



Southend-on-Sea and Rochford Local Plan Reviews - Transport Evidence

Options Assessment Report

September 2021

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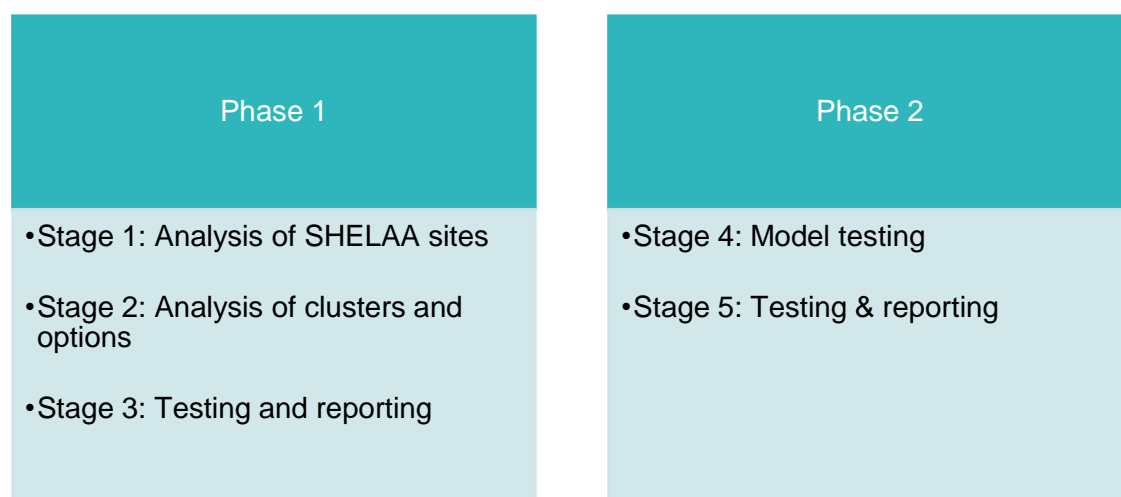
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1 Introduction

1.1 Overview of the project

- 1.1.1 In May 2020, Mott MacDonald was appointed by Southend-on-Sea Borough Council (SBC) on behalf of SBC and Rochford District Council (RDC), to prepare the transport and highways evidence bases in respect of the promotion of the individual Southend-on-Sea and Rochford Local Plans.
- 1.1.2 The project is based on a staged approach to evidence preparation and is composed of 5 stages across two phases, which are set out in **Figure 1.1** below.

Figure 1.1: Phasing of the transport and highways evidence base work



Source: Mott MacDonald

- 1.1.3 The sequential assessment process begins with Stage 1, which involves the analysis of the longlist of the respective Strategic Housing and Economic Land Availability Assessments (SHELAA) sites for the two administrative areas. The output of the Stage 1 analysis is a detailed set of analyses of the potential sites for each local authority.
- 1.1.4 Once agreed with the Councils, a series of site clustering options will take place as part of Stage 2. The analysis of the site clusters will assess the key transport issues facing the different transit corridors within the study area by mode and will help to inform SBC and RDC's development of strategic options. It is anticipated that each strategic option will be formed of an amalgamation of site clusters.
- 1.1.5 As part of Stage 3, the strategic options will be tested using a new spreadsheet assessment tool which will be developed to help inform the Local Plan evidence base. The Stage 3 testing and reporting will include a high level assessment, allowing comparisons to be made of the strategic

option scenarios which should help SBC and RDC understand the potential impacts of the options and begin to consider where mitigation may be required, and at what level.

- 1.1.6 Following the completion of Stage 3, there will be a gateway review of the body of evidence prepared and an assessment of the status of the modelling exercises.
- 1.1.7 A further Phase 2 of work can then follow, which will utilise the updated Southend-on-Sea Multi Modal Model (SoSMMM) (for Southend) and ECC South Essex Model (for Rochford) to allow additional testing of the strategic options to take place. This will allow confirmation of the findings from Phase 1 to be established and any areas of discrepancy to be identified. Additionally, the detailed modelling available at this phase of the work will allow greater information to be derived in respect of the impacts of the options and potential mitigation requirements.

1.2 Context

- 1.2.1 The following section provides a brief overview of the study area.
- 1.2.2 Southend on Sea is a large town located on the southern coast of the East of England and is located at the mouth of the Thames Estuary, approximately 35 miles to the east of London. Southend has an expanding population, which stood at 183,100 in 2019¹, who live in a relatively densely populated and physically constrained urban area. Between 2015 and 2025 the population of Southend-on-Sea is expected to increase by 8.7% to 194,200^{2,3}.
- 1.2.3 The Rochford District is bounded by the River Roach and Chelmsford to the north, the Boroughs of Southend and Castle Point to the south and the Borough of Basildon to the west. Rochford District is primarily rural in nature and has a growing population. In 2015, the population of Rochford District was 84,815, which is expected to grow to 89,494 by 2025; this represents an increase of 5.5%⁴. Rochford District's population is primarily concentrated in the settlements of Rochford, Hockley and Rayleigh, as well as larger villages such as Great Wakering and Hullbridge.
- 1.2.4 The aforementioned population growth means that there is significant demand for housing and employment growth in both authorities. However, both authority areas are significantly constrained by Green Belt designation. In accordance with national policy, the current Rochford and Southend Local Plans do not permit development within the Green Belt except for in special circumstances, such as a reasonable extension to an existing dwelling. Therefore, there is a

¹ Census Data (2019). Labour Market Profile - Southend-On-Sea.

² Southend Borough Council (2018). Ambition Southend: A Skills and Labour Market Review for Southend-on-Sea

³ Office for National Statistics (2020) – 2019 mid-year population estimates by LAU

⁴ ECC (2016). A profile of people living in Rochford.

relatively limited amount of policy compliant developable land available in the Rochford and Southend administrative areas.

1.2.5 SBC is a unitary authority and thus acts as its own highway and transport authority. SBC has a series of local policies and plans which will influence future transport decisions in the area. The Southend Local Transport Plan 3 (2011-2026)⁵ focuses upon transport policies and schemes which are vital in securing the provision of a transport system which aims to ensure that the Borough can:

- Have a thriving and sustainable local economy.
- Minimise environmental impact and promote sustainability for a greener Borough.
- Create a safer Borough.
- Reduce inequalities in health and wellbeing and for a more accessible Borough.

In comparison, RDC is a two-tiered authority, for whom Essex County Council (ECC) is the highway and transport authority. Therefore, ECC will be engaged at all stages of the preparation of the transport and highways evidence base. Equally ECC has a series of local policies and plans which frame the approach for transport in Essex (including Rochford). The Essex Local Transport Plan⁶ provides a framework for the effective and efficient delivery of all transport services provided by or on behalf of the county council. The Plan comprises a Transport Strategy which sets out the vision for transport, the outcomes Essex aim to achieve, policies for transport and the approach in implementing them. It is supported by an Implementation Plan which is refreshed every three years and sets out in greater detail how the outcomes of the strategy will be delivered and monitored and the priorities for investment in the short term. The plan is supplemented by more detailed plans including Cycling and Walking Strategies such as the Rochford District Cycling Action Plan⁷.

1.2.6 The Councils recognise that the two authority areas have strong synergies, including in relation to transport infrastructure and economic factors. It is likely that planned growth in either authority will have an impact on the transport infrastructure of the other, as well as beyond on wider ECC infrastructure. In response to this strong synergy, the Councils have commissioned joint evidence, such as this study, in line with the Duty to Co-operate requirement guiding Local Plan development.

⁵ [Information about Local Transport Plans – Local Transport Plans – Southend-on-Sea Borough Council](#)

⁶ [Local Transport Plan | Essex County Council \(essexhighways.org\)](#)

⁷ [rochford-district-cycling-action-plan.pdf \(essexhighways.org\)](#)

1.3 Purpose of this report

- 1.3.1 This report presents the results of the Phase 1 – Stage 1 and Stage 2 site and cluster assessment exercises. The sites included in this analysis were extracted from the combined SHELAA for the two administrative areas. The combined SHELAA provides an up to date assessment of available, suitable and deliverable sites across Rochford and Southend. SHELAA assessments were carried out for individual Districts though there was alignment in the approach; it was also supplemented by local analysis.
- 1.3.2 The purpose of this stage of the assessment is to provide an initial sift of the longlist of SHELAA sites to assist with the definition of site clusters. Mott MacDonald's in-house multi-criteria Investment Sifting and Evaluation Tool (INSET) has been used to undertake this sift and help identify appropriate site groupings.
- 1.3.3 The output of this report is a series of interactive metrics that thematically grade the performance of each of the sites, and, in turn, help to facilitate the potential definition of site clusters that have commonalities in terms of their transport connectivity and geographical location.

2 Stage 1 – Multi Criteria Analysis of the Sites

2.1 Introduction

- 2.1.1 This section of the Options Assessment Report (OAR) includes references to the following terms; sites, clusters and strategic options. A site is an individual parcel of land; a cluster is a grouping of two or more sites; and, a strategic option is made up of 'Development Type' scenarios.
- 2.1.2 The Phase 1 Stage 1 options assessment methodology involved the use of Mott MacDonald's in-house Investment Sifting and Evaluation Tool (INSET). INSET is a decision support toolkit based on Green Book compliant Multi-Criteria Decision Analysis (MCDA). INSET is designed to be simple, flexible, replicable and transparent, and will be used throughout the development of this evidence for site and cluster sifting.
- 2.1.3 As part of the Stage 1 sifting exercise, INSET was used to assess the Rochford and Southend sites, presented in **Section 2.3** and discussed from **Section 2.4** onwards.
- 2.1.4 The assessment sub-criteria were developed in close liaison with RDC and SBC to establish how well each site performs against four overarching themes derived from the Local Plan objectives of RDC and SBC. The four themes are set out in **Paragraph 2.2.5** below.

2.2 Assessment Criteria

- 2.2.1 Two workshops were held between representatives at RDC, SBC, ECC and Mott MacDonald, on the 3rd and 5th June 2020 respectively, to agree the assessment criteria and the data proposed to assess each criteria.
- 2.2.2 Once the criteria had been agreed and the required data provided, Mott MacDonald processed the data and ran the INSET toolkit to facilitate a comparison and ranking of the sites.
- 2.2.3 Due to the number of assessment sub-criteria proposed, and the number of sites required to be assessed, a quantitative assessment method was used to score the sites.
- 2.2.4 The assessment criteria used in assessing the sites during the Stage 1 INSET toolkit were grouped into themes aligned to the Local Plan objectives. The thematic grouping process enables the criteria and sub-criteria to be assessed and weighted differently, depending on the focus of the objective being considered and the aims of the scheme. However, at this stage of the assessment, equal weighting was applied across all themes, criteria and sub-criteria in order to carry out a fair analysis and scoring system for all sites. It is worth noting that some criteria were based on percentiles with sites scored in comparison to other sites within RDC or SBC respectively.

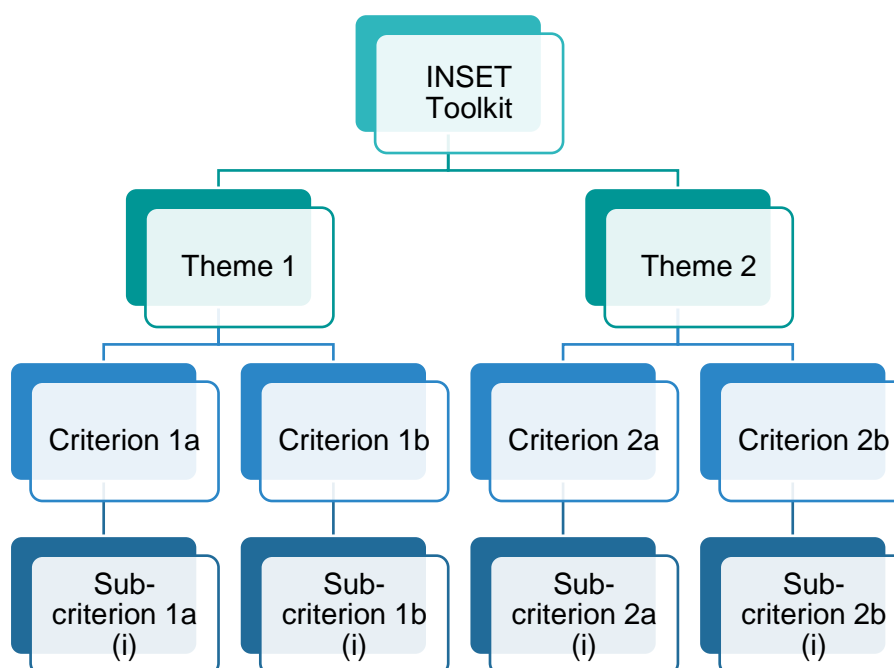
2.2.5 The themes used for this stage of the INSET toolkit are set out below:

- Sustainable travel;
- Proximity to facilities;
- Highway network; and,
- Environmental impact of transport.

2.2.6 It should be acknowledged that the INSET toolkit considers existing facilities and network / service characteristics. In reality, larger sites may have scope to change or influence these with more potential for interventions and / or mitigations and therefore and become more sustainable / acceptable with additional local centres and facilities such as schools.

2.2.7 Under each theme a series of main criteria were identified, with further measurable sub-criteria grouped under each criteria. The sub-criteria represent the 'questions' against which the sites can be compared and differentiated. An illustration of the hierarchy of the INSET Toolkit is presented in **Figure 2.1** below.

Figure 2.1. Example INSET hierarchy



Source: Mott MacDonald

2.2.8 Each site was assigned a score based on its performance against the agreed datasets; the INSET toolkit provides an overall score for each site, but also provides the site score for each theme, main criterion and sub criterion.

2.2.9 All sub-criteria questions were assigned an appropriate grading scale. For example, if the measurement was simply a binary outcome, then a two-point scale was used e.g.

- Question: “Is the site located in an Air Quality Management Area (AQMA)?”
- Answer: ‘Yes’ or ‘No’.

2.2.10 A broader grading scale was adopted where more than two answers were possible; for example, under the ‘Sustainable Travel’ theme and the ‘Buses’ main criteria, sub-criterion (i) posed the following question: *How far from the site centroid is the nearest bus stop?*

2.2.11 For this sub-criterion, the options were graded in distance bands on a 5-point scale (from 0-4). A score label extract is provided for this sub-criterion in **Table 2.1** below.

Table 2.1: Example INSET score label

<i>How far from the site centroid is the nearest bus stop?</i>	
Score	Description
0	> 2300m
1	> 800m - < 2300m
2	> 800m - < 1150m
3	> 400 - < 800m
4	< 400m

Source: Mott MacDonald

2.2.12 Due to the use of different scoring scales across the sub-criteria, all scores were normalised to allow for an overall scoring average to be derived for each site.

2.2.13 The full list of main criteria and related sub-criteria is provided in **Appendix A**, along with the method used to assign each score. A summary of the themes, criteria and sub-criteria is shown in **Table 2.2**.

Table 2.2: Assessment Criteria

Theme	Main Criteria	Sub Criteria
Sustainable Travel	NMUs	What type of cycle infrastructure is provided within 400m of the site centroid?
		What type of pedestrian infrastructure is provided within 400m of the site centroid?
		Is there provision for other NMU users within 400m of the site centroid (e.g. equestrian users)?
	Buses	How far from the site centroid is the nearest bus stop?
		How many bus services per hour (one way) are provided at bus stops within a 400m walk of the site centroid?
		What is the travel time by bus to the nearest local centre / local parade / retail park?

Economic Growth	Rail services	What is the travel time by bus to the nearest town / main centre?
		How far from the site centroid is the nearest train station?
		What is the travel time by train to Southend Central or Victoria?
		What is the travel time by train to central London?
	Education	How far from the site centroid is the nearest primary educational facility?
		How far from the site centroid is the nearest secondary educational facility?
	Healthcare	How far from the site centroid is the nearest Healthcare facility?
	Employment	How many commercial units are within 2300m of the site centroid?
		How far is the nearest 'designated employment area' from the site centroid?
	Open spaces and leisure	How far from the site centroid is the nearest open space leisure facility?
		How far from the site centroid is the nearest built leisure facility?
	Retail	How many small-scale retail (<280m) facilities are there within *2300m of the site centroid?
		How many large-scale (>280m) retail facilities are there within *2300m of the site centroid?
	Access to centres	How far is the nearest main / major centre from the site centroid?
		How far is the nearest major centre or town centre from the site centroid?
		How far is the nearest major centre, town centre, local centre or retail park from the site centroid?
		How far is the nearest major centre, town centre, local centre, retail park or local parade from the site centroid?
	Residential	How many residential households are within 2300m* of the site centroid?
Highway Network	Local road network	How well does the local road network perform?
	Primary road network	How well does the primary road network perform?
	Strategic road network	How well does the strategic road network perform?
		How far from the site is the strategic road network?
	HGVs	Does the site connect to an established HGV route?
Environmental Impact of Transport	Safety	What level of personal injury collisions have been recorded within 2km of the site centroid?
	Local air quality	Is the site located in an Air Quality Management Area (AQMA)?
	Sensitive receptors	Is the site located in the Southend Airport Public Safety Zone (PSZ)?

Source: Mott MacDonald

- 2.2.14 The themes, criteria and sub-criteria presented above were agreed with SBC, RDC and ECC prior to the INSET toolkit being run, although some minor adjustments were made once the data was sourced, as well as during the scoring period. All changes to the assessment method during the scoring period were checked and confirmed by the RDC and SBC leads.
- 2.2.15 Based on the assigned sub-criteria scores, the INSET toolkit creates an average score for each main criteria. The score for each theme is based on the averages of its constituent criteria, and the average score across all themes is calculated to provide an overall or net INSET score.
- 2.2.16 **Section 2.4 to Section 2.16** present the results of the INSET toolkit process.

2.3 Sites for assessment

2.3.1 The Councils provided Mott MacDonald with a long list of SHELAA and HELAA sites to be assessed within the Phase 1 Stage 1 INSET toolkit. In total, 433 sites were assessed; the land use type of these sites is set out in **Table 2.3** below.

Table 2.3: Summary of sites provided by the Councils

Council	No. residential sites	No. employment sites	No. mixed use and other sites	Total sites
Rochford	215	1	55	271
Southend	118	9	35	162
Combined	333	10	90	433

Source: Mott MacDonald

2.3.2 In line with the feedback provided during the INSET development workshops, held between representatives of RDC, SBC, ECC and Mott MacDonald, it was agreed that three different INSET toolkits would be developed, as follows:

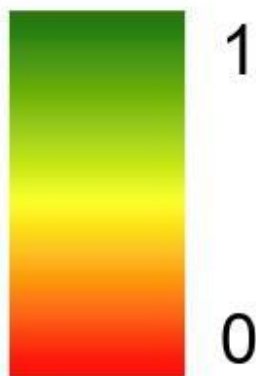
- Rochford only;
- Southend only; and,
- Combined.

2.3.3 The toolkits also have the capability to sort sites by land use. Therefore, four sets of results are provided per toolkit; these being, combined sites, residential sites only, employment sites only and sites classified as mixed-use or other.

2.3.4 To facilitate a visual comparative assessment, Mott MacDonald have prepared colour coded GIS plans that demonstrate how each site performs against the four agreed themes and their overall INSET score. These plans and the INSET results are provided in the following sections.

2.3.5 As site scores have been normalised, the results shown are out of 1, where 1 is the highest possible score. The sites are coloured on a scale where red represents a score of 0 and green represents a score of 1. Poor scoring sites score <0.4, good scoring sites score 0.4 – 0.5 and very good scoring sites score more than 0.5. The colour scale is shown in **Figure 2.2**.

Figure 2.2: Colour coding of sites



Source: Mott MacDonald

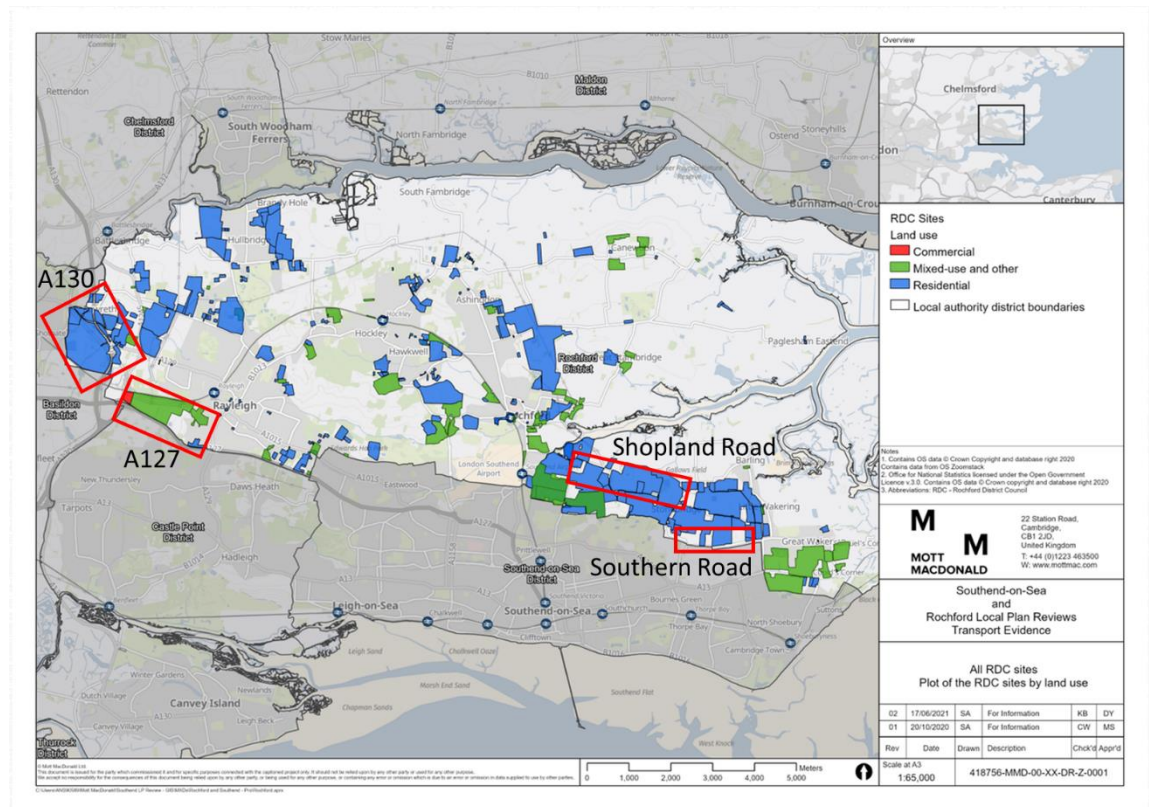
- 2.3.6 Please note that for the environmental impact of transport theme, a site is coloured red if it falls within an AQMA or the Southend Airport Public Safety Zone, and yellow if it does not.

Rochford sites

2.4 Site plan

- 2.4.1 In this section of the OAR, we provide an assessment of the 271 sites that RDC submitted to the INSET toolkit for assessment. Our analysis is structured thematically using the four themes outlined in **Section 2.2**. All themes and criteria are weighted equally, with a weighting of '1'. The analysis of the sites is also segregated by land use.
- 2.4.2 In total, RDC submitted 271 sites from the Rochford District area to be assessed via the INSET toolkit. The 271 sites are composed of 215 residential sites, 1 commercial site and 55 mixed-use or other sites.
- 2.4.3 The RDC sites are plotted in **Figure 2.3** below; Rochford outputs are found throughout this section of the report and a complete set of outputs are provided at **Appendix B**. **Figure 2.3** shows that the RDC sites are generally concentrated in the south and west of the district, and proximately to the District's larger settlements. Notably, a large proportion of sites are located proximately to the existing settlements of Hullbridge, Rayleigh, Hockley, Hawkwell, Rochford, Ashingdon and Great Wakering, which represent some of the more populous settlements in the District. A large proportion of submitted sites are located proximately east of Southend Airport and the west of the villages of Barling and Little Wakering, that are proximate to the Shopland Road / Southend Road highway corridor.

Figure 2.3: Rochford sites plot



Source: Mott MacDonald

- 2.4.4 In total, RDC submitted 215 residential sites to be assessed via the INSET toolkit. **Figure 2.3** shows that a large proportion of the submitted RDC residential sites are located to the east of Southend Airport and the west of the villages of Barling and Little Wakering and to the south of Great Wakering. The sites lie to the immediate north of the Southend Borough District border and would be primarily accessible via the Shopland Road and Southend Road corridor as highlighted above in the red boxes. In addition, there is a concentration of sites close to Fairglen Junction (A127 and A130) and around and to the west of Hullbridge in the west of Rochford District. Furthermore, there are concentrations around Ashingdon particularly to the east and west, and to the west of Rochford / south of Hawkwell in the centre of Rochford District.
- 2.4.5 The majority of the other residential sites are located within, or would form extensions of, the existing settlements of Rawreth, Hullbridge, Rayleigh, Hockley, Ashingdon, Rochford, Great Wakering and Hawkwell.
- 2.4.6 One commercial site was submitted by RDC. The RDC commercial site is known as Fairlawns Farm (CFS055) and the location is to the northeast of the A127 / A1245 interchange and to the south of the Shenfield to Southend rail line.

2.4.7 **Figure 2.3** shows that the 55 mixed-use sites submitted by RDC are located to the south of the Rochford district, proximate to the border with Southend Borough, and within, or adjacent to, the larger settlements of Rayleigh, Rochford and Great Wakering. The following groups of mixed sites are geographically distinguishable:

- Sites to the south and west of Rayleigh;
- Sites to the east of Southend Airport and south of Rochford; and,
- Sites proximate to Great Wakering.

2.4.8 In addition, there are groupings of sites located proximately to the village of Canewdon, and the hamlet of Stroud Green to the west of Rochford.

2.4.9 A high-level thematic analysis of the Rochford sites is presented in **Section 2.5** to **Section 2.9** below, and the detailed INSET outputs for each site are provided in **Appendix C** upon request.

2.5 Sustainable travel

2.5.1 The following section provides an assessment of the sustainable travel theme for the Rochford sites. The sustainable travel theme is composed of three constituent criteria: non-motorised users (NMUs), buses and rail services.

2.5.2 A brief description of what the three sustainable travel criteria assess is provided in **Table 2.4**. Refer to **Table 2.2** for a full breakdown of the sub-criteria questions.

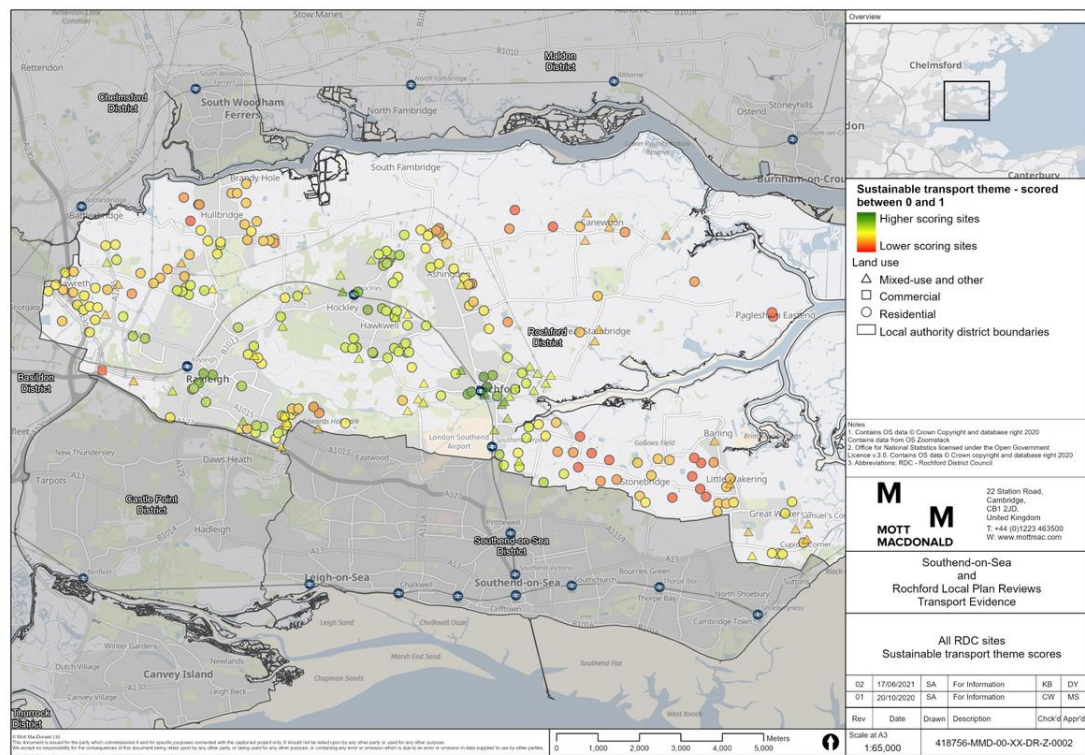
Table 2.4: Sustainable travel - criteria description

Criteria	What does it assess?	Land uses exempt from assessment
NMUs	The existing provision for NMUs within 400m of the site.	N/A
Buses	The proximity of the site to the nearest bus stop, how many bus services (per hour) are provided at stops within 400m of the site, and travel time by bus to the nearest local centre and district centres.	N/A
Rail services	The proximity of the site to the nearest train station, and travel time by train from the site to Southend and London.	N/A

Source: Mott MacDonald

2.5.3 The following map in **Figure 2.4** shows the scores of the combined Rochford sites for the sustainable travel theme where green represents the higher scoring sites and red represents the lower scoring sites.

Figure 2.4: Combined Rochford sites – sustainable travel theme scores



Source: Mott MacDonald

- 2.5.4 **Figure 2.4** shows that the sites with the highest scores for the sustainable travel theme are predominately located within the settlements of Rochford, Rayleigh and Hockley.
- 2.5.5 Rochford, Rayleigh and Hockley are all served by rail stations on the London to Southend Victoria Line. The London to Southend Victoria Line forms a branch line of the Great Eastern Main Line, which runs between Norwich and London Liverpool Street. Hence, all stations provide direct onward connections to Southend and London, meaning the sites score well in sub criteria 1 C (ii) (travel time by train to Southend Central or Victoria) and 1 C (iii) (travel time by train to central London). In addition, the Wickford – Southminster branch line serves Battlebridge.
- 2.5.6 The locations of the submitted sites located in Rochford, Hawkwell, Rayleigh, Ashingdon and Hockley are also proximate to a greater number of bus stops, which, in the majority of cases, serve a broad range of destinations with a high frequency of service. The high scoring sites located proximately to the aforementioned district centres, and with access to a high number of bus services, also score well on the proximity to centres by bus sub criteria 1B (iii) (travel time by bus to nearest local centre) and 1B (iv) (travel time by bus to the nearest town).

- 2.5.7 The sites with the lowest scores are concentrated in rural areas to the east, north and west of the District, with the sites on the Shopland Road and Southend Road corridor to the east of Southend Airport towards Great Wakering scoring particularly poorly. Sites in many of these more rural locations, such as Canewdon, Stambridge and Paglesham, have little or no local public transport services, meaning residents are more likely to use a private car to access facilities. Hullbridge has a relatively good bus service, however this is still distant from the submitted sites in Hullbridge. None of the aforementioned settlements (aside Hullbridge) are within 5km of a railway station, and the existing permeability of the bus network is less dense and the level of service less frequent. As a result, the sites located in these areas (aside Hullbridge) score 0 for the rail criteria. The submitted sites located in these more rural areas also tended to be a longer distance on foot from the nearest bus stop, which also tended to be served less frequently. For example, the nearest bus stop to site CFS075 (Land at Canewdon Hall Farm) is over 400m on foot and provides less than 3 services per hour; the site is also more than 5km from the nearest station.
- 2.5.8 With regard to NMU provision, the majority of sites have access to a footway with a width of 3m or more. 22 sites have no footway provision, 3 sites have a footway width of 0 – 2m and 1 site has a footway width of 2 – 3m. Although the contrast is less stark than the bus and rail criteria, sites located within, or proximate to, urban areas, also tended to score more highly on the sub-criteria that assessed the type of public right of way (PROW) provided within 400m of the site. PROWs tend to be designated based on use and demand by the public; hence, in general, larger settlements have a denser network of PROWs that reflects their greater generation and attraction of NMU trips.
- 2.5.9 The RDC residential sites are indicated by the circular points in **Figure 2.4**. Residential sites are the most common type of site by land use in the District. The majority of submitted residential sites are located in, or proximate to, existing settlements. However, there are a number of sites located in more rural areas, such as the Southend Road / Shopland Road corridor towards Great Wakering. As indicated in the analysis above, the sites located in more rural areas such as Rawreth, Hullbridge and along the Shopland Road / Southend Road corridor score poorly when compared to those located in the settlements of Rayleigh, Hockley and Rochford that are better integrated into the existing sustainable travel network.
- 2.5.10 The RDC mixed-use sites are indicated by triangular points in **Figure 2.4** which shows that the majority of mixed-use sites are located in the south of the district. The sites within or proximate to the settlements of Rochford and Hockley, and immediately to the east of Southend Airport score the highest, with good or very good scores. The mixed-use sites in Great Wakering, Canewdon and to the southeast of Rayleigh generally have lower site scores and are classified as neutral or low scoring.

- 2.5.11 The Fairlawns Farm (CFS055) commercial site scored 0.14 (square point) in the sustainable travel theme as part of the INSET qualitative scale. The site is located over 2300m from the nearest bus station and over 5km from the nearest train station, meaning travel to/from the site by public transport is not considered viable. In addition, no cycle infrastructure is provided locally, and access is from the primary road network. The highest grade of NMU facility available within 400m of the site is a footpath.

2.6 Proximity to facilities

- 2.6.1 The following section provides an assessment of the proximity to facilities theme for the Rochford sites. The proximity to facilities theme is composed of seven constituent criteria that assess the proximity of the site to the following facilities: education, healthcare, employment, open spaces and leisure, retail, access to centres and residential.
- 2.6.2 To determine proximity, our measurements are based on walking distance along the walkable network (where this exists) between the site centroid and the centre point of the facility. Hence, a site centroid in the middle of an open field with no pedestrian provision would have a straight line distance calculated until it reaches the walking network. The walking distance along the road / pedestrian network to the facility would then be calculated, followed by the distance from the network to the facility point. All these measurements were then aggregated to give a total distance.
- 2.6.3 A brief description of what the seven proximity to facilities criteria assess is provided in **Table 2.5**. Refer to **Table 2.2** for a full breakdown of the sub-criteria questions.

Table 2.5: Proximity to facilities - criteria description

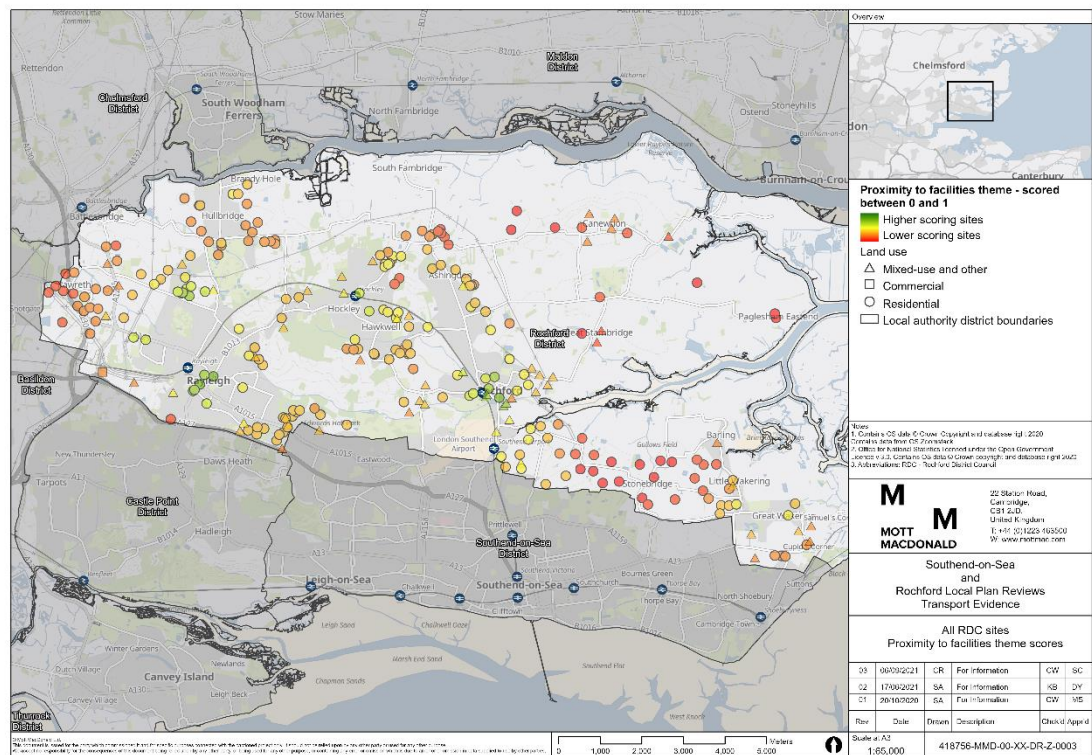
Criteria	What does it assess?	Land uses exempt from assessment
Education	The proximity of the site to primary and secondary education facilities.	N/A
Healthcare	The proximity of the site to the nearest healthcare facility.	Employment
Employment	The number of commercial units within 2300m of the site, and how far the site is from the nearest employment area.	N/A

Criteria	What does it assess?	Land uses exempt from assessment
Open spaces and leisure	The proximity of the site to the nearest open spaces and leisure centres respectively.	N/A
Retail	The number of small and large scale retail facilities within 2300m of the site.	N/A
Access to centres	The proximity of the site to the nearest area centres, from regional centres down to local centres.	N/A
Residential	The number of residential households within 2300m of the site.	Residential

Source: Mott MacDonald

- 2.6.4 The following map in **Figure 2.5** shows the combined score of the Rochford sites for the proximity to facilities theme where green represents the higher scoring sites and red represents the lower scoring sites.

Figure 2.5: Combined Rochford sites – proximity to facilities theme scores



Source: Mott MacDonald

- 2.6.5** **Figure 2.5** shows a broad split in terms of submitted sites within rural locations and those that are to be located within or proximate to the larger existing settlements of Rochford, Rayleigh and Hockley. Here, the majority of sites with a score of good (0.4 to 0.5) and very good (0.5>) are located within, or proximate to, these settlements and those sites located in rural areas or within smaller settlements, such as Canewdon, have a higher proportion of lower scoring sites (<0.4) to the west of the district. For example, BF01 (68-72 West Street, Rochford) scores high (0.57) in the proximity to facilities theme as it is approximately 150m from the Railway Station bus stop and approximately 200m from Rochford Rail Station. The site is also in close proximity to retail (10m), leisure (300m) and primary schools (250m).
- 2.6.6** The highest scoring sites are clustered in Rochford and Rayleigh, which are two of the largest settlements in the District. However, sites located proximately to Hockley, the second largest settlement in the Rochford district, scored relatively lower. A large proportion of the Hockley sites are located on the northern and southern fringe of the Hockley and Hawkwell developed area, which reduces their proximity to the facilities within the existing settlement. Sites in and around Ashingdon tend to have neutral scores. This method assumes that only existing conditions apply

and therefore it does not consider larger sites that could deliver local centres or other new amenities.

- 2.6.7 Moreover, a number of larger greenfield sites are to the south of Hockley. Larger sites are disadvantaged in this appraisal because the INSET toolkit only considers existing facilities, and the proximity to these facilities is measured from the midpoint of each site. Hence, the potential for larger sites to provide new internal facilities (e.g. schools or shops) is not considered, and the further the distance from the mid-point of the site to edge of the site, the lower the number of facilities there are likely to be within 2300m of the site. Clusters of higher scoring sites are also located to the east of Rawreth (north of Rawreth Lane), and within the Hockley and Hawkwell developed area. These sites score highly because of their proximity to nearby retail units, open spaces and local schools.
- 2.6.8 The sites with the lowest scores are notably clustered to the east of Southend Airport proximately to the small rural hamlet of Stonebridge along the Shopland Road / Southend Road corridor to the west of Little and Great Wakering, and along the A1245 corridor to the south and west of Rawreth. For example, CFS103 (Rosedene, Barrow Hall Road, Barling) which is in the rural area of Barling scores a very low score of 0.05. This site is more than 2300m from a primary school, secondary school and healthcare; it is also more than 2300m from the nearest major centre / town centre / local centre, with no large retail facilities within 2300m.
- 2.6.9 **Figure 2.5** shows that the residential sites (circular points) with the highest scores for the proximity to facilities theme are located in Rochford, Rayleigh and Rawreth Lane (north of Rayleigh). Those sites that are located proximately to larger settlements where a greater number of facilities are available have the highest score, whereas sites located in rural locations or proximately to smaller settlements, such as Canewdon and Rawreth, score poorly. This is because the INSET toolkit is based on the site's proximity to existing facilities. It should be noted that a higher proportion of residential sites are within rural locations and outside, or on the periphery of, existing settlements, which in general have lower scores because of their distance from existing facilities. The concentration of low scoring sites is most noticeable along the Shopland Road / Southend Road corridor, and along the A1245 corridor to the south and west of Rawreth.
- 2.6.10 The Fairlawns Farm (CFS055) commercial site (square point) scored a relatively low score of 0.20 on the INSET qualitative scale. The site is located in a rural setting to the west of Rayleigh, therefore, the majority of nearby facilities are located in Rayleigh, which is over 2300m on foot from the site. As a result, the Fairlawns Farm site scores the lowest attainable scores for the education (2 A), healthcare (2 B), open spaces and leisure (2 D), and the access to centres criteria (2 F).

- 2.6.11 **Figure 2.5** shows that the RDC mixed-use sites (triangular points) with the highest scores for the proximity to facilities theme are located in, or proximately to, Rochford and within the cluster of the sites to the north of Rawreth Lane (north of Rayleigh) and east of Rawreth. Notably, there are relatively few mixed-used sites within the urbanised areas of Rochford, Rayleigh and Hockley when compared to the residential sites presented in **Figure 2.3**. As a result, the majority of the mixed-use sites score neutral, low or very low scores. For example, CFS061 (Land between Lambourne Hall Road and Gardiners Lane, Canewdon) scores 0.21 as it scores the lowest attainable score for healthcare (2 B), employment (2 C) and access to centres criteria (2 F).

2.7 Highway network

- 2.7.1 The following section provides an assessment of the highway network theme for the combined Rochford sites. The highway network theme is composed of five constituent criteria: A roads, B roads, the local road network, HGV routes and safety.
- 2.7.2 A brief description of the five highway network assessment criteria is provided in **Table 2.6**. Refer to **Table 2.2** for a full breakdown of the sub-criteria questions.

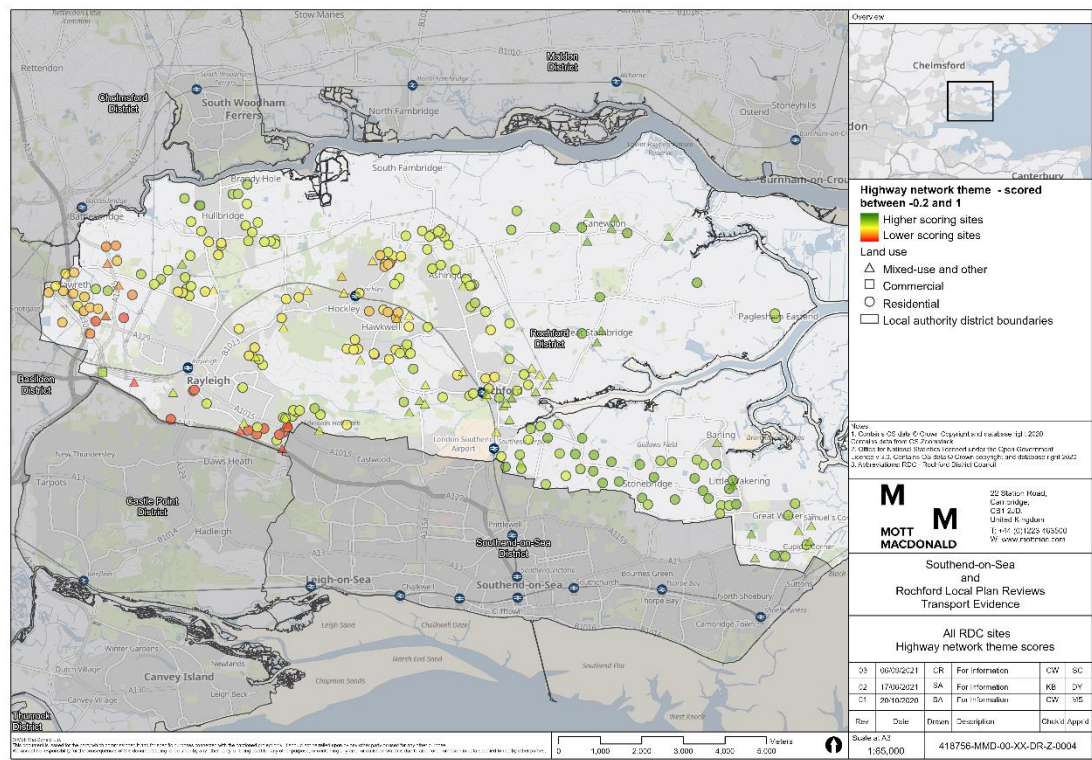
Table 2.6: Highway network - criteria description

Criteria	What does it assess?	Land uses exempt from assessment
A roads	The performance of the road network for the three identified tiers of the road network, and the proximity of the site to the strategic road network.	N/A
B roads		N/A
Local Road network		N/A
HGV routes	Assesses whether the site connects to an established HGV route (considered to be an A road for this assessment). A site is considered to 'connect' if an A road is located within 100m of the site boundary.	N/A
Safety	Assesses the number of personal injury collisions that have been recorded within 2km of the site over the past 5 years.	N/A

Source: Mott MacDonald

2.7.3 The following map, **Figure 2.6**, shows the score of the Rochford sites for the highway network theme where green represents the higher scoring sites and red represents the lower scoring sites.

Figure 2.6: Combined Rochford sites – Highway network theme scores



Source: Mott MacDonald

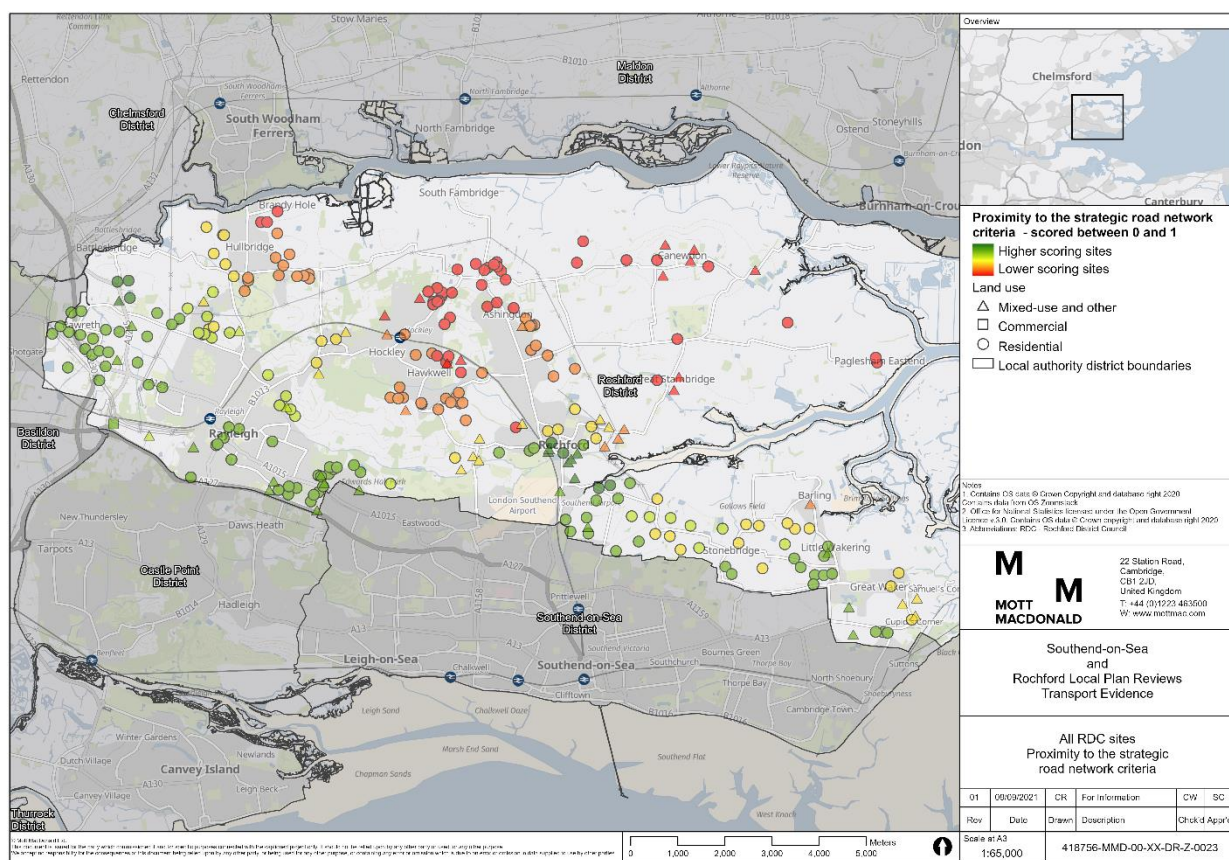
2.7.4 **Figure 2.6** shows a clear east-west divide and urban-rural divide in terms of the site scores for the highway network theme. Here, the sites located in the predominately rural east of the district including around Little Wakering, Great Wakering and Canewdon have the highest scores. Sites located in and around Rochford and Ashingdon have neutral scores. Sites located within the larger settlements of Hockley and Rayleigh tend to score neutral or low scores; this is primarily due to the incidence of delay on the strategic and primary road network and the number of PICs recorded within 2km of the sites. The greatest concentrations of lower scoring sites are located proximately to Rawreth, and to the north of Daws Heath at Rochford's boundary with Southend-on-Sea.

2.7.5 The low scores of the sites located proximately to Rawreth and Daws Heath are primarily driven by the performance of the road network. For example, site CFS256, Land North of Daws Heath Road and A127, is a residential site that scores 0.18 for the highway network theme. Although site CFS256 is proximate to the strategic road network (considered to be A roads in this

assessment), the A127 performs poorly with traffic flows typically being at least 25% slower in the AM and PM peak periods when compared to free flow conditions, as does the nearest B road, Daws Heath Road, which experiences peak time delays of between 15% and 25% when compared to free flow conditions. In addition, the site is located within 100m of the HGV network, meaning it scores poorly as a residential site, and the number of PICs recorded within 2km of the site is within the 40th to 60th percentile of all RDC sites.

- 2.7.6 **Figure 2.6** shows that, in general, the residential sites (circular points) with the highest scores for the highway network theme are inversely distributed when compared to the sustainable travel theme. Here, the residential sites in more rural locations have higher scores compared to those sites located within existing settlements. The residential sites to the east of Southend Airport along the Shopland Road / Southend Road corridor scored highly on the INSET qualitative scale. For example, sites proximate to Little Wakering and Great Wakering scored well due to convenient access to the A13, the relative lack of delay on the local and primary road network and the relatively low levels of PICs proximate to the sites.
- 2.7.7 The Fairlawns Farm (CFS055) commercial site (square point) scored 0.7 for the highway network theme. Although the site scored an average of 0.5 on the performance of the road network sub-criteria, the site scored the highest attainable score on the proximity to the strategic road network sub-criteria, the HGV network criteria, and the second highest score on the safety criteria. The Fairlawns Farm site's commercial nature, meant its proximity to the A road network (A127 and A1245), considered part of the HGV network for this assessment, had a positive impact on its overall score. Moreover, the site's rural location, meant there were relatively few recorded PICs within 2300m of the site.
- 2.7.8 The highest scoring mixed-use sites (triangular points) are clustered in Rochford and within the rural east of the District in Canewdon and Stambridge. Despite their proximity to the HGV network, the mixed-use sites with the lowest scores are concentrated proximately to Rawreth and to the north of Daws Heath. In reality, the proximity of these sites to key highway transport corridors may carry more weight than the performance of these networks.
- 2.7.9 Within the highway network theme, sites located in close proximity to the strategic road network tend to score neutral or low scores; this is primarily due to the incidence of delay on the strategic and primary road network and the number of PICs recorded within 2km of the sites. The following map, **Figure 2.7**, shows the score of the Rochford sites for the strategic road network criteria only where green represents the higher scoring sites and red represents the lower scoring sites. The map therefore shows the merits of a site's location in relation to the strategic road network without considering the performance of the network.

Figure 2.7: Combined Rochford sites – Proximity to the strategic road network criteria



Source: Mott MacDonald

2.7.10 **Figure 2.7** shows a clear north-south divide in terms of the site scores and shows a different picture to that of the highway network theme as a whole. Here, the sites located in the south of Rochford around Rawreth, Rayleigh, Rochford, Little Wakering and Great Wakering have the highest scores due to proximity to the A130, A1015, A127 and A13. In contrast, sites in the more rural north of the borough around Ashingdon and Canewdon score less well due to poor access to the strategic road network. The greatest concentration of lower scoring sites are located to the north of Hockley and Ashingdon.

2.7.11 During the first stage of the INSET toolkit, no weightings were applied to any criteria to ensure a consistent approach; however, it is recommended that the relative influence of the proximity to the strategic road network and HGV network is reviewed prior to the Stage 2 clustering appraisal. This has been acknowledged and the scoring criteria have been adjusted for Stage 2.

2.8 Environmental impact of transport

- 2.8.1 The following section provides a summary of the environmental impact of transport theme results for the RDC sites. The environmental impact of transport theme is composed of two constituent criteria: air quality (4 A (i)) and sensitive receptors (4 B (i)).
- 2.8.2 A brief description of what the two environmental impact of transport criteria assess is provided in **Table 2.7**.

Table 2.7. Environmental impact of transport - criteria description

Criteria	What does it assess?	Land uses exempt from assessment
Local air quality	Assesses whether the site is located in an Air Quality Management Area (AQMA).	N/A
Sensitive receptors	Assesses whether the site is located in the Southend Airport Public Safety Zone (PSZ).	N/A

Source: Mott MacDonald

- 2.8.3 The air quality sub-criterion assesses whether the site is located in an AQMA, and the sensitive receptors sub-criterion assesses whether the site is located in the Southend Airport Public Safety Zone (PSZ). All sites were assessed against the environmental impact of transport criteria, and a full breakdown of the sub-criteria questions is provided in **Table 2.2**.
- 2.8.4 **Figure 2.8** shows the combined scores of the Rochford sites for the environmental impact of transport theme, alongside plots of the Southend Airport PSZ and the Rayleigh AQMA, which is the only AQMA in the district of Rochford.
- 2.8.5 The Rayleigh AQMA⁸ is between the Rayleigh Weir junction to Raleigh Town Centre. The AQMA was declared due to exceedances of nitrogen dioxide levels due to road vehicle exhaust emissions. Air quality is a material planning consideration for RDC. Larger development applications located within or proximate to the AQMA must, therefore, be accompanied by an air quality assessment, which are considered as part of planning applications. RDC also have a policy to restrict new residential development in any AQMA.

⁸ Whilst concerns regarding air quality do exist on the A127, they do not meet the criteria to declare an AQMA and therefore are not assessed here.

- 2.8.6 The Southend PSZ is an area of land at the end of the runway of Southend Airport in which development is restricted, in order to control the number of people on the ground at risk of death or injury in the event of an aircraft accident upon take-off or landing.
- 2.8.7 According to DfT Circular 01/2010⁹, the policy objective governing the restriction on development near civil airports is that there should be no increase in the number of people living, working or congregating in Public Safety Zones and that, over time, the number should be reduced as circumstances allow.
- 2.8.8 The circumstances that permit development in PSZs are listed in DfT Circular 01/2010 and are captured in **Table 2.8**.

Table 2.8: Development permissible within airport PSZs

Development permissible within airport PSZs	
Extension or change of land use	New or replacement development which involve a low density of people living, working or congregating ¹⁰
An extension or alteration to a dwelling house which is for the purpose of enlarging or improving the living accommodation for the benefit of the people living in it, such people forming a single household, or which is for the purpose of a 'granny annex'.	Long stay and employee car parking (where the minimum stay is expected to be in excess of six hours).
An extension or alteration to a property (not being a single dwelling house or other residential building) which could not reasonably be expected to increase the number of people working or congregating in or at the property beyond the current level or, if greater, the number authorised by any extant planning permission.	Open storage and certain types of warehouse development. 'Traditional' warehousing and storage use, in which a very small number of people are likely to be present within a sizeable site, is acceptable. But more intensive uses, such as distribution centres, sorting depots and retail warehouses, which would be likely to entail significant numbers of people being present on a site, should not be permitted. In granting planning permission for a warehouse, a local planning authority should seek to attach conditions which would prevent the future intensification of the use of the site and limit the number of employees' present.
A change of use of a building or of land which could not reasonably be expected to increase the number of people living, working or congregating in or at the property or land beyond the current level or, if greater, the number authorised by any extant planning permission.	Development of a kind likely to introduce very few or no people on to a site on a regular basis. Examples might include unmanned structures, engineering operations, buildings housing plant or machinery, agricultural buildings and operations, buildings and structures in domestic curtilage incidental to dwelling house use, and buildings for storage purposes ancillary to existing industrial development.
	Public open space, in cases where there is a reasonable expectation of low intensity use. Attractions such as children's playgrounds should not be established in such locations. Nor should playing fields or sports grounds be established within Public Safety Zones, as these are likely to attract significant numbers of people on a regular basis
	Golf courses, but not clubhouses.
	Allotments.

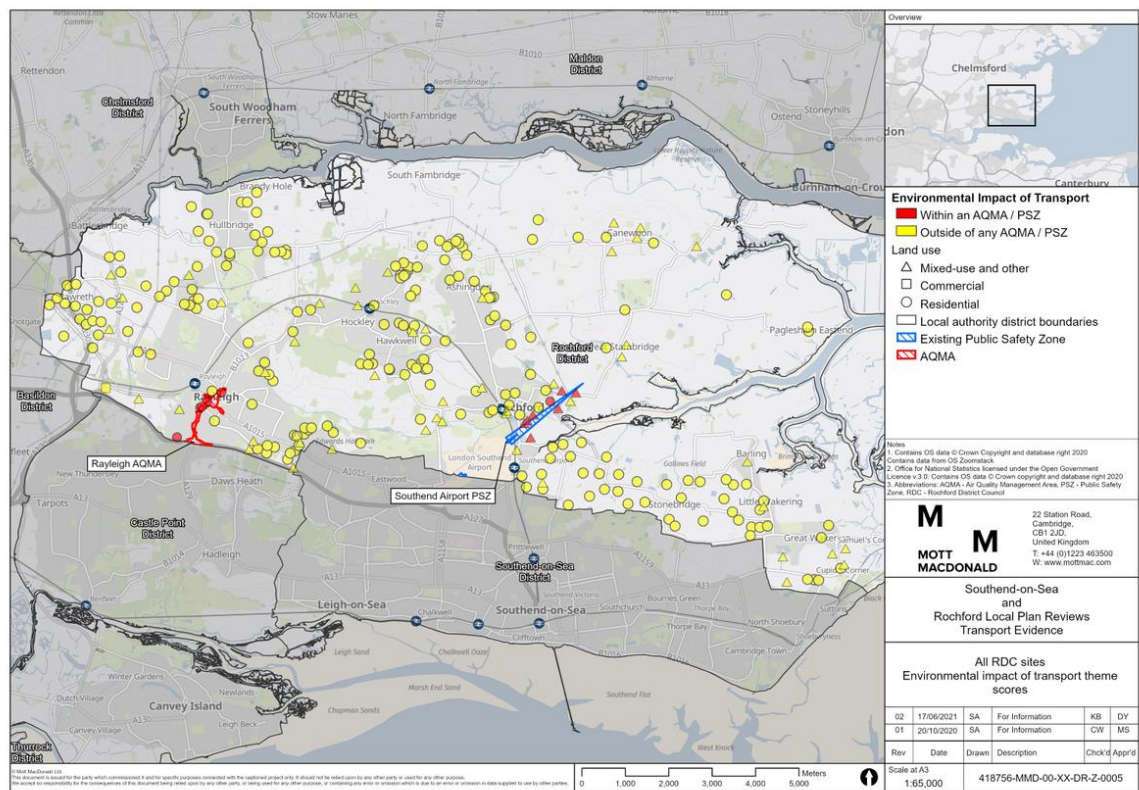
Source: Mott MacDonald

⁹ DfT Circular 01/2010 - Control of Development in Airport Public Safety Zones

¹⁰ New or replacement development may be permissible, but will be assessed on a case by case basis

2.8.9 The following map, **Figure 2.8**, shows the scores of the Rochford sites for the environmental impact of transport theme where yellow represents sites outside the PSZ / AQMA, and red represents sites within the PSZ / AQMA..

Figure 2.8: Combined Rochford sites - Environmental impact of transport theme scores (including plots of the Southend Airport PSZ and designated AQMAs)



Source: Mott MacDonald

2.8.10 The majority of the RDC sites are located outside of the Southend Airport PSZ and the Rayleigh AQMA, meaning they have a score of '0' for this criteria. However, 5 sites are located within the Rayleigh AQMA and 8 are within the Southend Airport PSZ; these sites thus score - 0.5.

2.8.11 **Figure 2.8** shows that the following residential sites (circular points) are located in the Rayleigh AQMA:

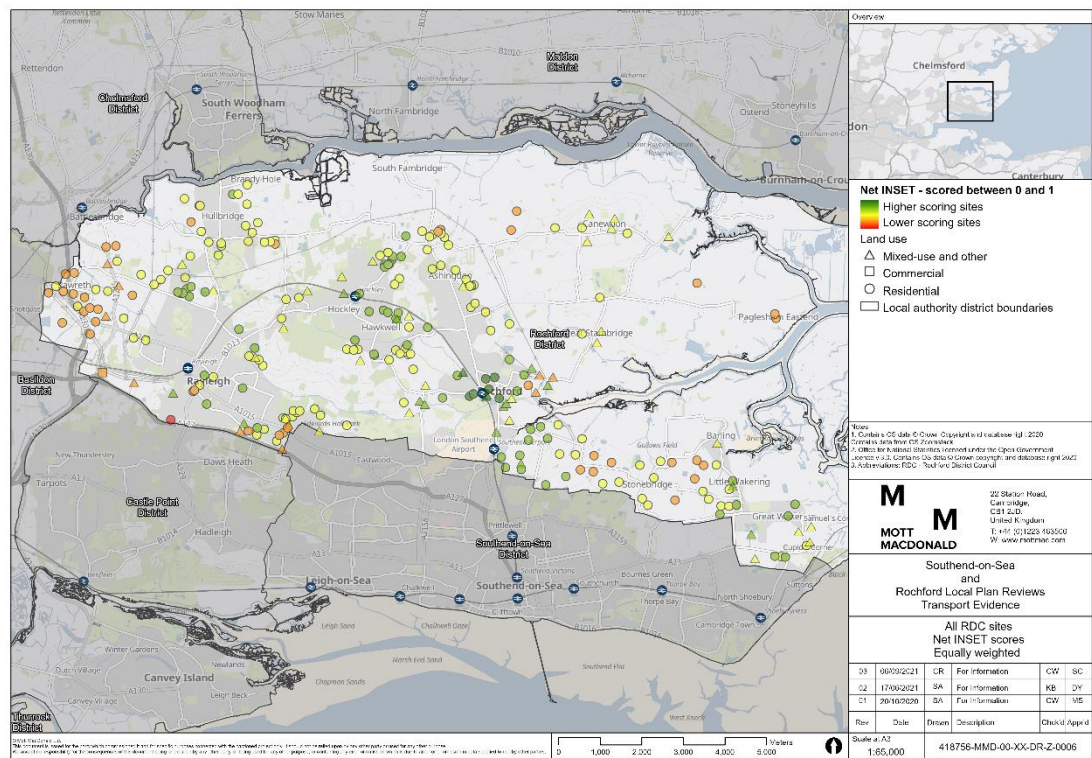
- COL20 (Rayleigh Civic Centre, Hockley Road, Rayleigh – Residential)
- BF02 (162-168 High Street, Rayleigh – Residential)
- CFS087 (Land between Western Road & Weir Farm Road, Rayleigh – Residential)
- BF07 (Rear of 98 to 128 High Street, Rayleigh – Residential)
- REF01 (156 High Street, Rayleigh - Residential)

- 2.8.12 Development at the sites located within the Rayleigh AQMA will only be permitted if the site promoters are able to provide evidence that the sites potential impact on the Rayleigh AQMA meet the policy requirements, including following consultation with the EHO. As such, sites within the AQMA would need further assessment to assess whether sufficient mitigation would be achievable and therefore adjusted scores / weighting as appropriate.
- 2.8.13 **Figure 2.8** shows that the following sites are located in the Southend Airport PSZ:
- COL03 (Council Depot, South Street, Rochford – Mixed-use)
 - COL83 (Millview Meadows, Rochford – Mixed-use)
 - CFS063 (Land south of Watts Lane, Rochford – Mixed-use)
 - CFS067 (Three Ashes, land south of Tinkers Lane, Rochford – Mixed-use)
 - CFS124 (Land east of Little Stambridge Mills, Mill Lane, Rochford – Mixed-use)
 - CFS112 (Land west of Stambridge Mills, Mill Lane, Rochford – Mixed-use)
 - CFS116 (Land south of Coombes Farm, Stambridge Road, Rochford – Residential)
 - CFS114 (Land east of Cherry Tree pub, Stambridge Road, Rochford – Mixed-use)
- 2.8.14 Development at the sites located within the Southend Airport PSZ will normally only be permitted if it is in line with the type of development set out in **Table 2.8**.
- 2.8.15 The Fairlawns Farm (CFS055) commercial site (square point) scored 0 as it is not located in the Rayleigh AQMA or the Southend Airport PSZ.
- 2.8.16 Of the submitted mixed-use sites (triangular points), none are located in the Rayleigh AQMA, but as shown above in **Figure 2.8**, 7 mixed use sites are located within the Southend Airport PSZ.

2.9 Net INSET scores

- 2.9.1 The following section provides the results of the net INSET toolkit for the Rochford sites. The net INSET score is made up of all four themes set out in **Paragraph 2.2.5**. All themes have been assigned a weighting of '1' in the INSET toolkit and are thus weighted equally.
- 2.9.2 **Figure 2.9** shows the equally weighted combined net INSET score of the Rochford sites across all four themes where green represents the higher scoring sites and red represents the lower scoring sites.

Figure 2.9: Combined Rochford sites – Net INSET scores



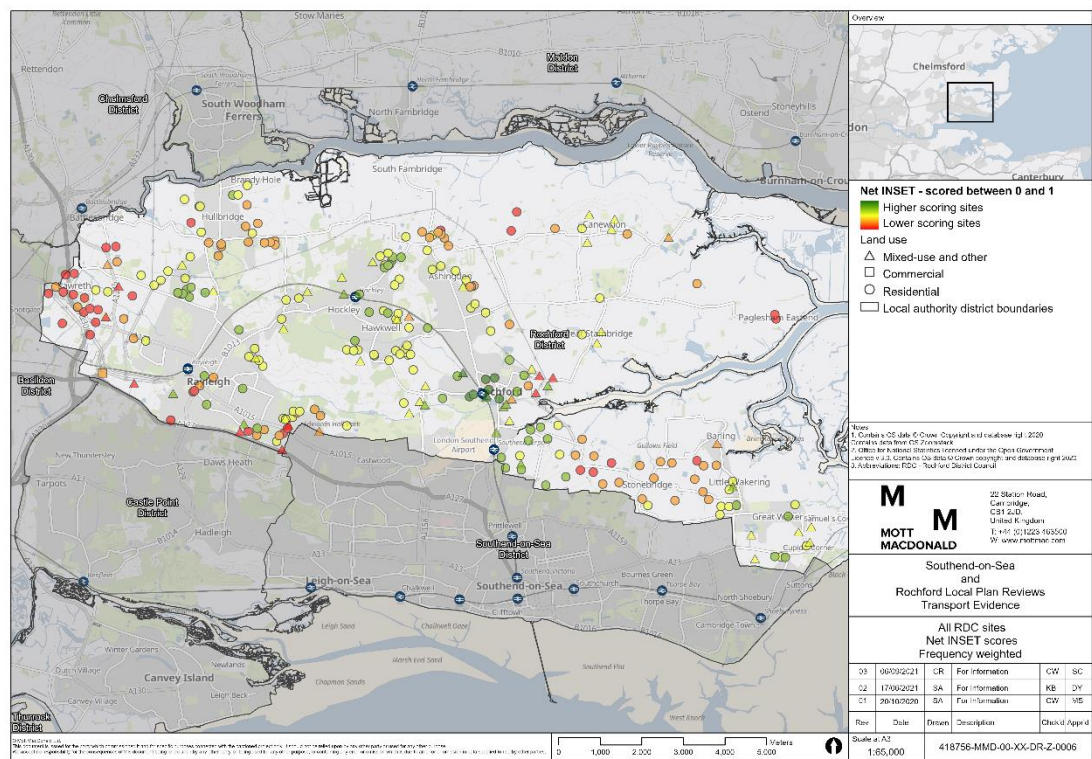
Source: Mott MacDonald

- 2.9.3 **Figure 2.9** shows a broad split in terms of sites within rural locations and those that are located within or proximate to the larger existing settlements of Rochford, Hockley and Hawkwell. Rural areas of settlements such as Rawreth, Canewdon and Hullbridge have a higher proportion of lower scoring sites (<0.4) in the west of the District and to the south east. In contrast, sites located within or proximate to the larger existing settlements are generally higher scoring (0.4 to 0.5) on the INSET qualitative scale.
- 2.9.4 The highest scoring sites are clustered in Rochford and Hockley which are two of the largest settlements in the District. Sites in and around Little Wakering and Great Wakering also have high proportions of higher scoring sites. Sites in and around the larger settlement of Ashingdon score moderately. However, sites within Rayleigh had a mixture of results ranging from low to high, whilst sites in Rawreth had a mixture of results from neutral to low. A large proportion of the Hockley and Hawkwell sites are located on the northern and southern fringe of the developed area, which reduces their scores for the proximity to facilities element and therefore lowering their overall net INSET score.
- 2.9.5 As mentioned previously, some larger greenfield sites are disadvantaged as the assessment only considers current facilities that are proximate to the site. Therefore, these sites score lower in the

proximity to facilities theme, reducing the overall net INSET score to neutral. However, they may in reality benefit from new facilities built as part of the development(s).

- 2.9.6 The lowest scoring site is located between Western Road and Weir Farm Road in Rayleigh (CFS087). This site scored 0.08 overall; scoring poorly in all theme areas except sustainable transport where CFS087 scored 0.49. CFS087 scores poorly due to the fact it is located within the Rayleigh AQMA, it has poor proximity to facilities including education, healthcare, open spaces and leisure, but it is located close to the A127 for good access to the strategic road network as well as fairly good sustainable transport links.
- 2.9.7 Other sites that score relatively low are within and proximate to Rawreth and in the south east of the District. Rawreth is a smaller settlement but scores well on the closeness to open space (2 D (i)) and leisure facilities (2 D (ii)).
- 2.9.8 **Figure 2.9** shows that the residential sites (circular points) with the highest scores are predominately located in Rochford, Hockley, Hawkwell and Great Wakering. These sites proximate location to larger settlements means they score well on proximity to facilities and sustainable transport. For example, site BF01 (West Street, Rochford) is the highest scoring residential site, scoring 0.54 overall. It scores 0.90 under the sustainable transport theme and 0.69 in the proximity to facilities theme. Other clusters of sites to the north of Rayleigh (north of Rawreth Lane), south of Rochford and north-east of Hockley have an overall high score. Residential sites located in rural locations or proximately to smaller settlements such as Rawreth score poorly largely due to poor scoring in the sustainable transport theme and proximity to facilities theme.
- 2.9.9 The Fairlawns Farm commercial site (square point) (CFS055) scores 0.26 on the INSET qualitative scale, which is a relatively low score due to scoring poorly against the sustainable travel (0.14) and proximity to facilities (0.21) theme. The majority of nearby facilities are located in Rayleigh which is over 2300m from the site on foot. The site scores well on the Highway Network theme with a total score of 0.7.
- 2.9.10 **Figure 2.9** shows that the mixed-use and other sites (triangular points) with the highest net INSET scores are in the urban areas of Hockley, Hawkwell and Rochford. The poor scoring mixed-use sites are located between Daws Heath and Eastwood, and in the outskirts of Rawreth.
- 2.9.11 A frequency weighted net INSET map was also produced below at **Figure 2.10**.

Figure 2.10: Combined Rochford sites – Net INSET scores (frequency weighted)



Source: Mott MacDonald

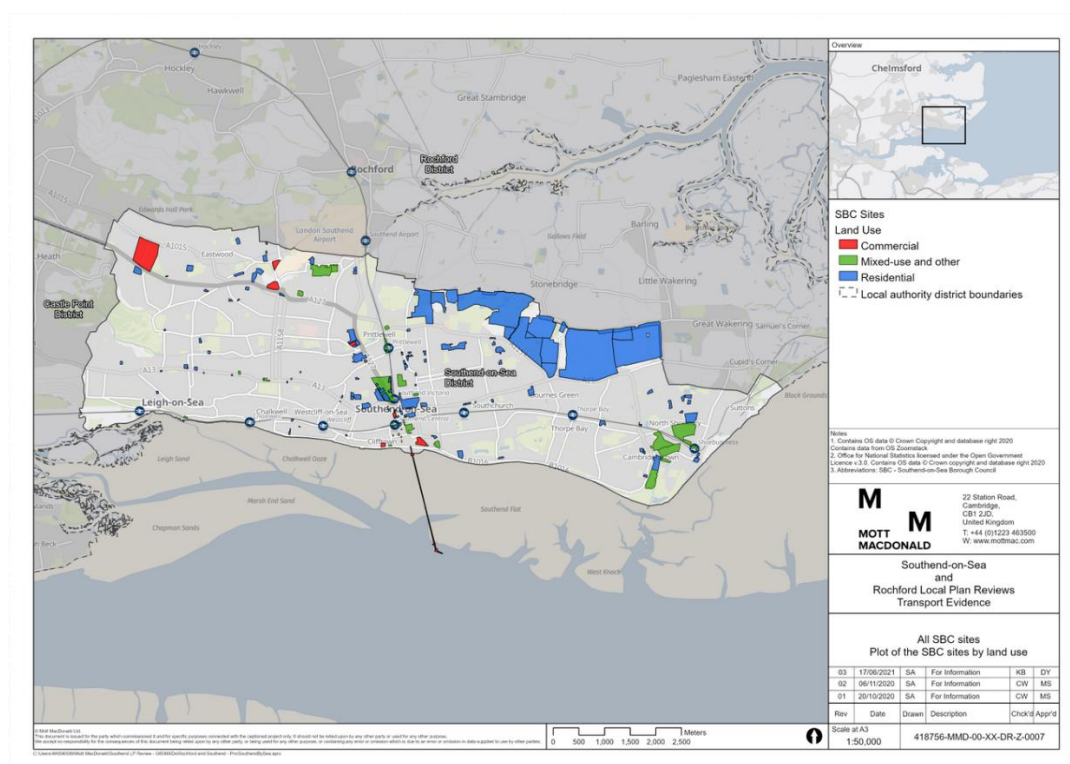
- 2.9.12 The frequency weighted map is based on the site scores; the site with the highest score is ranked 1 and the site with the lowest score is ranked 0 and as previously green represents the higher scoring sites and red represents the lower scoring sites.
- 2.9.13 **Figure 2.10** shows that the poor scoring areas are concentrated in Rawreth and the land north of Southend. In many cases, the proximity to facilities criteria results in a lower score for these sites. The higher scoring areas are concentrated in Rochford, Hockley and Hawkwell; with smaller clusters located east of Rawreth, in Little and Great Wakering and north east of Hockley.
- 2.9.14 Residential and mixed-use/other sites perform best in urban areas, with the exception of Rawreth.
- 2.9.15 The Fairlawns Farm (CFS055) commercial site scores poorly overall.

Southend sites

2.10 Site plan

- 2.10.1 In this section of the OAR, we provide an assessment of the 162 sites that SBC submitted to the INSET toolkit for assessment. As mentioned above, our analysis is structured thematically using the four themes outlined in **Section 2.2**, and all themes and criteria are weighted equally, with a weighting of '1'. The analysis is also segregated by land use.
- 2.10.2 In total, SBC submitted 162 sites from the Southend Borough area to be assessed via the INSET toolkit. The 162 sites are composed of 118 residential sites, 9 commercial site and 35 mixed-use or other sites.
- 2.10.3 The SBC sites are plotted in **Figure 2.11**; Southend outputs are found throughout this section of the report and a complete set of all the Southend outputs provided at **Appendix D**.

Figure 2.11. Southend sites plot



Source: Mott MacDonald

- 2.10.4 **Figure 2.11** shows that the larger SBC sites are generally concentrated in the north of the borough within, or proximate to, the North East Southend Area of Search (AoS); these larger sites are all categorised as mixed-use or residential.

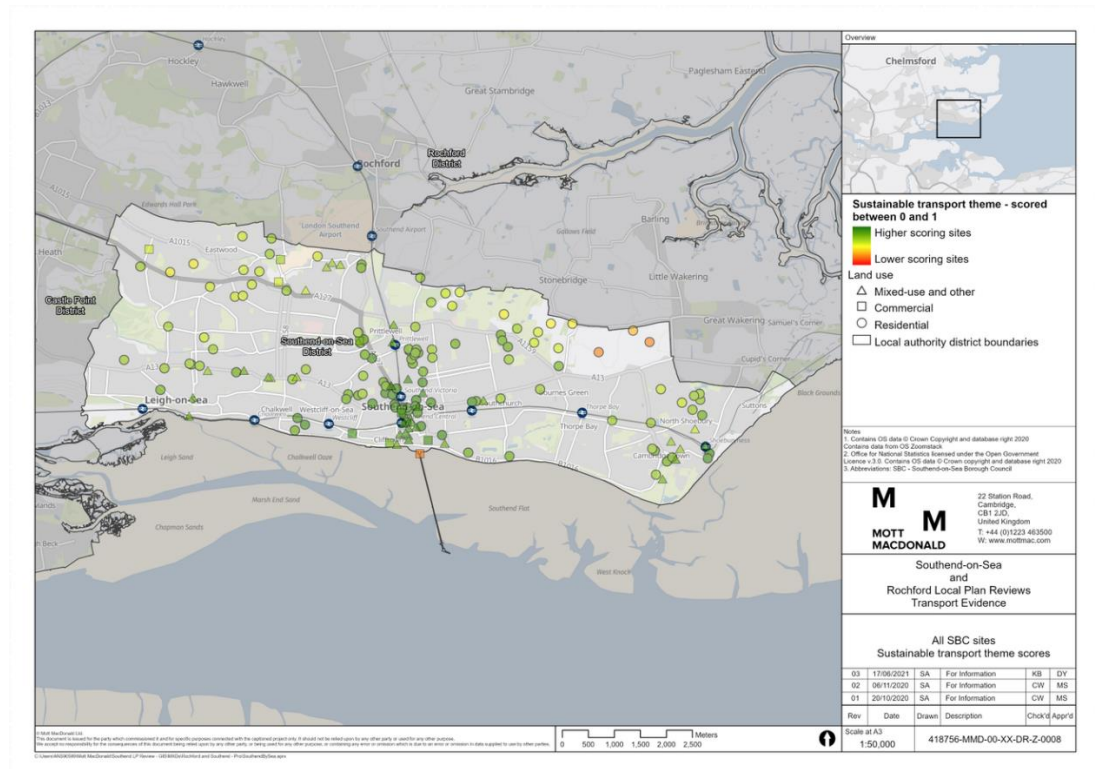
- 2.10.5 In total, SBC submitted 35 mixed-used sites to be assessed via the INSET toolkit, which are shown in green in **Figure 2.11**. The majority of mixed-use sites are concentrated in the north and east of the Borough, as well as within, and proximate to, Southend Town Centre. The large mixed-use sites located at the Southend Borough's northern boundary are located in green belt land within the North East Southend AoS, Thorpe Bay and Southchurch clusters identified in the Southend and Rochford Joint HELAA Site Clustering Analysis Report¹¹. These sites are primarily accessible via the A127 and A13 corridors. In addition, there is a cluster of mixed-use sites proximate to Shoeburyness, adjacent to the c2c rail line that runs to Fenchurch Street.
- 2.10.6 In total, SBC submitted 118 residential sites to be assessed via the INSET toolkit. **Figure 2.11** shows that the SBC residential sites are widely distributed across the Borough. A cluster of residential sites can be found within, and proximate to, Southend Town Centre, as well as along the A13 and A127 corridors. The larger residential sites are located within the North East Southend Area of Search (AoS), north of Thorpe Bay and Southchurch.
- 2.10.7 In total, SBC submitted 9 commercial sites to be assessed via the INSET toolkit. The majority of commercial sites are located in the northwest of the Borough to the east and west of the town of Eastwood, or within, or proximate to, Southend Town Centre. A large existing employment estate which can be further developed is located north of the A127 and south of the A1015, in the north west of the Borough.
- 2.10.8 A high-level thematic analysis of the Southend sites is presented in **Sections 2.11 to 2.15** below, and the detailed INSET outputs for each site are provided in **Appendix E** upon request

2.11 Sustainable travel

- 2.11.1 The following section provides an assessment of the sustainable travel theme for the Southend sites. The sustainable travel theme is composed of three constituent criteria: NMUs, buses and rail services.
- 2.11.2 A full description of the sustainable travel criteria is provided in **Table 2.4** above. Refer to **Table 2.2** for a full breakdown of the sub-criteria questions.
- 2.11.3 The following map in **Figure 2.12** shows the combined score of the Southend sites for the sustainable travel theme where green represents the higher scoring sites and red represents the lower scoring sites.

¹¹ Lichfields (2020). Southend and Rochford Joint HELAA Site Clustering Analysis.

Figure 2.12. Combined Southend sites – sustainable travel theme scores



Source: Mott MacDonald

- 2.11.4 **Figure 2.12** shows that the sites with the highest scores for the sustainable travel theme are located predominantly within or proximate to Southend Town Centre. Other high scoring sites include submitted site locations in Shoeburyness and Leigh-on-Sea. The majority of sites score neutral to fairly high, with a few low scoring sites.
- 2.11.5 Southend Town Centre is served by two rail stations, Southend Central and Southend Victoria with trains to Shoeburyness, London Fenchurch Street and London Liverpool Street. Both stations provide a direct connection to London meaning sites in this vicinity will score well in the sub criteria 1 C (iii) (travel time by train to central London) and sub criteria 1 C (ii) (travel time by train to Southend Central or Victoria).
- 2.11.6 At Southend Victoria Station there are bus stops located directly outside the station on Queensway and Victoria Avenue with routes serving a range of destinations. Routes are: 1, 3, 7, 8, 9, 20, 21, 21B, 25, 26, 27, 27A, 28, 29 and X30. The bus stop at Southend Central has one bus route: 17. An additional 18 bus routes can be accessed at Whitegate Road Bus Stop on Chichester Road in Southend Town Centre.
- 2.11.7 The sites located within Southend Town Centre are located proximately to a broader range of bus stops that provide frequent services, when compared to the more suburban and rural areas of the

borough. Hence, these sites score highly on the bus and train assessment criteria. For example, Site HEA008 (The Sarah Moore Public House) is located 1km north east of Leigh-on-Sea Rail Station; this site scores lower for the criteria based on time to Southend Central or Victoria by train (0.5) and on cycle infrastructure (0.25); but overall, the remaining criteria score well (0.75-1).

- 2.11.8 The sites with the lowest scores are concentrated in the rural north east of the borough north of the A13 where there is limited access to existing sustainable transport infrastructure. The lowest scoring sites are not within 2300m of a railway station and tend to be a greater distance on foot from the nearest bus stop, which in many cases were served less frequently. For example, the submitted site location of HEA219/36 (agricultural area) is adjacent to North Shoebury; the site scores 0.27 for the sustainable transport theme; the site has a low score because it is not currently served by any buses within 400m of the site, provides no cycle infrastructure or footway provision and is located over 2300m from the nearest train station.
- 2.11.9 With regard to NMU provision, all but 3 sites were located within 400m of a footway with a width of more than 3m. Site HEA143 and HEA219/36 have no footway provision, and site HEA219/19 has a footway width of > 0 - < 2m.
- 2.11.10 The circular points in **Figure 2.12** represent residential sites. The residential sites with the highest scores for the sustainable theme are located near to Southend Town Centre, Shoeburyness and Leigh-on-Sea. Residential sites are the most numerous type of site by land use in the borough. The majority of residential sites are located in, or proximate to, existing settlements such as Southend Town Centre. However, there are a number of sites located in rural areas of the borough, such as north of the A13 in the north of the borough.
- 2.11.11 HEA060 is a residential site located in Southend Town Centre, approximately 400m north west of Southend Victoria Rail Station. This site scores 0.83 on the sustainable transport theme, scoring 1 on the following criteria: 1 A (i) (cycle infrastructure), 1 A (ii) (pedestrian infrastructure), 1 B (i) (distance to nearest bus stop), 1 B (ii) (bus frequency), 1 C (i) (rail station proximity), 1 C (ii) (travel time to Southend Central or Victoria) and 1 C (iii) (travel time by train to central London).
- 2.11.12 Other sites located proximately to sustainable transport infrastructure also perform well. For example, site 18/01141/OUTM* is located 100m south of the A13/Elm Road/Delaware Road roundabout, and 1km west of Shoeburyness Rail Station. The site 18/01141/OUTM* scores 0.75 on all train criteria and 1 on both bus criteria 1 B (i) (distance to nearest bus stop) and 1 B (ii) (bus frequency). The site has more than 10 bus services per hour and is less than 400m from the nearest bus stop on Ness Road at the Waterloo Road bus stop.
- 2.11.13 The square points in **Figure 2.12** represent commercial sites. The majority of the high scoring commercial site are located within, or proximate to, Southend Town Centre and Shoeburyness.

The majority of these sites are located proximately to Southend Victoria or Southend Central station and frequently served bus stops. For example, site 16/02258/BC3 scores a very high score of 0.88 in relation to the qualitative scale in INSET. This site scores well because site 16/02258/BC3 (located 1.3km west of Southend Pier) has a relatively short travel time to London, is within 400m of frequently served bus stops, is adjacent to footpaths that are more than 3m wide and is located proximately to a segregated cycle track.

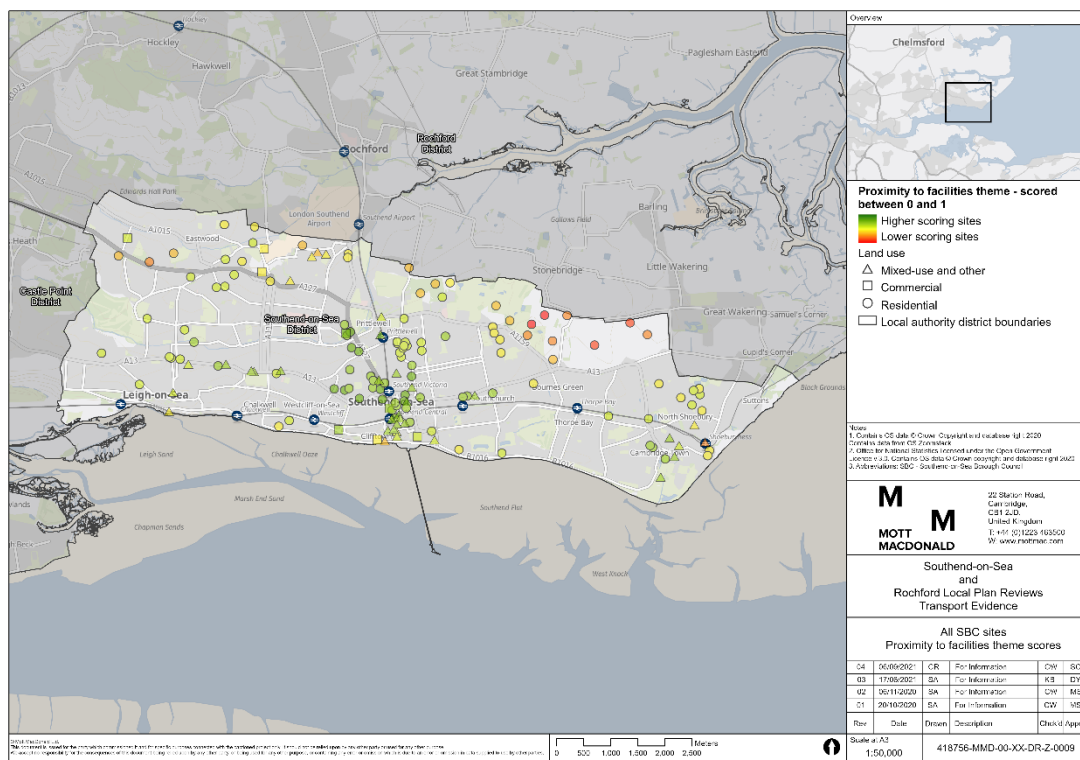
- 2.11.14 The lower scoring commercial sites are located in the northwest of the borough to the east and west of Eastwood. For example, site HEA219/36 (located adjacent to North Shoebury) scored 0.27 overall for the sustainable transport theme; this site scored lower on the sub criteria 1 B (ii) (bus frequency), 1 A (ii) pedestrian infrastructure) and 1 C (i) (rail station proximity). This is because there is no bus service, no footpath provision and no rail stations within 2300m of the site.
- 2.11.15 The triangle points in **Figure 2.12** represent mixed-use sites. The majority of mixed-use sites that score relatively high are located in Southend Town Centre. Settlements served by rail stations and on road corridors that offer a number of bus services, such as the A13, tend to score relatively highly. For example, site HEA001 is located in Southend Town Centre, approximately 350m south of Southend Central Station. This site scores 0.88 on the sustainable transport theme; this includes scoring 1 for all of the rail criteria, as well as scoring 1 in the following sub criteria: 1 A (i) (cycle infrastructure), 1 A (ii) (pedestrian infrastructure), 1B (i) (nearest bus stop), 1 B (ii) (bus frequency) and 1 B (iv) (travel time by bus to town centre).
- 2.11.16 The lower scoring mixed-use sites are all located to the northeast of the borough within or proximate to the green belt area of land labelled as the North East Southend Area of Search cluster. Transport infrastructure is not extensive within the green belt due to restrictions on development, and there is limited current development with relatively little demand which explains why these sites have lower scores. For example, site HEA219/19 is in the land west of Great Wakering and scores 0.31 on the sustainable transport theme. This site scored 0.25 or less on the following sub criteria: 1 A (i) (cycle infrastructure), 1 A (iii) (provision for other NMU users), 1 B (ii) (bus frequency), 1 B (iii) (travel time to local centre), 1 B (iv) (travel time by bus to nearest town centre), 1 C (i) (rail station proximity) and 1 C (iii) (travel time by train to central London).

2.12 Proximity to facilities

- 2.12.1 The following section provides an assessment of the proximity to facilities theme for the Southend sites. The proximity to facilities theme is composed of seven constituent criteria that assess the proximity of the site to the following facilities: education, healthcare, employment, open spaces and leisure, retail, access to centres and residential. Refer to **Table 2.2** for a full breakdown of the sub-criteria questions.

- 2.12.2 The following map in **Figure 2.13** shows the combined scores of the Southend sites for the proximity to facilities theme where green represents the higher scoring sites and red represents the lower scoring sites.

Figure 2.13. Southend sites - proximity to facilities theme scores



Source: Mott MacDonald

- 2.12.3 **Figure 2.13** shows that, in general, the more urbanised the location, the higher the site score. This is because the INSET toolkit is based on the site's proximity to existing facilities. Urban areas tend to provide close access to education (2 A (i)), healthcare (2 B (i)), employment (2 C), open spaces and leisure (2 D), retail facilities (2 E) and access to centres (2 F). The sites with good (0.4 to 0.5) and very good (0.5>) scores for the proximity to facilities theme are located near or proximate to Southend Town Centre, which acts as a borough wide hub for retail and the location of South Essex College.. Other high scoring areas are located along the A13 west of Southend Town Centre.
- 2.12.4 The sites located in the rural North East Southend AoS cluster have the lowest scores (<0.4) in the borough. This area of the borough is predominately rural due to its location within the green belt. The corresponding absence of development thus reflects the limited provision of facilities. For example, site HEA219/36, which is located adjacent to the north of North Shoebury, scores 0.29 for the proximity to facilities theme which is a poor score on the INSET qualitative scale. The

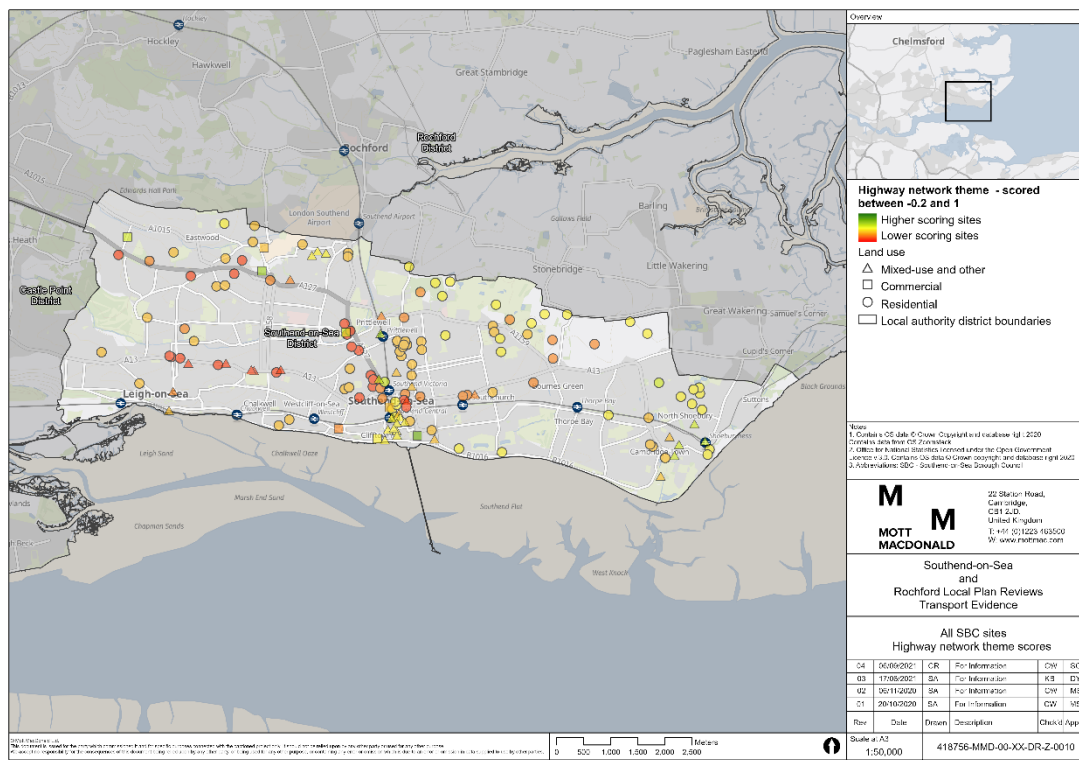
location of the site is more than 2300m from a secondary education facility, a town centre and retail park.

- 2.12.5 **Figure 2.13** shows that the residential sites (circular points) with the highest scores for the proximity to facilities theme are located in, and within the vicinity of, Southend Town Centre. These sites are located within the context of a large established settlement where a greater number of facilities are available.
- 2.12.6 The commercial sites (square points) within Southend score moderately to high for the proximity to facilities theme. Three of the commercial sites are located proximately to Southend's border with Rochford district at the northern boundary of the borough, and all score moderately; the nearest rail facility to these sites is found at Southend Airport Rail Station which is outside of the defined 2300m catchment.
- 2.12.7 **Figure 2.13** shows that the SBC mixed-use sites (triangular points) with the highest scores for the proximity to facilities theme are located in Southend Town Centre, along the A13 and south Shoeburyness due to the large number of facilities in these areas. The mixed-use sites with the lowest scores are concentrated in the north and north east of the borough which are predominantly rural in nature. These sites score poorly in the 'Access to centres' and 'Retail' criteria due to limited access to nearby facilities. Notably, there are relatively few mixed-used sites within the urbanised areas of Southend Town Centre when compared to the residential sites presented in **Figure 2.13**.

2.13 Highway network

- 2.13.1 The following section provides an assessment of the highway network theme for the combined Southend sites. The highway network theme is composed of five constituent criteria: A roads, B roads, the local road network, HGV routes and safety.
- 2.13.2 A brief description of what the five highway network theme criteria measure is provided in **Table 2.6**. Refer to **Table 2.2** for a full breakdown of the sub-criteria questions.
- 2.13.3 The following map in **Figure 2.14** shows the combined score of the Southend sites for the highway network theme where green represents the higher scoring sites and red represents the lower scoring sites.

Figure 2.14. Southend sites – Highway network theme scores



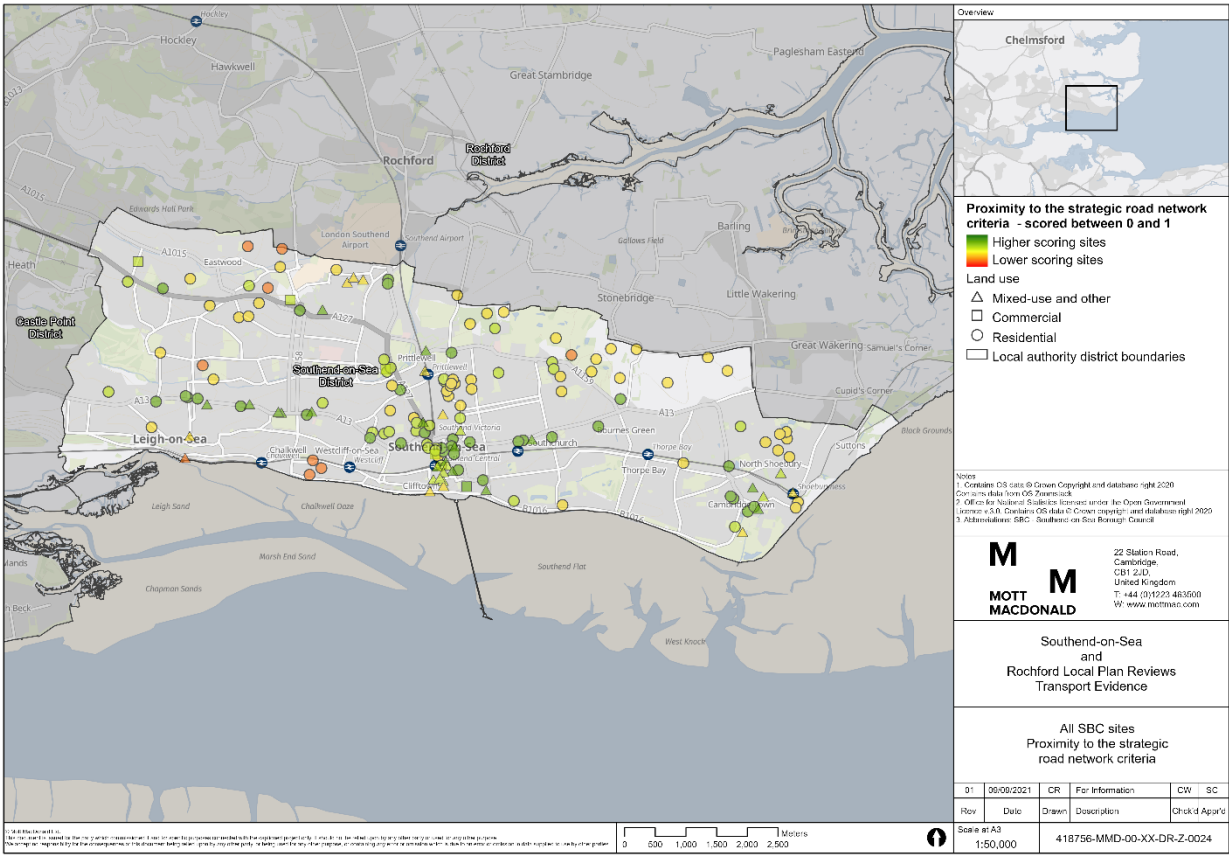
Source: Mott MacDonald

2.13.4 **Figure 2.14** shows that the majority of sites in the borough score moderately to poor on the qualitative INSET scale. Sites to the south of Southend Town Centre, to the east of the borough and in the North East of Southend AoS tend to have better scores. Poor scoring sites are concentrated along the A13 and A127 corridors largely due to scoring lower on the primary and strategic road network criteria. For example, Site HEA019 is located along the A13, west of Olivia Drive, and scored 0.63 in the strategic road network criteria. However, this site scored 0.25 or less in the following criteria: 3 B (i) (primary road network performance), (and 3 D (i) (established HGV route).

2.13.5 Site HEA259, which is located at Roots Hall Stadium in Southend Town Centre, scored 0.13 overall for the highway network theme. Site HEA259 scored particularly poorly on the strategic road network, HGV and safety criteria. The site was in the >80th percentile for recorded PICs within 2km of the site centroid, which scores the worst possible score of 0, the site also scored poorly on the HGV network, because it is located within 150m of the HGV network and is a residential site, and scored 0.25 for the strategic road network performance and 0.5 for the overall network performance.

- 2.13.6 **Figure 2.14** shows that the residential sites (circular points) with the highest scores for the highway network theme are inversely distributed when compared to the sustainable travel theme. For the Highway Network theme, the submitted residential sites in more rural locations have higher scores compared to those sites located within existing settlements; this is due to the performance of the road network criteria as there are more free flow conditions on the roads in rural areas of the borough. The residential sites in North Shoebury scored the highest; this is due to the convenient access to the A13 and low levels of PICs within 2300m of the sites.
- 2.13.7 The two highest scoring sites in the borough for the Highway Network theme were commercial sites (square points).
- 2.13.8 The highest scoring mixed-use sites (triangular points) are clustered in the south of Southend Town Centre. Despite their proximity to the HGV network, the mixed-use sites with the lowest scores are located along the A13, north east of Leigh-on-Sea. The low scores are due to the high level of congestion on the A13 and the surrounding feeder roads. In reality, the proximity of these sites to key highway transport corridors may be viewed as an advantage as opposed to a disadvantage in the context of other sites located further from these key routes but having greater free flow conditions on their local networks.
- 2.13.9 Within the highway network theme, sites located in close proximity to the strategic road network tend to score neutral or low scores; this is primarily due to the incidence of delay on the strategic and primary road networks and the number of PICs recorded within 2km of the sites. The following map, **Figure 2.15**, shows the score of the Southend sites for the strategic road network criteria only where green represents the higher scoring sites and red represents the lower scoring sites. The map therefore shows the merits of a site's location in relation to the strategic road network without considering the performance of the network.

Figure 2.15: Combined Southend sites – Proximity to the strategic road network criteria



Source: Mott MacDonald

2.13.10 Figure 2.15 shows that the highest scoring sites within the proximity to the strategic road network criteria are unsurprisingly located along the A13 and A127, with the largest concentration within the centre of Southend. In contrast, sites in the more rural north (particularly north-east) of the borough score less well due to poor access to the strategic road network.

2.13.11 During the first stage of the INSET toolkit, no weightings were applied to any criteria to ensure a consistent approach; however, it is recommended that the relative influence of the proximity to the strategic road network and HGV network is reviewed prior to the Stage 2 clustering appraisal. This has been acknowledged and the scoring criteria have been adjusted for Stage 2.

2.14 Environmental impact of transport

2.14.1 The following section provides a summary of the environmental impact of transport theme results for the SBC sites. The environmental impact of transport theme is composed of two constituent criteria: air quality and sensitive receptors.

- 2.14.2 A brief description of what the two environmental impact of transport criteria assess is provided in **Table 2.9**.

Table 2.9: Environmental impact of transport - criteria description

Criteria	What does it assess?	Land uses exempt from assessment
Local air quality	Assesses whether the site is located in an Air Quality Management Area (AQMA).	N/A
Sensitive receptors	Assesses whether the site is located in the Southend Airport Public Safety Zone (PSZ).	N/A

Source: Mott MacDonald

- 2.14.3 The air quality sub-criterion assesses whether the site is located in an AQMA, and the sensitive receptors sub-criterion assesses whether the site is located in the Southend Airport Public Safety Zone (PSZ). All sites were assessed against the environmental impact of transport sub-criteria, and a full breakdown of the sub-criteria questions is provided in **Table 2.2**.
- 2.14.4 The AQMA Southend on Sea Borough Council No 1 Order 2016 is predominantly located on part of the A127 at the Bell Junction, south of Southend airport. The AQMA was declared due to a likely breach of the Nitrogen Dioxide Annual Mean Objective as specified in the Air Quality Regulations 2000¹².
- 2.14.5 The second AQMA is also located on parts of the A127, Fairfax Drive and the B1015. The reason for declaring this AQMA is also due to a likely breach of the Nitrogen Dioxide Annual Mean Objective as specified in the Air Quality Regulations 2000¹³.
- 2.14.6 The Southend PSZ is an area of land at the end of the runway of Southend Airport in which development is restricted. The Southend PSZ functions to control the number of people on the ground at risk of death or injury in the event of an aircraft accident upon take-off or landing.
- 2.14.7 According to DfT Circular 01/2010¹⁴, the policy objective governing the restriction on development near civil airports is that there should be no increase in the number of people living, working or

¹² Department for Environment Food & Rural Affairs – Air Information Resource – AQMA Details 07/11/2016

¹³ Department for Environment Food & Rural Affairs – Air Information Resource – AQMA Details 07/11/2016

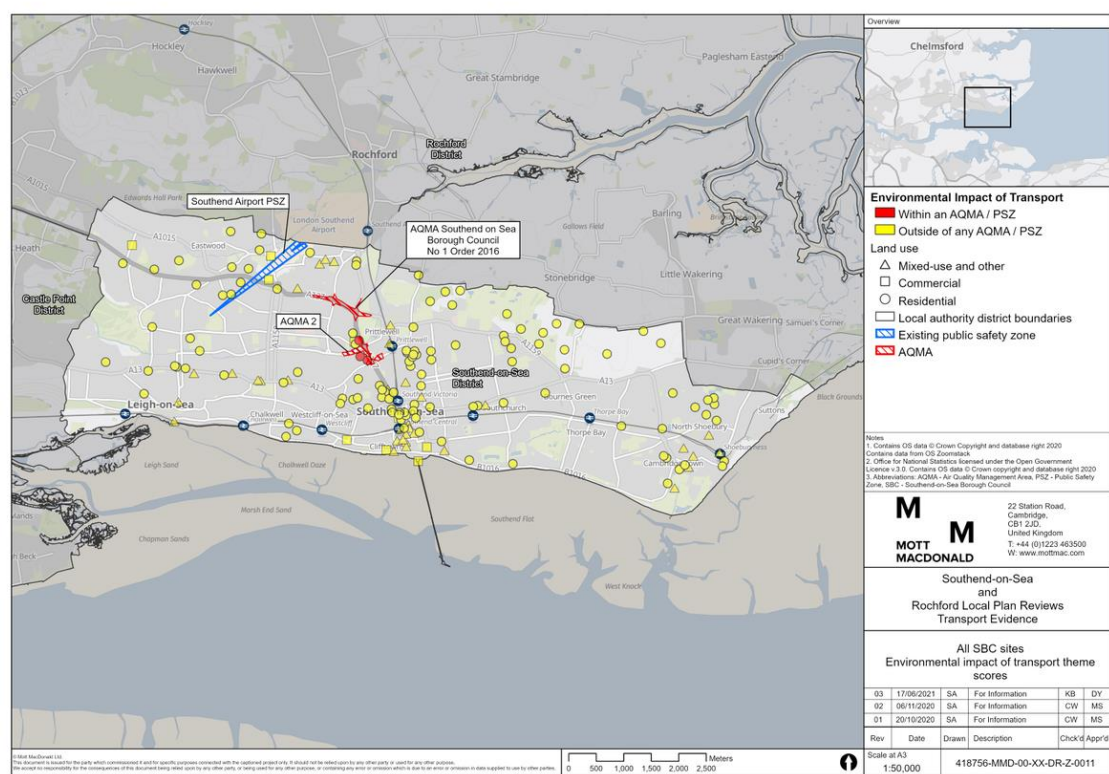
¹⁴ DfT Circular 01/2010 - Control of Development in Airport Public Safety Zones

congregating in Public Safety Zones and that, over time, the number should be reduced as circumstances allow.

2.14.8 The circumstances that permit development in PSZs are listed in DfT Circular 01/2010 and are stated in **Table 2.8**.

2.14.9 The following map, **Figure 2.16**, shows the sites that are located within one of the two dedicated AQMAs in Southend or the Southend Airport PSZ in red, and those that are not are in yellow.

Figure 2.16. Southend sites - Environmental impact of transport theme scores (including plots of the Southend Airport PSZ and designated AQMAs)



Source: Mott MacDonald

2.14.10 The majority of the SBC sites are located outside of the PSZ and two AQMAs within the borough; this indicates they have a score of '0' for these criteria. However, 3 sites are located within AQMA 2 as seen in **Figure 2.16**; therefore, these sites score -0.5. No sites are located in the PSZ and therefore score a neutral score of 0.

2.14.11 **Figure 2.16** shows that the following residential sites are located in the AQMA:

- HEA106 (Industrial uses between Roots Hall Avenue and Victoria Avenue – Residential led)
- HEA246 (Stephen McAdden House, 21 Burr Hill Chase, Southend - Residential)
- HEA259 (Roots Hall Stadium – Residential led)

2.14.12 Development within the Southend AQMA will only be permitted if the site promoters are able to satisfy the planning requirements with regard to their potential impact on the Southend AQMA. As such, sites within the AQMA would need further assessment to assess whether sufficient mitigation would be achievable and therefore adjusted scores / weighting as appropriate.

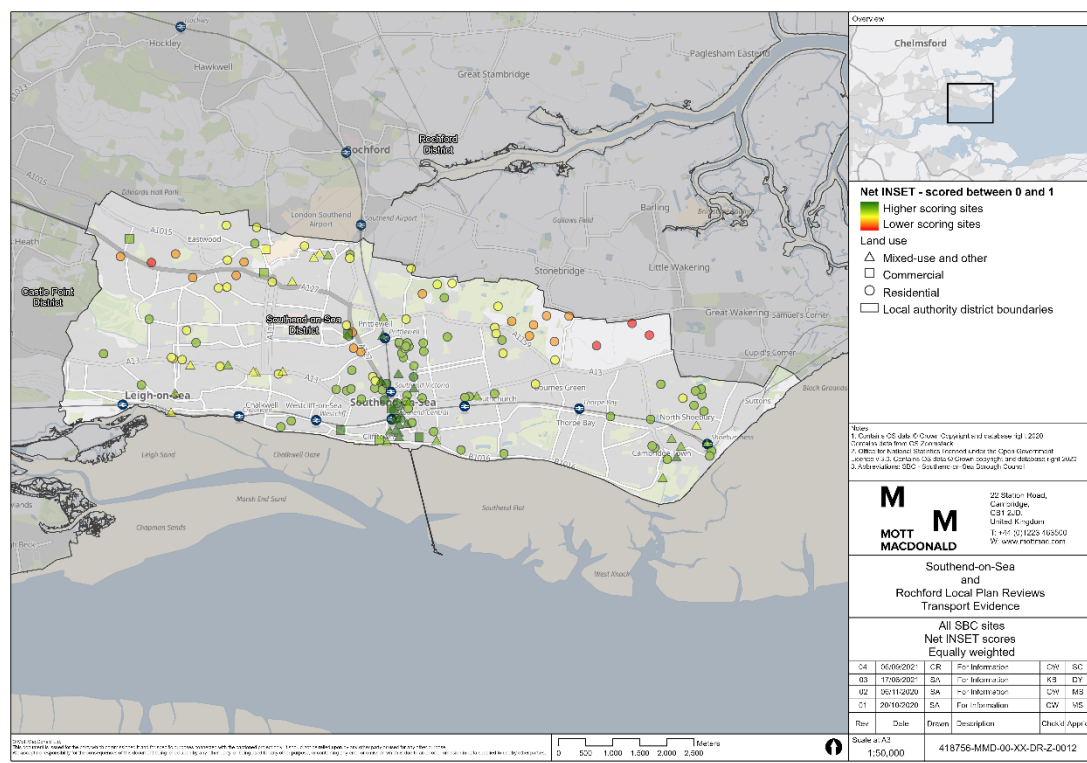
2.14.13 All sites within the Southend AQMA are residential, with no commercial and mixed-use sites located within the AQMA. The residential sites within the Southend AQMA score -0.5. Sites within the AQMA are penalised (-0.5) but sites not in the AQMA are not rewarded, hence the neutral score of 0 for all other sites.

2.15 Net INSET scores

2.15.1 The following section provides the results of the net INSET toolkit for the Southend sites. The net INSET score is made up of all four themes set out in **Paragraph 2.2.5**. All themes have been assigned a weighting of '1' in the INSET toolkit and are thus weighted equally.

2.15.2 **Figure 2.17** shows the net INSET scores of the Southend sites where green represents the higher scoring sites and red represents the lower scoring sites.

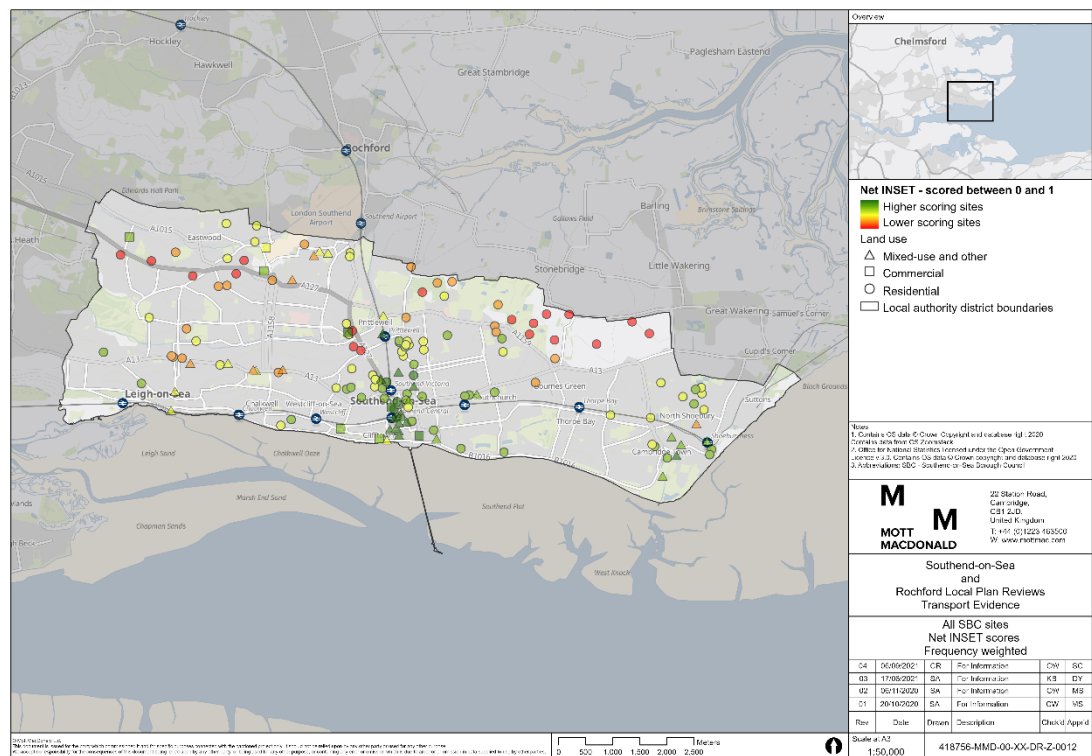
Figure 2.17. Southend sites – Net INSET scores



Source: Mott MacDonald

- 2.15.3 **Figure 2.17** shows that the sites located in urban areas tend to score more highly than those located in suburban and rural areas. The majority of sites that have a 'good' score on the INSET qualitative scale are located within or proximate to Southend Town Centre. Sites within Shoeburyness also score well; these sites are located next to larger settlements and therefore score well on the proximity to facilities and sustainable transport themes. The neutral to low scores (between 0.18 and 0.4) are located within rural land within the North East Southend AoS and along the western extent of the A127 corridor to the south of Eastwood.
- 2.15.4 Rural areas in the north east of the borough score much lower (<0.4) compared to Southend Town Centre and the west of the borough. One of the lowest scoring sites, HEA219/36, is located in the north east of the Borough to the north of the A13. This site scored 0.24 overall; scoring poorly in all assessment areas. HEA219/36 scores poorly due to its rural nature which means it is predisposed to score lower on any assessment criteria that reviews existing conditions.
- 2.15.5 Other sites with low scores are along the A127 and A13 in the west of the borough such as site HEA002 (Bellhouse Road). This site scores lower on the highway network theme due to a poor performing strategic road network and on the HGV network, because it is located within 150m of the HGV network and is a residential site. It also scores low on proximity to facilities due to being 1150m away from healthcare (2 B) and more than 800m away from education facilities (2 A). Specifically, sites score poorly on the A127 due to congestion and accidents; such as site HEA117.
- 2.15.6 All commercial sites (square points) in the borough score good or very good on the INSET qualitative scale. The commercial sites within Southend Town Centre score well particularly on the sustainable transport and proximity to facilities themes.
- 2.15.7 **Figure 2.17** shows that the mixed-use sites (triangular points) with the highest net INSET scores are also located in Southend Town Centre and Shoeburyness. The mixed-use sites with neutral scores are located in less densely populated areas (although Southend in general is densely populated) in the west of the borough along the A13, A127, in Leigh-on-Sea and at the northern boundary of the borough just south of Southend Airport.
- 2.15.8 A frequency weighted net INSET map was also produced and is shown in **Figure 2.18**. The frequency weighted map is based on the site scores; the site with the highest score is ranked 1 and the site with the lowest score is ranked 0. The map shows the worst and best scoring Southend sites using all of the INSET toolkit criteria

Figure 2.18. Southend sites – Frequency Weighted Net INSET scores



Source: Mott MacDonald

2.15.9 As above, the highest scoring sites are in Southend Town Centre and Shoeburyness in the urban areas of the borough, and the low scoring sites are in the rural areas of the borough such as in the north east and along the A127 to the west of the borough. This is because urban towns score well in the sustainable transport, proximity to facilities and environmental impacts themes. The Southend mixed-use sites score well in the urban areas of Southend Town Centre and Shoebury, and score moderate to low in more rural locations along the A13 and north of the A127. The commercial sites score moderate to well, with very good scores in Southend Town Centre. The residential sites vary from poor to very good, with urban residential sites scoring high in comparison to rural residential sites which score low overall.

2.16 Summary

2.16.1 This chapter of the report has documented the appraisal of the longlist of sites provided by SBC and RDC against the range of agreed assessment criteria.

2.16.2 The site assessment exercise forms Phase 1 Stage 1 of the work being undertaken to inform the development of the transport and highways evidence base of the individual local plans for Southend-on-Sea and Rochford .

- 2.16.3 The initial site sifting process involved the assessment of potential sites via a Green Book compliant Multi-Criteria Decision Analysis (MCDA) process. The assessment of the sites considered a wide range of assessment criteria that were agreed with SBC and RDC and aligned to the objectives of the Local Plan development process. The assessment criteria were grouped by four key themes, sustainable travel, proximity to facilities, highway network, and the environmental impact of transport.
- 2.16.4 The results of the assessment concluded that sites within urban areas of Southend and Rochford overall scored relatively higher in comparison to the rural areas.
- 2.16.5 For the sustainable transport theme the urban areas scored higher due to the presence of existing rail stations and bus stops in close proximity to the sites. The proximity to facilities theme had a similar outcome with urban areas being closer to schools (2 A), healthcare (2 B), open spaces (2 D (i)), retail (2 E) and town centres (2 F) compared to the relatively low scoring sites in rural areas.
- 2.16.6 The highway network theme showed inverse results compared to the sustainable transport theme and the proximity to facilities theme; despite the fact that some sites are located proximate to the strategic road network. This was considered to be due to the performance of the strategic road network and peak traffic congestion resulting in relatively lower scores. Whereas rural areas scored relatively higher scores due to more typically free flowing road conditions.
- 2.16.7 In regards to the environmental impact theme the majority of sites scored '0' due to them not being located in the PSZ or an AQMA. For those sites located within an AQMA or a PSZ, consideration will be needed of the planning requirements for sites in an AQMA and the consideration of DfT circumstances that permit development in PSZs.
- 2.16.8 The results presented from the assessment have been used to help inform the selection of a series of potential site clusters for assessment in Phase 1 Stage 2 of the transport evidence assessment work programme, which is discussed in the following chapter.

3 Stage 2 – Cluster Analysis

3.1 Introduction

- 3.1.1 This section of the Options Assessment Report (OAR) includes references to the following terms; sites, clusters and strategic options. A site is an individual parcel of land; a cluster is a grouping of two or more sites; and, a strategic option is made up of 'Development Type' scenarios.
- 3.1.2 Phase 1 Stage 2 is where a series of site clustering options have been agreed with SBC and RDC. The analysis of the site clusters assesses the key transport issues facing the different transport corridors within Southend and Rochford. This will help to inform SBC and RDC's development of strategic options.
- 3.1.3 As part of the Stage 2 exercise, INSET was used to assess the site scores from Stage 1. The number of dwellings and floor space for each site was provided by SBC and RDC.
- 3.1.4 The clusters are geographically defined and are based on the Lichfield Clusters¹⁵ which is discussed below in **Section 3.2**.
- 3.1.5 Following on from the cluster analysis, a number of clusters will be amalgamated to form 6 strategic options.

3.2 Methodology

- 3.2.1 Discussions were held between RDC, SBC and Mott MacDonald in order to finalise the clustering methodology. It was agreed that the INSET score from Stage 1 would be applied to each cluster to create a cluster INSET score. The cluster INSET score being an amalgamation of the INSET scores of its constituent sites. This will allow us to assess the relative strengths and weaknesses of each cluster.
- 3.2.2 The influence each site has on a cluster score is based on the relative proportions of dwellings and the number of jobs each site provides. Therefore, the more dwellings and jobs a site has, the greater the influence on the cluster INSET score.
- 3.2.3 Each site was therefore assigned the number of dwellings, the number of jobs, land use category and a primary and secondary cluster (where appropriate). The number of dwellings and jobs was provided by RDC and SBC or inferred using an agreed methodology.
- 3.2.4 Where dwellings are proposed to be lost due to redevelopment, the number of dwellings is recorded as a negative number.

¹⁵ Southend and Rochford Joint HELAA Site Clustering Analysis – Rochford District Council and Southend Borough Council (October 2020)

- 3.2.5 The number of jobs for each site was calculated using the area of employment floorspace divided by the area per Full Time Equivalent (FTE) employee (based on the Employment Densities Guide).
- 3.2.6 Each site has been assigned a primary cluster based on geographical location, and a secondary cluster where applicable. The sites have been clustered taking account of the proximity to key strategic transport infrastructure and based on existing settlements and neighbourhoods.
- 3.2.7 The clusters are geographically defined and are based on the Lichfield Clusters¹⁶; the Lichfield's approach uses the following considerations in order to cluster the sites:
- Physical and proximity characteristics
 - Settlement study findings
 - Infrastructure servicing
 - Perception of geography
- 3.2.8 The sites are put into primary clusters, but secondary clusters are chosen for some sites where there is the potential for different spatial themes and considerations.
- 3.2.9 The Southend site clusters are based around neighbourhoods as set out in the Southend New Local Plan Issues and Options report:
- Eastwood;
 - Leigh North;
 - Leigh South;
 - Prittlewell;
 - Westcliff-on-Sea;
 - Southend (central);
 - Southchurch;
 - Thorpe Bay; and
 - Shoeburyness
- 3.2.10 The Rochford site clusters are based around settlements identified in the existing development plan:
- Rochford/Ashingdon;
 - Hockley and Hawkwell;

¹⁶ Southend and Rochford Joint HELAA Site Clustering Analysis – Rochford District Council and Southend Borough Council (October 2020)

- Rayleigh;
- Great Wakering (including Little Wakering and Barling);
- Hullbridge;
- Canewdon;
- Paglesham;
- Stambridge;
- Rawreth;
- South Fambridge; and
- Stonebridge

3.2.11 In addition, there are three further clusters that have been identified in the Lichfield's document:

- North East Southend AoS – *“An area of search north east of the urban area of Southend which has been identified as a potential area for cross-boundary strategic scale growth within the joint South East Essex Strategic Growth Locations Assessment (and sometimes referred to as Sector D).”*
- Rochford Borders AoS – *“An area of search on the Rochford-Basildon district border, between Wickford and Rayleigh, which has similarly been identified as a potential area for strategic scale growth.”*
- Rochford Rural (Not shown on **Figure 3.1**) – *“A ‘Rochford Rural’ clustering for the purposes of capturing all other sites across the rural area and not immediately associated with a settlement or cluster.”*

3.2.12 The clusters are summarised in **Figure 3.1** below:

Figure 3.1: Clusters



Source: Southend and Rochford Joint HELAA Site Clustering Analysis – Rochford District Council and Southend Borough Council (October 2020)

3.2.13 Based on the methodology outlined above, results and accompanying maps are found below in **Sections 3.3 to 3.11**.

3.2.14 Following on from the cluster INSET scores, a number of clusters will be amalgamated to form 6 strategic options.

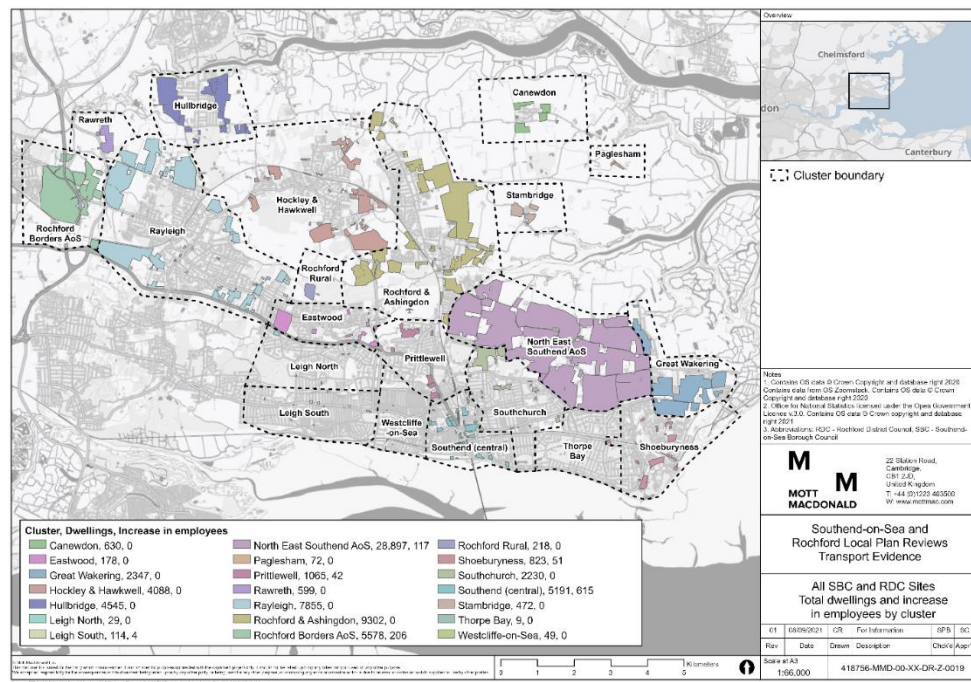
Rochford sites

3.3 Net Dwellings and Jobs

3.3.1 The following section looks at the number of dwellings and jobs that each Rochford cluster could provide.

3.3.2 **Figure 3.2 and Table 3.1** shows the assessed number of dwellings and jobs that each cluster could provide.

Figure 3.2: Total number of dwellings and jobs by cluster



Source: Mott MacDonald

Table 3.1: Total number of dwellings and jobs in each Rochford cluster

Cluster	Dwellings	Jobs
Canewdon	630	0
Great Wakering	2347	0
Hockley & Hawkwell	4088	0
Hullbridge	4545	0
North East Southend AoS (Rochford sites) ¹⁷	19847	0
Paglesham	72	0
Rawreth	599	0
Rayleigh	7855	0
Rochford & Ashingdon	9302	0
Rochford Borders AoS	5578	206
Rochford Rural	218	0
Stambridge	472	0

3.3.3 With regards to dwellings, **Figure 3.2** and **Table 3.1** show that all Rochford clusters would have an increase in dwellings. This is based purely on land put forward for consideration rather than that which will be taken forward as allocations. It also doesn't include windfall sites.

¹⁷ North East Southend AoS encompasses sites in both RDC and SBC

- 3.3.4 North East Southend AoS has by far the greatest increase in proposed dwellings with an additional 19847 across 33 sites within Rochford (and 28897 within the cluster as a whole including Southend sites). Rochford and Ashingdon (9302), Rayleigh (7855) and Rochford Borders AoS (5578) all have over 5000 proposed additional dwellings.
- 3.3.5 In contrast, Paglesham (72), Rochford Rural (210) and Stambridge (472) have fewer than 500 proposed additional dwellings.
- 3.3.6 With regards to jobs, **Figure 3.2** and **Table 3.1** show that only Rochford Border AoS provides an increase in jobs¹⁸.

Net INSET scores by cluster

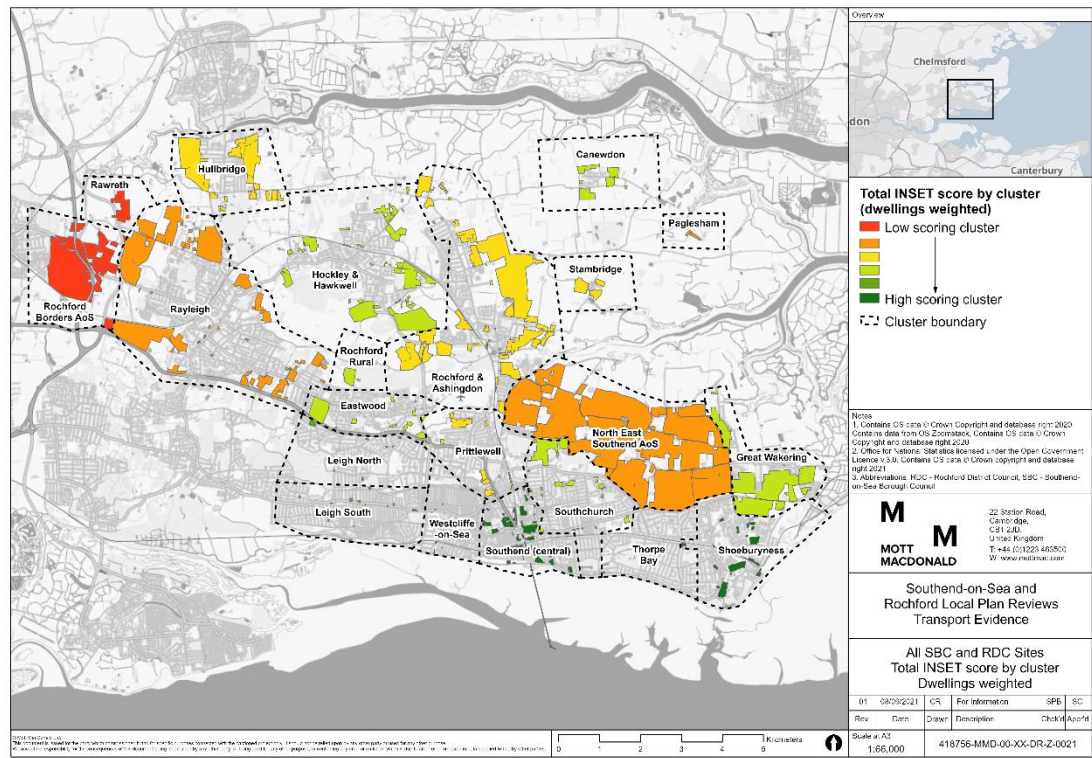
- 3.3.7 This section utilises the new cluster INSET score. For the total number of proposed dwellings, a factor is calculated by dividing the total number of proposed dwellings in a site, divided by the total number of proposed dwellings in the cluster. This provides a factor that can be used to determine the 'weight' of the site INSET scores on the total INSET score of the cluster. This is replicated for the number of jobs and both are discussed in **Section 3.4 and 3.5** below.

3.4 Net INSET Scores – Number of dwellings within the cluster

- 3.4.1 The number of proposed dwellings in each site was used to calculate a factor that represents the proportion of the total number of proposed dwellings that each site constituent provides for the residential sites.
- 3.4.2 **Figure 3.3** and **Table 3.2** below shows the scores of the cluster INSET scores that have been weighted accordingly based on the number of proposed dwellings for clusters within Rochford.

¹⁸ Rochford sites are being promoting as residential led and thus are being assessed on that basis. Hence, several clusters not reporting an increase in jobs.

Figure 3.3: Cluster INSET scores factored based on the number of dwellings in each site



Source: Mott MacDonald

Table 3.2: Cluster INSET scores factored based on the number of dwellings in each site

Primary Cluster	Sustainable Transport	Proximity to Facilities	Proximity to Facilities Resi Adjusted	Highway Network	Environmental Impact of Transport	Total Score	Rank
Canewdon	0.33	0.19	0.22	0.8	0.00	0.34	1
Great Wakering	0.33	0.26	0.31	0.69	0.00	0.33	4
Hockley & Hawkwell	0.53	0.28	0.33	0.52	0.00	0.34	1
Hullbridge	0.35	0.24	0.28	0.59	0.00	0.30	7
North East Southend AoS (Rochford sites)	0.28	0.17	0.20	0.71	0.00	0.30	7
Paglesham	0.23	0.00	0.00	0.80	0.00	0.26	10
Rawreth	0.50	0.19	0.23	0.25	0.00	0.24	11
Rayleigh	0.43	0.31	0.36	0.39	-0.01	0.29	9
Rochford & Ashingdon	0.40	0.30	0.35	0.57	-0.06	0.32	5
Rochford Borders AoS	0.34	0.15	0.18	0.38	0.00	0.22	12
Rochford Rural	0.48	0.31	0.36	0.50	0.00	0.34	1
Stambidge	0.36	0.10	0.12	0.80	0.00	0.32	5

- 3.4.3 It should be noted that for the Environmental Impact of Transport category the majority of sites are outside AQMAs or the Southend Airport PSZ and therefore score 0. Only those within these zones attract a negative score.
- 3.4.4 **Figure 3.3** and **Table 3.2** show that the highest scoring clusters when weighted by the number of proposed dwellings are Canewdon, Hockey & Hawkwell and Rochford Rural all of which score 0.34.
- 3.4.5 Within the Canewdon cluster, all 6 sites perform fairly evenly with scores between 0.30 and 0.34. All sites score particularly well in the highway network theme reflecting the good performance of the local road network. Site CFS058 provides the greatest number of proposed dwellings (198) and attracts a score of 0.34.
- 3.4.6 Hockley & Hawkwell has 45 sites which contribute over 4000 proposed additional dwellings with scores between 0.30 and 0.44. Sites score particularly well in the sustainable transport and highway network themes. Nearly a quarter (987) are within site CFS082 which attracts a score of 0.35 scoring particularly well in the highway network theme.
- 3.4.7 Rochford Rural only has a single site (CFS135) providing 218 proposed dwellings. The site scores well across all themes.
- 3.4.8 The lowest scoring cluster is Rochford Borders AoS (0.22). Whilst some sites within the cluster have scores over 0.25, site CFS222 which contributes 63% (3491) of proposed dwellings within the cluster scores 0.22 largely due to poor proximity to facilities. In reality, a site of this site may include new facilities which aren't included within this assessment.
- 3.4.9 Rawreth has 4 sites providing 599 proposed dwellings and is also fairly low scoring (0.24). It scores particularly poorly in the highway network theme due to the performance of the road network; however has fairly good scores for sustainable transport.
- 3.4.10 Paglesham attracts a score of 0.26 and provides 72 proposed dwellings in a single site (CFS166). The site scores poorly in proximity to facilities reflecting its rural location in the north-east of the borough.

3.5 Net INSET Scores – Number of jobs within the cluster

- 3.5.1 The number of jobs in each site was used to calculate a factor that represents the total number of proposed jobs that each site constituent provides for the employment sites.
- 3.5.2 **Table 3.3** below shows the cluster INSET scores that have been weighted according to the relative proportions of proposed jobs for the Rochford Borders AoS which is the only Rochford cluster which provides jobs.

Table 3.3: Cluster INSET scores factored based on the number of jobs in each site

Primary Cluster	Sustainable Transport	Proximity to Facilities	Proximity to Facilities Resi Adjusted	Highway Network	Environmental Impact of Transport	Total Score	Rank
Rochford Borders AoS	0.14	0.21	0.21	0.70	0.00	0.26	1

3.5.3 **Error! Reference source not found.**Table 3.3 shows the Rochford Borders AoS cluster weighted by the proposed number of jobs provided within each cluster. Rochford Borders AoS generates a score of 0.26 from one site (CFS055) with a particularly high score in the highway network theme which is unsurprising given its location in close proximity to the A127 and A130.

3.6 Rochford Summary

3.6.1 With regards to the Rochford sites, only Rochford Borough AoS provides a proposed increase in jobs and is fairly low scoring.

3.6.2 When considering all the Rochford sites when factored against number of dwellings, the access to the highway network category has the highest scores with an average of 0.57. The access to sustainable transport category is the next highest scoring (0.38) followed by proximity to facilities. The highest scoring clusters comprise a mixture of those in rural areas (Rochford Rural and Canewdon) and those in more urban areas (Hockley & Hawkwell).

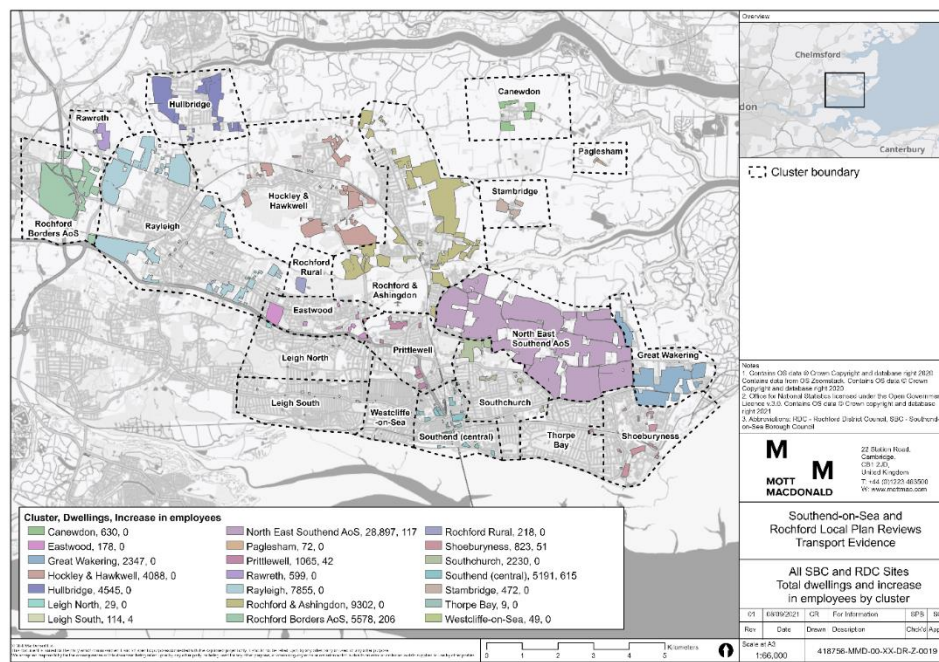
Southend sites

3.7 Net Dwellings and Jobs

3.7.1 The following section looks at the number of proposed dwellings and jobs that each cluster provides, and the number of dwellings and jobs that each Southend land use category provides.

3.7.2 **Figure 3.4** and **Table 3.4** shows the assessed number of proposed dwellings and jobs that each cluster provides.

Figure 3.4: Total number of dwellings and jobs by cluster



Source: Mott MacDonald

Table 3.4: Total number of dwellings and jobs in each Southend cluster

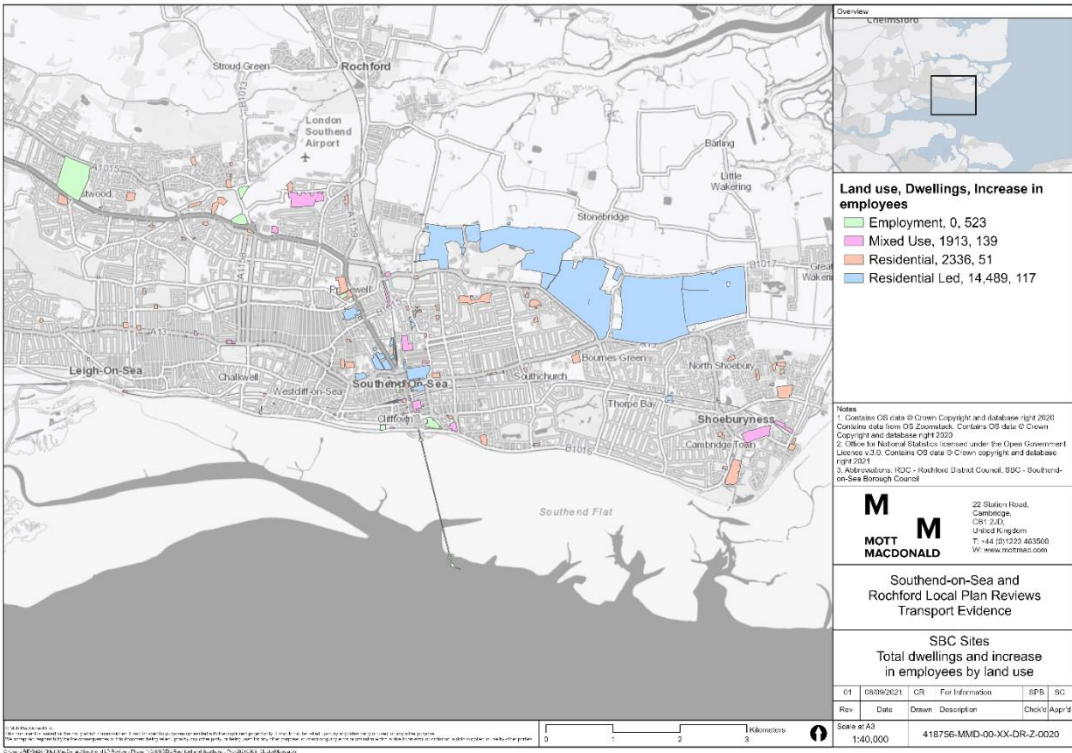
Cluster	Dwellings	Jobs
Eastwood	178	0
Great Wakering	2347	0
Leigh North	29	0
Leigh South	114	4
North East Southend AoS (Southend sites)	9050	117
Prittlewell	1065	42
Shoeburyness	823	51
Southchurch	2230	0
Southend (central)	5191	615
Thorpe Bay	9	0
Westcliffe-on-sea	49	0

3.7.3 With regards to dwellings, **Figure 3.2** and **Table 3.4** show that all clusters have a proposed increase in dwellings. This is based purely on land put forward for consideration rather than that which will be taken forward as allocations. It also doesn't include windfall sites.

3.7.4 North East Southend AoS has by far the greatest increase in proposed dwellings with an additional 9,050. In addition, Southend (central) has over 5000 proposed additional dwellings.

- 3.7.5 Several clusters have fewer than 500 proposed dwellings – Thorpe Bay (9), Leigh North (29), Westcliffe-on-sea (49), Leigh South (114) and Eastwood (178).
- 3.7.6 With regards to jobs, **Figure 3.2** and **Table 3.4** show that 5 of the Southend clusters provide an increase in jobs. Unsurprisingly given its location in Southend Town Centre, Southend (central) provides the greatest number of proposed jobs with 615. Shoeburyness (51), Prittlewell (42) and Leigh South (4) all provide fewer than 100 proposed jobs.
- 3.7.7 **Figure 3.5** Error! Reference source not found. shows the number of proposed dwellings and jobs each Southend land use category provides.

Figure 3.5: Total number of dwellings and jobs in each land use category in Southend



Source: Mott MacDonald

- 3.7.8 Unsurprisingly, the employment sites provide the greatest increase in proposed jobs with 523 additional jobs. However, each of the other land uses do provide a proposed increase in jobs, an increase in 139 jobs in Mixed Use sites, 117 on Residential Led sites and 51 on Residential sites.
- 3.7.9 The Residential Led sites provide the greater increase in proposed dwellings with 14,489 additional dwellings with a particularly large site in the North East Southend AoS cluster.

Residential sites contribute 2336 proposed dwellings and Mixed Use sites contribute 1913 proposed dwellings. Dedicated employment sites contribute no additional dwellings.

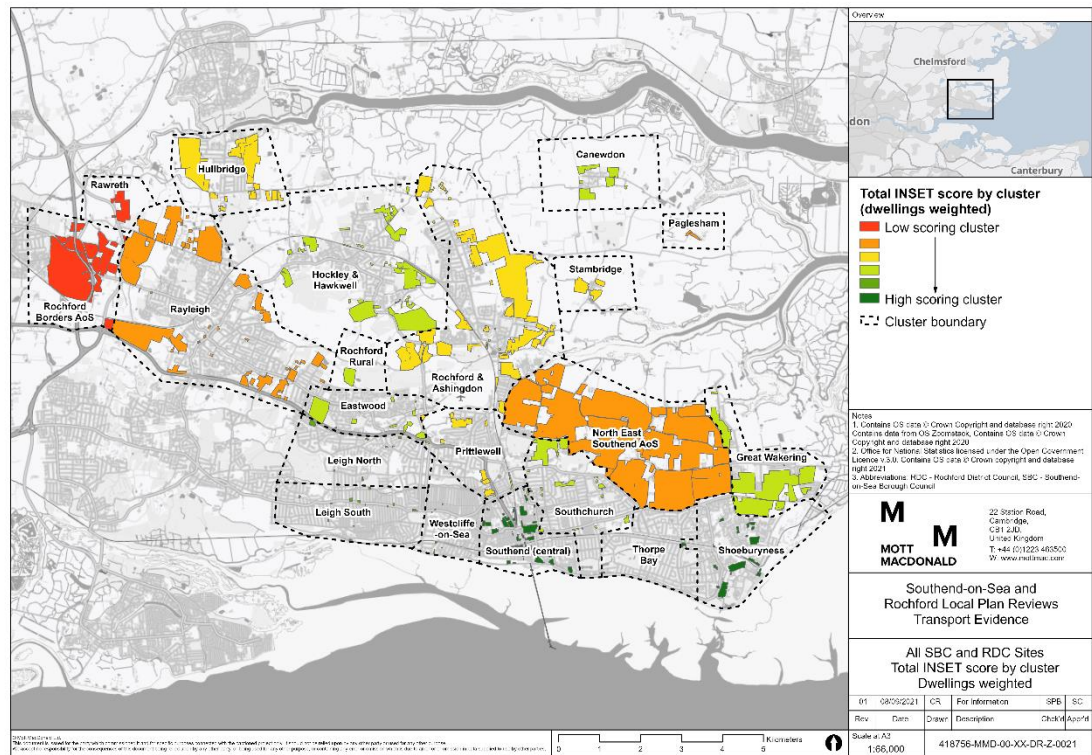
Net INSET scores by cluster

- 3.7.10 This section utilises the new cluster INSET score. For the total number of proposed dwellings, a factor is calculated by dividing the total number of proposed dwellings in a site, divided by the total number of proposed dwellings in the cluster. This provides a factor that can be used to determine the 'weight' of the site INSET scores on the total INSET score of the cluster. This is replicated for the proposed number of jobs and both are discussed in Section 3.8 and 3.9 below.

3.8 Net INSET Scores – Number of dwellings within the cluster

- 3.8.1 The proposed number of dwellings in each site was used to calculate a factor that represents the proportion of the total proposed number of dwellings that each site constituent provides for the residential sites.
- 3.8.2 **Figure 3.3** and **Table 3.5** below show the scores of the cluster INSET scores that have been weighted accordingly based on the proposed number of dwellings.

Figure 3.6: Cluster INSET scores factored based on the number of dwellings in each site



Source: Mott MacDonald

Table 3.5: Southend cluster INSET scores factored based on the number of dwellings in each site

Primary Cluster	Sustainable Transport	Proximity to Facilities	Proximity to Facilities Resi Adjusted	Highway Network	Environmental Impact of Transport	Total Score	Rank
Eastwood	0.54	0.41	0.48	0.30	0.00	0.33	8
Leigh North	0.58	0.48	0.57	0.28	0.00	0.36	6
Leigh South	0.69	0.52	0.61	0.19	0.00	0.37	5
North East Southend AoS (Southend sites)	0.40	0.23	0.26	0.39	0.00	0.25	10
Prittlewell	0.72	0.51	0.60	0.25	-0.26	0.31	9
Shoeburyness	0.73	0.40	0.46	0.48	0.00	0.42	3
Southchurch	0.64	0.35	0.41	0.33	0.00	0.33	7
Southend (central)	0.84	0.57	0.66	0.30	0.00	0.44	1
Thorpe Bay	0.72	0.45	0.52	0.50	0.00	0.43	2
Westcliffe-on-Sea	0.72	0.52	0.60	0.21	0.00	0.38	4

3.8.3

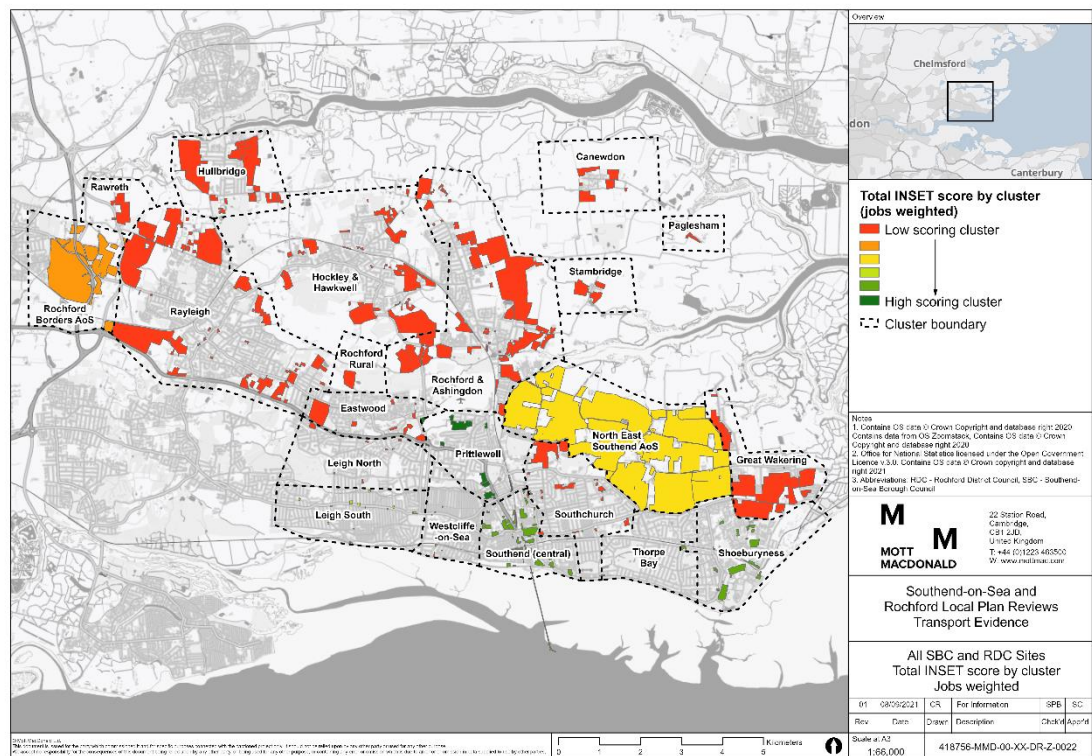
It should be noted that for the Environmental Impact of Transport category the majority of sites are outside AQMA's or the Southend Airport PSZ and therefore score 0. Only those within these zones attract a negative score.

- 3.8.4 **Figure 3.3** show that the highest scoring cluster when weighted by the number of proposed dwellings is Southend (central) (0.44). The cluster has 46 sites contributing 5191 proposed dwellings with nearly a quarter (1268) coming from a single site (HEA096 - Queensway). The site and cluster as a whole score very well in the sustainable transport and proximity to facilities themes given the location proximate to Southend Town Centre.
- 3.8.5 Thorpe Bay (0.43) is the next highest scoring clusters scoring particularly well in the sustainable transport and highway network themes. However, the cluster only contributes 9 proposed dwellings in a single site (HEA113).
- 3.8.6 Shoeburyness (0.42) is the third ranked cluster providing 823 proposed dwellings over 13 sites. Over a third of the proposed dwellings are within site HEA137 which attracts a score of 0.41 scoring moderately well across all themes.
- 3.8.7 The lowest scoring cluster is North East Southend AoS which scores poorly across all themes except for Highway Network; however it would provide 9050 proposed dwellings.
- 3.8.8 The second lowest scoring cluster is Prittlewell (0.31) which provides 1065 proposed dwellings across 12 sites. Prittlewell scores well across all themes but sites are within the Southend Airport PSZ and therefore the cluster attracts a negative score for the Environmental Impact of Transport Theme. Nearly half (507) are within the site HEA259 (Roots Hall Stadium) which scores well for sustainable transport and proximity to facilities which is to be expected given its location proximate to Southend Town Centre.

3.9 Net INSET Scores – Number of jobs within the cluster

- 3.9.1 The number of proposed jobs in each site was used to calculate a factor that represents the total number of proposed jobs that each site constituent provides for the employment sites.
- 3.9.2 **Figure 3.7**Error! Reference source not found. and **Table 3.6** below show the cluster INSET scores that have been weighted according to the relative proportions of proposed jobs within each site of the cluster.

Figure 3.7: Cluster INSET scores factored based on the number of jobs in each site



Source: Mott MacDonald

Table 3.6: Cluster INSET scores factored based on the number of jobs in each site

Primary Cluster	Sustainable Transport	Proximity to Facilities	Proximity to Facilities Resi Adjusted	Highway Network	Environmental Impact of Transport	Total Score	Rank
Eastwood	0.00	0.00	0.00	0.00	0.00	0.00	6
Leigh North	0.00	0.00	0.00	0.00	0.00	0.00	6
Leigh South	0.70	0.41	0.48	0.29	0.00	0.37	4
North East Southend AoS (Southend sites)	0.65	0.27	0.31	0.45	0.00	0.34	5
Prittlewell	0.72	0.75	0.71	0.60	0.00	0.52	1
Shoeburyness	0.72	0.54	0.63	0.38	0.00	0.43	2
Southchurch	0.00	0.00	0.00	0.00	0.00	0.00	6
Southend (central)	0.75	0.47	0.45	0.47	0.00	0.43	2
Thorpe Bay	0.00	0.00	0.00	0.00	0.00	0.00	6
Westcliffe-on-Sea	0.00	0.00	0.00	0.00	0.00	0.00	6

3.9.3 **Figure 3.7 and Table 3.6** show the clusters weighted by the proposed number of jobs provided within each cluster. It should be noted that only 5 clusters provide a proposed increase in jobs, hence the 14 clusters with no increase in jobs have a score of 0.

- 3.9.4 Of the clusters with an increase in jobs, Prittlewell (0.52) scores well across all themes and is the highest scoring. Shoeburyness and Southend (central) are the second highest scoring, both scoring 0.43 and scoring well across all criteria aside from highway network. It should be noted that Prittlewell and Shoeburyness only propose 42 and 51 jobs respectively whereas Southend (central) provides 615.

3.10 Southend Summary

- 3.10.1 With regards to the Southend sites, Southend (central) is the highest scoring cluster when factored based on the proposed number of dwellings and second highest when factored based on the proposed number of jobs scoring particularly well in the sustainable transport category which is unsurprising given its central location. The cluster also contributes almost 75% of the jobs (615 jobs) as well as 13% of the dwellings.
- 3.10.2 Shoeburyness is the third ranked cluster when factored based on the proposed number of dwellings and the second ranked cluster when factored by the proposed number of jobs. Sites within the cluster only lead to the creation of 51 jobs. The cluster scores particularly well in the access to sustainable transport and proximity to facilities categories.
- 3.10.3 There is little correlation amongst the remaining clusters, in part due to some clusters not contributing any jobs and hence scoring 0 when factored by the number of jobs.
- 3.10.4 Thorpe Bay is the second ranked cluster when factored based on the proposed number of dwellings mainly due to proximity to sustainable transport. However, the cluster doesn't contribute any new jobs.
- 3.10.5 Prittlewell is the first ranked cluster when factored by proposed number of jobs. When factored against proposed number of dwellings, it is ranked ninth.
- 3.10.6 When considering all the Southend sites, the access to sustainable transport category has the highest scores with an average of 0.65 when factored against proposed number of dwellings and 0.35 when factored against proposed number of jobs. Proximity to facilities is next highest scoring, followed by access to the highway network.

3.11 Overall Summary

- 3.11.1 This chapter of the report has documented the cluster analysis of the longlist of sites provided by SBC and RDC using the Lichfields site clustering approach.
- 3.11.2 The analysis forms Phase 1 Stage 2 of the work being undertaken to inform the development of the transport and highways evidence base for the Southend-on-Sea and Rochford Local Plans.
- 3.11.3 The results presented in this analysis have been used to help generate respective strategic options for each authority.

A. INSET main criteria and sub-criteria

#	Theme & Main Criteria		Sub-Criteria (i)		Sub-Criteria (ii)		Sub-Criteria (iii)		Sub-Criteria (iv)	
1	Sustainable Transport \NMUs		What type of cycle infrastructure is provided within 400m of the site centroid?		What type of pedestrian infrastructure is provided within 400m of the site centroid?		Is there provision for other NMU users within 400m of the site centroid (e.g. equestrian users)?			
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)	Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)			
	Neutral	0	No provision & access from primary road network		No footway provision		No provision			
	Positive level 1	1	No provision & access from local road		-		Footpath			
	Positive level 2	2	Mandatory on-road cycle lane		Footway width > 0m - < 2m		Bridleway			
	Positive level 3	3	Segregated shared-use path (≥ 2.4m)		Footway width > 2m - < 3m		Byway			
	Positive level 4	4	Segregated cycle track		Footway width > 3m		Restricted byway			
2	Sustainable Transport \Buses		How far from the site centroid is the nearest bus stop?		How many bus services per hour (one way) are provided at bus stops within a 400m walk of the site centroid?		What is the travel time by bus to the nearest local centre / local parade / retail park?		What is the travel time by bus to the nearest town / main centre?	
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)	Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)	
	Neutral	0	≥ 2300m		0		No Access		No Access	
	Positive level 1	1	≥ 1150 - < 2300m		1-3		10 - 35 mins		20 - 50 mins	
	Positive level 2	2	≥ 800 - < 1150m		4-7		4 - 10 mins		10 - 20 mins	
	Positive level 3	3	≥ 400 - < 800m		8-10		2 - 4 mins		5 - 10 mins	
	Positive level 4	4	< 400m		>10		0 - 2 mins		0 - 5 mins	
3	Sustainable Transport \Trains		How far from the site centroid is the nearest train station?		What is the travel time by train to Southend Central or Victoria?		What is the travel time by train to central London?			
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)	Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)			
	Neutral	0	≥ 5000m		Not feasible		Not feasible			
	Positive level 1	1	≥ 2300m - < 5000m		40 - 65 mins		80 - 90 mins			
	Positive level 2	2	≥ 1150m - < 2300m		20 - 40 mins		70 - 80 mins			
	Positive level 3	3	≥ 800m - < 1150m		10 - 20 mins		60 - 70 mins			
	Positive level 4	4	< 800m		0 -10 mins		Less than an hour			
4	Proximity to Facilities\Education		How far from the site centroid is the nearest primary educational facility?		How far from the site centroid is the nearest secondary educational facility?					
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)	Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)					
	Neutral	0	≥ 2300m		≥ 2300m					
	Positive level 1	1	≥ 1150m - < 2300m		≥ 1150m - < 2300m					
	Positive level 2	2	≥ 800m - < 1150m		≥ 800m - < 1150m					
	Positive level 3	3	≥ 400m - < 800m		≥ 400m - < 800m					
	Positive level 4	4	< 400m		< 400m					
5	Proximity to Facilities\Healthcare		How far from the site centroid is the nearest Healthcare facility?							
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)	Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)							
	Neutral	0	≥ 2300m							
	Positive level 1	1	≥ 1150m - < 2300m							
	Positive level 2	2	≥ 800m - < 1150m							
	Positive level 3	3	≥ 400m - < 800m							
	Positive level 4	4	< 400m							
6	Proximity to Facilities\Employment		How many commercial units are within 2300m of the site centroid?		How far is the nearest ‘designated employment area’ from the site centroid?					
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)	Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)					
	Neutral	0	<20th percentile		≥ 2300m					
	Positive level 1	1	20th - 40th percentile		≥ 1150m - < 2300m					
	Positive level 2	2	40th - 60th percentile		≥ 800m - < 1150m					
	Positive level 3	3	60th - 80th percentile		≥ 400m - < 800m					
	Positive level 4	4	>80th percentile		< 400m					
7	Proximity to Facilities\Opens spaces and leisure		How far from the site centroid is the nearest open space leisure facility?		How far from the site centroid is the nearest built leisure facility?					
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)	Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)					
	Neutral	0	≥ 2300m		≥ 2300m					
	Positive level 1	1	≥ 1150m - < 2300m		≥ 1150m - < 2300m					
	Positive level 2	2	≥ 800m - < 1150m		≥ 800m - < 1150m					
	Positive level 3	3	≥ 400m - < 800m		≥ 400m - < 800m					
	Positive level 4	4	< 400m		< 400m					
	Proximity to Facilities\Retail		How many small-scale retail (<280m) facilities are there within *2300m of the site centroid?		How many large-scale (>280m) retail facilities are there within *2300m of the site centroid?					

8	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)				
	Neutral		0	0	0	0				
	Positive level 1		1	> 0 - ≤ 5	1	1				
	Positive level 2		2	> 5 - ≤ 10	2	2				
	Positive level 3		3	> 10 - ≤ 20	3	3				
	Positive level 4		4	≥ 20 - < 30	4	4				
9	Proximity to Facilities\Access to centres			How far is the nearest main / major centre from the site centroid?		How far is the nearest major centre or town centre from the site centroid?		How far is the nearest major centre, town centre, local centre or retail park from the site centroid?		How far is the nearest major centre, town centre, local centre, retail park or local parade from the site centroid?
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)
	Neutral		0	≥ 2300m	0	≥ 2300m	0	≥ 2300m	0	≥ 2300m
	Positive level 1		1	≥ 1150m - < 2300m	1	≥ 1150m - < 2300m	1	≥ 1150m - < 2300m	1	≥ 1150m - < 2300m
	Positive level 2		2	≥ 800m - < 1150m	2	≥ 800m - < 1150m	2	≥ 800m - < 1150m	2	≥ 800m - < 1150m
	Positive level 3		3	≥ 400m - < 800m	3	≥ 400m - < 800m	3	≥ 400m - < 800m	3	≥ 400m - < 800m
10	Proximity to Facilities\Residential			How many residential households are within 2300m* of the site centroid?						
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)						
	Neutral		0	< 5000	0					
	Positive level 1		1	≥ 5000 - < 10000	1					
	Positive level 2		2	≥ 10000 - < 20000	2					
	Positive level 3		3	≥ 20000 - < 35000	3					
11	Highway Network\Network Performance			How well does the local road network perform?		How well does the primary road network perform?		How well does the strategic road network perform?		
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		
	Neutral		0	Not feasible	0	Not feasible	0	Not feasible	0	
	Positive level 1		1	> 25%	1	> 25%	1	> 25%	1	
	Positive level 2		2	> 15 - ≤ 25 %	2	> 15 - ≤ 25 %	2	> 15 - ≤ 25 %	2	
	Positive level 3		3	> 10 - ≤ 15 %	3	> 10 - ≤ 15 %	3	> 10 - ≤ 15 %	3	
12	Highway Network\Distance from SRN			How far from the site is the strategic road network?						
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)						
	Neutral		0	>80th percentile	0					
	Positive level 1		1	60th - 80th percentile	1					
	Positive level 2		2	40th - 60th percentile	2					
	Positive level 3		3	20th - 40th percentile	3					
13	Highway Network\HGV			Does the site connect to an established HGV route?						
	3 - Simplified Scoring/Positive-Only/Negative-Only Scoring		Negative to Positive (Default)	3 - Simplified Scoring/Positive-Only/Negative-Only Scoring						
	Negative		-1	No (employment) - Yes (residential)	-1					
	Neutral		0	No	0					
	Positive		1	Yes (employment) - No (residential)	1					
14	Highway Network\Safety			What level of personal injury collisions have been recorded within 2km of the site centroid?						
	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)		Zero to positive	5 - Full Scoring (Small, Large, Neutral/Positive, Negative)						
	Neutral		0	>80th percentile	0					
	Positive level 1		1	60th - 80th percentile	1					
	Positive level 2		2	40th - 60th percentile	2					
	Positive level 3		3	20th - 40th percentile	3					
15	Environmental Impact of Transport\Local air quality			Is the site located in an Air Quality Management Area (AQMA)?						
	2 - "Yes, No" Scoring		Zero to negative	2 - "Yes, No" Scoring						
	Neutral		0	No	0					
	Negative		-1	Yes	-1					

B. Rochford Outputs

B.1.1 Available upon request.

C. Rochford INSET Outputs

C.1.1 Available upon request.

D. Southend Outputs

D.1.1 Available upon request.

E. Southend INSET Outputs

E.1.1 Available upon request.