12th Annual Minerals and Waste Monitoring Report

1st April 2017 to 31st March 2018

Kent Minerals and Waste Local Plan

January 2019

Kent County Council
kent.gov.uk

Contents

Abbreviations

AA	Appropriate Assessment
AMR	Annual Monitoring Report
AONB	Area of Outstanding Natural Beauty
BEIS	Department for Business, Energy and Industrial Strategy
CD&E	Construction, Demolition and Excavation (waste materials arising from this sector)
C&D (Recycling)	Construction & Demolition (Recycling)
C&I	Commercial and Industrial (waste materials arising from this sector)
CPRE	Campaign to Protect Rural England
DCLG	Department for Communities and Local Government
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EfW	Energy from Waste (energy production from driving a steam turbine through direct combustion of waste, or through fuel created in gasification and pyrolysis plants)
EIA	Environmental Impact Assessment
ESCC	East Sussex County Council
EU	European Union
HRA	Habitat Regulations Assessment
HWRC	Household Waste Recycling Centre
KCC	Kent County Council
KJMWMS	Kent Joint Municipal Waste Management Strategy
KWP	Kent Waste Partnership
LAA	Local Aggregate Assessment
LACW	Local Authority Collected Waste (mainly that collected from households)
LEP	Local Enterprise Partnership
LNP	Local Nature Partnership
LNR	Local Nature Reserve

LPA	Local Planning Authority
MHCLG	Ministry for Housing, Communities and Local Government
MMO	Marine Management Organisation
mt	Million Tonnes
mtpa	Million Tonnes Per Annum (as in Million Tonnes Per Year)
MPA	Minerals Planning Authority
MRF	Material Recycling Facility
MSW	Municipal Solid Waste
MWDF	Minerals and Waste Development Framework
MWDS	Minerals and Waste Development Scheme
MWLP	Minerals and Waste Local Plan
NDA	Nuclear Decommissioning Authority
NPPF	National Planning Policy Framework
NNR	National Nature Reserve
PROW	Public Rights of Way
RSPB	Royal Society for the Protection of Birds
RSS	Regional Spatial Strategies
SA	Sustainability Appraisal
SEEAWP	South East England Aggregate Working Party
SEWPAG	South East Waste Planning Advisory Group
SPA	Special Protection Area
tpa	Tonnes Per Annum (that is Tonnes Per Year)
UK	United Kingdom
WCA	Waste Collection Authority
WDA	Waste Disposal Authority
WMU	Waste Management Unit (for Kent)
WPA	Waste Planning Authority
WRAP	Waste and Resources Action Program

Executive Summary

This Kent AMR covers the financial period 2017/2018. This is post adoption of the KMWLP in 2016, and reports on various matters including the following using the best available data:

- The progress of preparing minerals and waste planning policy in Kent, against the latest MWLDS timetable, up to the end of December 2018;
- The minerals supply and waste management indicator data for Kent for the calendar year or the financial year (as available); and
- A summary of the co-operation on plan making activities with other local authorities and prescribed bodies, up to the end of December 2018.

The Key Mineral Findings

The aggregate mineral sales in Kent during 2017 from all sources amounted to some 6.09 mt. This was a slight decrease in sales overall (by approx. 50,000 tonnes) which is essentially due to a significant fall in the landwon sharp sand and gravel sales, from 0.26mt in 2016 to 0.15mt in 2017. This is due to production from a significant site near Lydd migrating over the border from Kent to East Sussex.

Importation of predominantly marine dredged sands and gravels via wharfs has increased, though only slightly, with the three-year average of 2.04mt only marginally higher than 1.98mt that represents the 10-year average. Rail depots continue to be only a marginal suppler of sands and gravel into Kent, and remained stable over 2017 and 2018, at only 34,500 tonnes and 32,400 tonnes of sales respectively. It appears that wharf importation may well increase its contribution to this primary aggregate supply. Safeguarding of wharf capacity will be imperative to maintain the NPPF's requirement of a 'steady and adequate supply' of aggregates of this type to meet market requirements.

The situation with regard to soft sand supply is less constrained. The permitted landbank is 15.57 years (based on a 10-year sales average drawdown figure) and this will be sufficient to supply soft sand over most of the Plan period (until 2030), but not its entirety. Further soft sand supply will be required toward the end of the Plan period to maintain an at least 7-year landbank over the period and at the end of the period, as required by the NPPF. The three-year sales average is 0.568mt, greater than the last three-year sales average of 0.502 mt. The 2017 sales were some 0.519 mt, while in 2016 they were 0.507 mt and in 2015 they were 0.480mt. This recent upturn in sales indicates a slight increase in demand for this aggregate mineral supply.

Landwon sales of crushed rock continue to be assumed as 0.78 mtpa, given the needs of confidentiality. When compared to sales in 2016, importation sales of crushed rock sales at wharves (some 1.06mt) and rail depots (some 0.47 mt) are essentially stable. However, in both cases the underlying trend is up. The three-year average for crushed rock sales at wharves is 1.02 mt, while the ten-year average is lower at 0.796 mt. Similarly, sales of imports from rail depots of crushed rock have a three-year average of 0.44mt, while the ten-year average is 0.38 mt. However, permitted reserves secure the ability of Kent to maintain a 10-year landbank of crushed rock at any time over the life of the Kent MWLP 2013-30.

Secondary and recycled aggregate sales fell in 2017 (0.90 mt), compared to sales of 1.03 mt in 2016. The 10-year sales average is 0.79mt and the more recent 3-year sales average is 0.93mt. Secondary and recycled aggregates are showing an upturn in sales terms and may

play an increasing role in overall aggregate supply into the future. Further monitoring will demonstrate whether the circa 1.0mtpa level of production has peaked or is increasing. More information about the supply of aggregates in Kent can be found in the Kent Local Aggregates Assessment 2018.

There are four permitted landbanks of clay and brickearth with remaining reserves in Kent. These sites have a combined landbank of 25 years, meeting national policy requirements. Kent has two operational silica sand sites, and both meet the requirement of maintaining a 10-year landbank per site at existing sites.

Kent's reserves for cement manufacture are entirely contained at the strategic site at Holborough Cement Works, though not constructed, the lawfully implemented planning permission has sufficient supply at the planned consumption rate for 25 years. This meets the NPPF requirement where substantial new investment in a kiln is required.

Kent's chalk reserves for agriculture and engineering purposes are not required to meet any prescribed landbank level in the NPPF, however a sufficient supply is required to be maintained for all minerals. Gathering sufficient data to determine what this is has proved difficult, therefore, data on reliable sales and reserve levels for the monitoring period 2017/18 has not been possible. Consequently, based on data for chalk reserves and sales in the period 2011- 2014 (that used a per annum proxy of 70,000 tpa and a reserve of 1.516mt in 2014) by 2018 it is estimated that the permitted reserves have dropped to 1.23mt. This may give an indicative permitted landbank of 17.57 years of chalk reserves. Given the need to supply sufficient quantities of minerals of all types by the NPPF, and that the KMWLP is to 2030, there is an arguable need to permit further chalk reserves to meet this level of demand towards the end of the Plan period.

The Key Waste Findings

There has been a decrease in the arisings of LACW in 2018 (-3.14%) overall. In 2013-14 the positive rate of increase was 1.35% and this climbed to 2.25% rate of growth increase in 2014-15. This rate of increase then slowed, with only an 0.44% rate of arisings increase in 2015-16 but picked up again in 2016-17, with a rate of increase of 2.09%. Therefore, as this is the first negative result, it may be premature to conclude that the annual rate of change for the LACW will continue to be negative into the future.

Kent's population is growing, in 2018 it is recorded as being in the order of 1.567 million, which places pressure on LACW arisings. By the end of the adopted Plan period it is predicted to be around 1.764 million. Unless population growth has indeed de-coupled from waste arisings, LACW will continue to grow. However, what is clear from the LACW management data for 2009-10 to 2017-18 is that the KJMWMS (that reflects the EU Landfill Directive (1999)) target of landfilling no more than 5% by 2020-21 has been surpassed early, with landfill being the management option for only 1.1% of the LACW. Also, the target for recycling/composting of at least 50% of LACW by 2020/21 has almost been met in 2017/18 at 46.5%.

The waste import levels in Kent in 2016/17 were observed to reduce, in that some 1,838,978 tonnes were imported in 2016 and this fell to 1,428,976 tonnes in 2017. Over the same period exports remained essentially stable. In 2016 exports overall were some 1,150,943 tonnes, this slightly increased to 1,168,244 tonnes in 2017. Therefore, these figures show that Kent was a net importer of waste in 2016 and 17. This figure is also now becoming more balanced, with the difference between imports and exports moving from some 0.688mt in 2016 to 0.26mt in 2017. While Kent still remains a net importer of waste, there is a better balance between imports and exports and net self-sufficiency has been attained.

Of the 22 planning applications submitted for waste development during the 2017/18 AMR period, 5 were permitted, which provided further capacity for waste management within Kent. This included some 47,000 tpa of recycling capacity; 15,000 tpa of hazardous waste (lead acid battery) transfer capacity and permanent retention of the Allington EfW facility (500,000tpa); there was no further landfill capacity permitted. Given the higher rates of LACW recycling/composting and recovery management performance, this new capacity is supportive of the drive for net self-sufficiency and diversion from landfill of all wastes streams in Kent.

Kent Minerals and Waste Local Plans

Significant progress has been made with the next stage of the KMWLP work. Early monitoring of the permitted waste recovery capacity, immediately following the adoption of the Kent Minerals and Waste Local Plan in 2016, highlighted the necessity for an Early Partial Review of the waste recovery capacity requirements (as expressed in tonnages) as specified in Policy CSW 7. This is proposed to be changed to a percentage of all waste streams per milestone year over the plan period as incorporated into an amended Policy CSW 4. This change significantly reduces the requirement of new recovery capacity (other than recycling and composting) to ensure that Kent's overall capacity at this waste hierarchical level matches anticipated arisings. Other policy changes are also required in the KMWLP, including the deletion of the need for the allocation of specific sites for the disposal of dredgings and asbestos. These changes, also to the KMWLP strategy for future waste management, in new capacity terms, demonstrated that a separate Waste Sites Plan is not justified.

In addition, the experience gained in implementing the waste and mineral safeguarding exemption policies, demonstrated that there was a degree of ambiguity of the exemption criteria relating to the interpretation of the status of the local plan coverage at the Borough and District level in Kent. The application of these policies' exemption criteria, that allows for non-mineral and non-waste developments to be acceptable on safeguarded mineral areas and, at or close to, waste facilities, to local plan allocations was intended to relate to new local plan allocations that have had safeguarding matters fully considered in their formulation, Independent Examination and eventual adoption. However, the safeguarding exemptions have been applied to proposals for development within site allocations in adopted local plans where no mineral and waste safeguarding implications had been considered. To address this ambiguity, the relevant policies (DM 7 and DM 8) are also part of the KMWLP Early Partial Review, on which an independent examination is expected in 2019.

Work on the Mineral Sites Plan has also been successfully progressed in 2017 and 2018. The Regulation 18 'Options' consultation on 9 sites that were deemed to align with the mineral supply strategy of the KMWLP and be acceptable in principle was conducted in late 2017/early 2018. Following the results of this Public Consultation (that included public meetings), the County Council has undertaken Detailed Technical Assessment of the sites to assess their acceptability and deliverability over a broad range of material planning considerations. This has resulted in the identification of one soft sand site (Chapel Farm, Lenham) and two sharp sand and gravel sites (Moat Farm and Stonecastle Farm in the Tonbridge area). These sites were published for representations on legality and soundness (in accordance with Regulation 19 of the Town and Country Planning (Local Planning) (England) Regulations in early 2019. A related Independent Examination is anticipated in early summer 2019, with adoption planned for the end of the year.

Introduction

The Kent Minerals and Waste Annual Monitoring Report

Monitoring of Local Plans is a statutory requirement of all Local Planning Authorities (LPA) and Minerals and Waste Planning Authorities. According to the National Planning Policy Framework (NPPF) each LPA should ensure that their Local Plan is based on adequate, up-to-date and relevant evidence about the economic, social and environmental characteristics and prospects of the area[1].

The Kent Annual Monitoring Reports (AMR) document the progress made in preparing Kent's Minerals and Waste Local Plans against the timetable set out in the Kent Minerals and Waste Local Development Scheme (MWLDS) and monitors their adoption and implementation.

This Kent AMR covers the financial period 2017/2018. This period is post adoption of the KMWLP in 2016, and reports on various matters including the following, using best available data:

- The progress of preparing minerals and waste planning policy in Kent, against the latest MWLDS timetable, up to the end of December 2018;
- the minerals supply and waste management indicator data for Kent, for the calendar year or the 2017/18 financial year (as available); and
- a summary of the co-operation on plan making activities with other local authorities and prescribed bodies, up to the end of December 2018.

In accordance with the Regulation 35 (1.) of the Town and County Planning (Local Planning) (England) Regulations 2012, this and previous AMRs are available to view online, and in hard copies, which are available for inspection during normal office hours by appointment with the Minerals and Waste Planning Policy Team, based at Invicta House in Maidstone.

Kent Contextual Overview

Population

The approximate population for the administrative area of Kent was estimated to be 1,554,600 people in 2017 (KCC 2017 Mid-Year Population Estimates). Work on the Kent Growth Infrastructure Framework (GIF)[2] includes population and housing projections between 2011 and 2031 for Kent and Medway. In 2011 the population of Kent and Medway was 1,731,400 people, and it is anticipated that the area will experience 23% growth by 2031, resulting in a population of 2,127,600. Figure 1 below shows the degree of variance between a projection based on the County Council's housing lead projection (2016 forecast) and that of the slightly lower Sub-National Population Projection based on 2014 data.

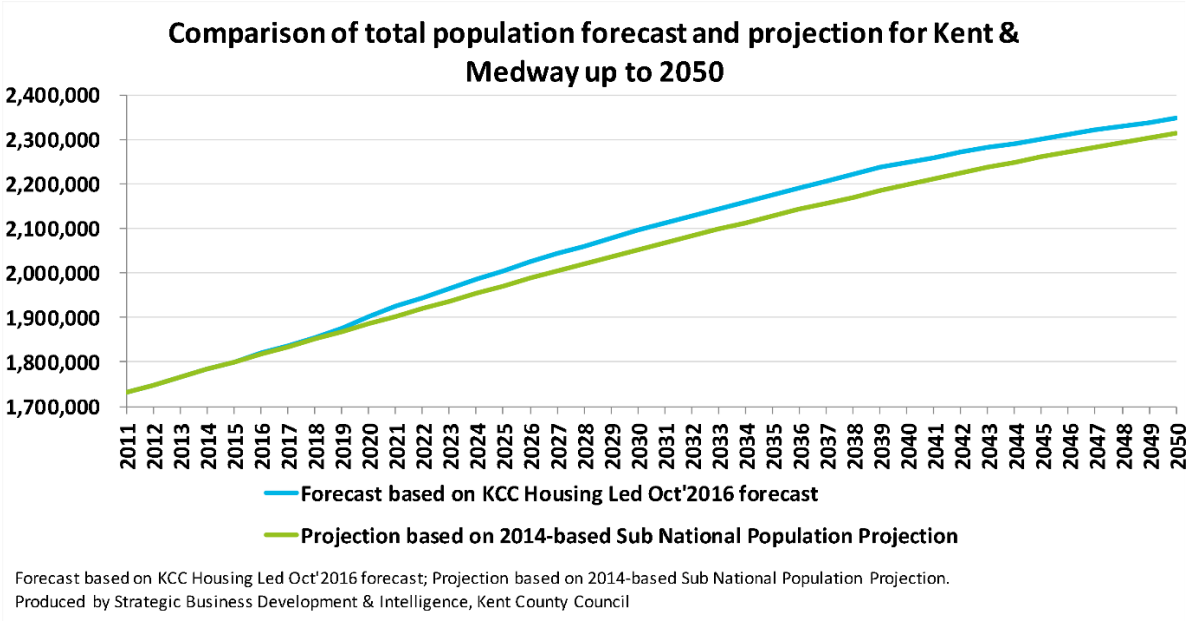
This population growth rate will have to be accommodated in terms of mineral supply and waste management capacity. This AMR is not a forward projection document, though will consider whether over the period to 2030 (the current Plan period), planning policy will allow

[1] The Town and Country Planning (Local Planning) (England) Regulations 2012

[2] https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/growth-and-infrastructure-framework-gif

for sufficient opportunities to meet requirements for sustainable development, related to waste management and minerals supply.

Figure 1: Kent Population Forecast up to 2050

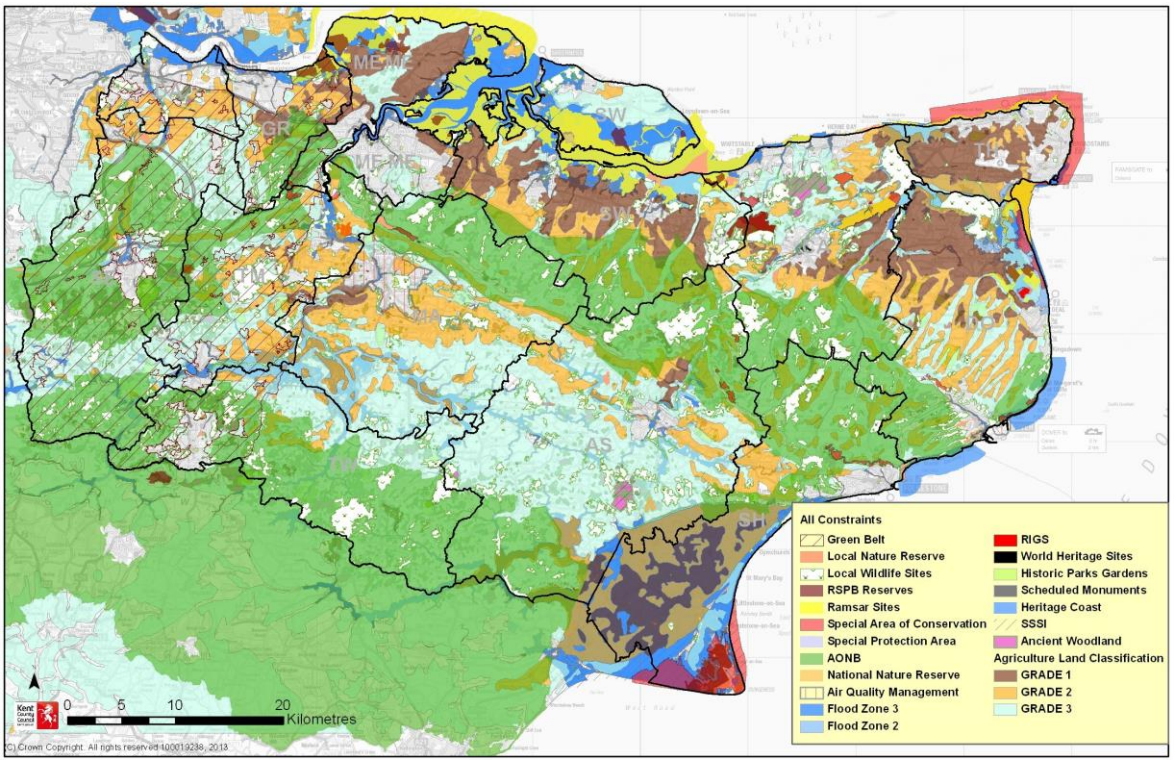


Forecast based on KCC Housing Led Oct'2016 forecast; Projection based on 2014-based Sub National Population Projection.
Produced by Strategic Business Development & Intelligence, Kent County Council

Environment

The County is subject to a number of planning and environmental constraints, with 20% of its area covered by sites that are internationally or nationally important for their nature conservation value, and one third of its area is covered by the Kent Downs or High Weald Areas of Outstanding Natural Beauty (AONB). There are significant areas within coastal or

Figure 2: Planning and Environmental Constraints in Kent



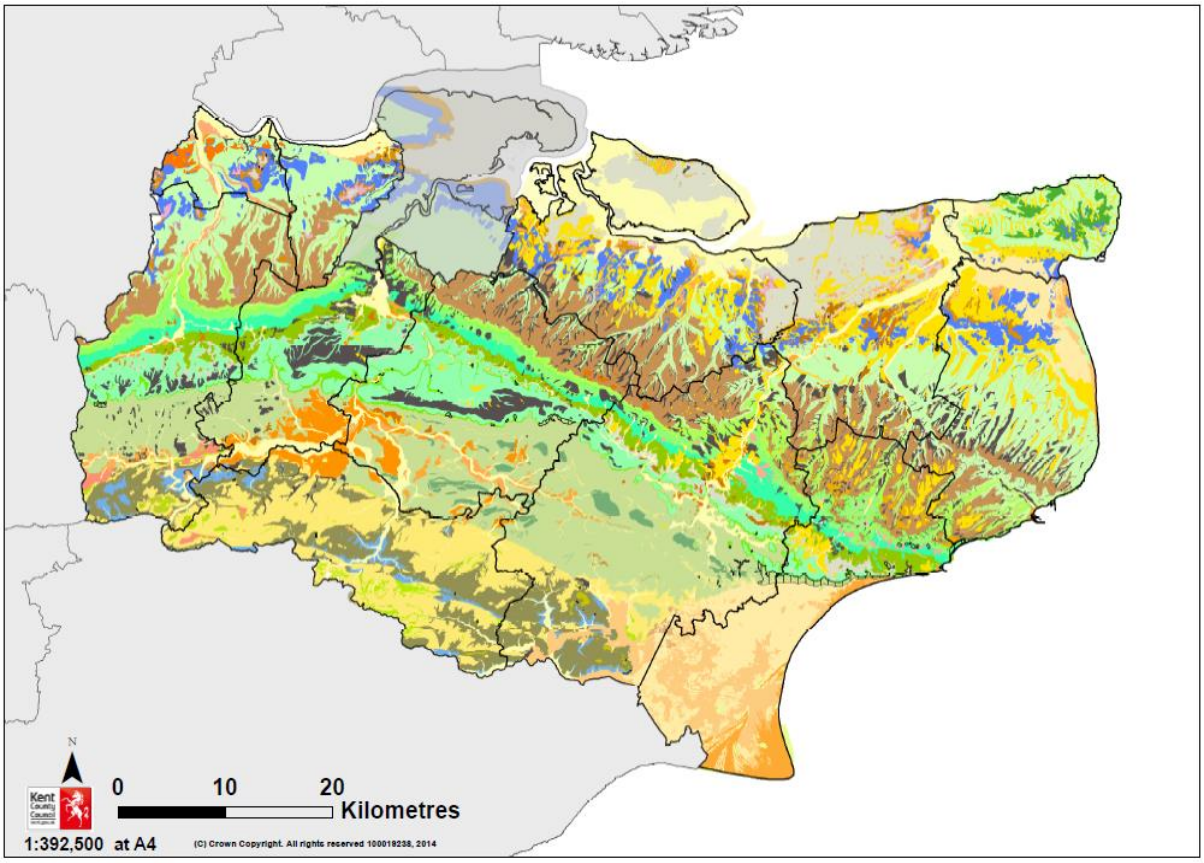
fluvial flood plains and land of high (best and most versatile) agricultural quality. Figure 2 shows the key planning and environmental constraints within Kent (including Medway).

Economic Minerals

Kent is underlain by a number of naturally occurring minerals of economic importance including chalk, clays, brickearth, ragstone (a limestone), and a variety of superficial sand and gravels deposits. There are also large scale stratigraphically defined units of sand that give rise to both construction aggregates (soft sand) and industrial minerals, including silica sand. The construction aggregates (sand, gravel and ragstone) are the main types of economically important minerals extracted in Kent at this time, although brickearth (stock brick manufacture) clay (tile manufacture and engineering clay) and chalk (for engineering and agricultural lime applications) is also extracted. See Figure 3 below for Kent's geology, and overleaf for geological key.

To compliment the land-won aggregate supplies, significant proportions of the aggregate minerals used in Kent are imported via rail and wharf facilities, with these minerals also serving the market in London and the wider south east. Moreover, the recycling or re-use of wastes, particularly from construction and demolition waste (CD&E) arisings, makes a significant contribution to Kent's construction aggregate need. Ensuring that appropriate provision is made for land-won, imported and secondary and recycled minerals is a key objective for the County Council as the Mineral Planning Authority (MPA) to meet Kent's current and future objectively assessed needs.

Figure 3: Geology of Kent both Solid and Superficial



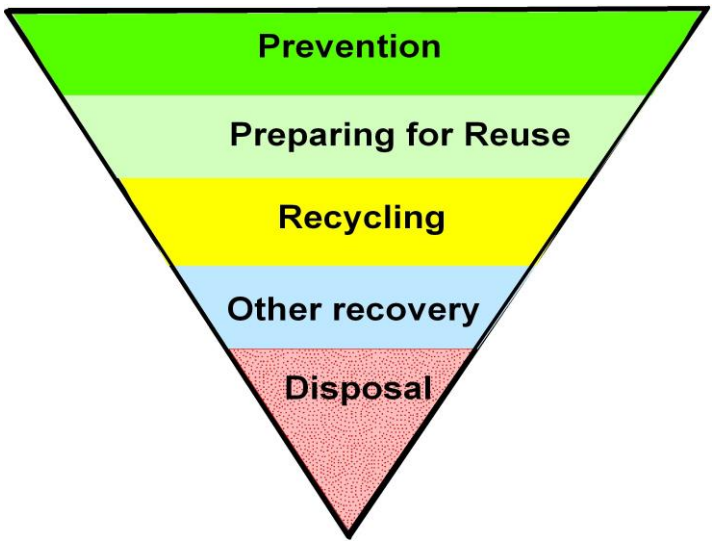
Legend: Geology of Kent

Waste

The majority of waste produced in Kent is generated within the Construction, Demolition and Excavation (CD&E) waste stream (as of 2015, the arisings in Kent were over 2.0mtpa). Local Authority Collected Waste (LACW), which includes household waste, makes up a significantly smaller proportion of the overall waste produced and has seen a decrease in arisings in recent years (in 2015/16 arisings in this waste stream was 0.716mt, with a slight increase in 2016/17 at 0.731mt of recorded arisings, by 2017/18 this had fallen back again to 0.708mt).

Waste requires careful management and treatment in an environmentally sustainable manner, taking into account national policy requirements such as the waste hierarchy (see Figure 4) and the need to maintain net self-sufficiency in waste management. A range of waste management processes occur in Kent at a variety of waste management facilities, from non-hazardous and inert landfills, to recycling and composting facilities, to energy from waste (EfW) facilities. Import and export of waste occurs in the County Council area from and to other parts of the country, the south east and London. This affects net self-sufficiency within the county. Achieving net self-sufficiency in waste management and moving waste up the waste hierarchy are key objectives for the County Council as the Waste Planning Authority (WPA) for Kent.

Figure 4: Waste Hierarchy



The Kent Minerals and Waste Local Plan

Kent County Council (KCC) is responsible for waste management and minerals planning in the Kent administrative area, excluding the Medway Council area. The County Council is required to produce a new Minerals and Waste Local Plan to progressively replace the saved policies of the existing Minerals and Waste Local Plans (Kent Minerals Local Plan: Brickearth (1986), Construction Aggregates (1994), Chalk and Clay (1997), Oil and gas (1997) and Kent Waste Local Plan (1998). The new Kent Minerals and Waste Local Plan was to consist of three separate spatial planning documents. These included the lead strategic document, the Kent MWLP 2013-30 (Kent MWLP that was adopted in 2016), the Kent Minerals Sites Plan and the Kent Waste Sites Plan. The sites plans were intended to allocate specific sites suitable for meeting strategic mineral supply needs and waste capacity requirements as identified in the Kent MWLP.

The Kent MWLP 2013-30 was formally submitted to the Secretary of State for Independent Examination on 3rd November 2014 and the public hearings on the Examination of the Plan

commenced in April 2015. The consultation on the Proposed Modifications to the Kent MWLP 2013-30 ran for an 8-week period from August to October 2015. The Inspector's report recommend adoption of the Plan was received on the 26th April 2016. The report recommended further changes that were deemed necessary in order for the Plan to be adopted. The Council resolved to adopt the Kent Minerals and Waste Local Plan 2013-30 (as amended) at the County Council's 16th July 2016 Full Council meeting. In accordance with the Direction issued by the Secretary of State in September 2007, the saved planning policies of the former minerals and waste local plans are listed within the appendices of the KMWLP.

The KMWLP 2013-30 is a key policy document for the determination of planning applications and appeals. The KMWLP sets out the County Council's strategy and policy framework for minerals and waste development in Kent, which includes future capacity and supply requirements. The KMWLP commits the Council to identifying and allocating land considered suitable for minerals and waste development in a subsequent Waste Sites Plan and a Minerals Sites Plan.

The County Council also adopted a Mineral Safeguarding Supplementary Planning Document in 2017.

The Kent Minerals and Waste Sites Plans

Work was initiated on the Minerals and Waste Sites Plans in 2017. Due to the lapse of time, it was considered necessary to undertake a thorough refresh of work previously undertaken, which included the publication of potential allocation sites in a Preferred Options Consultation (a Regulation 18 stage consultation[3]) in May 2012. It was considered inappropriate to simply roll these sites forward for consideration and so, a fresh 'Call for Sites' exercise was undertaken in 2017. As part of this exercise, all previous site promoters (of the sites containing mineral deposits that were identified by the KMWLP as being required to be planned for) were contacted, in addition landowners who had land coincident with potentially economically important aggregate deposits were contacted regardless of whether they had previously promoted a site(s).

Several sites were submitted for consideration that included mineral deposits not identified by the KMWLP as required (i.e. Carboniferous Limestone, chalk, clay and Lambeth Group materials that include sands, silts and clays), as well as potentially important sand and gravel aggregate bearing sites. Also, secondary and recycled aggregate sites were promoted that were classified as waste operations and therefore not relevant to the Mineral Sites Plan.

Monitoring the policy effectiveness of the KMWLP, after its adoption in 2016, revealed that significant capacity at Kemsley (around 500,000tpa of recovery capacity) permitted in 2012 had been lawfully implemented. In light of this, the previous assessment of future waste recovery and composting capacity requirements underwent an immediate review. The review work encompassed all the identifiable waste streams to provide an up to date audit of Kent's waste management requirements.

The conclusions of this review were that, apart from some further organic waste composting capacity, further recovery capacity would not be required over the plan period. Furthermore, the review indicated that allocation of specific sites for the management of asbestos and dredgings (as required by the KMWLP) was not justified. This negated the need for a stand-alone Kent Waste Sites Plan, though it triggered the need for an **Early Partial Review** of the relevant waste policies of the Kent MWLP 2013-30. This analysis occurred through 2017 into 2018 (and is set out in evidence documents published with the Pre-Submission Early Partial

[3] The Town and Country Planning (Local Planning) (England) Regulations 2012

Review documentation).

In addition, experience of implementing the Local Plan policies regarding mineral and waste safeguarding had revealed ambiguity in the wording of certain of their exempting criteria which was hindering the effectiveness of the policies. Amongst other aims, the intention of these safeguarding policies is to ensure that development on sites for non-mineral or non-waste development (i.e. housing and commercial development) allocated in a Borough or District Local Plan would be exempt from the KMWLP's safeguarding policy provisions *if* the need to safeguard any mineral resource underlying the site, and/or proximate minerals and waste infrastructure, had been assessed and factored into the decision to allocate the site(s). In practice, however, there have been occasions where the policies are being interpreted to exclude *any* site allocations in adopted development plans from the safeguarding process, *regardless* of whether minerals and waste safeguarding matters were considered during the site's local plan allocation process. This is not the intention of the policies, nor national policy guidance. As this has the potential to undermine the effectiveness of these policies.

The Early Partial Review provided the opportunity to address this matter and change the wording of exemption criterion (7) of Policy DM 7 and criterion (2) of Policy DM 8. Draft changes were the subject of a public consultation between December 2017 and March 2018. A workshop was also held with the Borough and District Councils to discuss the proposal and invite comments. As a result, a number of minor changes have been made to the related explanatory text to address concerns. The proposed revisions to the adopted Safeguarding policies and explanatory text are set out in the Pre-Submission Draft of the Early Partial Review of the Kent Minerals and Waste Local Plan[4].

In summary, the Early Partial Review of the KMWLP therefore proposes modifications in the following policy areas:

Waste Management Capacity Provision

- The strategy for provision of future waste management capacity; and
- The identification of site allocations (in a Waste Local Plan) for waste management facilities to deliver the waste strategy of the adopted Plan

Minerals and Waste Safeguarding - The approach to safeguarding mineral resources and waste management and minerals supply infrastructure.

- The amendment of the presumption to safeguard exemption criteria that addresses the effect of allocations in an adopted Local Plans on that presumption. Including clarification that any allocation in a Local Plan since adoption of the KMWLP will be in compliance with the safeguarding policies of the Plan; having included regard for any exemption criteria that may be relevant in their formulation.

Mineral Sites Plan

Work began with a 'Call for Sites' exercise in late 2016, which invited nominations (from landowners and potential minerals operators etc) for sites to be considered for allocation, to meet the KMWLP mineral supply requirements. All those parties that had previously had an interest in the Minerals and Waste Local Plan work were notified of the Call for Sites and

[4] See document KCC/SP42 of the County Council's Document Library for the Submission Draft Early Partial Review of the KMWLP 2013-30 and Kent Mineral sites Plan, Regulation 19 Public Consultation at the following link http://mylimehouse.kent.gov.uk/portal/second_call_for_sites_2016/document_library/

invited to nominate sites, as well as comment on a draft Site Selection Methodology (see the Site Selection Methodology 2018 document KCC/SP49 in the online Documents Library[5]).

In response to the Call for Sites exercise 19 mineral sites were promoted for consideration which were initially screened against the Council's site selection methodology[6] and further assessed to arrive at nine Option sites (the reasonable alternatives) that were then subject to a Regulation 18 Public Consultation that was initiated in late 2017 to early 2018.

The Options sites were subjected to 'Detailed Technical Assessment (DTA)'. The DTA stage considered a range of environmental impacts, including landscape and visual impact, amenity, highways and transportation, biodiversity, historic environment, waste resources and flood risk, land stability and need. It also considered, where necessary, an assessment of Green Belt policy. Full details of the DTA stage and the outcome of the assessment can be found in the supporting document Kent Mineral Sites Plan – Minerals Site Assessment Document 2018. The DTA work concluded that three of the nine sites should progress as sites for allocation in the Minerals Sites Plan, they are:

- M3: Chapel Farm (West), Lenham - Soft Sand (3.2mt)
- M13: Stonecastle Farm, Hadlow/Whetsted - Sharp Sand and Gravel (1.0mt)
- M10: Moat Farm, Five Oak Green, Capel - Sharp Sand and Gravel (1.5mt)

These sites are considered acceptable in principle for mineral development, though any actual development at these sites would be subject to separate planning applications demonstrating that certain development management criteria caveats can be met.

The results of the DTA process was reported to the E&TCC of the 28th November 2018, and then to the County Council's Full Council on the 13th December 2018. The Full Council resolved to progress the Mineral Sites Plan to a Regulation 19 Pre-submission Draft Public Consultation in early 2019

Progress Against the Development Scheme

The Local Development Scheme sets out the County Council's programme for preparing minerals and waste planning documents. The Local Development Scheme, which was adopted in December 2017 anticipated submission of the Plan to the Secretary of State following the pre-submission consultation in January 2019, but this has been updated to reflect the work of the above, and the anticipated date for the Regulation 19 consultation and submission.

The revised timetable for the preparation of the Minerals Sites Plan and KMWLP 2013-30 Partial Review, to be included in the Scheme, is set out in Table 1 below.

Table 1: Revised Local Development Scheme Timetable

Stage (where regulations are referred to this applies to *The Town and Country Planning (Local Planning) (England) Regulations 2012)*	**Milestone Dates**
Call for Sites	November 2016- January 2017
Minerals Sites Options and Partial Review of KMWLP 2013-30 Consultation (Regulation 18)	December 2017-March 2018

[5] http://mylimehouse.kent.gov.uk/portal/second_call_for_sites_2016/document_library

[6] Kent Minerals and Waste Local Plan Site Selection Methodology, Living draft October 2016. See the following link: http://mylimehouse.kent.gov.uk/portal/second_call_for_sites_2016/document_library/

Pre-Submission Mineral Sites Plan and Partial Review of KMWLP 2013-30 Consultation (Regulation 19)	January 2018-March 2019
Submission of documents and information to Secretary of State (Regulation 22)	March/April 2019 (anticipated)
Independent Examination Hearings (Regulation 24)	June/July 2019 (anticipated)
Inspectors Report	October 2019 (anticipated)
Adoption (Regulation 25)	December 2019 (anticipated)

Plan Monitoring

Introduction

Following the Localism Act 2011, it is now the responsibility of each LPA to decide what to include in their annual monitoring reports (AMR), whilst ensuring that they are prepared in accordance with the relevant UK and (at the time of writing) EU legislation.

Plan Monitoring Indicators

KCC still attaches importance to the former national indicators[7] used as the basis for minerals and waste monitoring in previous years, in addition to KCC's own 'local' indicators, and so continues to monitor and report on these sources of information. Table 2 sets out the indicators used in this AMR.

Table 2: Minerals and Waste Annual Monitoring 'Indicators'

Data Indicator	Source	Former National Indicator Number
Production of Primary Land-won Aggregates	Annual Aggregates Monitoring Survey[8]	Core Output Indicator 5A
Production of Secondary/Recycled Aggregates	Annual Aggregates Monitoring Survey	Core Output Indicator 5B
New Mineral Reserves	KCC Planning Permissions	Local Output Indicator 1
Construction Aggregate Landbank	Annual Aggregates Monitoring Survey	Local Output Indicator 1
Other Mineral Landbanks	Annual Aggregates Monitoring Survey	Local Output Indicator 3
Mineral extraction other than aggregates	Mineral extraction in Great	Not directly applicable

[7] DCLG (July 2008) National Indicators for Local Authorities and Local Authority Partnerships

[8] Co-ordinated and published by South East England Aggregates Working Party (SEEAWP), takes account of the Kent Local Aggregates Assessment prepared by Kent County Council

	Britain 2013[9]	
Wharves and Rail Depots Safeguarding	Annual Aggregates Monitoring Survey	Local Output Indicator 4
Sales of Construction Aggregates at Wharves and Rail Depots	Annual Aggregates Monitoring Survey	Local Output Indicator 5
Capacity of New Waste Management Facilities by Type	KCC Planning Permissions/ Environment Agency	Core Output Indicator 6A
Municipal Waste Arisings by Management Type	KCC Waste Management Unit	Core Output Indicator 6B
Waste Growth Rate	KCC Waste Management Unit	Local Output Indicator 6
Exports and Imports of Waste	Environment Agency	Local Output Indicator 7
Capacity for Managing Waste Materials in Kent	Environment Agency/ KCC planning permission and monitoring data	Local Output Indicator 8

Mineral Indicators

Production of Aggregates

This section reports on the land-won primary aggregates (soft sand, sand and gravel and crushed rock) production (sales) and the secondary/recycled aggregates that originate from industrial process and the construction, demolition and excavation (CD&E) waste stream, data for which is also collected by the yearly Aggregate Monitoring (AM) process. The data is for the calendar year 2017, data for production in 2018 will be collected in 2019.

Production of Primary Landwon Aggregates

The NPPF requires Mineral Planning Authorities (MPA) to plan for a steady and adequate supply of aggregates through preparing an annual Local Aggregates Assessment (LAA, see document KCC/LAA33 in the online Document Library[10]) from which future provision should be derived based on a rolling average of 10-years aggregates sales data and an assessment of all supply options (including marine dredged, secondary and recycled sources), and other relevant local information. This LAA data informs the AMR and is, in part, reproduced here.

Landwon Soft sands

Land-won soft sand is supplied from the Folkestone Beds in Kent and is a distinct aggregate material (used in mortar and coated stone applications) for which a separate landbank is required to be maintained. Kent has a total of 9 sites. Three are inactive as of the 2017

[9] Published in February 2015, the data is for 2013 and has not been updated, is indicative and is supplemented with local enquiry sourced data where possible

[10] http://mylimehouse.kent.gov.uk/portal/second_call_for_sites_2016/document_library

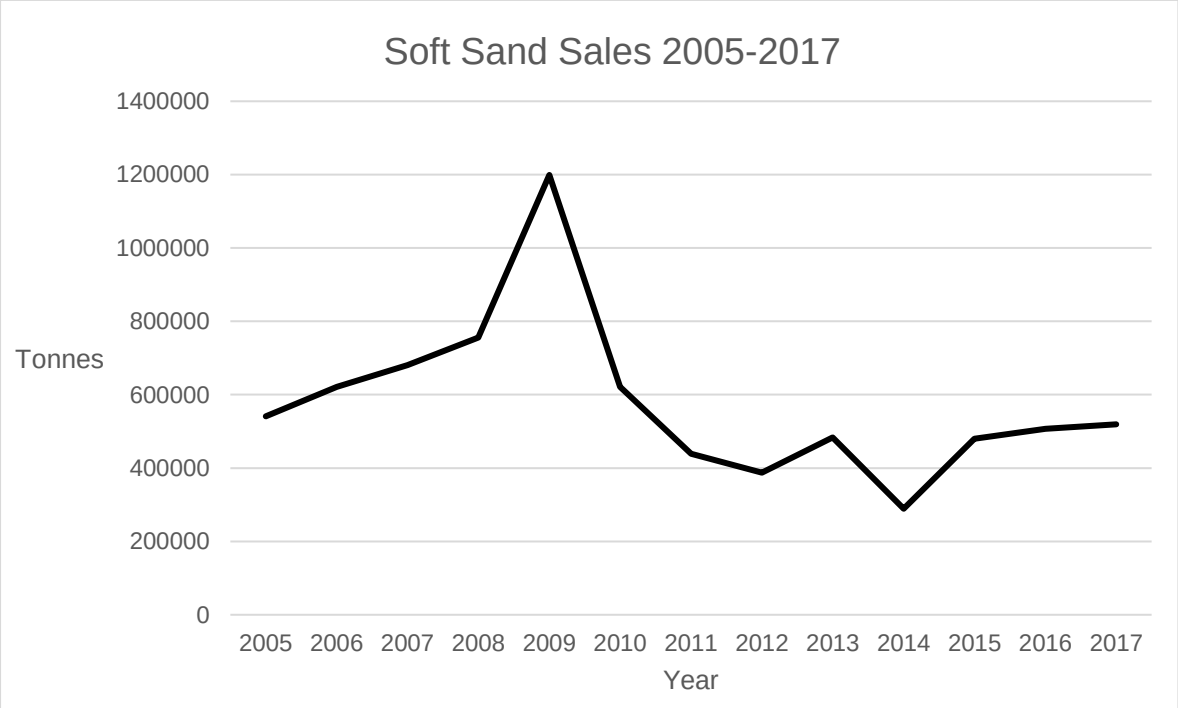
collected data, and another has had no offsite sales of any magnitude. Sales of soft sand is shown in Table 3 below:

Table 3: Sales of land-won Soft Sand in Kent 2005-17

Year	Tonnes
2005	541,000
2006	621,215
2007	681,012
2008	755,590
2009	1,199,120
2010	621,573
2011	438,909
2012	387,746
2013	483,165
2014	289,087
2015	480,215
2016	506,663
2017	519,414
Average last 10-years (2008-17)	**568,131**
Average last 3-years (2015-17)	**502,097**

The spread of data can be more easily appreciated in graphical form, as show in Fig 5.

Figure 5: Sales of Land-won Soft Sand in Kent 2005-17



The general decline from 2009 to 2014 may correspond to the recessional effect of the financial crash of 2008. Since 2014 there has been a slight upturn in sales of soft sands to a current figure of slightly over 0.5mtpa.

Land-won Sharp Sands and Gravels

The sharp sand and gravel resources exploited in Kent have traditionally centred around the important extraction areas of the Stour Valley between Ashford and Canterbury and the

Dungeness peninsula. There has also been extraction in the Darent Valley around Dartford. At Dungeness the remaining unpermitted resources are heavily constrained by the Dungeness, Romney Marsh and Rye Bay Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Wetland of International Importance under the Ramsar Convention (Ramsar Site).

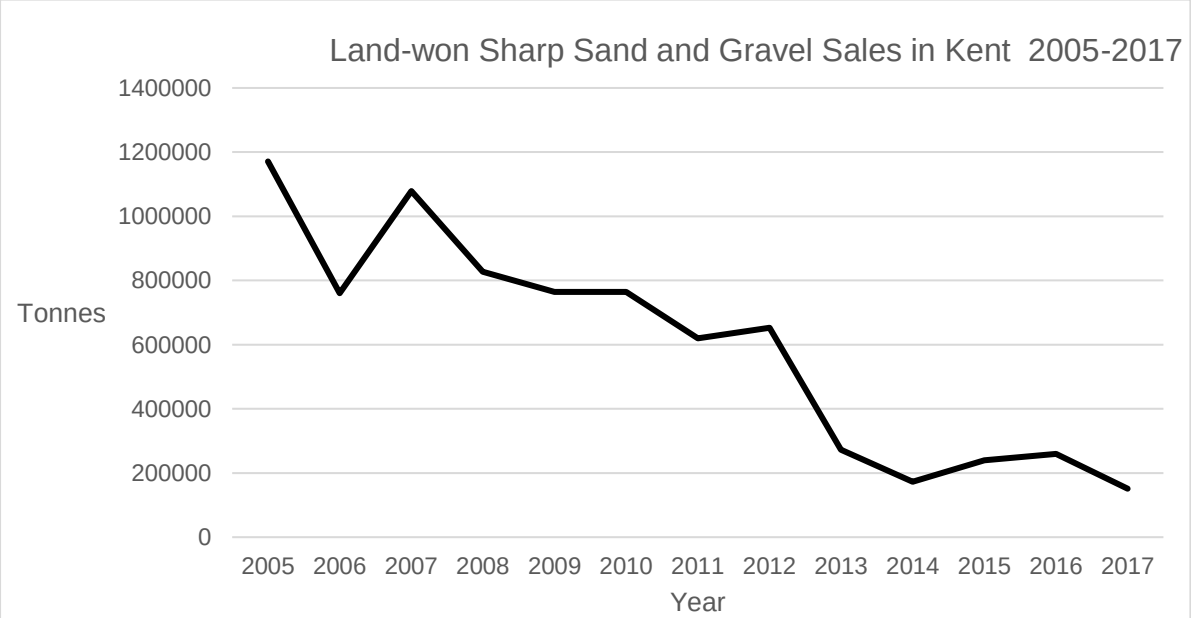
Available land-won resources for the land-won sharp sand and gravel are rapidly depleting in Kent. There are four operational quarries producing sharp sand and gravel to varying degrees of output, and there are six inactive sites. The recent sales data of this aggregate resource, important as a construction aggregate that can be capable of high specification concrete production applications (the flint gravels specifically) are shown in Table 4.

Table 4: Sales of land-won Sharp Sand and Gravel in Kent 2005-17

Year	Tonnes
2005	1,171,000
2006	760,574
2007	1,078,357
2008	827,208
2009	764,000
2010	763,924
2011	619,855
2012	652,285
2013	273,000
2014	172,672
2015	239,366
2016	259,550
2017	151,165
Average last 10-years (2008-17)	**472,303**
Average last 3-years (2015-17)	**216,694**

The spread of data can be more easily appreciated in graphical form, as show in Fig 6.

Figure 6: Sales of Land-won Sharp Sands and Gravel in Kent 2005-17



Land-won Hard Rock

Kent has natural hard rock resources in the form of the Hythe Formation (Kentish Ragstone) that has traditionally been quarried significantly in the Maidstone area. Given that there are currently only two active sites in Kent the need to maintain confidentiality prevents a detailed report of sales in 2016 and 2017. In the Local Aggregate Assessment (LAA) the proxy of 0.78mtpa has been used to represent sales since the KMWLP was adopted. For the purposes of this AMR here are no compelling grounds to depart from this proxy for the landwon fraction of hard rock supply in Kent on a year to year basis. If further sites were to gain planning permission and become operational then future AMRs would detail the sales of this important land-won aggregate material in Kent.

Production of Secondary/Recycled Aggregates

The NPPF requires MPA to source secondary and recycled aggregates in planning to provide aggregates, paragraph 204 of Section 17 Facilitating the sustainable use of minerals states:

so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously

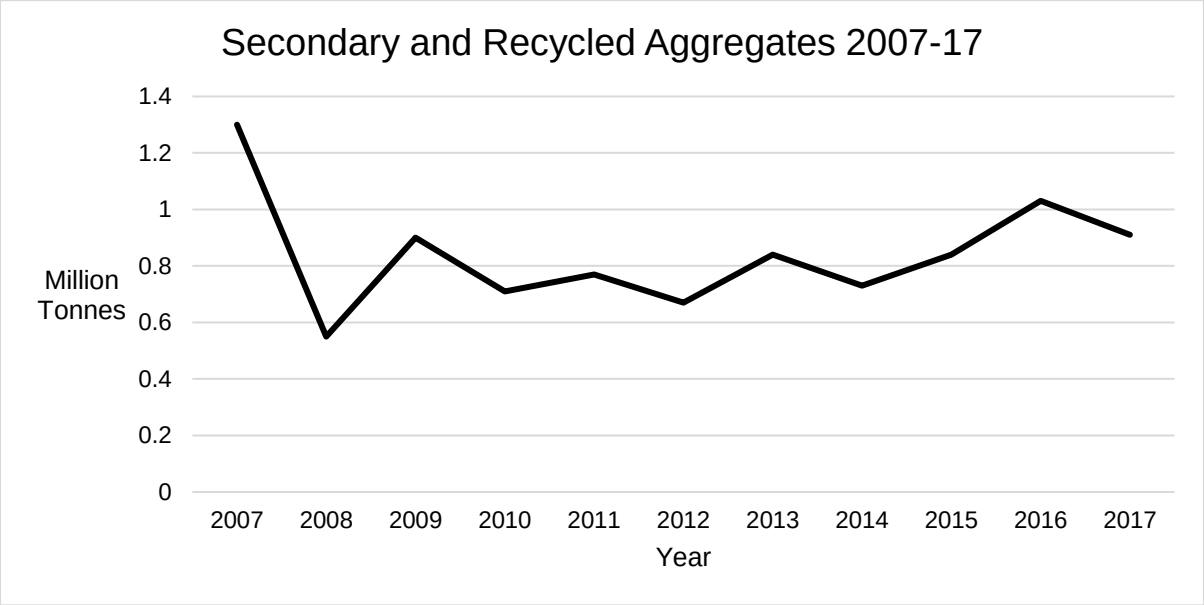
Table 5 shows the sales of secondary and recycled aggregates that originate from both the CD&E waste stream and those that have arisen from the industrial process that can yield a substitute aggregate material.

Table 5: Sales of Secondary and Recycled Aggregates in Kent 2007-17

Year	Tonnes (millions)
2007	1.30
2008	0.55
2009	0.90
2010	0.71
2011	0.77
2012	0.67
2013	0.84
2014	0.73
2015	0.84
2016	1.03
2017	0.90
Average last 10-years (2008-17)	0.79
Average last 3-years (2015-17)	0.92

Figure 7 below shows the trend in annual production of this material since 2007 until 2017 graphically. The falloff in output of 1.3mtpa in 2007 to below 0.6mtpa in 2008 may have been due to the recessional impact of the financial crisis in 2008. Since 2013 that time there has been a return to what appears to be a relatively steady state where output is within the 0.8-1.0 mtpa range.

Figure 7: Sales of Secondary and Recycled Aggregates in Kent 2007-17



Policy CSM 8 of the KMWLP requires productive capacity of this aggregate material to be maintained at a level of at least 2.7 mtpa throughout the Plan period (the KMWLP). The permitted capacity (some 3.90mt as reported in LAA2018[11]) appears to be at a point well in excess of current production levels. This allows for flexibility to enable this production to rapidly ramp up if circumstances were to change in terms of market conditions and/or legislative requirements that alter construction material specifications, allowing a greater application of secondary and recycled aggregates in the construction sector.

Landwon Mineral Reserves

New Mineral Reserves

For the period 1st April 2017 to 31st March 2018 there were 15 minerals related planning applications, of which 14 were granted planning permission. Of the 14 determined there were 10 Section 73 applications to vary conditions on existing planning permissions. None of the applications altered the available reserves of the land-won minerals in Kent.

Aggregate Landbank

Recorded aggregate landbank figures are as of 31st December 2017 and are based on the returns for the Aggregate Monitoring (AM) for the calendar year 2017, as reported in LAA2018.

The annual LAA assessment of need has replaced the mineral apportionments from the partially (but substantively) revoked Regional Spatial Strategy, otherwise called the South East Plan. The South East Plan's Policy M3 on Construction Aggregates required the supply of land-won sand and gravel maintained at 1.63mtpa and 0.78mtpa of crushed rock respectively until 2026, while maintaining at least 7 (sands and gravels) and 10 (crushed rock) year landbanks.

The NPPF, as amended in 2018, has retained the requirement for MPAs to make provision for the maintenance of landbanks of primary landwon aggregates, whilst ensuring that the

[11] See Section 3.2 page 15 of LAA2018 at http://mylimehouse.kent.gov.uk/portal/second_call_for_sites_2016/document_library

capacity of operations to supply a wide range of such materials is not compromised. Safeguarding of both the mineral resources themselves along with the production and transportation infrastructure is seen as fundamental to securing a steady and adequate supply of aggregate materials.

Landwon Sand and Gravel Permitted Landbank

The 2017 data (AM2018) collected for Kent shows the reserves for the following aggregate mineral types *as of the end* of 2017:

- Soft sand 8,848,820 tonnes or 8.85 million tonnes; and

- Sharp sands and gravel 3,695,500 tonnes or 3.69 million tonnes this having significantly increased from 2.71 million tonnes in 2016 due to a re-evaluation of one particular site's remaining reserves that was not counted before due to lack of robust data at the time. The re-evaluation was done in order to attempt to distinguish between the soft sands reserve from sharp sands and gravel reserve on the site. It was concluded that any soft sands were in fact only available in negligible quantities.

These reserves are the estimates of all the respective aggregate mineral sites (soft sand, sharp and gravel) operating in Kent for the end of 2017. Therefore, the data is now (at the time of publication) out of date by another year of production. The magnitude of which will not be known until the data for 2018 is collected by AM2019. However, reserves can be approximated for forward planning policy formulation purposes by further reducing reserves by assuming at least the most recently recorded yearly production figures and the last three-year averages, prior to the future collation of more recent production data.

Table 6 demonstrates how the total permitted reserves can be expressed as time duration landbanks. The current adopted policy predicted requirement for Kent is set out in Policy CSM 2 of the adopted Kent Minerals and Waste Local Plan 2013-30 Plan. This supply prediction was based on 2014 aggregate monitoring data, while the emerging Minerals Sites Plan is based on the updated landbank requirement prediction for both the soft sands and sharp sands and gravel set out in LAA 2018.

The current sharp sand and gravel landbank, based on local requirements, is calculated at 4.73 years, which is below the 7-year NPPF requirement of the adopted Plan's 10-year average of 0.78mt multiplied over 7 years (giving 7.8mt). The recently monitored landbank (3.69mt [an increase since 2016 due to available reserve recalculations]) for 2017, when divided by the recent 10-year (2008-17) average sales data (0.472mt), is sufficient for 7.8 years, as stated above.

However, whatever the yearly drawdown figure, based on averaged sales data, is used, it is clear that the landbank is below the at least 7-year NPPF requirement at this time (late 2018). It is considered that the landbank figures for the land-won sharp sands and gravels may well be demonstrating a decline in available reserves, based on a geological scarcity that has become increasingly apparent. New reserves that would replenish the landbank for this aggregate mineral are not coming on-stream as planning permissions.

Output from one significant Kent quarry has been lost to the consideration of Kent's aggregate assessment, due to extraction passing over an administrative boundary (Lydd Quarry). This is not unexpected given that the supply requirement estimated in adopted Policy CSM 2 is caveated as follows "…. *of at least seven years supply (5.46mt) will be maintained while resources allow*". The potential for Kent to be able to provide any additional reserves of this

aggregate type is a matter that will be tested through the Minerals Sites Plan 2019-30 process, that is ongoing at this time.

With regard to soft sands, the supply situation is less extreme in that Kent has an, at present, 15 year plus landbank of soft sand. Any Kent Mineral Sites Plan, if adopted in 2019, will have an 18-year plan period (notionally 2019-30 plus 7 years) rather than a 24-year plan period of the adopted Plan (2013-30 plus 7 years). Therefore, there is a need for a lower amount of new soft sand provision than the 5.0 mt required by the adopted Plan. This amount will be informed by the findings of LAA2018 and LAA2019 (that will be based on 2018 data). Essentially, enough soft sand will have to be provided to meet the identified need to maintain the NPPF's requirement of a "*steady and adequate supply of aggregates*" over the Mineral Sites Plan period; this will be based on being able to meet at least the 10 year sales average per year, over the respective Plan period. This is to come from the existing reserves currently permitted, with the identified shortfall being addressed by a new site identified in the Mineral Sites Plan.

The potential effect of increased development rates that are identified in the local plan coverage within Kent and the predicted number of infrastructure projects, are inherently difficult to model with any accuracy and, in light of this, it is considered that the 10-year average represents a reasonably reliable metric on which to base estimates for future requirements for the Sites Plan period. Table 6 below shows the latest data available, and the landbank scenarios based on the differing drawdown rates.

Table 6: Kent Aggregate Reserves and Aggregate Landbank as of 2017 Data

	Permitted Reserve (mt)	Current Landbank based upon adopted KMWLP Policy Requirement (years)*	Current Landbank based upon 10yr average sales between 2008-2017 (years)	Landbank based upon 3yr average sales between 2015-2017 (years)	Current Landbank based upon 2017 sales alone (years)
Soft Sand	8.85	13.6	15.57	17.63	17.03
Sharp Sand & Gravel	3.69	4.73	7.8	17.03	24.4
Total	12.54	-	-	-	-

Source: Aggregate Monitoring Surveys data for years 2008-2017

*The local requirement is as set out in the adopted KMWLP 2013-30 Policy CSM 2 (and explanatory memoranda) for Sharp Sand & Gravel 13.26mt (some 0.78mtpa) overall, while resources allow, and for Soft Sand- 15.6mt (some 0.65mtpa) overall, as based on the 10-year average sales data of the adopted Plan

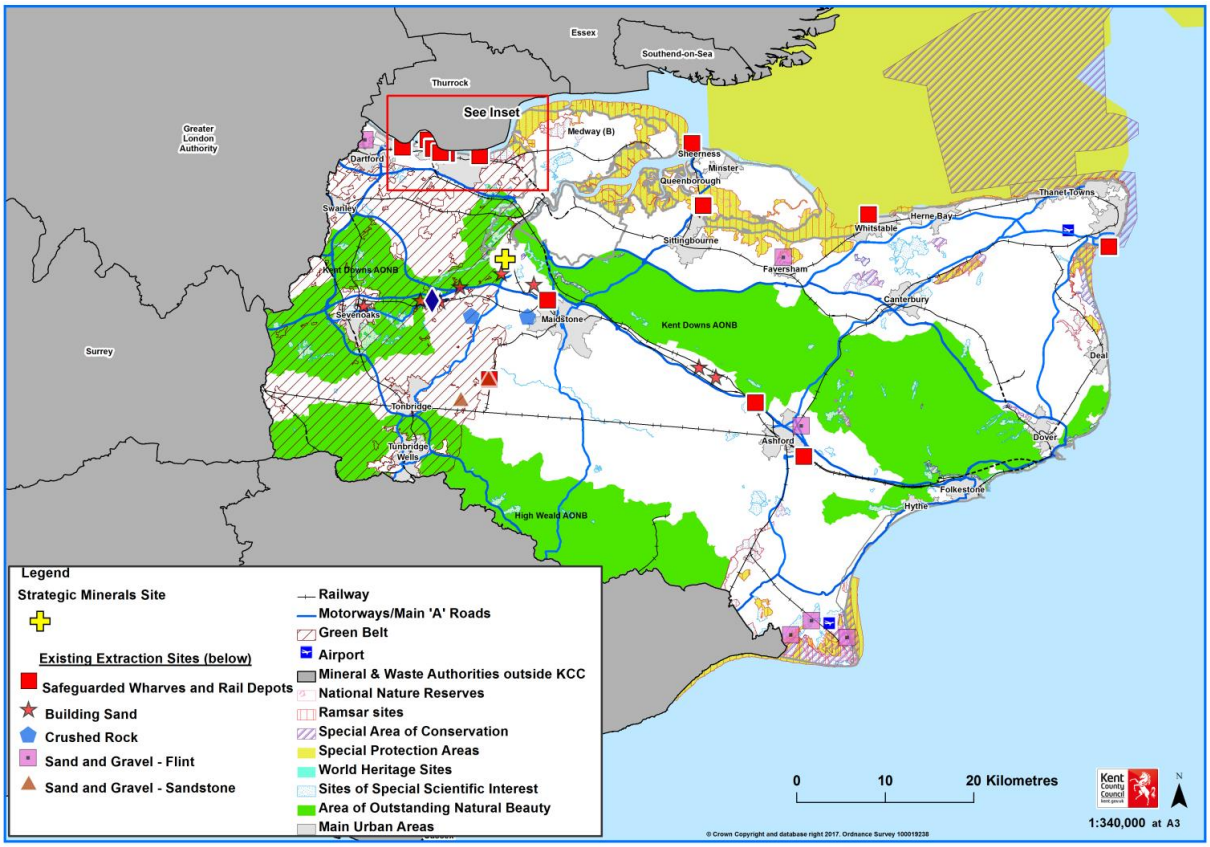
Landwon Hard Rock Permitted Landbank

Sales of hard rock are not reported in this AMR (or LAA) given the need to maintain confidentiality. There are currently only two operational hard rock quarries in Kent. Therefore, this is below the minimum of three operational sites where the sales data can be aggregated and reported, thus maintaining confidentiality, as agreed with the operators of the sites and their Minerals Products Association representative on the AWP for the South East area. This issue has not altered since the 2015 Independent Examination and subsequent adoption of the Minerals and Waste Local Plan in 2016. The assumption of 0.78 mtpa for yearly production (this in turn being based on the apportionment for Kent in the South East Plan) was, and continues to be, used as a proxy for hard rock sales in Kent.

The adopted Plan does not make any provision for additional hard rock reserves over the plan period, given the significant extent of the permitted reserves in the county at this time and that at least a 10-year landbank is required to be maintained over the Plan period (see NPPF, Section 207, part f) page 60). Permitted reserves were significantly boosted by an additional 16 million tonnes of ragstone (Hythe Formation limestone) in a westerly extension of Hermitage Quarry close to Maidstone in 2013.

This material, and the existing permitted reserves currently available at Blaise Farm, are considered more than sufficient to meet the NPPF requirement at this time. In addition, significant amounts of hard rock are imported into Kent via wharves and rail depots that further ensure the security of supply and a diversity of hard rock derived aggregates for construction and infrastructure maintenance purposes. Figure 8 (amongst other features) shows the safeguarded wharves (general locations of the lower Thames wharves, inset map not shown) and rail depots in Kent.

Figure 8: Location of Active Quarries and Safeguarded Wharves and Rail Depots in 2017



Landwon Other (Non-Aggregate) Mineral Landbanks

Permitted reserves and production rates for other (non-aggregate) minerals are not monitored in the same way as construction aggregates. The County Council conducted its own extensive Non-Aggregates Mineral Surveys in recent years (2008 and 2011) as part of the evidence gathering for the Kent MWLP, with annual updates for the latest figures (where provided, however, this has not been comprehensive in all cases) in the AMR 2017/18 period. Moreover, unlike the AM survey conducted by SEEAWP, the County Council's own surveys do not benefit from the support of trade associations and as such they don't achieve a full response rate. The information obtained for this AMR has therefore been combined with estimates of reserves and production rates drawn from previous survey returns, planning applications and other publicly available documents.

Brick and Tile making from Clay or Brickearth

The NPPF requires MPAs to maintain landbanks of brickclay (therefore including brickearth) of at least 25 years and to take account of the need for provision of brick clay from a number of different sources to enable appropriate blends to be made. This requirement is reflected in Policy CSM 2 of the KMWLP.

Brickwork closures in recent years have had a substantial impact on the brick manufacturing capacity in Kent and on the distance that material extracted from currently consented sites travels within the county. Whilst there are currently no operational brickworks in Kent which use clay as a raw material, there is a tile manufacturer (Babylon Tile Works) in the Weald of Kent south of Maidstone, which makes Kent peg tiles from clay reserves adjacent to the works. The permitted reserves at this site more than meet the requirements within the NPPF for brick clay (of at least 25 years). However, the existing planning permission requires extraction to cease by April 2022 and for Kent peg tile manufacture to cease a year later. Unless the planning permission is extended, specialist peg tile manufacture using clay from the Wealden will cease before the end of the Plan period.

Brickearth has historically been an important mineral in Kent for stock brick manufacture, that significantly characterises Victorian structures in Kent and further away, such as London. Currently, only one operator, Weinerberger Ltd, has an active brickworks that uses brickearth to produce stock brick products at the Smeed Deen Works in Sittingbourne. Current reserves come from 2 sites (Orchard Farm (nearing exhaustion) and Paradise Farm (significant reserves) in the Sittingbourne area. Total permitted reserves are slightly below the NPPF requirement of at least 25 years.

Table 7: Clay and Brickearth Landbanks at Active Brick and Tile Works

Works	Operator	Source	Estimated Length of Supply
Babylon Tile Works, Maidstone (Kent peg tile manufacturer)	V&M Gash	Weald Clay	Over 25 years
Orchard Farm, Sittingbourne	Weinerberger Ltd	Brickearth	Less than 3 years
Paradise Farm, Sittingbourne	Weinerberger Ltd	Brickearth	Just less than 25 years
Pluckley[12] Quarry, Ashford	Pluckley Brick Company	Weald Clay	Over 25 years supply

Silica Sand

National minerals policy guidance on silica sand requires MPAs to plan for a steady and adequate supply of industrial minerals by the provision of a stock of permitted reserves of silica sand. This should be of at least 10 years for individual existing sites and for at least 15 years for sites where significant new capital is required[13].This requirement is reflected in Policy CSM 2 of the KMWLP.

Previously Aylesford Quarry near Maidstone, Addington (Wrotham) Sand Pit was identified as a site with substantial reserves of silica sand. Production ceased in 2012 and remaining reserves are substantially below the water table and no longer considered viable to extract.

[12] Pluckley Brickworks has ceased to operate in 2016, and the plant site is subject to a planning allocation for residential development (Ref. 18/01402/AS) clay extraction for production outside the County continues

[13] See NPPF Part 17 Facilitating the sustainable use of minerals, Section 208 sub-section c) footnote 68, page 60)

Nepicar Sand Pit and Addington Quarry are now regarded as sites that produced silica sand in Kent. It should be appreciated that the mineral comes from the same geological formation as building or soft sand, which is an aggregate mineral and thus sites producing building sand may also be capable of producing silica sand. Both are from the Folkstone Formation, while the latter is in its particularly pure form, free of iron rich minerals that would give it the characteristic 'buff' colouration and can be used in a range of industrial applications where a pure source of silicon dioxide (quartz) is required.

The estimated term of supply at these sites, as indicated in Table 8, was calculated from 2017 sales rates. One site meets the KMWLP required of a 10-year minimum landbank for existing sites, though Nepicar Sand Quarry has reserves only just below this local national planning policy requirement. Therefore, situation remains essentially unchanged since reporting in previous AMRs. Aylesford Quarry remains inactive (save some extraction of the remaining soft sand reserves) and there is, as stated above, significant doubt that the below water table reserves of silica sand can be extracted, processed and brought to market economically in current market conditions and uses of the sand deposit.

Table 8: Landbanks at Silica Sand Quarries in Kent

Site	Operator	Estimated Length of Supply
Addington (Wrotham) Quarry, Addington, West Malling	Fern Aggregates	Over 20 years
Nepicar Sand Quarry, Wrotham Heath, Nr Sevenoaks	J.Clubb Ltd	Less than 10 years

Chalk and Clay for cement manufacture

This requirement is reflected in Policy CSM 2 of the KMWLP with the identification of the strategic Site for Minerals, this being the Medway Cement Works at Holborough (that is partially within the area of the unitary authority of Medway). The mineral resources at this site are sufficient for at least 25 years.

There are currently no active cement quarries in Kent, the consented reserves of chalk and clay for cement manufacture at the permitted, but not yet built, Holborough Cement Works will address this requirement when it becomes an operational site, as detailed in Table 9.

Table 9: Chalk and Clay Landbanks at Cement Works in Kent

Site	Operator	Estimated Length of Supply
Holborough Cement Works	Lafarge Cement UK	Not yet constructed though planning consent legally implemented, supply sufficient at planned consumption rate for over 25 years

Chalk for Agricultural and Engineering Uses

Chalk is used in agriculture and engineering in Kent, as well as being used in the production of bricks, tiles and cement and some engineering processes. Chalk for engineering and agricultural use is not covered specifically in current national minerals policy guidance, in the NPPF or the guidance issued by the Ministry of Housing, Communities and Local Government for the planning for mineral extraction in plan making and the application process. However, the general advice on maintaining a sufficient supply of minerals, as set out in part 17, section 203 of the NPPF, remains pertinent to the planning of all mineral types. This requirement is reflected in Policy CSM 2 of the KMWLP: permitted reserves are required

to enable an adequate supply to be maintained through the plan period.

For AMR purposes, the County Council has conducted surveys of chalk extraction, however, this has not always resulted in comprehensive results. In the absence of more reliable data, the current position in Kent for chalk used in agricultural and engineering applications can be extrapolated using past data on reserves and extraction rates as set out in Table 10.

Table 10: Agricultural and Engineering Chalk Landbank in Kent in 2018

Average sales (2011-2014) per annum rate used as a proxy to reduce recorded reserves of 1.516 million tonnes in 2014	Total Estimated Reserves at end of 2018
70,000 tpa	1.23 million tonnes

The indicative data above shows that Kent has potential agricultural and engineering chalk landbank equal to 17.6 years as of 2018. The Plan will last another 11 years (2019-30), therefore, there is a high probability that there is a sufficient permitted landbank to maintain a supply of chalk for these purposes over the remainder of the Plan period.

Clay

Kent has a number of freestanding clay working permissions with significant deposits of consented clay. However, only one of these sites remains active at this time. The reserves tied to the other sites have not been worked for many years or are dormant Interim Development Order sites and therefore cannot be realistically included in the current landbank.

Whilst this AMR cannot report on sales from individual sites due to commercial confidentiality, it can be reported an average of 27,400tpa of clay from land-won sources was sold in the years between 2000-2009, for which data is available. In 2014 there was activity to supply 25,000 tonnes of sea defence engineering clay (via a temporary permission now expired), and some 64,000 tonnes of materials for construction material manufacture.

Mineral Supply via Wharves and Rail Depots

National minerals policy requires all MPAs to safeguard existing, planned and potential sites which can accommodate railheads, wharfage and associated storage, handling and processing facilities for the bulk transport by rail, sea or inland waterway of minerals.

In 2010, the County Council worked jointly with Medway Unitary Authority to produce joint Kent and Medway Imports Survey reports. An updated report was published as part of the evidence base for the Kent Minerals and Waste Local Plan - Strategy and Policy Directions consultation in May 2011. The study confirmed the importance of continuing a steady supply of both marine dredged aggregates from the dredging grounds around the coast and crushed rock from continental Europe (and other parts of the UK), as land-won resources of aggregates are further depleted in Kent.

The adopted KMWLP 2013-30 includes both strategic and development management policies to safeguard wharves and rail depots and associated mineral and waste management infrastructure on-site, including:

- Policy CSM 6: Safeguarded Wharves and Rail Depots
- Policy CSM 7: Safeguarding Other Mineral Plant Infrastructure

- Policy CSW 16: Safeguarding of Existing Waste Management Facilities
- Policy DM 7: Safeguarding Mineral Resources
- Policy DM 8: Safeguarding Minerals Management, Transportation & Waste Management Facilities

At the end of 2018 there were 9 active wharves, and one potential wharf (Old Sun Wharf, Gravesham) and five rail depots in the county, though only two are currently active for aggregate importation. Since the joint study in 2011 and the adoption of the KMWLP in 2016, one wharf has been lost (Site M: Dunkirk Jetty, Dover Western Docks) to redevelopment initiatives (Dover Western Docks redevelopments).

Sales of Aggregates at Wharves and Rail Depots

The construction aggregate sales (from both land-won and marine sources) at Kent's wharves in 2017 were as follows:

- 1,796,513 tonnes of sand and gravel (0.29% increase from 2016)
- 1,052,971 tonnes of crushed rock (0.46% decrease from 2016).

Compared to 2016, imports of crushed rock have shown a marginal decrease while sands and gravel imports via Kent's wharves have shown a similarly marginal increase since 2016. The total amount of primary aggregates imported via wharves in Kent in 2017 was 2.85 million tonnes, which is an overall increase of only 10,108 tonnes over that recorded in 2016 (a 0.35% overall increase).

When considering a longer period, from 2008 to 2017 (the latter being the last data set available in this AMR period), wharf landings of sand and gravel (marine dredged and landwon supply from elsewhere) have remained essentially stable at around the 2.0 mtpa, though in 2017 an upturn can be observed; the last three year average is now higher than the 10-year average. Crushed rock wharf landings show more variability, though there is a marked upturn in sales over the last three years to around the 1.0 mtpa level. Table 11 demonstrates these figures.

Table 11: All Wharf landed Sand and Gravel and Crushed Rock Sales in Kent 2008-2017 (tonnes)

Sales	Sand and Gravel	Crushed Rock
2008	2,022,419	1,052,971
2009	1,841,948	647,810
2010	1,674,949	693,302
2011	1,972,653	807,373
2012	2,161,031	432,677
2013	1,869,709	546,541
2014	2,085,806	697,421
2015	2,049,546	975,875
2016	2,022,419	1,052,971
2017	2,040,747	1,057,785
Last 3-year average	**2,037,572**	**1,028,877**
Last 10-year average	**1,974,123**	**796,473**

Source: Aggregate monitoring surveys, 2008-2017

With regard to the importation of aggregates via the rail depots this is considerably lower in magnitude than that seen at Kent's wharfs. Rail depots are of a lower order in overall importance in the supply of aggregates, as imports, into Kent. This is with particular regard to sand and gravel. While crushed rock is typically only 48% of the hard rock sales that occur at wharfs, being in the 4-300,000 tpa range. Table 12 demonstrates these figures.

Table 12: All Rail Depots Sand and Gravel and Crushed Rock Sales in Kent 2008-2017

Sales	Sand and Gravel	Crushed Rock
2008	34,488	452,751
2009	42,892	375,938
2010	43,408	313,007
2011	56,921	389,006
2012	42,128	270,586
2013	41,890	326,578
2014	42,832	375,938
2015	34,631	405,331
2016	34,488	452,751
2017	32,426	468,785
Last 3-year average	**33,848**	**442,289**
Last 10-year average	**40,610**	**383,067**

Source: Aggregate monitoring surveys, 2008-2017

Construction Aggregate Summary

The data in Table 13 below does not demonstrate actual consumption of aggregates within Kent from 2008 to 2017, as a degree of exportation out of Kent has occurred. In addition, imports to users in Kent by road are not picked up by aggregate monitoring in Kent. Import and export balance survey work that can reveal the degree of aggregate consumption (to a reasonable degree of accuracy) was completed in a comprehensive form in 2009. Further work on this matter was commissioned in 2014; the data is unpublished but available from the British Geological Survey. However, the data shows that Kent consumes 80-90% of all the aggregate produced in Kent (both as land-won and the imports of sand and gravel and crushed rock) and 10-20% of materials were exported to the wider South East in 2014. The data does not disaggregate soft sand from sharp sands and gravels and thus has limitations in how it can be used to determine what is taking place with these distinctly different materials, serving distinctly different markets. However, due to the relative scarcity of sharp and gravel reserves in Kent it is considered highly likely that any exports of soft sand exceed those of any exports of land won sharp sand and gravel.

During 2008-17 the total primary and recycled/secondary aggregate production (including imports) are shown on Table 13 below. For the AMR 2017/18 reporting period, the observable change in trend is the reduction of sales of landwon sharp sands and gravels, presumably this related to supply depletion; with overall increases in importation of sharp sand and gravels. This has increased since pre 2015 figures to address market needs (being very reliant on marine resources via wharves, rail depots being relatively insignificant). Sales of landwon soft (building sands) are showing a slight upturn, though the 3-year average sales figure is still below that of the 10-year average sales figure.

Sales of landwon crushed hard rock are unknown, with imports being relatively stable through both wharfs and rail depots. The last three-year sales average is indicating a possible overall upturn. This is also the case for recycled and secondary aggregate sales; with the three-year average now close to 1.0mtpa. Overall Kent sales of aggregates of all types was recorded at 6.09mt in 2017, slightly down on the 2016 total of 6.14mt, though an overall upturn following the 2008 peak of 6.20mt and subsequent recession that appeared to depress sales until 2013/14,

is clear. Therefore, it can be anticipated that imports of sand and gravel will continue to increase unless landwon replenishment occurs in the future.

Table 13: Total Aggregate Production in Kent during 2008-2017 (Million tonnes)

Year	Soft Sands Land-won	Soft Sands Imports	Sharp Sands & Gravel Landwon	Sharp Sands & Gravel Imports $	Crushed Rock landwon	Crushed Rock Imports	Secondary Recycled aggregates	Total
2008	0.75	0.0097	0.83	1.97	0.78	1.28	0.55	**6.20**
2009	1.20	0.0150	0.76	1.76	0.78	1.02	0.90	**4.65**
2010	0.62	0.0182	0.76	1.67	0.78	1.01	0.71	**5.60**
2011	0.44	0.0160	0.62	2.01	0.78	1.17	0.77	**5.80**
2012	0.39	0.0230	0.65	2.18	0.78	0.70	0.67	**5.40**
2013	0.48	0.0152	0.27	1.77	0.78	0.87	0.84	**5.00**
2014	0.29	0.0098	0.17	1.97	0.78	1.07	0.73	**5.00**
2015	0.48	0.0288	0.24	2.06	0.78	1.38	0.84	**5.80**
2016	0.51	0.0079	0.26	2.05	0.78	1.50	1.03	**6.14**
2017	0.52	0.0098	0.15	2.19	0.78	1.53	0.91	**6.09**
Total	**5.70**	**0.1534**	**4.71**	**19.63**	**7.80**	**11.53**	**7.95**	
Last 3 yr. average (figures rounded)	**0.50**	**0.0155**	**0.22**	**2.1**	**0.78**	**1.47**	**0.92**	
Last 10 yr. average (figures rounded)	**0.57**	**0.0153**	**0.47**	**1.96**	**0.78**	**1.15**	**0.79**	

Source: Aggregate Monitoring Surveys, 2008-2017. $ denotes marine dredged and landwon sands and gravels via wharves and landwon supply via rail depots. Figures have been rounded for convenience of tabulation

Waste Indicators

Local Authority Collected Waste Arisings by Management Type

The Local Authority Collected Waste (LACW) arising and managed in Kent in 2017/18 was recorded at 708,000 tonnes, according to the Kent Resource Partnership[14] (KRP) report of 2017/18, representing a decrease of 3.14% from 2016/17. The 2017/18 tonnages, proportions by management type and the percentage change from the previous monitoring year (based on actual tonnage) are set out in Table 14. The data shows that LACW sent to landfill has continued to decline with a significant reduction in percentage terms, from 3.0% to 1.1% of the managed collected waste. This has been recorded alongside a proportional increase in management of waste by energy recovery and composting. However, lower rates of change have been recorded with the increases in composting and recycling, only up by 1.67% and 0.86% respectively.

The continued decline in LACW sent to landfill is a result of the commitment by Waste Collection Authorities and the Waste Disposal Authority to divert waste from landfill through recycling and treatment such as at the Allington Energy from Waste (EfW) plant.

[14] https://www.kent.gov.uk/about-the-council/partnerships/kent-resource-partnership/governance-documents

Table 14: Quantities of LACW Managed in Kent by Management Type in 2017/18

Management Type	Tonnes	Percentage of Total LACW	Change from 2016/17
Recycling/Composting	330,636 (a decrease of 1.67%)	46.5%	336,260 tonnes 46.0% of total
Energy Recovery (EfW)	369,576 (an increase of 0.86%)	52.2%	372,810 tonnes 51.0% of total
Landfill	7,788 (a decrease of 64%)	1.1%	21,930 tonnes 3.0% of total
Total	**708,000 tonnes** a 3.14% overall decrease (23,000 tonnes)	100%	**731,000 tonnes**

The objectives of the current Waste Management Plan for England (Defra, December 2013) include measures to be taken that by 2020 at least 50% by weight of waste from households for the target materials (glass, paper, plastic and metal) is prepared for re-use or recycled. Management of Kent's collected MSW continues to progress towards this target, and to continue to divert biodegradable waste from landfill as required by the EU Landfill Directive (1999).

The Kent Joint Municipal Waste Management Strategy (KJMWMS) was adopted by the collection and disposal authorities of Kent (Kent Waste Partnership) in 2007 (and is in the process of being refreshed) set a target of a minimum level of 40% recycling and composting of household waste in Kent by 2012/13. The work of the Partnership has been taken on by the Kent Resource Partnership (KRP) who updated the targets of the KJMWMS as follows for household waste:

- recycling/composting rates of at least 45% by 2015/16;
- landfilling no more than 10% by 2015/16;
- recycling/composting rates at least 50% by 2020/21; and
- landfilling no more than 5% by 2020/21.

The data in Table 14 demonstrates that the earlier targets (2015/16) have been sustained, while the 2020/21 recycling/composting target has yet to be attained, the landfill diversion target has been surpassed some two years earlier than anticipated.

Figures 9 and 10 illustrate the trends in the management of the LACW between 2008-9 and 2017-18, both in tonnes (Figure 9) and percentages (Figure 10).

Figure 9: Collected LACW by Management Method 2009-10 to 2017-18 in Tonnes

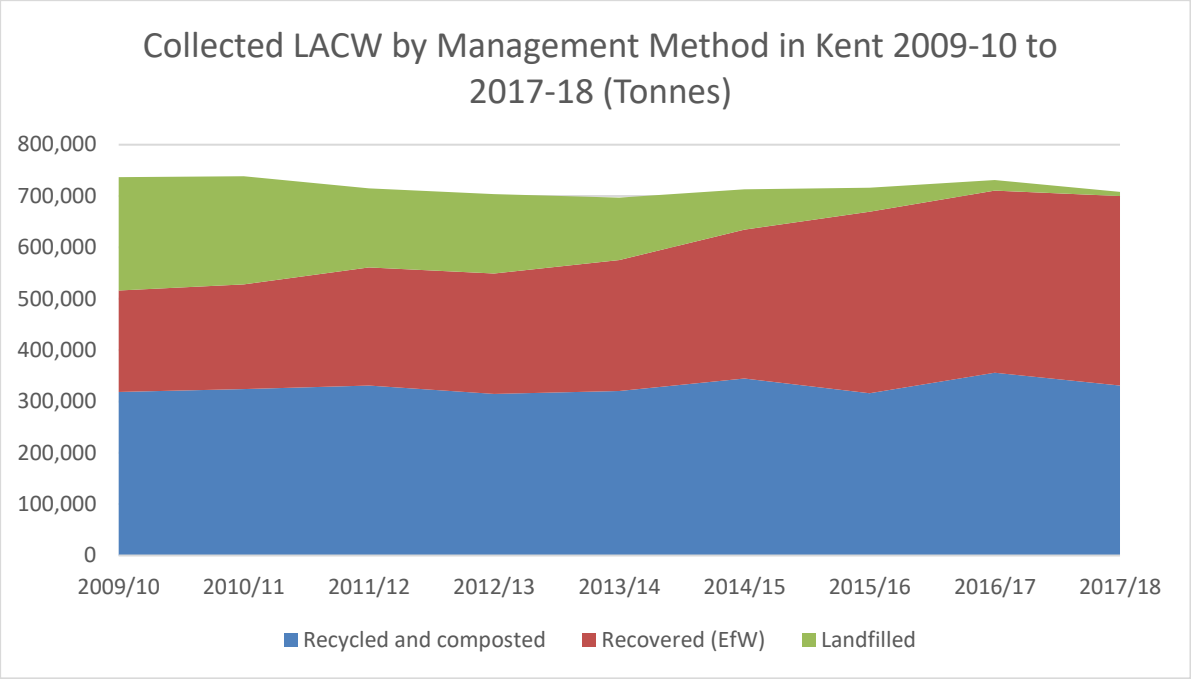
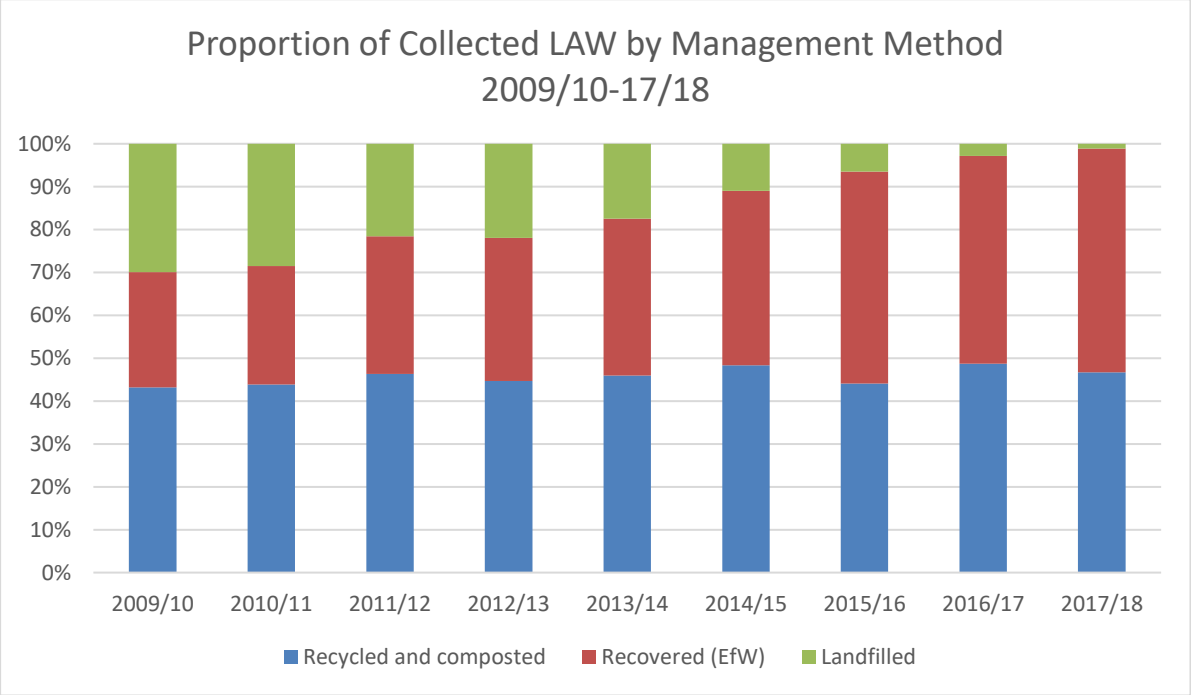


Figure 10: Collected LACW by Management Method 2009-10 to 2017-18 in Percentages



During the period between 2009-10 and 2017-18 the identifiable trend is a slight reduction in overall LACW arisings and a significant decline in the proportion being sent to landfill (30% in 2009-10 to 1.1% in 2017-18). There have been notable increases in the amount of waste being recovered to produce energy (26% to 52.2%). Recycling and composting being taken in combination (this is how the KRP now report this management of LACW) was 41.8% in 2009-10 and was recorded as 46.5% in 2017-18. The LACW diversion rate from landfill is shown in Table 15.

Table 15: LACW Diverted from Landfill in Kent 2009-10 to 2017-18

Year	Total LACW (tonnes)	Rate of Growth (positive and negative)	Percentage Diverted from Landfill (%)
2010-11	738,535	0.26%	69.0
2011-12	715,259	-3.0%	78.4
2012-13	687,978	-3.8%	79.8
2013-14	696,816	1.3%	82.5
2014-15	712.858	2.25%	89.02
2015-16	716,000	0.44%	93.48
2016-17	731,000	2.09%	97.2
2017-18	708,000	-3.14%	98.9

It is clear that the waste management capacity available is sufficient to divert the arisings of LACW from landfill and exceed the target set in the KJMWMS for no more than 5% of LACW to be landfilled by 2020-21.

Waste Generation Growth Rates

Local Authority Collected Waste (LACW)

As shown in Table 15 above, the amount of LACW in 2017-18 fell from 731,000 in 2016-17 to 708,000, a reduction of some 3.14%. This is a reversal of the trend observed between 2013-17 where there was positive growth from 696,000 tonnes to 731,000 tonnes.

Commercial and Industrial Waste (C&I)

Commercial waste is *"Waste from premises used mainly for trade, business, sport, recreation or entertainment, as defined under Section 5.75(7) of the Environmental Protection Act 1990. For example, it is likely to include timber, metal, paints, textiles, chemicals, oils and food waste, as well as paper, card, plastic and glass."* While industrial waste is *"Waste from any of the following premises: factory, provision of transport services (land, water and air), purpose of connection of the supply of gas, water, electricity, provision of sewerage services, provision of postal or telecommunication services."*

There is no annual data published on the amount of C&I wastes produced in Kent each year. Recent work by BPP Consulting[15] to support the Early Partial Review estimated that by 2031 Kent will have arisings of some 1.4 mtpa. With respect to forecasting C&I waste arisings Governments Planning Policy Guidance (Paragraph: 032 Reference ID: 28-032-20141016 Revision date: 16 10 2014) states the following:

"Waste planning authorities can prepare growth profiles, similar to municipal waste, to forecast future commercial and industrial waste arisings. In doing so, however, they should:

- *set out clear assumptions on which they make their forecast, and if necessary forecast on the basis of different assumptions to provide a range of waste to be managed*

- *be clear on rate of growth in arisings being assumed. Waste planning authorities should assume a certain level of growth in waste arisings unless there is clear evidence to demonstrate otherwise."*

[15] See Kent Waste Needs Assessment (WNA) 2017, Commercial & Industrial Waste Generated in Kent Management Requirements, November 2017, Version 1.2

The expectation is that there will be positive growth, various scenarios using GVA and/or housing growth can be applied in order to project C&I waste arisings. The updated DEFRA report of 2014[16] identified a link with C&I waste growth with household growth and growth in GVA.

Table 16 sets out the growth rates applied over the period 2011-2031 to the 'Updated Baseline' estimated by BPP Consulting. The C&I growth prediction takes into regard the DEFRA report of 2014.

Table 16: C&I Waste Forecast applying Plan Growth Factors to Updated Baseline (tonnes per annum)

	2011	2016	2021	2026	2031
Growth Factor applied	-	0.10	0.07	0.05	0.05
BPP Consulting WNA Forecast	1,005,000	1,104,000	1,183,000	1,243,000	1,307,000
Forecast with Updated Baseline	-	1,189,000	1,274,082	1,338,702	1,407,630

Construction Demolition & Excavation Waste (CD&E)

The adopted Kent Minerals and Waste Local Plan (KMWLP) defines CD&E waste as follows:

"This is a waste arising from any development, redevelopment, or demolition of existing schemes. It includes vegetation and soils from land clearance, demolition waste, discarded materials and off-cuts from building sites, road schemes and landscaping projects. It is mostly made up of stone, concrete, rubble and soils but may include timber, metal and glass."

It remains the case that most recent comprehensive governmental national study on inert CD&E waste arisings was conducted in 2005 for DCLG[17]. This data was disaggregated to estimate the waste arisings in Kent alone, based upon the relative populations of Kent and Medway in 2005. This method generated an estimate of the amount of inert CD&E waste that arose in Kent in 2005 of 2.6mt.

In April 2010, the Waste and Resources Action Program (WRAP) published a study[18] on the national arisings of CD&E waste, both for the inert and non-inert fractions of that waste stream. At national level it showed a decrease in inert CD&E arisings nationally of 7%. This study did not however disaggregate the national survey to regional or county levels. Since 2010 DEFRA has estimated arisings on a national basis without disaggregation to waste planning authority area.

More recent analysis of the arisings of the CD&E wastes in Kent (and that which is imported

[16] '*Forecasting 2020 Waste Arisings and Treatment Capacity*' Revised October 2014 Report DEFRA (Analysis to inform the review of Defra financial support for the Hertfordshire County Council residual waste treatment project)

[17] https://webarchive.nationalarchives.gov.uk/20120919181503/http://www.communities.gov.uk/publications/planningandbuilding/surveyconstruction2005

[18] Construction, Demolition and Excavation Waste Arisings, Use and Disposal for England 2008, WRAP, April 2010

from London) has been done for Kent by BPP Consulting in 2017[19]. This work found that when applying the estimated arisings and their management routes and their available capacity against each other there was no lack of capacity in the management of most the components of this waste stream in Kent, over the adopted Plan period. Table 17 summarises this work. Some further composting (for the organic fraction of CD&E waste arisings) capacity was identified as required.

Table 17: CD&E Waste Arisings Predictions as Requirements against Existing Capacity in Kent 2017

Management Route	Peak Annual or Cumulative (for landfill) Requirement (tonnes)	Capacity Assessed as available	Comment
Inert Recycled Aggregate	1.4m	Min 2.07 max 2.7Mtpa	KMWLP states "5.8.2 The consented secondary and recycled aggregates processing capacity within Kent currently exceeds 2.7Mtpa, 0.63 Mtpa of which is identified as temporary capacity." **No additional capacity required.**
Non-Inert CDEW Separated for recycling	352,554	1.7Mtpa	Data indicates overall non-inert recycling capacity (referred to as MSW and C&I) as being 1.7million tpa. Peak projected recycling & composting capacity requirement is 1.4million tpa, indicating that there is sufficient capacity for the non-inert CDEW fraction. **No additional capacity required.**
Composting	25,182	Minus 78ktpa-160ktpa (shortfall)	Worst case scenario presented in the draft *Capacity Requirement for the Management of Non-Hazardous Organic Waste* report currently identifies a capacity shortfall between 77,868 and159,812 tpa. These values ought to have the additional provision of 25ktpa for the organic component of this stream to be provided for giving a total capacity requirement of between c100ktpa and c185ktpa. However, when recycling and composting capacity are considered together (in light of their shared position on the waste hierarchy) the combined consented recycling/composting capacity would be sufficient to meet the proposed higher overall recycling/composting targets associated with the management of non-hazardous waste over the Plan period as set out in the in the revision to Policy CSW4 included in the Early Partial Review. Therefore, net self-sufficiency in

[19] BPP Consulting, Kent waste Needs assessment 2017, Construction, Demolition and Excavation Waste Management Needs Version 1.1 17th November 2017

			recycling/composting capacity could be achieved without provision for additional capacity.
Permanent Deposit to Land (Inert CDEW)	11.8 million m3	Latest data for inert landfill/ mineral working restoration stands at just under 14Mm3	**KMWLP states " 6.11.2** The *Needs Assessment* shows that Kent has existing permitted inert waste landfill capacity that is more than sufficient to meet Kent's need for the plan period. It is known that Kent receives a lot of waste originating out of the county, particularly from London, which goes into inert waste landfill in Kent. The *Needs Assessment* tested the effects of this import continuing throughout the plan period at a rate of 300,000 tpa and concluded that this would still result in a surplus of inert waste landfill capacity of over 10 mt at the end of the plan period." **No additional capacity required.**
Non-Inert (EfW)	125,912	170,000 tpa (44ktpa surplus)	MVV Biomass Plant at Ridham has capacity c 170,000 tpa. So, it suggests a capacity surplus of c44ktpa. **No additional capacity required.**
Non-Inert Landfill	793,247	No projected shortfall	The *Capacity Requirement for the Management of Residual Non-Hazardous Waste* report establishes that the Plan area would have sufficient landfill capacity to accommodate LACW & C&I sourced residual waste prior to Kemsley SEP capacity coming on line. Given the targets proposed in the Partial Review (Policy CSW4), increase the rate of diversion from landfill, non-inert residues from CD & E waste could also be accommodated. **No additional capacity required.**

Exports and Imports of Waste in Kent

Information concerning the quantities, origins and destinations of waste managed at permitted sites is published annually in arrears by the Environment Agency in their Waste Data Interrogator (WDI). The classification of waste management routes shown and discussed in this chapter are based on the classification of sites used in the WDI. Data for 2018 is not as yet available, but a comparison of the available last two years data sets is shown on Figures 11 and 12 and Tables 18 and 19. This demonstrates that there are significant flows between Kent and elsewhere for the CD&E waste stream. In 2016 imports of this waste stream were almost 1.2mt while exports less than 200,000 tonnes. By 2017 this significant imbalance had reduced, though the area was still a net importer of CD&E wastes. With imports having reduced to some 700,000 tonnes and exports now over 200,000 tonnes, being some 231,096 tonnes.

Figure 11: Kent waste Import/Export by waste Type for Year 2016

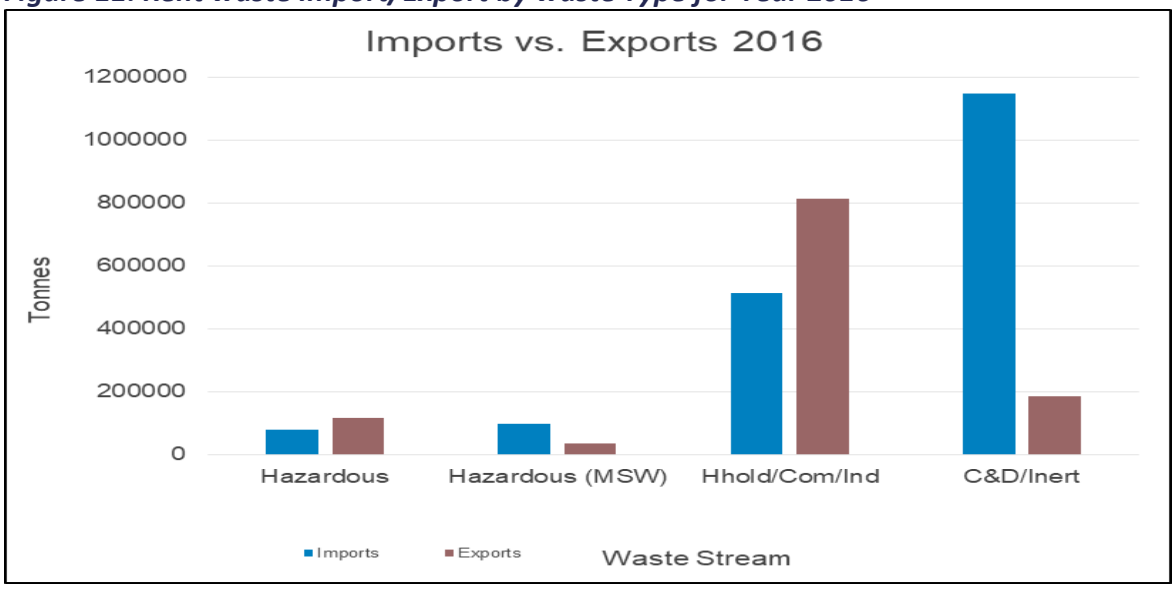


Table 18: Kent Import/Export by Waste Arisings (Tonnes) 2016

Waste type	Imports	Exports
Hazardous	80,901.4	116,415.5
Hazardous. Municipal	971,22.7	359,31.5
Household/Commercial Industrial	512,637.1	813,868.1
C&D/Inert	114,8317	184,719

Figure 62: Kent waste Import/Export by waste Type for Year 2017

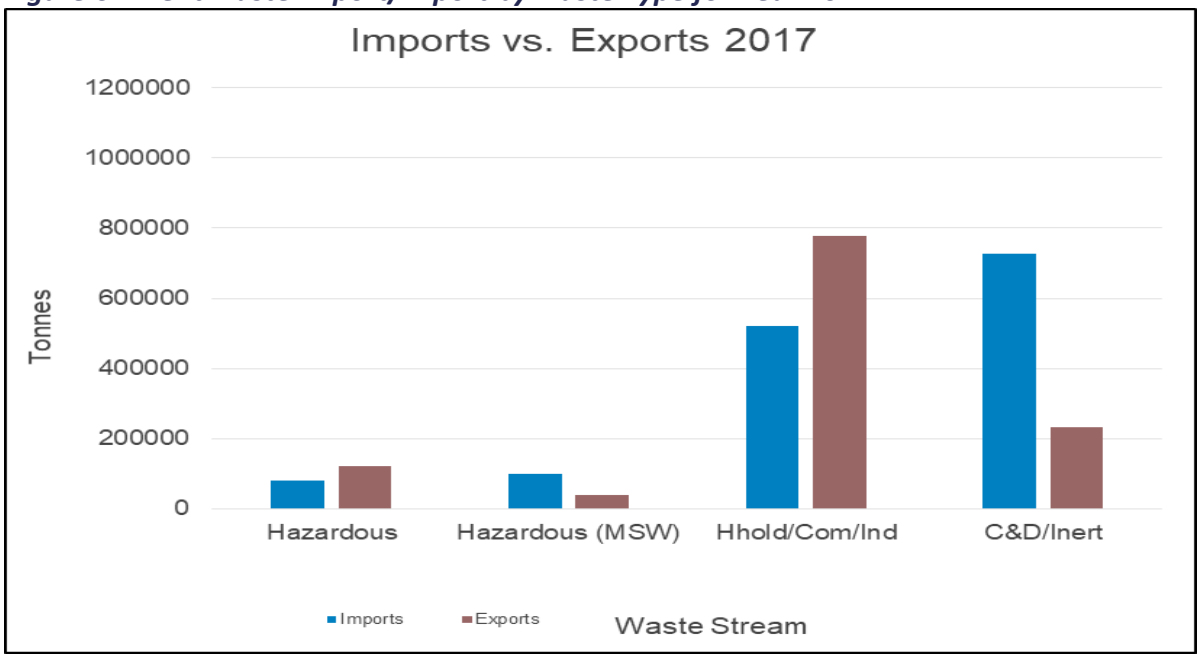


Table 19: Kent Import/Export by Waste Arisings (Tonnes) 2017

Waste type	Imports	Exports
Hazardous	80,140	119,763
Hazardous. Municipal	99,937	40,028
Household/Commercial Industrial	521,479	777,357
C&D/Inert	727,420	231,096

With regard to hazardous waste (that arises from all sectors), the same import/export relationship has essentially been maintained between 2016 and 2017. The import/export imbalance is demonstrated by imports being in the region of 100,000tpa while exports are in the range of 35-40,000tpa over the 2016-17 period. For all other hazardous wastes, the import/export balance is less marked. Imports are in the range of some 116,400tpa and 119,700tpa, and imports are 80,900tpa and 80,100 tpa over 2016 and 2017. Imbalance remains across all waste streams though it can be reported that in 2017 the imbalance is reducing, and this trend accords with the strategy of the adopted KMWLP to attain net self-sufficiency. Figure 13 demonstrates this overall trend graphically. Table 20 gives the overall tonnage data to support the graphical depiction.

Figure 73: Kent Import/Export by Waste Arisings (Tonnes) 2016-2017

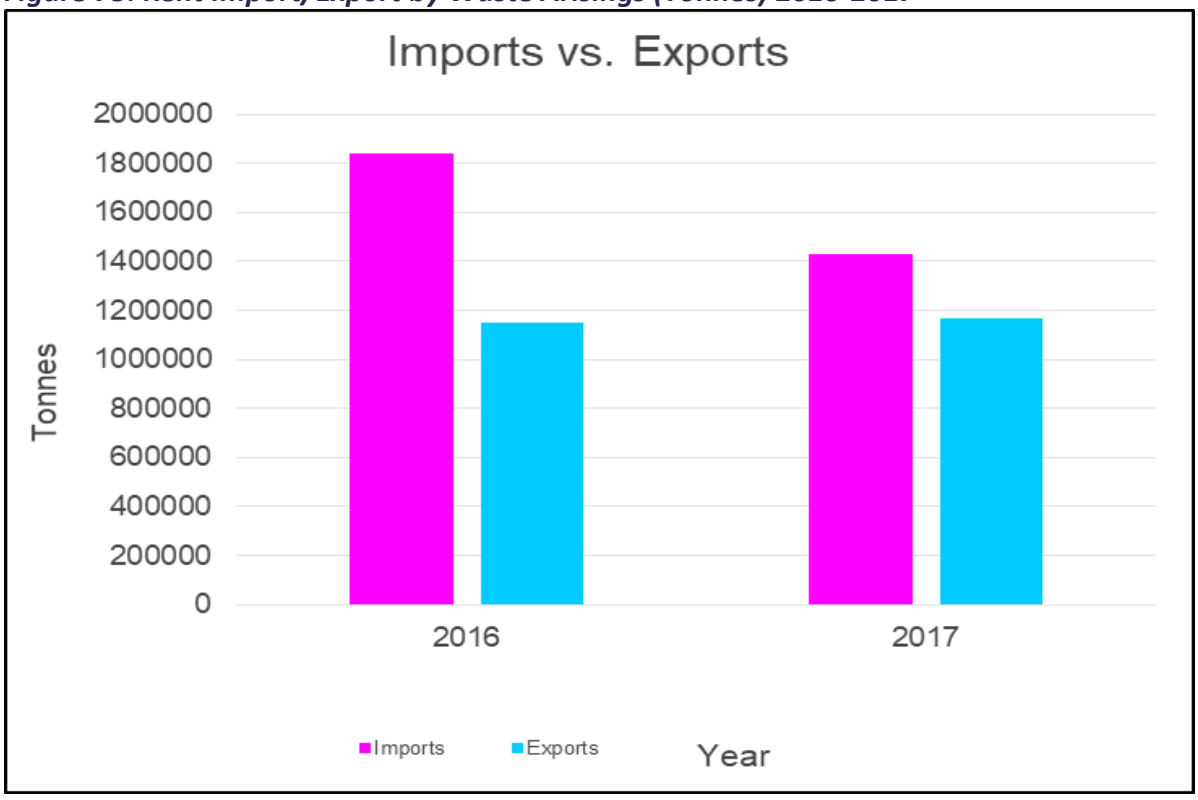


Table 20: Kent Import/Export by Waste Arisings (Tonnes) 2016-2017

	Imports	Exports
2016	1,838,978	1,428,976
2017	1,150,934	1,168,244

The relevant strategic objective for waste management (number 12, page 36 of the KMWLP), as set out in the KMWLP states:

"Promote the management of waste close to the source of production in a sustainable manner using appropriate technology and, where applicable, innovative technology, such that net self sufficiency is maintained throughout the plan period."

This strategic objective is addressed by Policy CSW 4: Strategy for Waste Management Capacity of the adopted KMWLP. The role of the policy is to support the establishment of overall net-self-sufficiency over the plan period. The collected data to date demonstrates that Kent is net self-sufficient and a year after adoption is a net waste importer.

Monitoring the Delivery of the adopted KMWLP Strategy

In order to ensure that the adopted KMWLP is based on adequate, and up-to-date and relevant evidence the County Council has monitored the relevant KMWLP indicators for both waste capacity needs and for providing a steady adequate and supply of minerals, particularly with regard to aggregates. The relevant indicators are shown in the Kent Minerals and Waste Local Plan 2013-30 Monitoring Schedule; Sustainable development Policies.

The production of evidence to support the Minerals Sites Plan demonstrates that the landbank requirements included in Policy CSM2: Supply of land-won Minerals are no longer up to date. This is unsurprising as rates of supply and level of reserves have changed since the preparation of the KMWLP, however the policy recognises this and has inherent flexibility by stating: *"A rolling average of ten years' sales data and other relevant information will be used to assess landbank requirements on an on-going basis, and this will be kept under review through the annual production of a Local Aggregates Assessment"*. In addition, the policy requirement to maintain at least 10.08mt and a landbank at least 7 years (5.46 mt) is caveated with "*while resources allow"*.

An assessment of other land-won mineral supply indicators for policy effectiveness show that the Plan's policies are still adequate for delivering the mineral supply strategy. Moreover, the other mineral transportation infrastructure safeguarding (wharfs and railheads) policy indicators have on indicated that review of these policies (CSM 6: Safeguarded Wharves and Rail Depots and CSM 7: safeguarding Other Mineral Plant Infrastructure) are effective and do not need review.

Early monitoring of the Plan's effectiveness in allowing for future waste management requirements indicated that several policies required review in that the policy requirements no longer were based on relevant data. As stated above this is being addressed by an Early Partial Review of several waste policies waste policies (see section on Minerals and Waste Local Plan 2013-30, Policy Monitoring) that has reached the Regulation 19 Pre-submission publication stage.

The need to achieve net self-sufficiency in waste management (including a proportion of London's wastes) is part of the Plan's overarching waste strategy. Import and export data demonstrated that in 2017 the imbalance is within the -10% of the indicator's trigger. Moreover, all the recycling/composting and landfill diversion indicator trigger points are not reached in the 2017 data for LACW.

Safeguarding policy effectiveness requires Mineral Safeguarding Area (MSA) boundaries to be reviewed annually to ensure that where changes can be evidentially justified the MSA boundaries are updated. Early experience with implementation of exemptions from the need to safeguard (set out in policies DM 7: safeguarding Mineral Resources and DM 8: Safeguarding Minerals, Transportation, Production & Waste management Facilities) demonstrated that there was an ambiguity in the wording relating to the status of allocations for non-mineral and non-waste development in adopted local plans. This would have a bearing on what could be considered as an exempted from safeguarding area on the adopted MSA proposals maps. This ambiguity is to be addressed by the Early Partial Review of these policies. Until this is clarified a formal review of the MSA proposals maps would be premature.

The available monitoring data indicates that all other policies of the Plan regarding minerals supply, waste capacity requirements, waste and minerals safeguarding are considered effective and so not in need of formal review.

Duty to Co-operate Activity

LPA's AMRs must contain details of the co-operation undertaken with other LPAs and the prescribed Duty to Co-operate (DtC) bodies[20]. The Localism Act 2011 amended the PCPA 2004 by including Section 33a which introduces the DtC. The Duty applies to all LPAs, councils and prescribed bodies and requires that they actively co-operate with each other to maximise the effectiveness with which development plans are prepared and implemented.

The Duty requires that engagement occurs constructively, actively and in an on-going basis during the plan making process and beyond into the plan monitoring process and that regard is given to the activities of other authorities where these are relevant to the LPA in question. For Kent this represents the Districts and Boroughs within the county of Kent, planning authority areas bordering Kent and other local authorities linked to Kent by movements of mineral aggregates and waste (imports/exports). For a full understanding of the County Council's DtC activity, as required to comply with the above for the Regulation 19 Public consultations for the KMWLP Early Partial Review and the Mineral Sites Plan see documents KCC/DTC2 Early Partial Review Duty to Cooperate Report and KCC/DTC1 Mineral Sites Plan Duty to Cooperate Report. Both of which can be found on the County Council's online Document Library[21]

Conclusion and Next Steps

Mineral Indicator Monitoring

The aggregate mineral sales in Kent during 2017 from all sources amounted to some 6.09mt. This was a slight decrease in overall landwon aggregate sales (by approx. 50,000 tonnes). Safeguarding of wharf capacity will be imperative to maintain the NPPF's requirement of a 'steady and adequate supply' of sharp sand and gravel to meet market requirements.

The situation with regard to soft sand supply is less constrained. The permitted landbank is 15.57 years (based on a 10-year sales average drawdown figure), this will be sufficient to supply soft sand over most of the Plan period until 2030, but not its entirety. The landwon resource, in contrast to the sharp sands and gravel, will likely remain the predominant supply of this aggregate mineral type over the plan period.

Landwon sales of crushed rock continue to be assumed as 0.78mtpa, given the needs of confidentiality. Sources of supply more than secure the ability of Kent to maintain a 10-year landbank of crushed rock over the life of the Kent MWLP 2013-30. Overall Kent meets the national planning policy requirements for construction aggregates landbanks for crushed rock as reflected in Kent by KMWLP Policy CSM 2: Supply of Land-won Minerals in Kent.

Secondary and recycled aggregate sales fell in 2017 (0.90mt) and compared to sales of 1.03mt in 2016. The 10-year sales average is 0.79mt and the more recent 3-year sales average is 0.93mt. Clearly the role of secondary and recycled aggregates is showing an upturn in sales terms and may play an increasing role in overall supply terms into the future. Further monitoring will demonstrate whether the circa 1.0mtpa level of production has peaked or is still increasing.

There are four permitted landbanks of clay and brickearth with remaining reserves in Kent.

[20] According to Regulation 34 (6) of The Town and Country Planning (Local Planning) (England) Regulations 2012.

[21] http://mylimehouse.kent.gov.uk/portal/second_call_for_sites_2016/document_library

These sites have a combined landbank of 25 years, meeting both national policy requirements and the local requirements as set out in the KMWLP Policy CSM 2.

Kent has two operational silica sand sites, both essentially meet the requirement of maintaining a 10-year landbank per site at existing sites. One silica sand site (not one of the above) has been declared by the owner as containing un-viable reserves of silica sand and this was confirmed at the Independent Examination of the KMWLP in 2015 and its subsequent adoption in 2016.

Kent's reserves for cement manufacture are entirely contained at the strategic site at Holborough Cement works, though not constructed, the lawfully implemented planning permission has sufficient supply at the planned consumption rate for 25 years. This meets the NPPF requirement where substantial new investment in a kiln is required. The KMWLP makes provision for this level of resource required to support new kiln by identifying a Strategic Site (see Policy CSM 3 of the KMWLP). Kent's chalk reserves for agriculture and engineering purposes are not required to meet any prescribed landbank level in the NPPF. However, there may be a need to permit further chalk reserves to towards the end of the Plan period if the extraction rate of this mineral type significantly increases, data on this is not considered robust at this time.

Waste Indicator Monitoring

There has been a some decrease in the arisings of LACW in 2018 (-3.14%). However, as this is the first negative result, it may be premature to conclude that the annual rate of change for the LACW will continue to be negative into the future. Kent's population is growing, in 2018 it is recorded as being in the order of 1.567 million, which places pressure on LACW arisings. By the end of the adopted Plan period it is predicted to be around 1.764 million. Unless population growth has indeed de-coupled from population growth LACW will continue to grow.

The EU landfill Directive (1999) target (as replicated in the KJMWMS) target of landfilling no more than 5% of LACW by 2020-21 has been surpassed early with landfill being the management option for only 1.1% of LACW. With the target for recycling/composting of at least 50% LACW by 2020/21 almost being met in 2018 at 46.5%.

The waste import and exports levels in Kent in 2016/17 were observed to reduce, in that some 1,840,000 tonnes were imported in 2016 and this fell to some 1,150,000 tonnes in 2017. Over the same period exports also fell and while Kent is still a net importer of waste, there is a better balance between imports and exports. Net self-sufficiency has been attained.

Of the 22 planning applications submitted during the 2017/18 AMR period for waste development 5 were permitted that provided further or permanent new capacity for waste recycling and recovery within Kent. No further landfill capacity was permitted. Given the higher rates of LACW recycling/composting and recovery management performance this new capacity is supportive of the diversion from landfill of all wastes streams in Kent.

Kent Minerals and Waste Local Plan

Significant progress has been made with the next stage of the KMWLP work. Early monitoring of the permitted waste recovery capacity immediately post adoption in 2016 highlighted the necessity for an **Early Partial Review** of the waste recovery requirements specified in Policy CSW 7. This is proposed to be changed to a percentage of all waste streams per milestone year over the plan period as incorporated into an amended Policy CSW 4. This change significantly reduces the requirement of new recovery capacity to ensure that Kent's overall capacity at this waste hierarchical level matches anticipated arisings, principally from the LACW stream. Other policy changes are also required in the KMWLP, including the deletion

of the need for a specific site for the disposal of dredgings and for landfill of asbestos. These changes mean that preparation of a separate Waste Sites Plan is not justified.

Experience gained in implementing the waste and mineral safeguarding exemption policies demonstrated that there was a degree of ambiguity of the exemption criteria in policies DM 7 and DM 8 and so the KMWLP Early Partial Review seeks to address this ambiguity.

Kent Minerals Sites Plan

Work on the Mineral Sites Plan has also been successfully progressed in 2017 and 2018. The Regulation 18 'Options' consultation on 9 potential sites was conducted in 2017. Detailed Technical Assessment of the sites followed that demonstrated acceptability and deliverability over a broad range of material planning consideration. This has resulted in the identification of one soft sand site (Chapel Farm, Lenham) and two sharp sand and gravel sites (Moat Farm and Stonecastle Farm in the Tonbridge area) in the Pre-Submission Plan published in early 2019 with an anticipated Independent Examination in early summer 2019.

Provided the Early Partial Review of the relevant polices of the KMWLP are found sound and the Plan modified, and the Minerals Sites Plan found sound and adopted then in 2019 the KMWLP will have been finalised. This is subject to whatever ongoing monitoring may demonstrate regarding the plan's overall soundness and relevancy to changing circumstances in minerals supply and waste management until 2021. As this will be the fifth year since the Plan's formal adoption and at this point another formal review will be required.