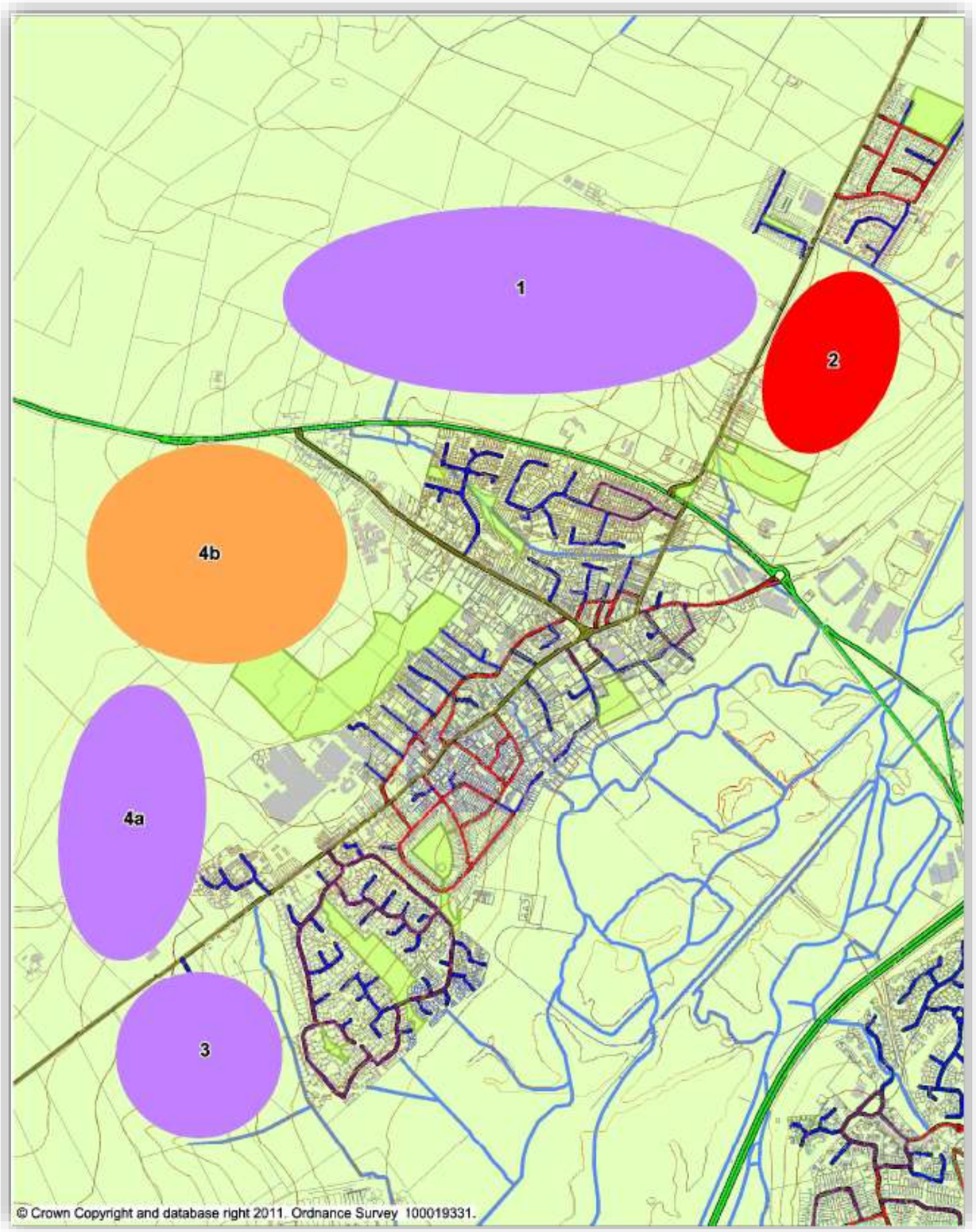


Figure 168 Assessment

Segment	Connections			Barriers	Comments	Integration capacity grade
	Brown routes	Red routes	GI			
1	1	0	No	The A6 forms a physical barrier between this area and the existing built fabric of the town. Development between the A6 and Finedon Road is characterised by loops and cul-de-sacs. The built edge turns its back on the A6. Topography	Whilst the A6 might be overcome as a barrier, the pattern of development to the south of this highway severely limits potential multimodal routes through from this area to the town centre.	D
2	1	0 (directly though could link into Crow Hill via existing cul-de-sacs)	Adjacent to the Nene Valley	The A6 forms a physical barrier to the existing built up area, and most significantly the town centre. Existing (and committed) commercial development adjacent to the A6 limits route options toward the town centre. Topography		C
3	1	0	Adjacent to the Nene Valley	Adjacent to loop and cul-de-sac development.		D
4a	1	0		Adjacent to piecemeal cul-de-sac developments which limit route options and connectivity (existing and permitted)	Integration capacity grade could be enhanced if an appropriate grid street pattern was established through development of 4b and/or the approved layouts of committed sites were amended.	D
4b	1-2 (the A6 is currently classed as a 'green route as defined in the route structure analysis, as it forms a bypass to the town. It does however have historical routes and connects Irthlingborough to nearby settlements including Higham Ferrers and Finedon. As such, for the purposes of defining the segments of Irthlingborough above, the A6 has been considered as a 'brown' (principal) route).	0 – though there may be some potential to link into the partial grid and create a grid network.		Existing green spaces would need to be relocated, as in their current location they could act as a barrier to integrating into the 'partial grid'. Existing development along Finedon Road limits points at which routes could be connected into Finedon Road.		B/C

33.3 Conclusions

33 3.1 Sector 4b has the most integration potential as it could connect to the existing partial grid to the south, with consequent direct routes to the town centre. However, there are still problems about the nature of the A6 as a vehicle focused road, which is not hospitable to pedestrians and cyclists. In addition, the open spaces within sector 4 would need to be designed to provide GI links, and not as green buffers/barriers to the town.



Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

Figure 169 Integration assessment

34. Oundle

34.1 Using the evidence set out within this study, a number of conclusions can be drawn about the physical opportunities and constraints to any further growth to Oundle, focussing particularly on movement and integration with the existing fabric of the town.

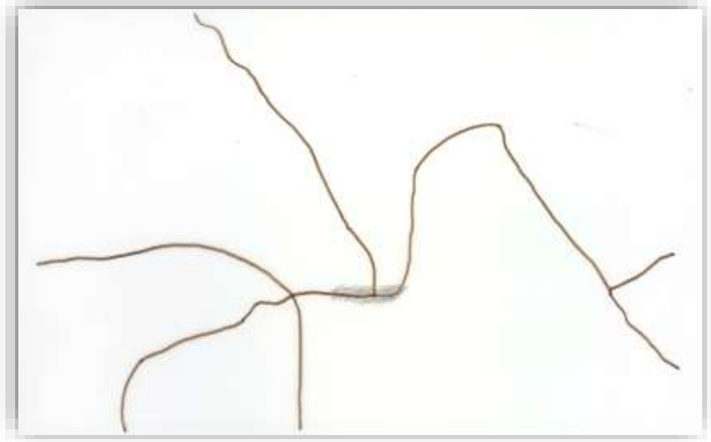


Figure 172 1 Key structuring routes

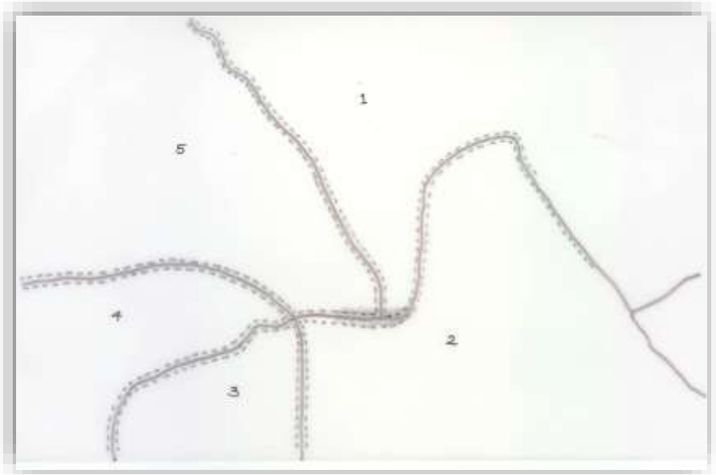


Figure 171 Structuring routes divide the town into segments for analysis

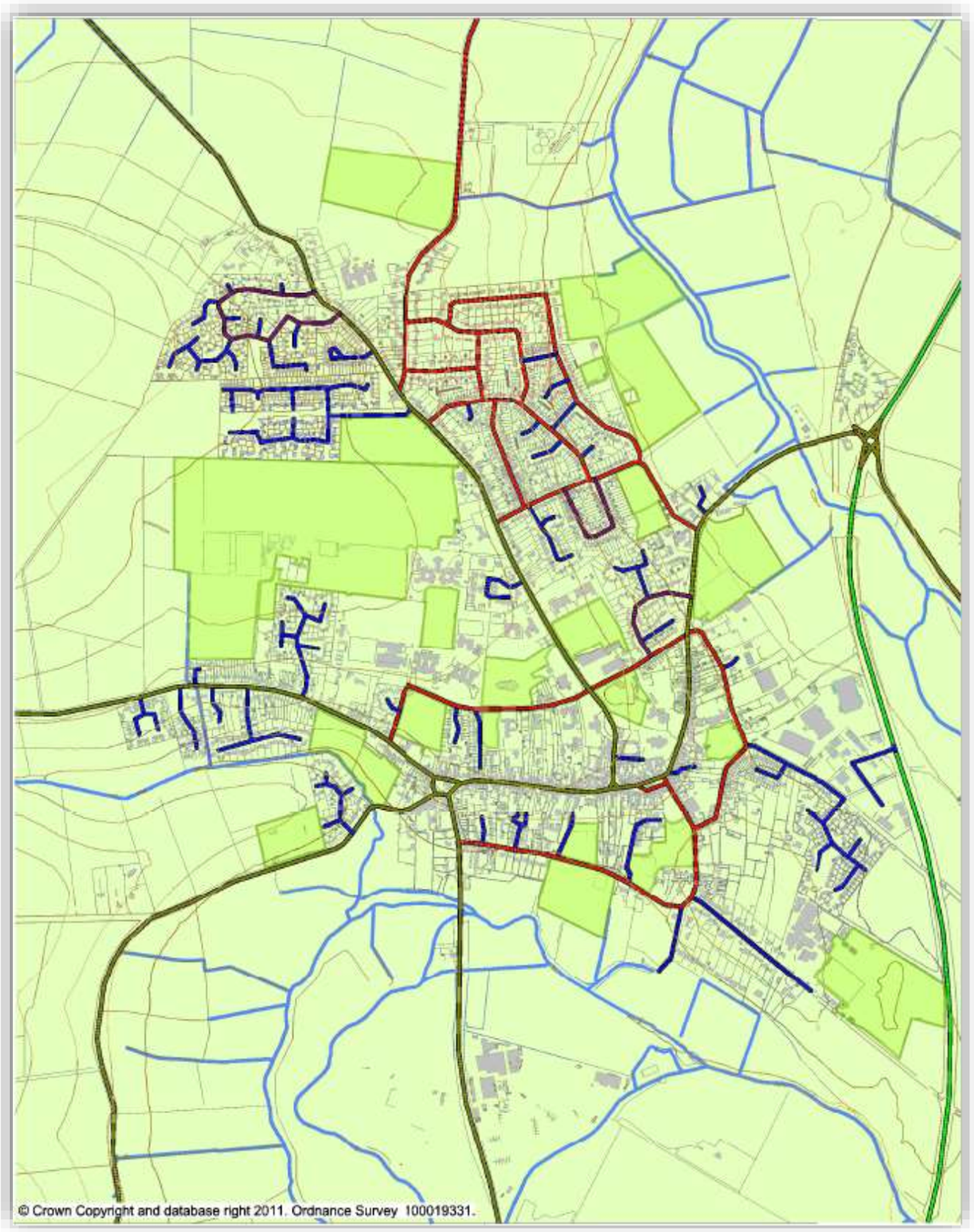


Figure 170 Opportunities and constraints

34.2 Based on the opportunities and constraints identified above, it is concluded that opportunities for significant growth at Oundle are limited to segments 4 and 5, as illustrated.

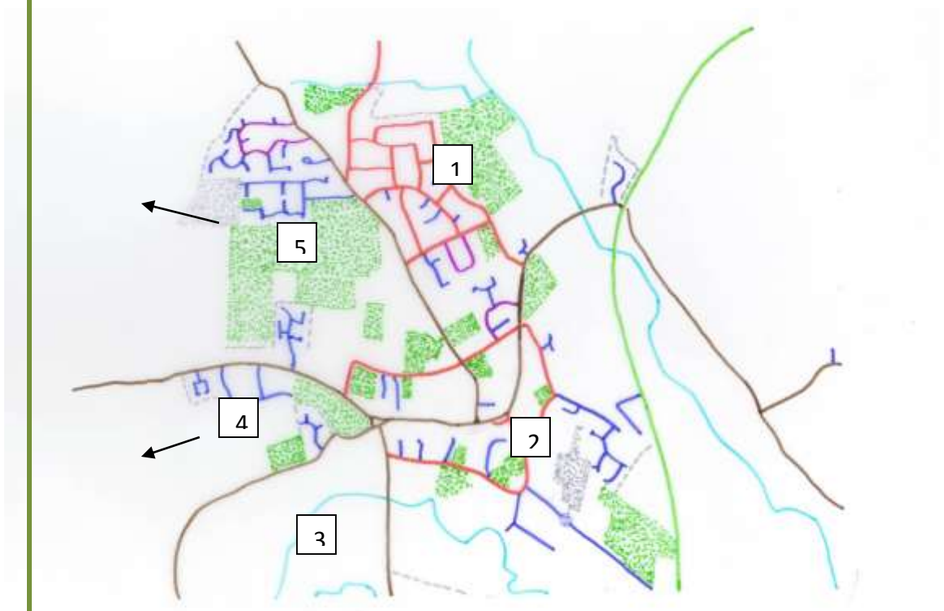


Figure 174 Sectors and directions of growth

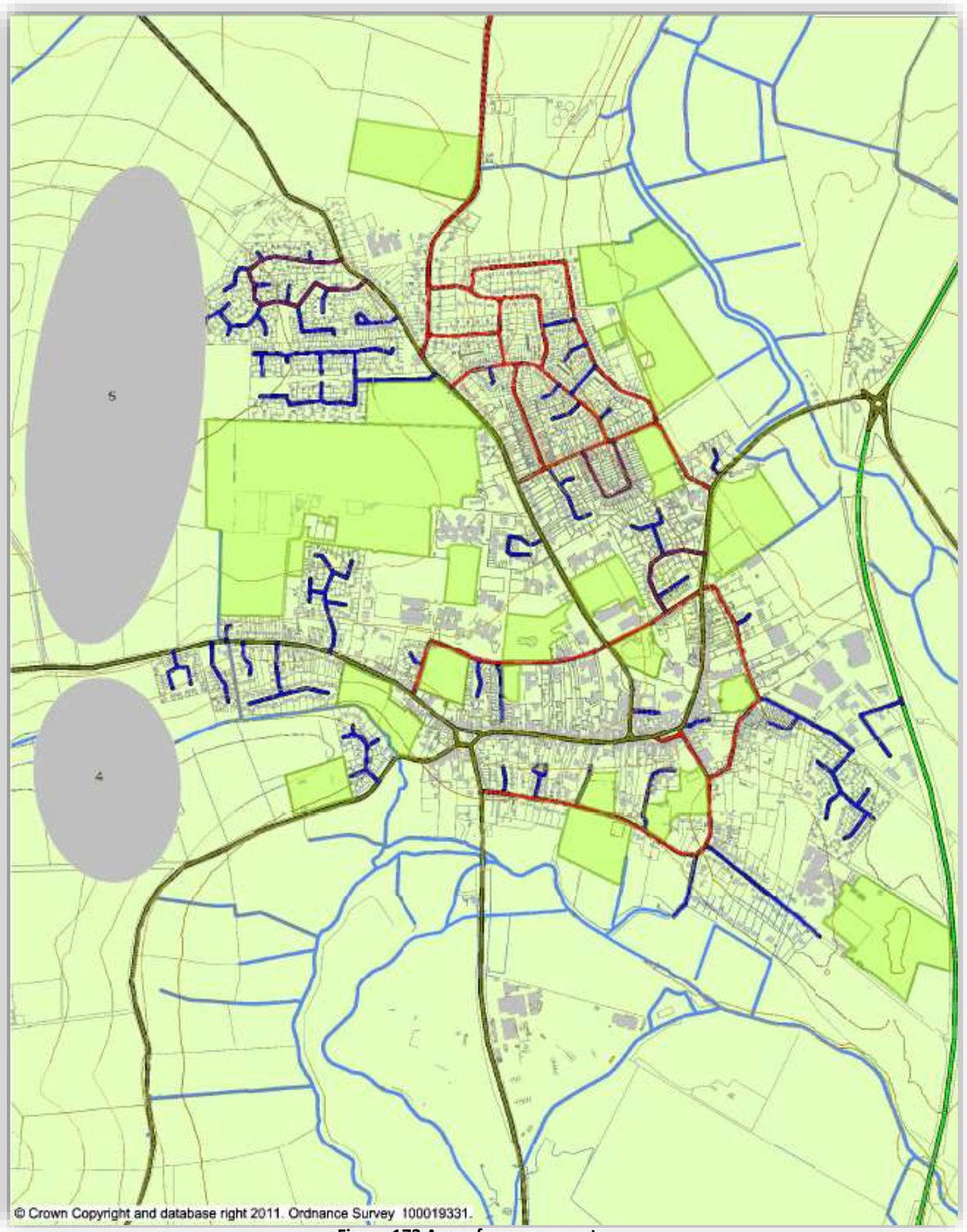
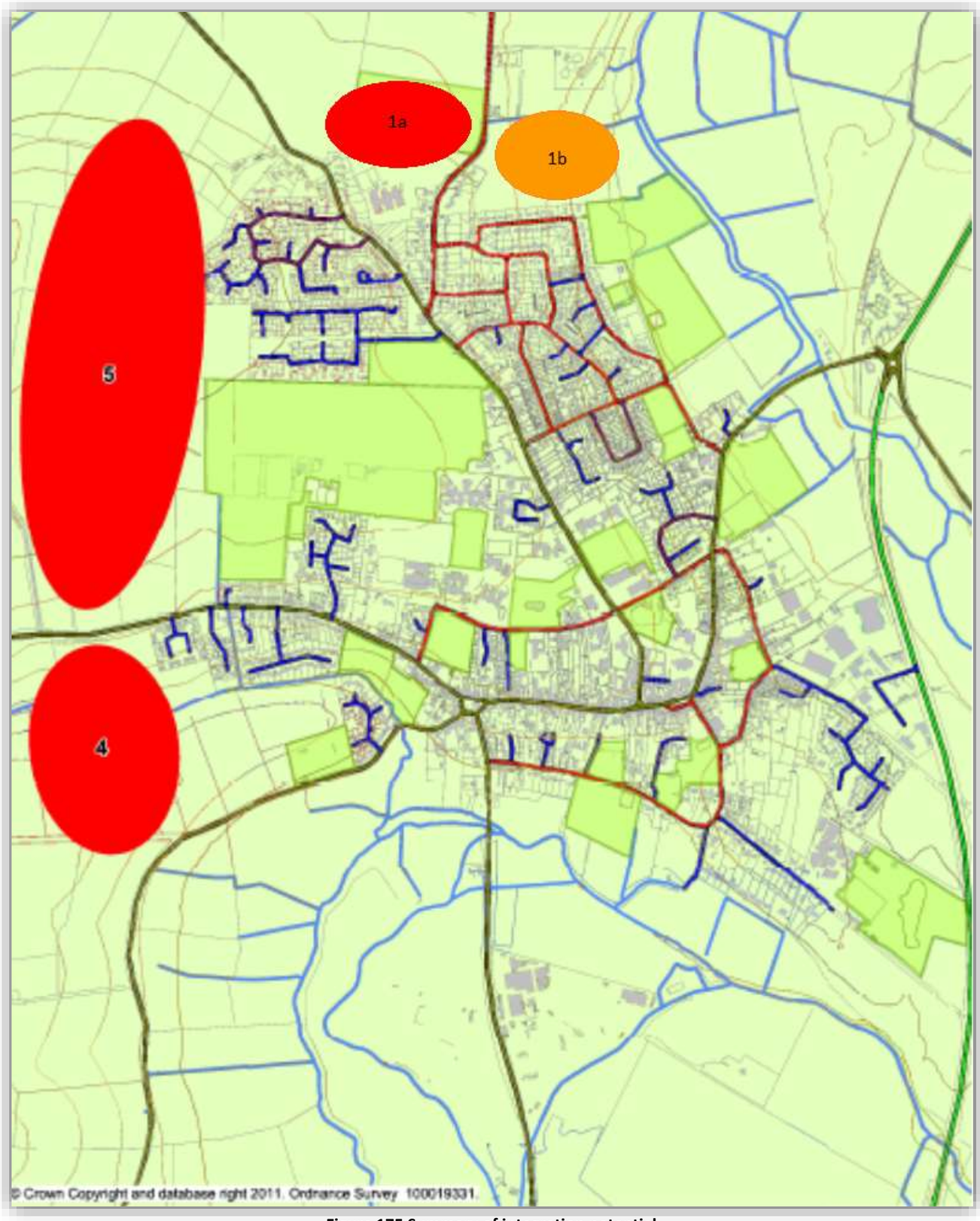


Figure 173 Areas for assessment

Segment	Connections			Barriers	Comments	Integration capacity grade
	Brown routes	Red routes	GI			
1a	1	1	Footpath routes exist to north, and local lanes. No clear GI route back to town centre.	School forms a barrier at the edge	Could link between Cotterstock and Glapthorn Roads to create a grid. Improvements for walking and cycling to the town centre along Glapthorn Road would be necessary to encourage people to use these modes.	C
1b	0	2	Adjacent to Nene GI route which links north and south	Designated open space – but this could form part of a GI route or be designed into the movement strategy for any sites to the north.	Could link on to St Peters Road and Occupation Road to form an extended irregular grid of streets between these roads and Cotterstock Road. Would need improvements to GI route to town centre.	B
4	2	0	No - Some important open land is identified within this segment – there may be potential to create some GI links, though none exist at present.	Segment already incorporates some disjointed cul-de-sac development	Some cul-de-sacs might have some potential to link up Existing public right of way between the two brown routes	C
5	2	0	No – existing playing fields are not publicly accessible	Oundle School playing fields currently act as a barrier Loop and cul-de-sac development	Distance to and choice of routes to the town centre would need to be considered Large segment therefore relatively large amount of development would be required to achieve the required connections to make this option work	C

34.3 Conclusions

34.3.1 Both sectors receive a Grade C or medium score as there are limited routes to connect to and create a connected network. The sector areas are very large, and would need to be brought forward together to create the most opportunities to create connections. The full assessment matrix is below.



Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

Figure 175 Summary of integration potential.

35. Rushden/Higham Ferrers

35.1 As highlighted within the baseline analysis, in terms of movement and structure the settlements of Rushden and Higham Ferrers are inextricably linked. As such, for the purposes of the analysis of structure and movement, the settlements of Rushden and Higham Ferrers have been considered together. This section draws upon the baseline analysis of the settlements' movement structures to assess the integration capacity of potential organic growth at the two towns.

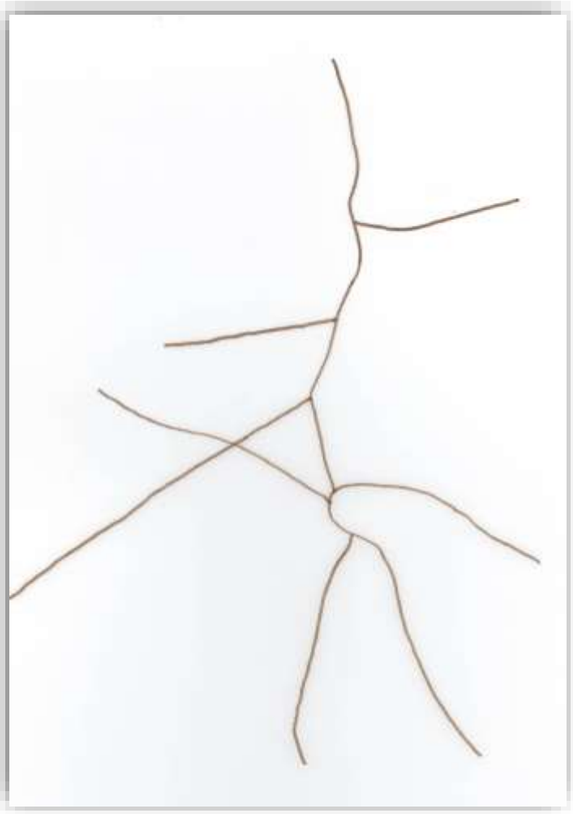


Figure 176 Key structuring routes

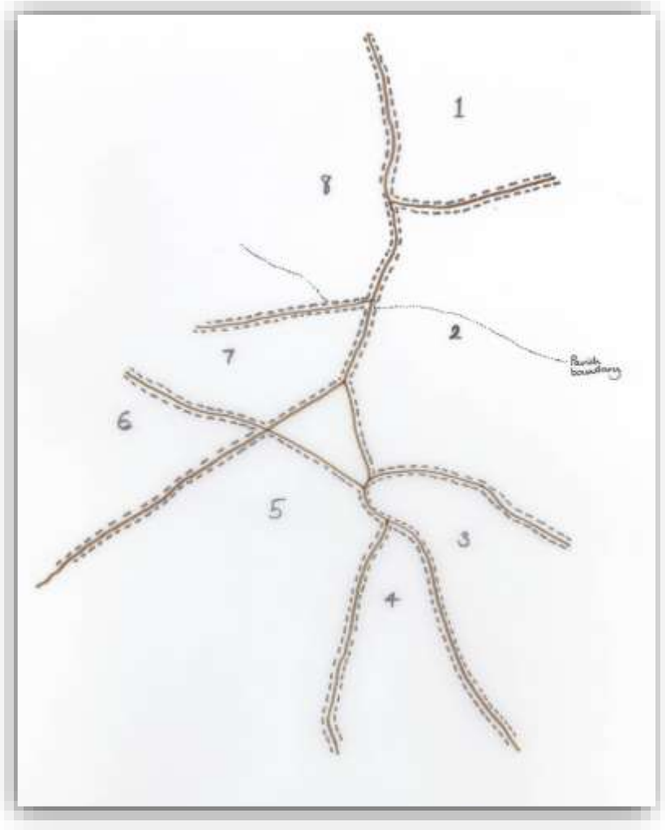


Figure 177 Segments

35.3 Summary of opportunities and constraints

35.3.1 There is very limited opportunity for development within the existing built up area and therefore any significant additional development would need to be accommodated around the edge of the existing built area.

35.3.2 Options for growth to the north of the A45 are extremely limited due to the River Nene. This is a regional green infrastructure corridor.

35.3.3 Based on the above conclusions, potential directions for growth are limited to the south-west and east of the settlements.

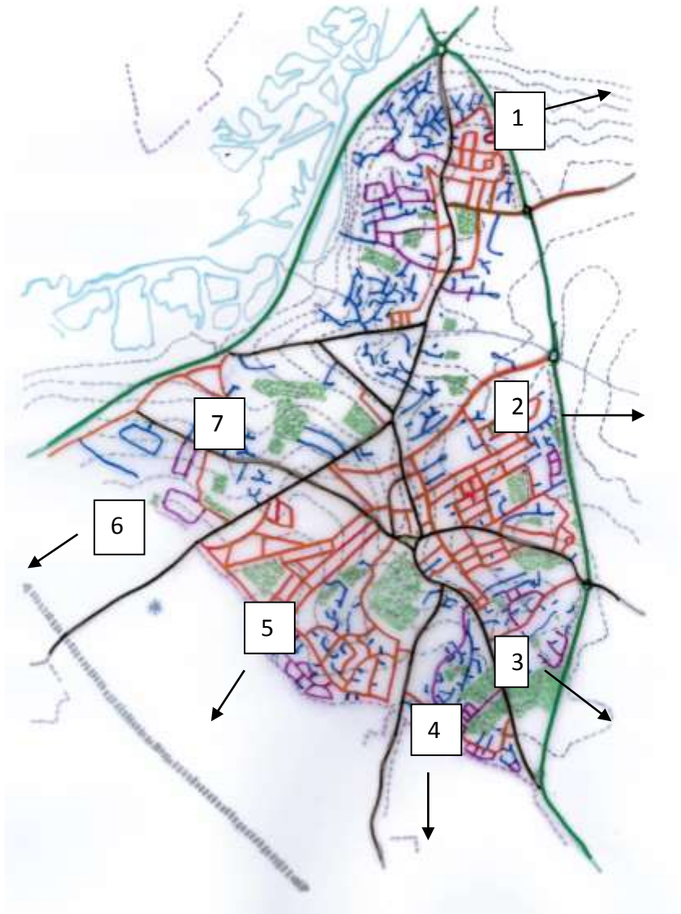


Figure 179 Direction of growth

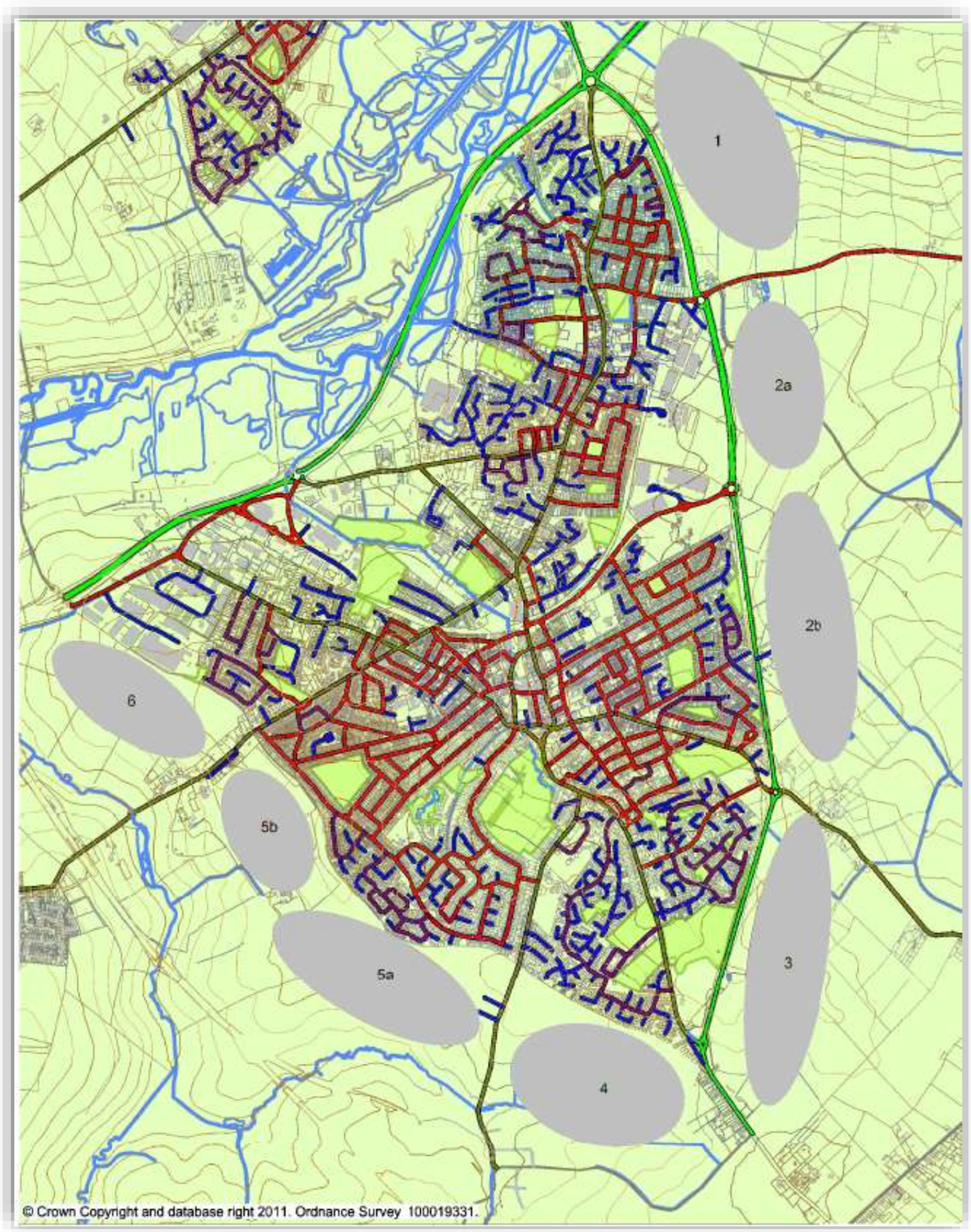


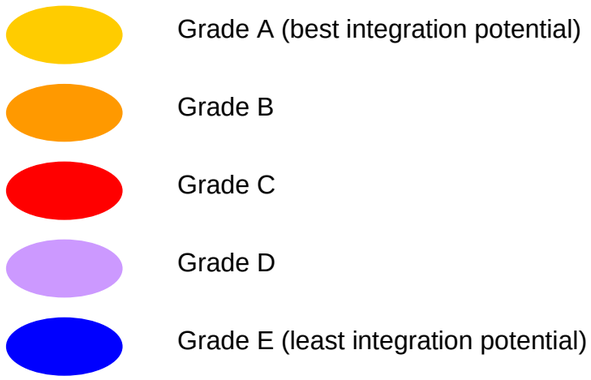
Figure 178 Assessment of edges

Site	Connections			Barriers	Comments	Integration capacity grade
	Brown Routes	Red Routes	GI			
1	1	0	No	The A6 currently forms a significant barrier. The existing built edge and noise bunding create further barriers along the A6. Topography	If the existing barriers identified could be overcome the adjacent street pattern is an irregular grid providing route options to the town centre.	C/D
2a	1	0	Existing right of way connection	The A6 currently forms a significant barrier. The existing green space and school on adjacent land currently act as a barrier to movement.	If any development/redevelopment were to take place on adjacent land, there may be potential to create a street pattern which could transcend the A6.	C
2b	1	0	May be scope in the northern area to link to an existing right of way and then into the Greenway	The A6 currently forms a significant barrier. Some loop development on adjacent land, though this joins into the regular grid. Existing built edge forms a barrier in some places. A noise bund forms an additional physical barrier.	A change of character of the A6 would be necessary, including removal of the existing noise bund. There may be some potential for the creation of a new connecting route into the roundabout with John Clark Way.	C/D
3	1-2	0	No	The A6 currently forms a significant barrier. Loop and cul-de-sac development on the opposite side of the A6.	Even if the character of the A6 were altered, the existing street pattern would currently prohibit direct route options toward the town centre.	E
4	2	0	No	Adjacent to loop and cul-de-sac street patterns. Existing built edge condition. Bedford Road meets the A6 (green route) to the east of the area.	Only two realistic direct links to the town centre – the two brown routes.	D
5a	1	0 directly (though there may be scope to connect via existing cul-de-sacs)	No	The existing built edge condition to the south of Rushden forms a continuous barrier. Some of this area is adjacent to late 20th century loop development.	Two existing cul-de-sacs may provide some potential to link to the irregular grid pattern to the north.	B/C
5b	1	0	No	The existing built edge forms a continuous barrier.	The existing grid street pattern (with direct links to the town centre) could be extended into this area, though this would require 'punching through' the existing built edge.	C/D

6	1	0	No	Adjacent street pattern is based on cul-de-sacs, and land uses are predominantly industrial/commercial A45 to the north	All movement to the town centre would be focussed on Irchester Road. Existing barriers are not easily surmountable unless there is substantial redevelopment of the adjacent commercial zone. The street pattern and nature of he land use do not make an attractive pedestrian environment.	C

35.4 Conclusions

35.4.1 Segment 5a is considered to have the greatest potential for easily connecting into the existing urban structure as development would connect to Rushden Road (a primary street), and there is scope to connect to the existing local streets by extending the cul-de-sacs. The character and pattern of the irregular grid to the north could be used. Improving access to the countryside, and creating green spaces to link to the GI to the north, would further improve the score, but it is acknowledged that the existing built form creates a continuous barrier within which there are looping streets which are not particularly direct. The full assessment matrix is attached below.



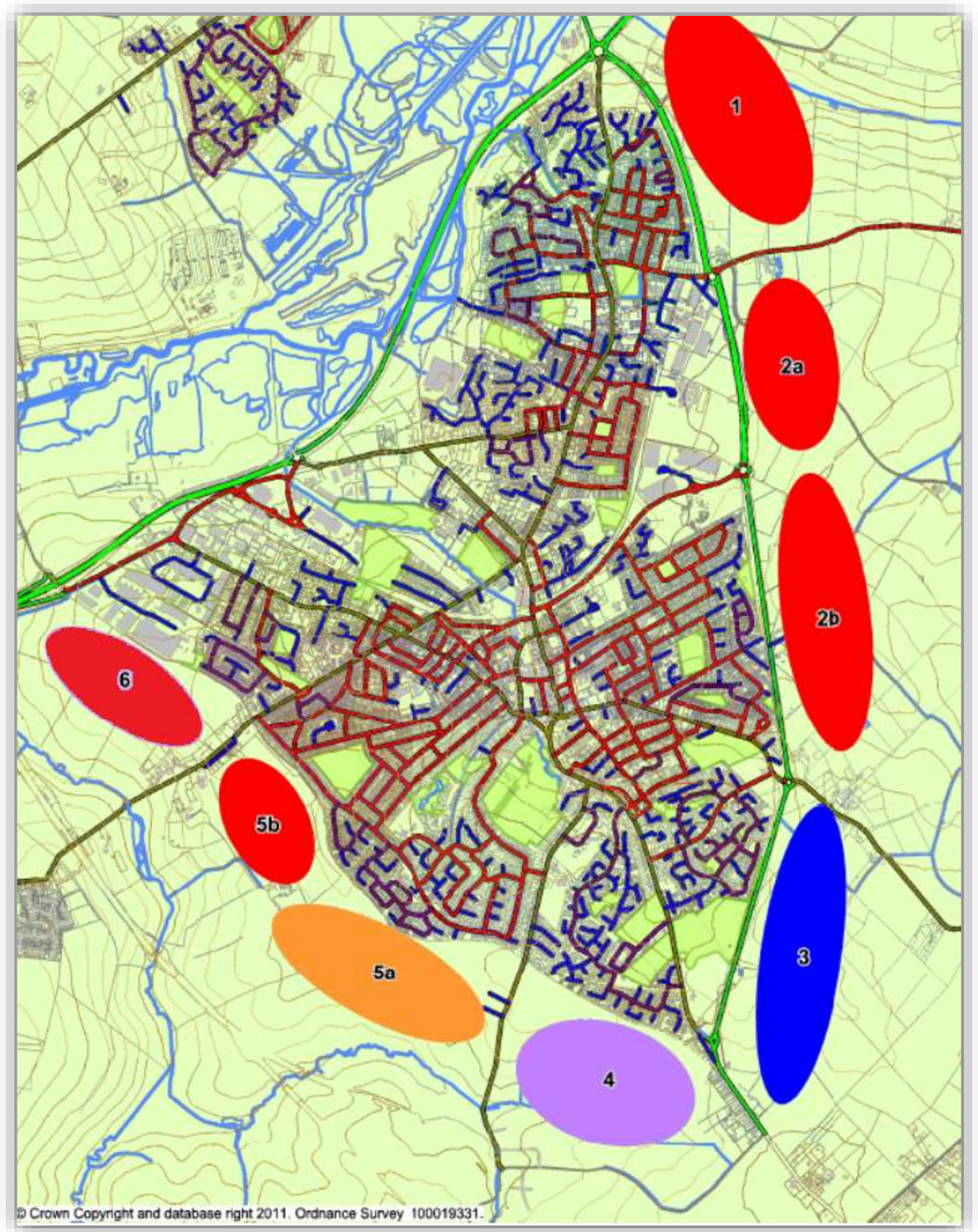


Figure 180 Integration assessment

36. Thrapston

36.1 As highlighted within the baseline analysis, Thrapston town centre is equidistant from the eastern edge of Thrapston and the centre of Islip village, which lies to the west of the river. As such, for the purposes of the analysis of structure and movement, the settlements of Thrapston and Islip have been considered together. This section draws upon the baseline analysis of the settlements' movement structures to assess the integration capacity of potential organic growth at Thrapston.



Figure 182 Structuring routes

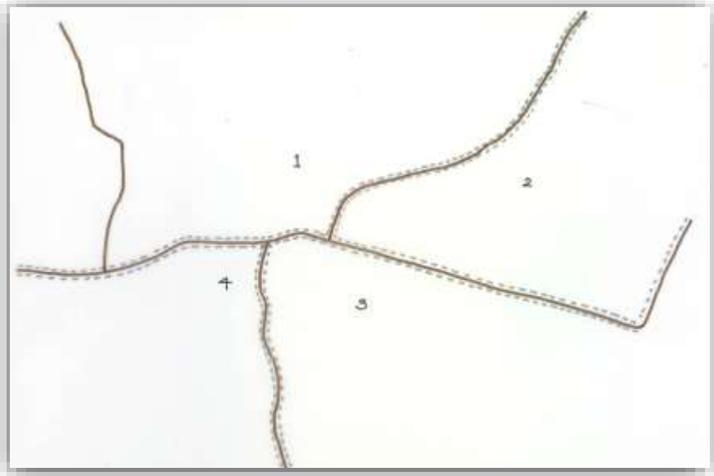


Figure 181 Segments

36.3 Summary of constraints

36.3.1 Based on the opportunities and constraints identified, it is concluded that:

- There is no opportunity for any growth to the north of the town, which could be appropriately integrated with the existing fabric. In this direction there would be an impact on the SSSI and the Special Protection Area, and the majority of the land forms Thrapston Lakes.
- Opportunities directly related to Thrapston would involve development on the opposite side (south) of the A14 (3) or east of the A605 (area 2).
- Through the recently adopted Rural North, Oundle and Thrapston Plan, land is allocated at Thrapston South for a mixed use development. This will effectively fill the gap between the current built up areas, but does not represent the expansion of the town beyond its current physical limits, namely the A14.
- Given the location of Thrapston town centre and the movement relationship with Islip, a number of potential directions for growth to the west of the river have also been identified.

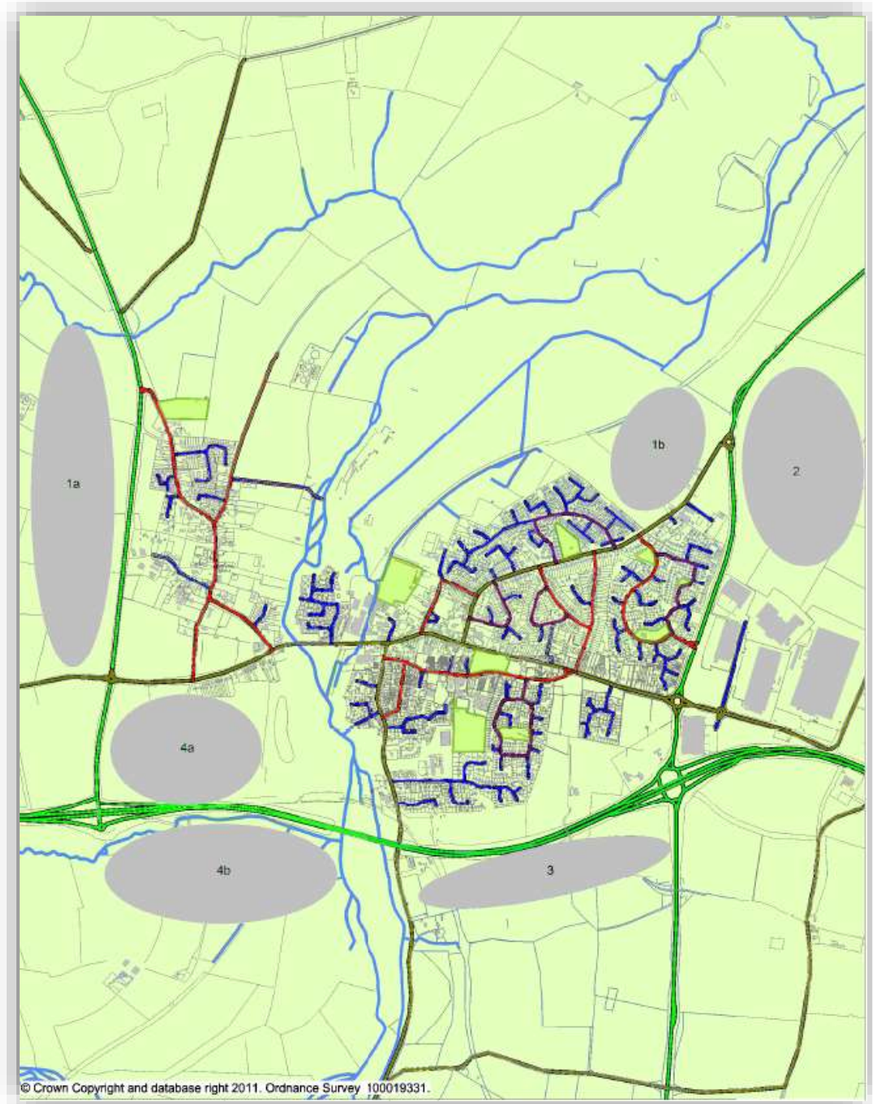


Figure 183 Assessment areas

Segments	Connections			Barriers	Comments	Integration capacity grade
	Brown Routes	Red Routes	GI			
1a	1	1	No	A6116 - green route carrying traffic off junction 12 of the A14. Heavily trafficked though the width etc of the road is perhaps more easily addressed than some green routes. Limited routes to connect to on the opposite side of the A6116.	Topography may be an issue here - land slopes down eastward toward the watercourse. Potential to create high quality pedestrian and GI routes through Islip using existing streets and open spaces.	C
1b	1	0	Yes – Adjacent to Nene Valley Strategic GI route although could be better linked up with town	Cul-de-sac development and development backs onto this area.	Potential route around the north of the town toward the town centre adjacent to the watercourse.	C/D
2	1	0	No	A605 and roundabout junction. On opposite side of A605 is loop and cul-de-sac development.	Adjacent to commercial area which is dominated by warehouses – this is not well integrated into the urban structure of Thrapston.	D
3	1	0	Yes - green and blue corridor running northward	A14 - a substantial constraint. Likely to be noise mitigation measures associated with the allocated development site on the opposite side of the A14, which could act as a physical barrier.	A14 is unlikely to be substantially changed in character in the foreseeable future, and as such is a significant constraint which would be very difficult to effectively overcome.	E
4a	1	1	Potential for links/paths across the river?	River Nene and gravel pits. As such, there is currently only one point of access from the site to Thrapston town centre (although there is also a more indirect route via the existing built area of Islip and the existing public rights of way)	Would need to explore potential pedestrian and cyclist routes – potential for additional crossing point of river.	B/C
4b	0	0	Yes - green and blue corridor running northward	A14 River	Substantial constraints not easily overcome	E

36.4 Conclusions

36.4.1 The sector with the greatest potential for integration with the existing built form is 4a, within Islip, due to its proximity to the town centre and to a direct radial. However, development would be isolated within this sector by the river, A14 and A6116, so it would need to facilitate additional pedestrian/cycle connections over the Nene. Scope exists to improve the green spaces and waterway spaces between this sector and the town to improve access and provide more leisure amenities.

Grade A (best integration potential)

Grade B

Grade C

Grade D

Grade E (least integration potential)

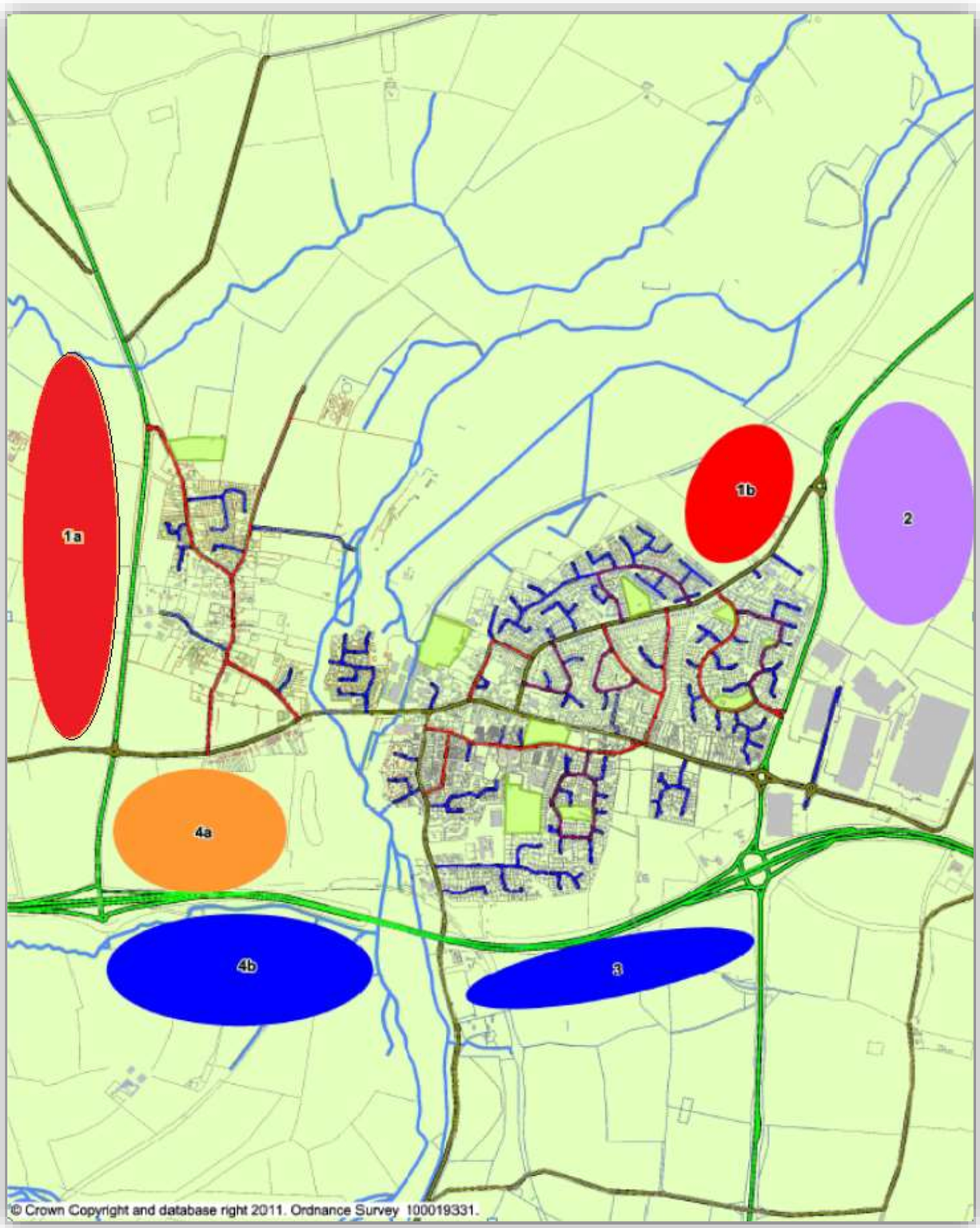


Figure 184 Integration assessment