

B1.6.2 Detailed Methodology for Deliverability Assessment

In accordance with paragraphs 4.38 and 4.80 of the SSM all residential and employment sites that proceeded from Stages 3 and 6.3 were subject to a detailed qualitative and quantitative RAG assessment. Traveller sites proceeding (as referred to in paragraphs 57 and 89 of the TSSM) were also subject to this assessment.

This section sets out each criteria and confirms the approach to scoring. Table 3 summarises, by year, the tranches of sites for which this detailed methodology applies:

Table 3 Sites assessed using the detailed methodology in 2016 and 2017

Primary Use	2016	2017
Residential	Stage 4 – Tranche 1 Sites	Stage 6.4 – Tranche 2 Sites and Tranche 1 sites reconsidered at Stage 6.3 and identified for further testing
Employment	N/A	Stage 6.4 – Tranche 1 and 2 Sites
Traveller	Stage 6 – Tranche 1 and 2 Sites	Stage 8.6 – Tranche 3 Sites, and Tranche 1 and 2 Sites which were not previously assessed at Stage 6 because they were located outside the Settlement Buffer Zones

Some 22 criteria were identified for the assessment, grouped under three categories as summarised in Table 4. This also sets out, for residential, traveller and employment sites, which criteria were considered through the assessment.

Table 4 Criteria Identified for Deliverability Assessment by Land Use

Ref	Criterion	Land Uses Assessed		
		Residential	Traveller	Employment
1	Availability			
1.1	Site ownership	x	x	x
1.2	Existing uses	x	x	x
1.3	On-site restrictions	x	x	x
1.4	Availability	x	x	x
2	Achievability			
2.1	Marketability	x		x

Ref	Criterion	Land Uses Assessed		
		Residential	Traveller	Employment
2.2	Site viability	x		
2.3	On-site physical and infrastructure constraints	x	x ¹⁰	x
2.3a	Primary Schools (Planning Area)	x	x ¹¹	
2.4b	Primary Schools (Individual)	x	x ¹²	
2.5a	Secondary Schools (Planning Area)	x	x ¹³	
2.5b	Secondary Schools (Individual)	x	x ¹⁴	
2.6	Access to open space	x	x ¹⁵	
2.7	Health	x	x ¹⁶	
2.8	Impact on Minerals Deposits	x	x ¹⁷	x
3	Cumulative achievability			
3.1	Impact on open space	x	x	
3.2	Impact on primary schools	x	x	
3.3	Impact on secondary schools	x	x	
3.4	Impact on Green Infrastructure (GI)	x	x	
3.5	Impact on Sewage Treatment	x	x	
3.6	Impact on Central Line Capacity	x	x	
3.7	Impact on water network	x	x	
3.8	Impact on wastewater network	x	x	

Each criteria was assessed against a three point scale. Many of the criteria have, in the first instance, drawn on information supplied through the Land Promoter/Developer (LPD) Survey, an online undertaken by landowners and promoters. For residential sites assessed at Stage 2 and traveller sites assessed at Stage 6, this was undertaken in June/July 2016 and August/September 2016 respectively; for residential sites assessed at Stage 6.2, traveller sites assessed at Stage 8.6 and all employment sites, the Survey was issued in June 2017. The LPD Survey posed a series of questions focused around the themes of availability and achievability, and also contained existing information held on the Council's

¹⁰ Criteria 2.1 for traveller sites

¹¹ Criteria 2.2a for traveller sites

¹² Criteria 2.2b for traveller sites

¹³ Criteria 2.3a for traveller sites

¹⁴ Criteria 2.3b for traveller sites

¹⁵ Criteria 2.4 for traveller sites

¹⁶ Criteria 2.5 for traveller sites

¹⁷ Criteria 2.6 for traveller sites

SLAA database, requesting updates to this information where necessary. Respondents were also provided with the opportunity to submit additional information to support their responses, including drawings, plans and any other relevant technical work undertaken.

Invitations to complete the survey were issued electronically in a series of tranches to promoters, developers and/or landowners for all sites subject to a suitability assessment, where contact information was available. Further details on how the survey was undertaken for residential sites is provided in section 2.9.1 of the Report on Site Selection, with details set out for traveller sites in section 3.9.1 for traveller sites and 4.7.1 for employment sites. The content of the survey for each land use is detailed in the Appendices to the Report on Site Selection, referenced in Table 5.

Table 5 Reference of Land Promoter/Developer Survey Questions by Land Use

Primary Use	Appendix Section
Residential	B1.6.1
Traveller	E1.8.1
Employment	F1.5.1

In 2016, for sites with no completed survey proforma, the assessment drew on information from the Council's SLAA, as well as additional information submitted to the Council through the Call for Sites process. In some cases, additional desk-based research was undertaken to identify site characteristics to further inform the assessments. Where this information has been relied upon, this is stated in the assessment.

In 2016, unless otherwise stated, the criteria assessments relied on the following data sources (in order of preference):

- Responses from LPD Survey 2016, including any additional information supplied.
- Data from the Council's SLAA database, including any additional information supplied through the Council's Call for Sites (2016 and earlier).

In 2017, in addition to the aforementioned data the assessments drew on any relevant information received by the Council since finalisation of the SLAA in 2016. As a result, to ensure that sites assessed in 2017 were assessed against the most up-to-date information, an amended order of preference for data sources was utilised:

- Responses from the LPD Survey 2017, including any additional information supplied.
- Availability and deliverability information received from land promoters/developers through the Council's Developer Forum, the Council's Call for Sites 2016/17 or the Infrastructure Delivery Plan Survey 2017.
- Representations received through the Regulation 18 Draft Local Plan consultation.

- Responses from the LPD Survey 2016, including any additional information supplied.
- Data from the Council's SLAA database, including any additional information supplied through the Council's Call for Sites (2016 and earlier).

All sites assessed in 2016 were reviewed in 2017 against the additional data sources detailed above, with criteria assessments updated as necessary to reflect any clarifications provided, changes to sites' availability or deliverability, or updates to the baseline evidence used to undertake the assessments (for example, updated evidence relating to schools capacity or open spaces).

Some of the criteria, particularly those undertaken as part of the achievability assessments, have involved quantitative assessment using GIS tools, drawing on a broader range of data. Details of the data sources used are provided for the relevant criteria.

1 Availability

1.1 Site ownership

(+)	0	(-)
Site is in single ownership.	Site is in multiple ownership where landowners are promoting independent schemes that are not in conflict, or working collaboratively on a scheme, and there is an agreement in place between the parties.	Site ownership is unknown or is in multiple ownership and the other owners are either unknown, oppose the development or are promoting another conflicting scheme.

This assessment was, in the first instance, undertaken with reference to proformas from the LPD Survey¹⁸. As part of the survey, respondents were asked if they owned all or only part of the site. If the latter, respondents were then asked:

- Do you know who owns the remainder of the site? Please provide as much detail as possible;
- Are you collaborating with adjacent landowners? Please confirm by what methods.

For sites where a response to this question was received, a score was assigned as appropriate according to the criteria set out previously.

For sites assessed in 2016, where no proforma was available, or the response to the above questions was either blank or unclear, reference was made in the first instance to equivalent records from the SLAA database, and otherwise to any additional information submitted as part of the Call for Sites process.

¹⁸ In 2016 the assessment initially relied upon the 2016 LPD Survey. In 2017, the 2017 LPD Survey was the primitive source of information.

For sites assessed in 2017, where no response was received through the LPD Survey 2017, reference was made to: any availability/deliverability information received from land promoters/developers through the Council's Developer Forum; information from the Council's Call for Sites 2016/17; and representations received through the Regulation 18 Draft Local Plan consultation.

Where no information was available from any of the aforementioned sources, the following assumptions were adopted:

- Where the Council had received a planning application on a site, it was assumed for the purposes of the assessment that the site was in single ownership and a score of (+) was assigned (with these instances noted in the assessment).
- Otherwise, it was assumed for the purposes of this assessment that site ownership details were unknown and a score of (-) was assigned accordingly.

1.2 Existing uses

(+)	0	(-)
There are no existing uses on-site or existing uses could cease in less than two years.	Existing uses on-site which could cease between two and 10 years.	Existing uses on-site where the use could cease in more than 10 years or the timescale for on-site uses ceasing is unknown.

This assessment was, in the first instance, undertaken with reference to proformas from the LPD Survey¹⁸. As part of the survey, respondents were asked to provide details of any existing on-site land uses. In relation to this, they were then asked:

- If the site is considered to be suitable for development, would all or part of the existing uses remain in occupation?
- What would be the timescale for the existing use to cease?

For sites where responses to both of these questions were received, a score was assigned in line with the aforementioned criteria based on the information provided.

For sites assessed in 2016, where no proforma was available, or the response to the above questions was either blank or unclear, reference was made in the first instance to equivalent records from the SLAA database, and otherwise to any additional information submitted as part of the Call for Sites process. Where this was the case, a judgement was made on when existing uses would cease based on the identified timescale for availability.

For sites assessed in 2017, where no response was received through the LPD Survey 2017, reference was made to: any availability/deliverability information received from land promoters/developers through the Council's Developer Forum; information from the Council's Call for Sites 2016/17; and representations received through the Regulation 18 Draft Local Plan consultation.

Where no information was available from any of the aforementioned sources, desk-based research was undertaken to establish current on-site land uses. This drew on the quantitative and quality assessments, suitability assessments and desk-top information sources such as aerial photography. Based on the identified land use, an element of professional judgement was applied to determine whether the site would or would not be available during the plan period, or whether the timescale for uses to cease was unknown. Where this judgement was made, this was stated in the assessment.

For all sites assessed, a cross-check was undertaken to ensure the consistency of this assessment and the assessment undertaken for criteria 1.4. For example, where promoters or developers confirmed that a site would be available for development immediately or in the short term and where identification of on-site uses relied on desk-top assessment it was generally assumed that there would be a strong likelihood of any existing uses ceasing in a similar timeframe. Where such assumptions were made, these were stated in the assessment.

1.3 On-site restrictions

(+)	0	(-)
Site is not subject to any known restrictions.	Site is subject to restrictions but agreement in place or being negotiated to overcome them, or not judged to be a constraint.	Site subject to restrictions and there is limited prospect of the restriction being overcome.

This assessment was, in the first instance, undertaken with reference to proformas from the LPD Survey¹⁸. The assessment considered any information supplied on the following restrictions:

- Legal constraints (e.g. restrictive covenants, easements, wayleaves, legal agreements);
- ‘Ransom strips’ (including requirement for off-site land assembly);
- Public rights of way;
- Reliant on development of other land; and
- Others.

Respondents were asked to confirm whether any of these restrictions should be judged as a constraint and, if so, how they would be overcome. This information was used to allocate a score in line with the aforementioned criteria. The appropriateness of proposed mitigation was sense checked in order to inform this judgement.

In cases where no information was provided on how restrictions would be overcome, an element of professional judgement was made on the likely impact of identified restrictions on the availability of the site. For example, public rights of way were generally not judged to be a major constraint to development and scored 0, whereas restrictions such as ransom strips or legal constraints were considered more difficult to overcome and were therefore scored (-).

For sites assessed in 2016, where the survey response had either not been received, or the response to the above questions was either blank or unclear, reference was made to information from the SLAA database which provided information on the presence of ransom strips and site covenants.

For sites assessed in 2017, where no response was received through the LPD Survey 2017, reference was made to: any availability/deliverability information received from land promoters/developers through the Council's Developer Forum; information from the Council's Call for Sites 2016/17; and representations received through the Regulation 18 Draft Local Plan consultation.

Where no information was available from any of the aforementioned sources, sites were automatically assigned a score of (+), as no constraint was identified. Where this judgement was made this was stated in the assessment.

1.4 Availability

(+)	0	(-)
Site expected to be available between 2016 and 2020.	Site expected to be available between 2021 and 2025.	Site not expected to be available until at least 2026 or site availability is unknown.

This assessment was, in the first instance, undertaken with reference to proformas from the LPD Survey¹⁸. Respondents were asked to provide an indication of when the site would be available for development if it were to be identified in the forthcoming Local Plan. For sites where this question was answered, a score was assigned as appropriate.

For sites assessed in 2016, where the survey response had either not been received, or where the response to the above question was either blank or unclear, reference was made to equivalent information from the Council's SLAA database, which categorised sites based on their timescale for availability in years.

For sites assessed in 2017, where no response was received through the LPD Survey 2017, reference was made to: any availability/deliverability information received from land promoters/developers through the Council's Developer Forum; information from the Council's Call for Sites 2016/17; and representations received through the Regulation 18 Draft Local Plan consultation.

Where no information was available from any of the aforementioned sources, the following assumptions were adopted:

- It was assumed for all sites where pre-application enquiries had been received by the Council or where planning applications had been submitted that the site was likely to be available immediately and a score of (+) was assigned, with this judgement clearly stated in the assessment;
- Otherwise, it was assumed for the purposes of this assessment that site availability was unknown and a score of (-) was assigned accordingly.

2. Achievability

2.1 Marketability

(+)	0	(-)
Site is under option to a developer.	Site is being actively marketed for development or enquiries have been received from a developer.	Site is not being actively marketed.

This assessment was, in the first instance, undertaken with reference to proformas from the LPD Survey¹⁸. In the survey, respondents were asked if their site was:

- Owned by a developer;
- Under option to a developer;
- Being marketed for sale through a land agent;
- Subject to developer enquiries; or
- No marketing undertaken.

For sites where a response to this question was received, the information was used to allocate an appropriate score in line with the aforementioned criteria.

For sites assessed in 2016, where a promoter response had either not been received, or where the response to the aforementioned question was either blank or unclear, reference was made to equivalent information from the SLAA database.

For sites assessed in 2017, where no response was received through the LPD Survey 2017, reference was made to: any availability/deliverability information received from land promoters/developers through the Council's Developer Forum; information from the Council's Call for Sites 2016/17; and representations received through the Regulation 18 Draft Local Plan consultation.

Where no information was available from any of the aforementioned sources, it was assumed for all sites where pre-application enquiries had been received by the Council or where planning applications had been submitted that the site was being actively marketed and a score of 0 was assigned. This is assumed given these sites are being actively promoted for development through the planning process. In other cases, it was assumed that the site had not been marketed for development and a score of (-) was assigned.

2.2 Site viability

(+)	0	(-)
No viability issues identified.	Site viability is marginal or weaker demand for development.	Viability and the market for development is poor.

This assessment was, in the first instance, undertaken with reference to proformas from the LPD Survey¹⁸. Respondents were asked whether any initial estimates of

viability had been undertaken and to provide details of any such assessments. For sites where a response to these questions had been received, the information was used to allocate an appropriate score in line with the aforementioned criteria. In instances where viability was found to be marginal, details of any proposed mitigation were provided, where available.

For sites assessed in 2016, where a promoter response had either not been received, or where the responses to the above questions were either blank or unclear, reference was made in the first instance to any viability testing undertaken as part of the North Weald Bassett Masterplanning Study (where applicable), or otherwise to the SLAA database. This provided an assessment of viability for each site based on its location and the geographical viability testing undertaken as part of the Strategic Housing Market Assessment Viability Assessment (2010).

Sites assessed in 2017 where no response was received through the LPD Survey 2017 an approach consistent with that used in the SLAA was adopted. An assessment was undertaken utilising the postcode-based viability testing undertaken as part of the Strategic Housing Market Assessment Viability Assessment (2010).

2.3 On-site physical and infrastructure constraints

(+)	0	(-)
There are no known on-site constraints which would impact upon deliverability.	On-site constraints have been identified but mitigation or design solutions mean that there would be no impact upon deliverability.	Identified on-site constraints may impact upon deliverability.

For sites assessed in 2016, the assessment was undertaken with reference to proformas from the LPD Survey 2016. The assessment considered whether there were any known on-site physical or infrastructure constraints and the extent to which these might impact upon the deliverability of development. Through the survey, developers and landowners were asked whether any of the following constraints were present on-site:

- flood risk and surface water;
- contamination;
- topography;
- utilities connections, including gas, water, electricity and telecoms; and
- highways.

Where a constraint was identified, respondents were then asked to identify how this would be mitigated. Scores were awarded on the basis of the identification of mitigation measures, or sufficient demonstration that identified constraints would not impact upon deliverability (for example, in cases where there were no existing utilities connections but where nearby grid supplies were available). An element of professional judgement was used to determine the final score.

In cases where promoter responses had either not been received, or where the responses to these questions were either blank or unclear, reference was made to information from the SLAA database, which focused specifically on the presence of on-site utilities as well as the presence of wider physical constraints.

Where no information was available from either the survey or the SLAA database sites were assigned a score of (+), as no constraint was identified.

For sites assessed in 2017, this assessment was undertaken with reference to proformas from the LPD Survey 2017. The same constraints identified for sites assessed in 2016 for used for sites assessed in 2017.

In cases where promoter responses had either not been received, or where the responses to these questions were either blank or unclear, reference was made to information from other sources including:

- Infrastructure Delivery Plan Survey 2017;
- Call for Sites forms (2008; 2012; 2014; 2016 and 2016/2017);
- Represents received through the Regulation 18 Draft Local Plan consultation;
- EFDC Officer assessment regarding surface water flooding;
- SLAA database; and
- Site based quantitative and qualitative assessments (flood risk, access, contamination and topography criteria).

Where no information was available from either the survey or other sources, sites were assigned a score of (+), as no constraint was identified.

2.4a Primary Schools (Planning Area)

(+)	0	(-)
Site is located within a Primary Forecast Planning Group that has both existing and forecast capacity.	Site is located within a Primary Forecast Planning Group with either a current or forecast deficit but schools have the potential to expand, or the school planning area has forecast capacity but with limited ability to expand in the future.	Site is located within a Primary Forecast Planning Group with a forecast deficit and where schools have limited ability to expand in the future.

This assessment was undertaken using quantitative GIS analysis, supplemented by qualitative assessment in relation to the expansion potential of primary schools. Sites were scored according to the capacity trajectory of the Primary School Forecast Planning Group (FPG) they were located within. Data associated with these groups, including the spatial extents, was provided by Essex County Council. Where sites were located on the boundary of two FPGs a score was assigned according to the location of the site's central point, reflecting the most appropriate FPG for the majority of the site.

The current and forecast capacity was calculated for individual schools within each FPG, in line with the approach taken in the *Commissioning School Places in*

Essex 2016-2021 report (ECC, 2017). An additional 5% headroom was added to each individual school to allow for mid-year admissions and operational flexibility (as advised by the Department for Education). The sum of the individual school capacity (with the 5% headroom) minus the total pupil Number on Roll (NOR) demonstrated the total capacity (available spaces) within the existing school provision of each FPG.

Based on professional judgement, a ‘tipping point’ of 5% of the total capacity of existing schools provision was used to determine whether each FPG has sufficient capacity to accommodate growth. Where available capacity exceeded this 5% ‘tipping point’, FPGs were considered to have sufficient capacity. Where available capacity fell below the 5% total capacity, the FPG was considered to have insufficient capacity.

The capacity of each FPG was considered alongside the potential for existing schools within the FPG to be expanded as well as the identification of new school sites. A professional judgment was made on the expansion potential of FPGs, based on the professional viewpoints of officers in the Pupil Planning Team at Essex County Council. For schools located outside of the District boundary, information surrounding the potential for FPGs to expand was not available. For these schools it was assumed that they had limited ability to expand.

2.4b Primary Schools (Individual)

(+)	0	(-)
Site is located within 1km of a primary school with current capacity and no forecast deficit.	Site is located within 1km of a primary school with either a current or forecast capacity deficit.	Site is not located within 1km of a primary school, or is located within 1km of a primary school with both current and forecast capacity deficit.

This assessment was undertaken using quantitative GIS analysis. It initially considered the distance of sites from primary schools, which included all primary schools within Epping Forest District and those located within 1km of the District boundary. Distance was calculated based on the network distance between the centre point of the schools and sites.

Capacity figures for individual schools in the District were taken from the *Commissioning School Places in Essex 2016-2021* report (ECC, 2017). Capacity data for primary schools outside of the District was obtained directly from the relevant local authority, and was used to calculate current and future capacity. An additional 5% headroom was incorporated to each individual school capacity to allow for mid-year admissions and operational flexibility (as advised by the Department for Education). The current net capacity figures for each school was based on the 2014/15 academic year. The pupil NOR reflect the pupil count at each school in May 2015. The forecast NOR figures used were for the 2019/20 academic year, in line with the data provided in the *Commissioning School Places in Essex 2016-2021* report (ECC, 2017).

Based on professional judgment, a school was considered to have surplus capacity where the overall net capacity exceeded 10 pupils. This figure was considered a

suitable ‘tipping point’ whereby additional school provision would need to be considered.

For schools located outside of the District boundary, forecast capacity information was not always available at the individual school level, and was instead presented by settlement or area. Where forecast capacity information was not available, it was treated as having no capacity, and scored accordingly.

2.5a Secondary Schools (Planning Area)

(+)	0	(-)
Site is located within a Secondary Forecast Planning Group that has both existing and forecast capacity.	Site is located within a Secondary Forecast Planning Group with either a current or forecast deficit but schools have the potential to expand, or the school planning area has forecast capacity but with limited ability to expand in the future.	Site is located within a Secondary Forecast Planning Group with a forecast deficit and where schools have limited ability to expand in the future.

This assessment was undertaken using quantitative GIS analysis, supplemented by qualitative assessment in relation to the expansion potential of secondary schools. Sites were scored according to the capacity trajectory of the Secondary School FPG they were located within. The spatial extents of these groups were provided by Essex County Council. Sites located on the boundary of two FPGs were allocated according to the location of the site’s central point, reflecting the most appropriate FPG for the majority of the site.

The current and forecast capacity was calculated for individual schools within each FPG, in line with the approach taken in the *Commissioning School Places in Essex 2016-2021* report (ECC, 2017). An additional 5% headroom was added to each individual school to allow for mid-year admissions and operational flexibility (as advised by the Department for Education). The sum of the individual school capacity (with the 5% headroom) minus the total NOR demonstrated the total capacity (available spaces) within existing school provision of each FPG.

Based on professional judgement, a ‘tipping point’ of 5% of the total capacity of existing schools provision was used to determine whether each FPG has sufficient capacity to accommodate growth. Where available capacity exceeded this 5% ‘tipping point’, FPGs were considered to have sufficient capacity. Where available capacity fell below the 5% total capacity, the FPG was considered to have insufficient capacity.

The capacity of each FPGs was considered alongside the potential for existing schools within the FPG to be expanded as well as the identification of new school sites. A professional judgment was made on the expansion potential of FPGs, based on the professional opinions of officers in the Pupil Planning Team at Essex County Council. For schools located outside of the District boundary, information surrounding the potential for FPGs to expand was not available. For these schools it was assumed that they had limited ability to expand.

2.5b Secondary Schools (Individual)

(+)	0	(-)
The site is located within 1km of a secondary school with current capacity and no forecast deficit.	Site is located within 1km of a secondary school with either a current or forecast capacity deficit.	Site is not located within 1km of a secondary school, or is located within 1km of a secondary school with both current and forecast capacity deficit.

This assessment was undertaken using quantitative GIS analysis. It initially considered the distance of sites from secondary schools, which included all secondary schools within Epping Forest District and those located within 1km of the District boundary. Distance was calculated based on the network distance from the school to the centre point of the schools and sites.

Capacity figures for individual schools in the District were taken from the *Commissioning School Places in Essex 2016-2021* report published by Essex County Council (2017). An additional 5% headroom was incorporated to each individual school capacity to allow for mid-year admissions and operational flexibility (as advised by the Department for Education). The current net capacity figures for each school was based on the 2014/15 academic year. The pupil NOR reflect the pupil count at each school in January 2015. The forecast NOR figures used were for the 2019/20 academic year, in line with the data provided in the *Commissioning School Places in Essex 2016-2021* report (ECC, 2017).

Based on professional judgment, a school was considered to have surplus capacity where the overall net capacity exceeded 10 pupils. This figure was considered a suitable ‘tipping point’ for when additional school provision will need to be considered.

For schools located outside of the District boundary, forecast capacity information was not always available at the individual school level, and was instead presented by settlement or area. Where forecast capacity information was not available, it was treated as having limited capacity, and scored accordingly.

2.6 Access to open space

(+)	0	(-)
Site is located within 400m of existing publicly accessible open space, or there are proposals for new on-site open space provision as part of the development	Site is located 400-600m from existing publicly accessible open space	Site is more than 600m from existing publicly accessible open space

This assessment was undertaken in two stages. Initially, sites were assessed using quantitative GIS analysis. They were scored based on their distance from managed open spaces, informal recreation grounds, including woodland and children’s playgrounds and allotments, as identified in the Epping Forest District

Open Space Strategy (2017)¹⁹. Distance was calculated based on the network distance from the open space to the central point of the site. The distance thresholds for the assessment were established in line with the emerging Open Space, Sport and Recreation Assessment (2012) and through contextual information provided by Council specialists.

Following this, a further qualitative assessment was undertaken to identify where new on-site public open space was proposed by landowners and developers as part of their developments. This assessment drew on additional information supplied through the survey, as well as contextual information in the Council's SLAA database. Scores were adjusted as appropriate to reflect these proposals; where such adjustments were made this is documented.

2.7 Health

(+)	0	(-)
Site is located within 1km of a health facility (GP) with capacity to take on new patients.	Site is located within 1km of a health facility (GP) with a patient list size that exceeds recommended GP/patient ratio.	Site is located more than 1km from a health facility (GP).

This assessment was undertaken using quantitative GIS analysis. It considered the distance of sites from GP surgeries, which included all surgeries within Epping Forest District and those located within 1km of the District boundary. Distance was calculated based on the network distance between the centre points of the GP surgeries and sites.

As the NHS do not provide national standards for GP to patient ratio, the calculation of surgery capacity was based on the ratio of GPs to patients versus the average ratio of GPs to patients across Essex (1 GP per 1,800 patients). Surgeries with a patient ratio exceeding this Essex-wide average were considered to have insufficient capacity. Data on the number of patients per surgery was obtained using the *Numbers of Patients Registered at a GP Practice* dataset (HSCIC, 2017)²⁰, while the number of active GPs per surgery was sourced either from individual surgery websites or NHS Choices GP search engine.

It was noted in 2017 that North Weald Basset Surgery is currently closed for refurbishment until further notice. This surgery is a branch to the Limes Medical and during the closure patients were redirected to one of the other two branch surgeries - The Limes or Epping. However, North Weald Basset Surgery has been retained within the assessment as it is assumed to be only a temporary closure.

¹⁹ In 2016, the assessment utilised the Epping Forest District Open Space, Sport and Recreation Assessment (2012). However, all sites were reviewed and updated in 2017 to take into account the Epping Forest District Open Space Strategy (2017).

²⁰ In 2016, sites were assessed against the *Numbers of Patients Registered at a GP Practice* dataset published in 2016. However, all sites were reviewed and updated in 2017 to take into account the more recent version of this dataset.

No capacity data was available for Ferndale Surgery in the neighbouring London Borough of Redbridge, so this surgery was not considered as part of the assessment.

In instances where a site was located in multiple 1km catchment areas, the higher score was used to ensure any capacity available was fully captured.

2.8 Impact on Minerals Deposits

(+)	0	(-)
None of the site is located within a minerals safeguarding area	Part of the site is located within a minerals safeguarding area, but possible impacts could be mitigated	Part of the site is located within a minerals safeguarding area and impacts could not be mitigated, or the whole of the site is within a minerals safeguarding area

Essex County Council are the competent authority for minerals and waste planning. Policy S8 of the County's Mineral and Waste Plan addresses mineral safeguarding. The policy requires a check to be undertaken of local authority proposed site allocations to identify whether the sites meet the safeguarding criteria and to establish whether a mineral resource assessment is required. In 2016, all sites were sent to Essex County Council to enable them to undertake the safeguarding assessment. In 2017, sites were assessed by Epping Forest District Council utilising a consistent approach. The scores attributed to sites were based on the conclusions of their assessment, which are presented in the proformas and the file note at Appendix B1.6.3.

3 Cumulative achievability

In order to understand the potential cumulative impacts of development at a settlement scale, an assessment of cumulative achievability was undertaken. Rather than considering the impact of a potential allocation in isolation, this assessment took into account the wider impact of residential and traveller accommodation growth on settlements for a series of infrastructure types: open space; primary and secondary schools; green infrastructure; sewage treatment; the Central Line; water network; and wastewater network. These infrastructure types were considered as there is potential for cumulative growth within settlements to impact upon them.

Some aspects of the assessment of cumulative achievability required an estimation of the population by settlement at the end of the Plan period. This was estimated using the following approach:

- Ward-level and parish-level populations for 2011 were taken from the 2011 Census and applied to the settlements using a 'best fit' approach.
- To estimate the population growth in the period 2011-2016, additional population from completions was derived using the 2016 average household size taken from the 2014-based household projections, and added to the 2011 base. Settlement populations were then adjusted to be consistent with the 2014 Mid Year Estimate and 2014-based household projections for the District as a

whole, which is the most up-to-date data available from the Office of National Statistics and Department of Communities and Local Government

- To estimate the population growth in the period 2016-2033, additional population from proposed site allocations, commitments and a likely level of windfall development²¹ was derived using the forecast average household size taken from the 2014-based household projections, and added to the 2016 base.
- No average household sizes for traveller accommodation was available. There was no official definition as to what constitutes a single traveller residential pitch; travellers require various sizes of accommodation, depending on the numbers of caravans per pitch which varies with different families living at different densities. The convention used in the Traveller Site Selection Methodology was that a pitch accommodates a single household and typically contains enough space for one or two caravans. For the purposes of the assessment, an average of two caravans per pitch was assumed, and the forecast average household size taken from the 2014-based household projections was applied to *each* caravan (acknowledging that multiple caravans would still be considered to be a single household).

The cumulative achievability assessment has been undertaken twice: once in 2016 to support the proposed site allocations in the Draft Local Plan; and once in 2017 to reflect the proposed site allocations in the Submission Version Local Plan.

Due to their remote location, some traveller sites were not considered to fall within a town or village and have therefore not been included in the assessment of cumulative achievability.

3.1 Impact on open space

(+)	0	(-)
There are no identified current deficiencies in the quantum of open space within the settlement. No open space is lost as a result of the proposed allocations in the settlement.	There are no identified current deficiencies in the quantum of open space within the settlement, however the cumulative impact of the proposed allocations would result in a reduction in land for open space. OR There is a current deficiency in the quantum of open space within this settlement. However, no open space is lost as a result of the proposed allocations in the settlement.	There is a current deficiency in the quantum of open space within this settlement. The cumulative impact of the proposed allocations would result in a reduction in land for open space.

²¹ It is not possible to know where windfall development will occur in the future. For the purposes of the assessment, it has been assumed that approximately half of the windfall allowance will take place outside of the settlements as rural exception sites, with the rest of the allowance spread across the settlements.

This assessment considered the cumulative impact of sites proposed for allocation on designated open space, based on the Council's Open Space, Sport and Recreation Assessment Strategy (2017). Three²² types of open space have been considered as part of the assessment:

- Public parks and gardens
- Amenity green space
- Allotments

Information on existing deficits in open space within settlements was taken from the Open Space, Sport and Recreation Assessment Strategy. For the settlements not covered in the Open Space, Sport and Recreation Assessment Strategy²³, for the purposes of the assessment it was assumed that there are no identified current deficiencies in the quantity of open space in these locations.

An assessment of on-site open space provision has been undertaken as part of the capacity assessment for each site.

The assessment was undertaken qualitatively, comprising a spatial comparison of existing open spaces and proposed sites to understand, at the settlement level, the level of open space that would be lost.

3.2 Impact on primary schools

(+)	0	(-)
The proposed allocations in the settlement can be accommodated within the current primary school places in the Schools Planning Area. There is potential to accommodate growth by either expanding schools or identifying a new site	The proposed allocations in the settlement would lead to a shortage of current primary school places in the Schools Planning Area. There is potential to accommodate growth by either expanding schools or identifying a new site	The proposed allocations in the settlement would lead to a shortage of current primary school places in the Schools Planning Area. There is limited scope to further expand school provision due to site constraints

This assessment considered the cumulative impact of the sites on primary schools. Existing capacities for primary school places within Schools Planning Areas was taken from the assessment of criteria 2.4b.

To assess the impact of future development, standards for primary school places were applied to the additional households expected through the proposed site allocations, commitments and windfall development²⁴. This additional demand was then compared with existing capacities.

The potential of the Schools Planning Areas to expand their capacity in the future (either through expansion of existing schools or the identification of a new school

²² Natural and semi-natural greenspace and cemeteries and churchyards were excluded from the assessment to reflect that these types of open space are more likely to be provided on a strategic district-wide scale rather than a settlement scale.

²³ Fyfield, High Ongar, Lower Sheering, Sheering, Stapleford Abbots, and Harlow Strategic Sites

²⁴ Obtained from Essex County Council Developers' Guide to Infrastructure Contributions (2016)

site) was also identified based on the assessment of criteria 2.4b, with inputs from Essex County Council.

3.3 Impact on secondary schools

(+)	0	(-)
The proposed allocations in the settlement can be accommodated within the current secondary school places in the Schools Planning Area. There is potential to accommodate growth by either expanding schools or identifying a new site	The proposed allocations in the settlement would lead to a shortage of current secondary school places in the Schools Planning Area. There is potential to accommodate growth by either expanding schools or identifying a new site	The proposed allocations in the settlement would lead to a shortage of current secondary school places in the Schools Planning Area. There is limited scope to further expand school provision due to site constraints

Assessment on the impact of secondary school places used the same approach as primary schools (see criteria 3.2) and drew on the findings of assessment of criteria 2.5b.

3.4 Impact on Green Infrastructure (GI)

(+)	0	(-)
The proposed site allocations provide opportunities to enhance Green Infrastructure	The proposed site allocations generally provide opportunities to enhance GI; on some sites there is likely to be some loss of GI	The proposed site allocations do not provide opportunities to enhance Green Infrastructure

This assessment considered, at the settlement level, the possible impact (positive or negative) on the Green Infrastructure (GI) network in Epping Forest District.

A series of spatial and overarching GI objectives have been developed, which informed the policies in the emerging Local Plan on Green Infrastructure, These are:

- Protect sites and their setting;
- Develop green links between wildlife / trees / hedgerow assets to better integrate the network (e.g. between Epping Forest and Lee Valley Regional Park);
- Improve accessibility to heritage/landscape/woodland-related assets;
- Protect key areas of open green space;
- Protect and enhance Green Lanes / Protected Lanes;
- Improve and extend the Public Rights of Way network to better link green infrastructure assets;
- Improve east west access to the Lee Valley Regional Park – more connections to get onto the north-south towpath route and better connections between the assets within the Park;

- Improve connections to and along the River Roding;
- Improve east-west access points to River Lee towpath.

Spatial data for the assets²⁵ in the District was used to qualitatively assess the impact of proposed site allocations within settlements, taking into account the aforementioned objectives. Sites were judged to either support the objectives (e.g. by providing opportunities to develop or strengthen links between assets), or restrict their fulfilment (e.g. by using the asset for development or truncating existing links between assets).

3.5 Impact on Sewage Treatment

(+)	0	(-)
Settlement is served by a Sewage Treatment Works with current or planned additional capacity to meet additional demand	Settlement is served by a Sewage Treatment Works which may be unable to meet additional demand – local upgrades to the existing infrastructure expected to be required	Settlement is served by a Sewage Treatment Works which is unlikely to be able to meet additional demand – strategic infrastructure expected to be required

Engagement with Thames Water with regard to the impact of proposed levels of development on wastewater treatment was undertaken as part of the preparation of the Infrastructure Delivery Plan. Thames Water undertook an assessment of the proposed site allocations; the results for individual sites have been combined into a settlement-level assessment by Arup.

3.6 Impact on Central Line Capacity

(+)	0	(-)
The proposed allocations in this settlement do not have a material impact on the current or expected forecast peak use of the Central Line stations within Epping Forest District	The proposed allocations in this settlement are expected to result in a minor increase in the expected forecast peak use of the Central Line stations within Epping Forest District, which will not affect the capacity of these stations	The proposed allocations in this settlement are expected to result in a moderate or major increase in the expected forecast peak use of the Central Line stations within Epping Forest District, which will affect the capacity of these stations

This assessment considered the cumulative impact of growth generated by sites on the capacity of the five ‘spur’ Central Line Stations in the District (Epping, Theydon Bois, Debden, Loughton and Buckhurst Hill), which are located on the main route of the Central Line. In addition, there are three stations located on the Central Line ‘loop’ (Roding Valley, Chigwell and Grange Hill); these stations were not included in the assessment as data of their current capacity was not

²⁵ Green infrastructure assets were taken to be: SAC; SPA; Ramsar; SSSI; BAP Habitats; National Nature Reserves; Local Wildlife Site; Local Nature Reserves; Registered Parks and Gardens; Conservation Areas; Ancient Woodland; Ancient Trees; Epping Forest; Corporation of London Forest, Play Spaces, Playing Fields, Allotments, Cemeteries, Protected Lanes; Green Lanes; Managed Open Space; and Woodland Semi Natural Open space.

available. The assessment is therefore a ‘worst case’, as in reality it might be expected that additional population would be able to utilise any spare capacity on the ‘loop’ section of the Central Line.

The assessment does not assess the impact on individual stations; this is due to the complex usage patterns in the District where some commuters choose to use a station which is not geographically proximate in order to access parking, childcare facilities and other services. It also does not take into account capacity on other parts of the Central Line or wider Transport for London (TfL) network.

Data on current train peak AM (0800-0900) and PM (1700-1800) Central Line loading across the five ‘spur’ stations within the District was taken from TfL’s Rolling Origin and Destination Survey (2016)²⁶.

In order to calculate the additional number of commuters that might be expected to use the Central Line as a result of the proposed sites in each settlement, the following data sources and assumptions were used:

- Anticipated additional population from each allocation was calculated using the approach set out previously.
- Forecast working age population (16-74²⁷) for the District at the end of the Plan period was taken from the 2014-based subnational population projections.
- The proportion of residents using London Underground as their main method of travel to work was taken from 2011 Census data²⁸ at ward level and applied to individual settlements. For the purposes of the assessment it has been assumed that these proportions will continue across the Plan period.
- TfL’s London Travel Demand Survey (2014) highlights that whilst the highest flows are between 0800-0900 and 1700-1800, the AM and PM peaks extend beyond these hours (0700-1000 and 1600-1900 respectively). Using the reported findings of this survey as a basis, it was assumed for the purposes of this assessment that one third of additional users would choose to travel outside 0800-0900 and 1700-1800.

These data sources and assumptions have been used to develop an estimate of the additional commuters using the Central Line.

At the settlement level, where proposed sites would result in an increase in eastbound or westbound peak hour travel of over 3%, it was judged that this would have a material impact on the expected peak use of the Central Line. Where an increase of over 10% was estimated, it was judged that this would impact upon the capacity of the stations to accommodate this growth.

²⁶ <http://data.london.gov.uk/dataset/tfl-rolling-origin-and-destination-survey>

²⁷ Working age population is often taken as 16-64. For the purposes of this study 16-74 has been used to be consistent with the ages used in the Method to travel to work data.

²⁸ QS701EW - Method of travel to work

As well as commuters, it is expected that growth in Epping Forest District would lead to other types of trip generation, e.g. travel into Central London for shopping or entertainment. These trips have not been modelled because they are likely to occur outside the peak times.

3.7 Impact on Water Network

(+)	0	(-)
Settlement is served by water network with no known capacity issues		Settlement is served by water network which is unlikely to be able to meet additional demand - upgrades to the existing infrastructure expected to be required

Engagement with Thames Water with regard to the impact of proposed levels of development on the water network has been undertaken as part of the Infrastructure Delivery Plan. Thames Water have undertaken an assessment of proposed allocations; the results for individual sites have been combined into a settlement-level assessment by Arup.

3.8 Impact on Wastewater Network

(+)	0	(-)
Settlement is served by wastewater network with capacity to meet additional demand	Settlement is served by wastewater network which may be unable to meet additional demand – local upgrades to the existing infrastructure expected to be required	Settlement is served by wastewater network which is unlikely to be able to meet additional demand – strategic infrastructure expected to be required

Engagement with Thames Water with regard to the impact of proposed levels of development on the wastewater network has been undertaken as part of the Infrastructure Delivery Plan. Thames Water have undertaken an assessment of proposed allocations; the results for individual sites have been combined into a settlement-level assessment by Arup.