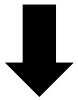
Kent County Council

Local Aggregate Assessment 2021

December 2021

Contents

	Dashboard Summary - Kent County Council LAA2021 (using data for the calendar year 2020 and fully incorporating 2019 data)									
Aggregate Mineral Type (and origin: land-won, marine dredged and imports)	**2020 Sales in tonnes or mt**	**Average (10 yr.) Sales in tonnes or mt**	**Average (3 yr.) Sales in tonnes or mt**	**Trend (10 yr. sales)**	**Trend (3 yr. sales)**	**LAA Rate mtpa**	**Assumed Reserve (as per end of 2020) in tonnes or mt**	**LAA Rate based Landbank**	**Productive Capacity**	**Comments**
Soft Sand (excluding silica sand)	392,850	441,038	434,352	⬇	⬇	441,038	9,341,000	9.341/0.441=21.2 21+ years	1.145mtpa	Reserves have increased from 7.81mt to 9.34mt, though the lower figure was an 'extrapolation' of 2018 reserve data from 2019. Both 10 and 3-year sales averages are down, though productive capacity has increased by 0.225mtpa. There are sufficient permitted reserves for the remainder of the Plan period until 2030+7. The LAA Rate landbank bring over 21 years. Productive capacity has also increased, by 19.65% The allocation in the Mineral Sites Plan (3.2mt) may not be required over the remaining Plan period (2030+7) to maintain supply if the 10-year average does not return to 0.50 plus mtpa as has been seen in past LAA monitoring.
Sharp Sand & Gravel (excluding Hoggin for construction fill)	132,231	270,309	111,733	⬇	⇧	270,309	2,779,500	2.78/0.270=10.29 10.29 years	0.85mtpa	Productive capacity has fallen off and the 10-year average has decreased, the 3-year average is unlikely to be of any significance as reserves are depleted. As repo-rted before this sector of supply is

										considered to be one that is resou-rce depleting in Kent. The LAA Rate landbank is not necessarily representative of the way Kent's demand needs as to be met, as reserves 'winnow out' importation (including any by HGV) are, in all probability, becoming proportion-atly more important than the remaining land-won reserves to meet need. The allocation (two sites) of 2.5mt of potentially replenishing resource will not significantly alter the long term supply situation from the land-won resource over the remaining Plan period (2030+7). In keeping with the depletion of The available reserves productive capacity has fallen by 26%.
All Sand & Gravel (land-won)	525,081	711,118	546,085			711,118	12,120,500	12.12/0.711= 17.15 17 years	1.995mtpa (excluding hoggin)	Overall, Kent remains a significant supplier of land-won sands and gravel, reserves (soft sand only) has increased though the sand and gravels are now depleting.
Crushed Rock (landwon)	1,508,239	829,935	1,126,297			0.830	Uncertain, between 15.4mt and 18.5mt	15.4/0.830=18.55 years 18.5/0.830=22.30 years	1.0mtpa +	The available reserves at the two hard rock quarries in Kent supply-Ing hard crushed rock have been recently re-evaluated. This has led to an apparent marked reduction in the combined reserves over the remainder of the Plan period. Which, for hard rock, is until 2030 plus 10. The previously reported landbank of over 30 years is, apparently, reduced to being either just

										insufficient or will produce a surplus over the current Plan period.
Recycled/Secondary Aggregates	909,703	688,212	695,423	⬇	⬇	N/A	N/A	N/A	4.0mtpa	Though the 10 and 3-year sales Averages are lower than previously reported the overall contribution to supply has not materially altered, sales in 2020 they were approaching 1.0mt and the productive capacity of the sector remains essentially unaltered.
Marine Imported Sand & Gravel (including land-won and marine dredged)	1.44mt	1.68mt	1.28mt	⬇	⬇	N/A	N/A	N/A	Theoretical maximum wharf capacity for all aggregates is approx. 7.30mtpa according to the 2010 joint Medway and Kent study, while the recorded 2018 capacity is	The now available BGS 2019 data and the reported AM2021 (2020) data essentially corrects the information presented in the LAA 2020 dashboard. As the Quoted importation 2019 data Was extrapolated only at that time. The recent lowering of sales and resultant sales averages in 2019 compared to 2020 may well be attributable to the slow down experienced by the Covid pandemic. This resulted in lowering the 10 and 3-year sales averages, though the sales in 2020 have rebounded from 0.68mt in 2019 t0 1.44mt in 2020 this again demonstrates the importance of marine importation in Kent's overall supply.

Marine Imported Crushed Rock	1.120mt	0.844mt	0.960mt	⇧	⬇	N/A	N/A	N/A	reported as 5.60mtpa is assumed unchanged	As with the marine sands and gravels 2019 BGS data is now available for marine hard rock importation. The 10-year average is increasing sales in 2019 were 0.71mt, well below the historic trend. In 2020 sales have rebounded back with a recorded 1.120 mt.
Rail Depot Sales (Sand & Gravel)	24,917	33,203	26,009	⇧	⇧	N/A	N/A	N/A	2.38mtpa (no change from previous reported capacity)	Rail importation of sand and gravel remains a relatively insignificant part of overall supply in Kent. The share of overall supply has decreased since 2011 (0.052mt) to 0.025mt in 2020. Uncertainties regarding the the 2019 BGS survey completeness renders the real value of the sales averages limited.
Rail Depot Sales (Soft sand)	10,222	6,801	8,974	⇧	⇧	N/A	N/A	N/A		Rail importation of soft sand remains a relatively insignificant part of overall supply in Kent. In 2019 this supply uncharacteristically reached sales above 10,000 tonnes. This has been repeated in 2020. This has caused the sales average to be show increase. Future monitoring will show if This is a static pattern of supply.
Rail Depot Sales (Crushed Rock)	538,458	432,228	544,435	⇧	⇧	N/A	N/A	N/A	2.38mtpa (no change from previous	Rail imports of hard rock have slightly fallen in 2020 compared to 2019, though the 10 and 3-year a sales averages have both increased. The sales have been at the 0.50+ mtpa magnitude since

									reported capacity)	2018, continued monitoring will demonstrate if this trend continues or increases. Though it can be concluded that rail importation of hard rock is set to be an important component of overall supply.
Commentary	The increase in reserves of soft sand occurred without new planning permissions. This has been Identified as due to under reporting consented reserves in 2019. The soft sand LLA Rate has decreased, this and increased reserves available, has resulted in the available landbank to be more than the adopted Plan requirements by an increased margin. Productive capacity is now 1.145mtpa, up from the 0.92mtpa in 2018 (unrecorded in 2019). Landwon sharp sand and gravels are, as previously reported, a depleting resource in Kent. The reduction in the LLA Rate has the effect of apparently increasing the landbank Life. However, as sites 'go offline' supply to meet demand will be met by importation, including by HGV that is not captured by AM surveys. Thus, the remaining landbank life, Being 10.29 years is not truly representative of how need will be met. The 2.50mt allocations in the Mineral Local Plan will, if permitted, make a significant contribution to meeting that need identified from Kent's landwon resources, though would not change the importation reliance in Kent. Productive capacity in 2020 is now less than 1.0mtpa at 0.85mtpa, in 2018 it was 1.150mtpa (unrecorded in 2019). Landwon crushed rock was a matter that remains confidential in terms of sales and available reserves given the SEEAWP three site protocol for reporting the monitored data. However, the operator has undertaken a re-evaluation of the available reserves, this and increased extraction rate has led to the operator waiving confidentiality to ensure that the matter of hard rock supply over the remainder of the plan period can be fully considered by the impending Plan review. The permitted landbank is possibly just sufficient, or willproduce a surplus over the adopted Plan period. Marine importation of sand and gravels remain an important part of overall supply, the recent (2019) fall off of sales is now being reversed as sales again exceed 1.0mtpa which is the historic trend since LLA reporting commenced. Thus 2019 is exceptional in all probability due to the effect of Covid pandemic lockdown induced supply shocks. Marine importation of hard rock has shown a similar trend, a fall in 2019 and an apparent recovery in 2020. +. Overall productive capacity remains the same. Rail depot sales, apart from hard rock, remains relatively insignificant in overall supply terms. The hard rock imports fell in 2019, possibly for the same reasons as the marine sand and gravels fell due to supply shocks due to lockdowns but are showing recovery back to the historic levels of 1.0mtpa+. Overall productive capacity remains the same Recycled and secondary aggregate sales fell off in 2019 and recovered in 2020 back to the almost 1.0mtpa level as seen in 2017. This sector of supply may, as has been reported in the past have a far greater productive capacity (some 4.0mtpa theoretical maximum) than it is currently demonstrating .									

Executive Summary

This is the ninth Local Aggregate Assessment (LAA) Kent County Council has produced, although in 2020 (2019 data) the Council reported some monitored data and extrapolated using 2018 data as the complete data set was not, at that time available being part of a national survey conducted by the British Geological Survey (BGS).

In the case of both land-won soft sands and the sharp sands and gravel it is considered that the appropriate 'LAA rate' for Kent remains that of the recorded 10-year sales average. Any estimated increases above this figure are not easily derived due to the inherent limitations in demand modelling at the county council scale. Moreover, the use of the 10-year average as a main determinate for calculating landbanks and future aggregate requirements is in accordance with the National Planning Policy Framework (NPPF).

As in previous LAA reports It demonstrates that aggregate supply in Kent is provided by both imports and indigenous land-won materials. However, unlike the superficial sharp sands and gravels and soft sands are predominantly a land-won resource, and this material cannot easily be substituted by recycled or secondary materials. It also appears that little can be expected in the short to medium term, from marine resources, in terms of supply, as this has again demonstrated itself as only a small element of the overall supply. Therefore, Kent will likely remain a significant supplier of land-won soft sands to markets within and to an extent beyond Kent, into the future. Reserves have increased as has productive capacity. Sufficient reserves exist to meet and exceed the KMWLP requirements. Sales have, however fallen both in 2019 and 2020, depressing the LAA Rate.

With regard to the land-won sharp sands and gravel resource the evidence continues to demonstrate that these superficial deposits are depleting, the reserves are not being replenished and productive capacity has fallen. Therefore, there is a correspondingly limited potential for Kent to meet the demand from land-won resources of this aggregate type. The life of the landbank (less than the remaining Plan period) is more a consequence of reduced sales depressing the LAA Rate than that of a landbank meeting needs into the future. The replenishment of 2.50 mt from the Minerals Sites Plan allocations (subject to gaining planning permission) would make a contribution to the need although it is not anticipated that this will reverse the trend towards a greater reliance on importation of this land-won aggregate mineral.

Hard rock supply from the land-won resource in Kent is significant. The actual level of the current reserves and their depletion rate was subject to confidentiality. However, this has been waived by the operator for the matter of the supply of this aggregate discussed in the public domain, and the County Council is considering the implications for the supply of this important mineral type, at this time, given the need to formally review the Kent Minerals and Waste Local Plan 2013-30 (KMWLP).

Importation of sands and gravels from marine resources showed a marked decline in 2019, then a recovery in 2020, this was also a pattern displayed by marine hard rock supply. However, this pattern was not shown by rail depot importation, of primary aggregates of all types. Though, apart from hard rock, rail depots remain relatively insignificant in overall supply terms. Available wharf capacity is significant and has not altered, however it remains vulnerable to losses as their locations often coincide with competing regeneration initiatives.

Recycled and secondary aggregates showed a marked reduction is 2019, falling to under 0.5 mt of sales, then recovering again in 2020 to almost 1.0 mt. This pattern of sales, a marked fall in 2019 and a recovery in 2020, is consistent with the pattern displayed by marine imported primary aggregates, though not with the rail depot primary aggregates imports.

It remains the County Council's view that growth predictions in housing and infrastructure delivery and maintenance are indicative at best in terms of aggregate demand. The inherent modelling limitations necessitates that only a likely upward trend in demand can be identified from the data available. Housing growth in Kent, based on the Kent local authorities objectively assessed needs are showing a potential 5% per annum growth to 2038. Irrespective of what level of growth occurs, it will necessitate a robust safeguarding regime if a steady and adequate supply of aggregates to meet the objectively assessed needs is to be maintained. Given the ongoing depletion seen with the land-won sharp sands and gravels this will place an emphasis on the importation infrastructure safeguarding in Kent.

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1. Introduction

1.1 The purpose of this Local Aggregate Assessment (LAA) report for 2020 is to detail the current and predicted situation in Kent with respect to all aspects of aggregate supply. It is based upon Aggregate Monitoring (AM) 2020 sales data and data collected by the British Geological Survey (BGS) for 2019 that has been made available in 2020. The National Planning Policy Framework (NPPF)[1] sets out the requirement for local authorities to produce an annual LAA, stating that: '*Minerals planning authorities should plan for a steady and adequate supply of aggregates by:*

> *a) preparing an annual Local Aggregate Assessment, either individually or jointly, to forecast future demand, based on a rolling average of 10 years' sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources)'*.

1.2 This is Kent County Council's ninth LAA and the fourth since the adoption of the Kent Minerals and Waste Local Plan 2013-30 (KMWLP or the Plan) in July 2016. The KMWLP provides the main strategic objectives for minerals (and waste) planning policy in Kent until 2030. It has reached the 5th year since adoption and is in the process of being reviewed, a Regulation 18 formal consultation on possible modifications is anticipated in late 2021. The Kent Mineral Sites Plan, that identified sites (one soft sand and two sharp sand and gravel sites) to deliver the adopted Plan's supply objectives was adopted in September 2020.

1.3 Though the 2016 adopted Plan set out the quantities of aggregates to be provided over the period of the entire Plan, this inevitably will be subject to change as more recent monitoring data, as reported in the annual LAAs that is relevant to an understanding of supply and demand. This monitoring data will be used to estimate the quantities required to maintain landbanks of 'at least 7 years' for sand and gravel and 'at least 10 years' for crushed rock at any one time in the 2016 adopted Plan period. It is important to recognise that the data available to the County Council is that which represents past sales and available reserves. The future predictions of need are based on this data and it will therefore be subject to variation, given that there are unknowns in terms of potential future permitted reserve re-evaluations and changes to production (sales) rates.

1.4 It is also important to note that the data used in the preparation of this report comes from the Annual Monitoring (AM) of aggregates sales by Kent County Council on behalf of the South East England Aggregate Working Party (SEEAWP) for sales data in 2020, in 2019 this was undertaken by the British Geological Survey (BGS) on a national basis for the Ministry of Housing, Communities and Local Government (MHLCLG). This

[1] National Planning Policy Framework, Section 17, paragraph 213, sub-paragraph a) (DCLG, July 2021):

national survey was designed to understand local and national aggregate movements as well as sales and reserves. This did not include secondary and recycled aggregate production. The AM survey collects annual sales data from operators of active mineral extraction sites, minerals wharves, minerals rail depots and recycled and secondary and recycled aggregate processing sites in the county of Kent. Where there are less than three operational sites supplying a particular type of mineral, as in the case of Kent's landwon hard rock (when crushed is a useable aggregate) quarries, commercial confidentiality prevents the reporting of sales or reserves.

2. Aggregate Forming Minerals

Geology of Kent

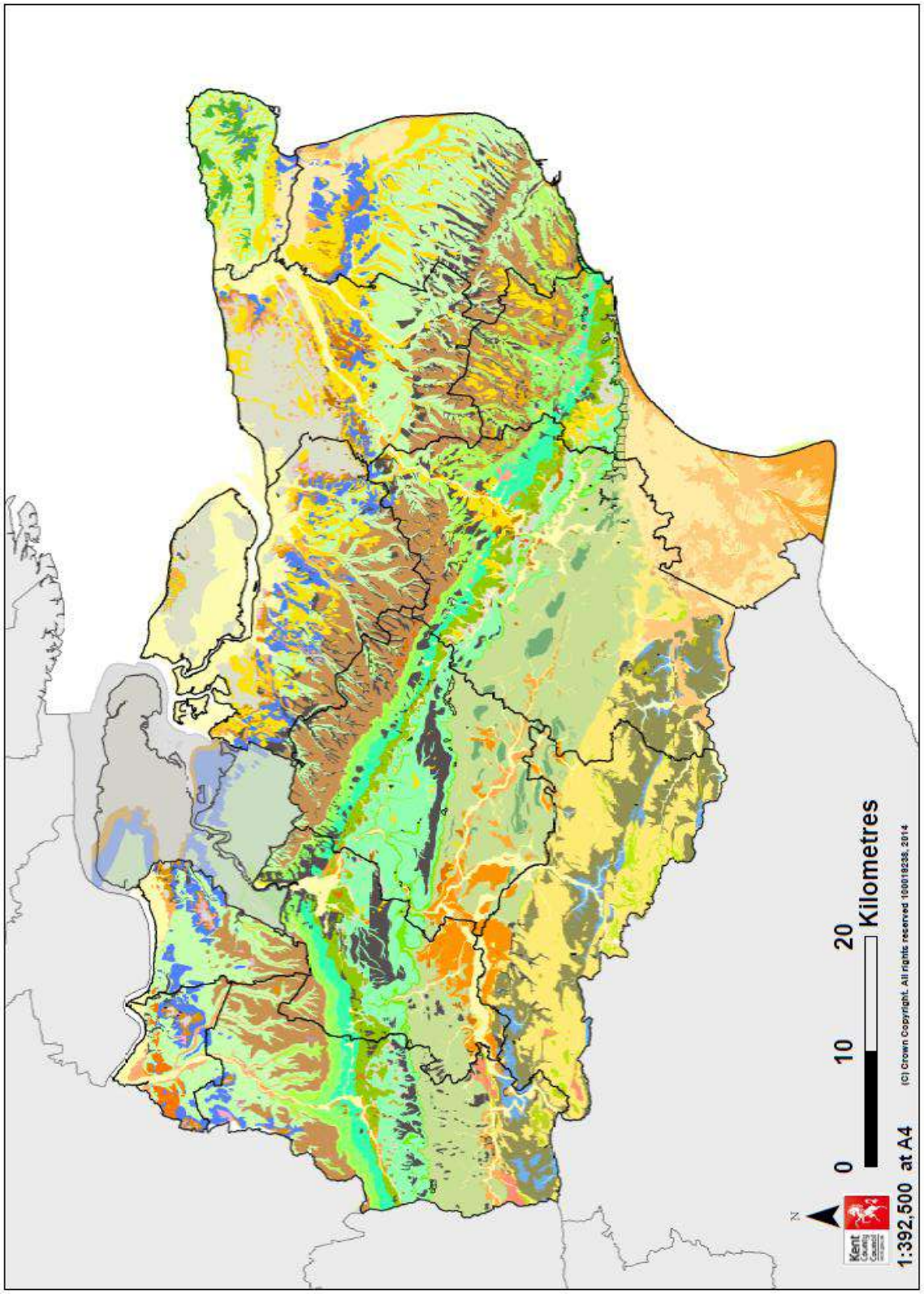
2.1 The geology of Kent is a complex array of solid crustal and superficial geological units that are generally well mapped and understood due to previous work by the BGS, see Figure 1. Kent has several economically important naturally occurring aggregate forming mineral deposits. The most recent of which is the post glacial (Pleistocene epoch of some 10,000 years ago) outwash (alluvial) river valley and terraced sand and gravels inland and coastal processes of deposition storm beach sands and gravels (significantly, but not limited to, those found in the area around Lydd and the cuspate foreland of Dungeness). The extensive 'soft' sand (and pure silica sands) ancient beach deposit (the Folkestone Beds) is somewhat older, being part of the Lower Greensand Group of the Lower Cretaceous epoch (that are between 100-140 million years old).

2.2 Important and extensive deposits of hard rock are also present in Kent, in the form of a significant thickness of a complex estuarine limestone formation. This rock (Kentish Ragstone) can yield important building materials and when crushed it can be used as an aggregate. This material is also part of the Lower Greensand Group, forming part of what is called the Hythe Formation which was laid down prior to the Folkestone Formation, though still being within what is called the Lower Cretaceous epoch.

Permitted Sites Producing Aggregates in Kent

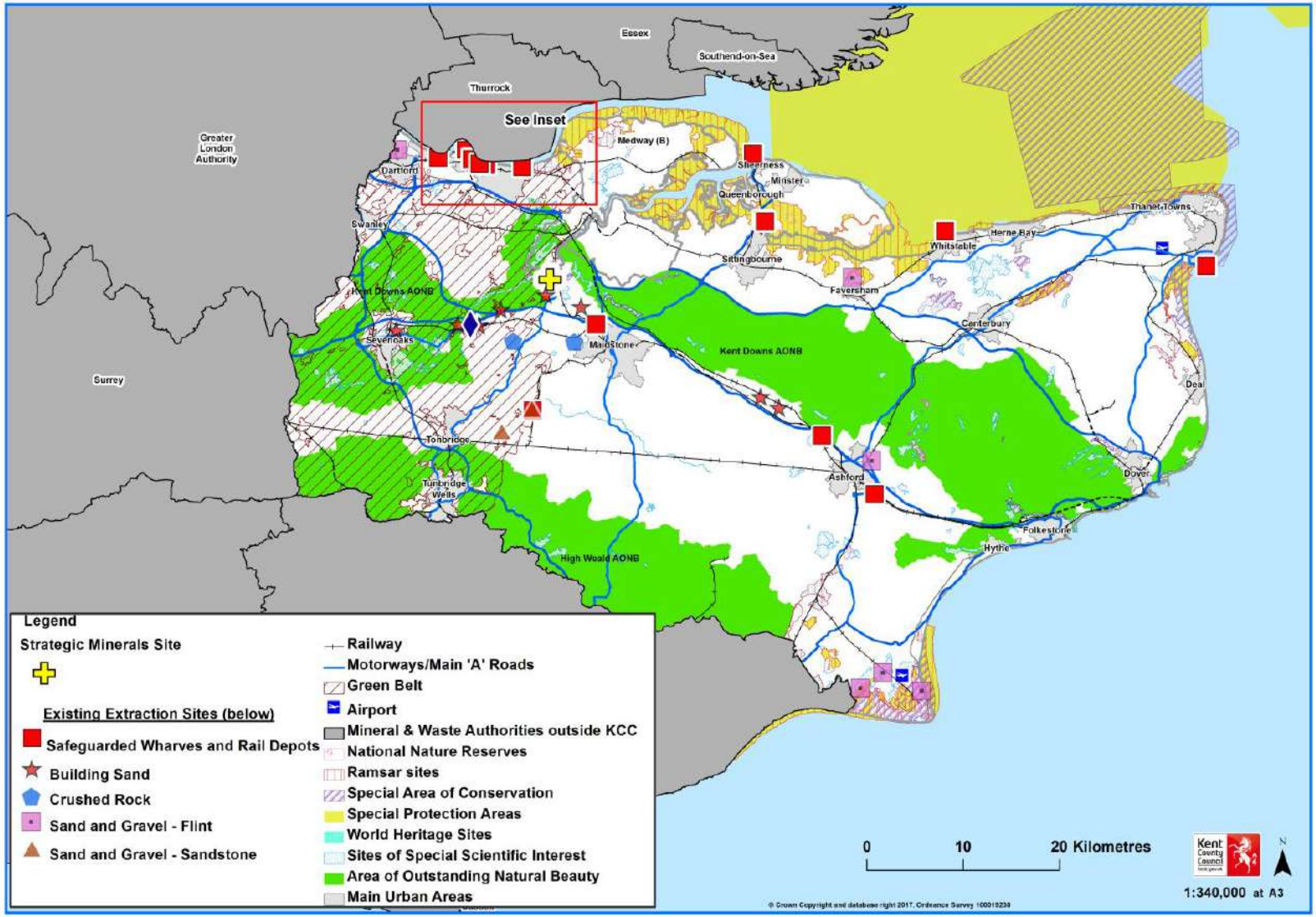
2.3 Historically much of Kent's landwon aggregate production has come from its main river valleys (they are the Medway, Great Stour and Darent) and the cuspate foreland close to Lydd and at Dungeness for sand and gravel supply. While the area around Maidstone has historically supplied much of the crushed hard rock materials. The soft (and silica) building sand supply is associated with the Folkestone Formation, this significant unit traverses the county from east to west following the northern slopes of the Wealden basin. Figure 2 shows the indicative location of the county's active quarries in in 2017 (as found in the adopted KMWLP that is being reviewed at this time and may cause this figure to be updated) and the safeguarded mineral wharves and railheads that contribute to the supply of primary aggregates.

Figure 1: Geology of Kent both Solid and Superficial



Legend: Geology of Kent

Figure 2: Location of Active Quarries and Safeguarded Wharves and Rail Depots in 2018



2.4 Kent currently has two active hard rock quarries producing crushed rock aggregate from the Hythe Formation (Kent Ragstone), five soft sand quarries winning material from the Folkestone Beds and five sharp sand and gravel quarries. The latter are generally extracting materials from the river terrace deposits that are associated with the county's main river valleys, though the cuspate foreland (storm beach) deposits at Lydd and Dungeness also provide a source of supply as of 2020. Table 1 overleaf details these sites.

Table 1: Permitted Aggregate Quarries in Kent 2020

Site	Operator	*Sand & Gravel*	*Soft Sand*	Hard Rock	Status
Hermitage Quarry, Maidstone	Gallagher Aggregates Ltd	-	-	Yes	Active
Blaise Farm Quarry, West Malling	Hanson Aggregates Ltd	-	-	Yes	Active
Stone Castle Farm, Whetsted	*Lafarge Aggregates Ltd*	*Yes*	-	-	*Inactive*
Lydd Quarry, Lydd	Brett Aggregates Ltd	Yes	-	-	Active[2]
Allens Bank, Lydd	*Brett Aggregates Ltd*	*Yes*	-	-	*Inactive*
Conningbrook Quarry	Brett Aggregates Ltd	Yes	-	-	Active
Highstead Quarry, Chislet	*Brett Aggregates Ltd*	*Yes*	-	-	*Inactive*
Denge Quarry, Lydd	Cemex UK	Yes	-	-	Active
Darenth & Joyce Green Quarry, Dartford	J Clubb Ltd	Yes	-	-	Active
East Peckham Quarry, East Peckham	J Clubb Ltd	Yes	-	-	Active
Joyce Green Quarry, Dartford	Ingrebourne Valley Ltd	Yes	-	-	Active[3]
Aylesford Quarry, Aylesford	*Aylesford Heritage Ltd*	-	*Yes*	-	*Inactive* [4]
Addington Sand Pit (Wrotham Quarry)	Fern Aggregates	-	Yes	-	Active
Borough Green Sand Pit, Sevenoaks	Borough Green Sandpits Ltd	-	Yes	-	Active
Burleigh Farm, Charing	Brett Aggregates Ltd	-	Yes	-	Active[5]
Charing Quarry, Charring	*Brett Aggregates Ltd*	-	*Yes*	-	*Inactive*
Ightham sandpit (H&H Celcon)	*H&H Celcon*	-	*Yes*	-	*Inactive*
Lenham Quarry, Maidstone	*Brett Aggregates Ltd*	-	*Yes*	-	*Inactive*
Nepicar Sand Quarry, Wrotham	J Clubb Ltd	-	Yes	-	Active
Greatness Farm, Sevenoaks[6]	Tarmac Ltd	-	Yes	-	Active

[2] Extraction has moved into East Sussex, the processing of material and some reserves remained in within Kent in 2020

[3] Planning permissions to erect a new plan site and to extend the life of the extraction site until 2024 were granted planning permission subject to pre-commencement conditions in 2018, the site is active as of 2020

[4] No off-site sales in 2020 of soft sand

[5] Inactive in 2018, early 2019 became active remains so in 2020

[6] The site also produces sharp sand and gravel, though predominantly soft sands from the Folkestone Formation

3. Landwon Primary Aggregate

Sharp Sand and Gravel

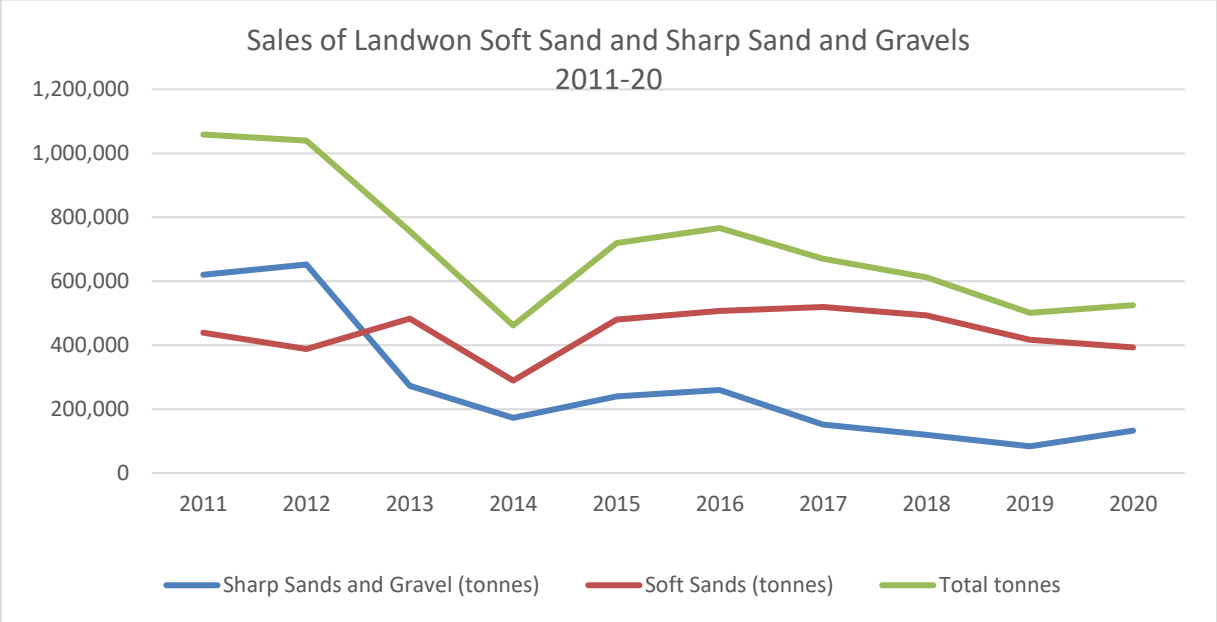
3.1 The sales of landwon sharp sand and gravel and soft sand in Kent since 2011 are shown in Table 2 and graphically in Figure 3 below. The overall trend for both land-won aggregate types is an overall reduction in recorded sales, though this is significantly more pronounced for the sharp sand and gravels than the soft sands, as will be illustrated later.

Table 2: Landwon Soft Sand and Sharp Sand and Gravel Sales in Kent, 2011-2020 (Million tonnes)

Year	Tonnes
2011	1,058,764
2012	1,040,031
2013	756,000
2014	461,759
2015	719,581
2016	766,213
2017	670,579
2018	612,438
2019	500,736
2020	525,081
Last 3-year average (2018-20)	**546,085**
Last 10-year average (2011-20)	**711,118**

Source: Aggregate Monitoring Surveys, 2011-2020

Figure 3: Sales of landwon Soft Sand and Sharp Sand and Gravel 2011-20 (Tonnes)



3.6 With regard to the landbank life of the land-won soft sand and sharp sand and gravel sales for the last ten years in Kent. There was a marked fall off in sales in 2014, with sales recovering in 2015. This recovery has now slowed. Soft sand sales displayed sales in the 0.50mtpa level until 2018 and are now displaying a decline to less than 0.40 mtpa. However, the sales of the sharp sand and gravel sales have shown a dissimilar overall pattern, a marked decline in 2014 and then a marginal recovery that is now petering out. In 2011 sales were 0.62mt, this declined to less than 0.20 mt in 2017/18. The sales in 2019 markedly fell to just 0.083 mt and in 2020 only marginally recovered to 0.132mt. Probable reasons for this decline will be discussed later in this report. There is no indication of a return to the 10-year average sales of around some 0.50mtpa, the curve is clearly one of depletion.

3.8 The sharp sand and gravel landbank based on local requirements is calculated at 4.23 years (based on the adopted Plan Policy CSM 2 requirements for a 5.46mt as a 7-year maintained landbank), which is below the 7-year NPPF requirement of the adopted Plan's 10-year average of 0.78mt times 7 years (giving the 5.46mt). However, the recently monitored landbank (2.78mt) in 2020 when divided by the recent 10-year (2011-20) average sales data (used to define the LAA rate of 0.270 mt) is sufficient for 10.2 years, this surpassing the base line NPPF requirements at this point in time.

3.9 However, whatever the yearly drawdown figure is used, it is considered that the landbank figures for the land-won sharp sands and gravels, are definitively demonstrating a decline in available resources based on geological scarcity and what can be sustainably sourced in the county. New reserves, that would replenish the landbank for this aggregate mineral are not coming 'on stream', this has been the case for some years, and allocations in the Mineral Sites Plan (2.50mt) would improve supply but not markedly alter the established declining resource pattern. Output from one significant Kent quarry had been zero in 2015, 2016, 2017, 2018 and 2019 given that extraction had moved into East Sussex and showed apparently its last reserves being exploited in 2020 when it was decided to count 50% of its sales as Kent sales serving the established Kent market. However, even this will soon to be entirely lost to the consideration of Kent's aggregate supply assessment.

3.10 The Kent consumption of the sharp sands and gravel material though, remained unrecorded by the AM process for these years. Therefore, the LAA Rate (0.270mtpa) for this material in Kent currently is not fully reflective of the demand in Kent for land-won sharp sand and gravel. The LAA metric is in all probability too low giving an 'inflated' landbank of 10.2 years at this time. However, given that the supply requirements estimation in adopted Policy CSM 2 is caveated with "…. *of at least seven years supply (5.46mt) will be maintained while resources allow*" this is not an unexpected conclusion. It is an acknowledgment of the geological scarcity of this type of aggregate deposit, coupled with material planning considerations that determine what level of resources can be sustainably allocated for future supply in plans, is below the NPPF requirements.

3.11 The potential for Kent to be able to provide additional reserves of this aggregate type is a matter that was considered by the adopted Mineral Sites Plan Independent Examination process. The adopted (September 2020) Mineral Sites Plan identified two sites for allocation, taken together (Moat Farm and Stonecastle Farm extension) could not provide sufficient future reserves to maintain an at least 7-year landbank over the Plan period, it was determined. Alternatives, to this supply are still anticipated to come significantly from (but not limited too) the marine dredged aggregate sector.

Soft Sands

3.7 Table 4 below shows the total current (2020 data) permitted landbank for the soft sands and sands and gravel landwon aggregates. The currently adopted policy predicted requirements of these materials for Kent is set out in Policy CSM 2 of the adopted KMWLP Plan. This supply prediction was based on 2014 aggregate monitoring data, though, importantly, the adopted aggregate supply policy allows for quantitative adjustment when more recent data (in the form of LAAs) are available. The adopted Mineral Sites Plan, in terms of overall potential resources in allocated sites, is based on the updated landbank requirement for both the soft sands and sharp sand and gravel over the remaining period of the Plan from 2019 until 2030 (plus 7 years), though based on monitoring data available in 2018. The data for 2019 and 2020 demonstrates that the reserve base has expanded and the LAA Rate has fallen, reducing the apparent need for the release of additional replenishing reserves over the Plan period.

3.12 The soft sands permitted reserves have shown an increase from 8.30mt in 2018 to 9.34mt in 2020. However, due to a continued decline in production there has been a reduction of the 10-year average from 0.542mt in 2018 and 0.417mt in 2019 to 0.441mt in 2020. The available reserves of 21 years as at the end of 2020 when applying the 10-year averaged sales data (the LAA Rate) need requirement calculation, the reserves are meeting the NPPF's requirement to have a landbank of "*at least 7 years*". However, the adopted Plan requirement spans a greater time period and thus at that time (2016), the overall need was calculated at 15.60mt, with 5.0mt from new resources as sites allocated in the Mineral Sites Plan.

3.13 The Kent Mineral Sites Plan was prepared to have an 18-year plan period (notionally 2019-30 plus 7 years) rather than the 24-year plan period of the adopted Plan (2013-30 plus 7 years). As a result of the lowering extraction and increase in reserves, there is now a need for a lower amount of new soft sand provision than the 5.0mt required by the adopted Plan policy. This reduced need has been informed by more recent aggregate monitoring 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 (the LAA Rate) over the Mineral Sites Plan period. This was anticipated to come from the existing reserves currently permitted and available, with the identified shortfall being addressed by a new site at Chapel Farm,

Lenham allocated in the now adopted Mineral Sites Plan. However, the reduction in the LAA Rate as seen in 2020 and the increase in reserves reduces the probability that further reserves will need to be released prior to 2030, continued monitoring will determine what need remains over the Plan period. If the Capel Farm allocation were to come forward towards the end of the Plan period, this would meet projected needs and produce an increased surplus in the landbank level at the end of the Plan period. Moreover, it remains the view that the various metrics used by planning authorities and Kent County Council in the past to determine the appropriate LAA Rate to calculate need are uncertain. The modelling of effects of increased development rates identified in the county wide local plan coverage and the predicted number of infrastructure projects, are inherently difficult to do with any reliable accuracy. Considering this limitation, the County Council is of the view that the 10-year average (the LAA Rate used by Kent) represents a reliable metric for landbank calculations for the remaining Plan period.

Crushed Rock (Hythe Formation)

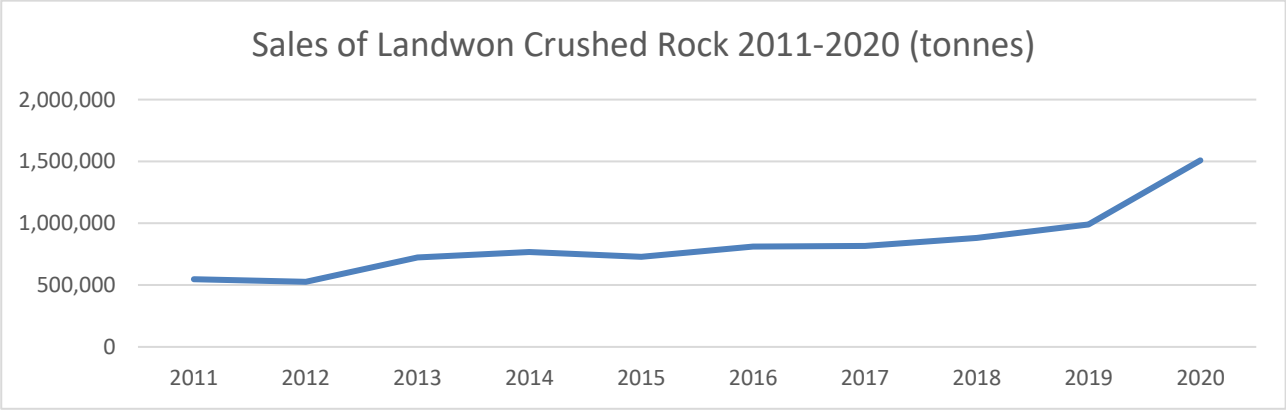
3.2 Table 3 and Figure 4 below shows the monitoring data for landwon crushed rock sales graphically. The pattern is one of significantly increasing demand since 2018.

Table 3: Landwon Hard Rock Sales in Kent, 2011-2020 (Million tonnes)

Year	Tonnes
2011	547,346
2012	526,281
2013	722,985
2014	767,198
2015	727,272
2016	811,935
2017	817,437
2018	880,063
2019	990,590
2020	1,508,239
Last 3-year average (2018-20)	**1,126,297**
Last 10-year average (2011-20)	**829,935**

Source: Aggregate Monitoring Surveys, 2011-2020

Figure 4: Kent Sales of Landwon Crushed Rock 2011-2020 (tonnes)



3.3 If the pattern of extraction remains in the 1.0+mtpa, as illustrated in the 3-year sales average, the LAA Rate will increase and put pressure on the remaining reserves, that are still being investigated at this time (in terms of their full potential) for the remaining Plan period (2021 to 2030 plus a maintained 10-year landbank at the end of the Plan) which is currently 19 years.

3.4 Sales of hard rock were not represented in previous LAA's given the need to maintain confidentiality, given the SEEAWP 3 sites or more requirement to report sales and reserves. The issue has now altered since the 2015 Independent Examination and subsequent adoption of the Kent Minerals and Waste Local Plan 2013-30 in 2016. The operator has waived confidentiality for hard rock sales in Kent, given that the reserves of the two operational sites has recently been re-evaluated to be lower than anticipated to be at this point. This figures for the reserves could be as low as 15.40mt or as high as 18.50mt as of the end of 2020. This would produce, when applying an LAA Rate of 0.830mtpa, either an insufficient supply, or a surplus over the remaining adopted Plan period. However, 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 that remained in the county at the time of Independent Examination and adoption in 2016, thought to be sufficient for over 30 years. This position is being reviewed as part of the Plan's wider formal 5th year mandatory review.

Crushed Rock (Carboniferous Limestone)

3.5 Carboniferous limestone is the most extensively used crushed rock aggregate geology in England. It possesses the physical and chemical characteristics that make it a high-quality material which is used in both concreting aggregate and roadstone. In Kent carboniferous limestone occurs below the overlying Chalk and Lower Cretaceous rocks. The BGS commissioned report CR/02/125N Minerals Resource Report (Kent [comprising Kent, Medway and London Borough of Bexley and Bromley] see link: https://www2.bgs.ac.uk/mineralsuk/download/england/kent.pdf) states that the 'top' of this geological unit is some 300m below the land surface (in the Richborough area) and 500m below land contours is considered the maximum 'mineable' depth of this material. Undoubtedly, this resource is one that could be technically accessible, and would provide an alternative source of high-quality crushed rock aggregate not only for Kent but for a wider regional market. While there has been no progress, apparently, in advancing the potential for this material, it remains a possible option for the future, and one that the adopted Plan takes account of at this time.

3.6 The crushed rock sales (from rail and sea imports) as a share of all aggregate importation into Kent in 2020 were 1.66mt out of 3.11mt overall. In 2019 the sales amounted to 1.27mt. The 10-year average is 1.273mtpa only slightly higher, while the three-year average of 1.503mt is closer to importation between 2016 to 2018 indicating a recovery in crushed rock imports into Kent from the 2019 low of 1.27mt, when all importation fell.

3.5 Table 4 below details the hard rock, sharp sand and gravel and soft sand available reserves and landbanks that are derived from the AM2020.

Table 4: Kent Landwon Aggregate Reserves and Aggregate Landbank as of 2020

	Permitted Reserve (mt) at end of 2020	Landbank based upon 10yr average sales (LAA Rate) between 2011-2020 (years)	Landbank based upon 3yr average sales between 2018-2020 (years)	Landbank based upon 2020 sales alone (years)
Soft Sand	9.34	9.34/0.441 = **21+ years**	9.34/0.434= **21.5 years**	9.34/0.393 = **23.7 years**
Sharp Sand & Gravel	2.78	2.78/0.270= **10.2. years**	2.78/0.111 = **25 years**	2.78/0.132 = **21 years**
Hard Rock	15.4 to 18.5	15.4/0.830=**18.55 years** 18.5/0.830=**22.3 years**	15.4/1.13=**13.63 years** 18.5/1.13=16.37 **years**	15.4/1.51=**10.20 years** 18.5/1.51=**12.25 years**

Crushed Rock Hythe Formation Landwon and Importation

3.14 Of the two hard rock resources that can give rise to crushed rock aggregates the Hythe Formation (Kentish Ragstone) has traditionally been quarried in the Maidstone area, though not exclusively so. The Carboniferous Limestone found beneath the Chalk and Lower Cretaceous rocks in the east of the county which remains unexploited and is not discussed in terms of its potential further in LAA2021.

3.15 There are only two active sites in Kent and in the past confidentiality prevented a detailed report of sales. Therefore, the proxy of 0.78mtpa has been used in past LAAs and during the formulation and examination of the adopted KMWLP Plan, as this was the figure derived for the now revoked South East Plan. The operator has now relaxed their wish to maintain confidentiality and so for the first time it is possible to depart from this proxy for sales of the landwon fraction of hard rock supply in Kent, as reported in the LAA.

3.16 The reserves of this material were significantly boosted by the addition of planning permission for 16 million tonnes of ragstone (Hythe Formation limestone) in a westerly extension of Hermitage Quarry close to Maidstone in 2013. This reserve, in addition to reserves currently available at Blaise Farm Quarry, are counted as those resulting in sales of land won hard rock in Kent and so monitored against the NPPF requirement of maintaining an at least 10 years crushed rock landbank for the Plan period.

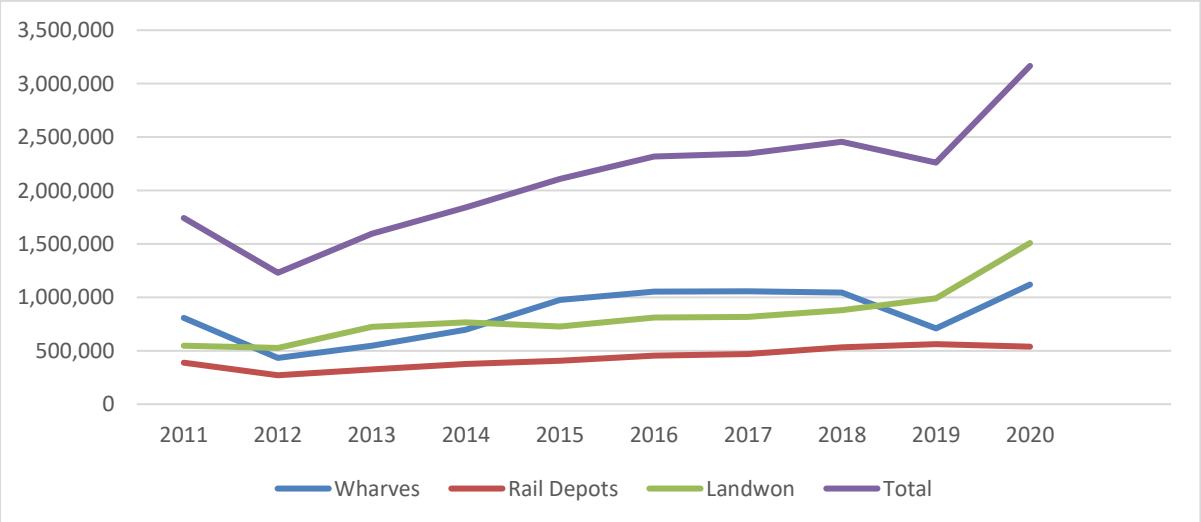
3.17 The AM2021 data (reporting 2020 sales) shows that the LAA Rate (taken as the 10-year sales average) has markedly increased in recent years and the remaining reserves available at the two operational sites have decreased. At present it is estimated that the

available remaining reserves are between a minimum of 15.4mt and 18.5mt (the exact figure is dependent on planning permission controls and other matters to do with the nature of the resource, rock density ratios of hard rock to Hassock [clay layers]) is being currently investigated to determine the most appropriate overall reserve figure). On this basis, the permitted LLA Rate landbank has a period between at least 18.55 years to a maximum of 22.3 years. The remaining adopted Plan period is 19 years (2021-2030 (9 years) plus 10-year end of Plan maintained landbank). Therefore, the apparent reduction of available overall reserves, coupled with the recent reported increase in sales does not appear to endanger the ability of the Mineral Planning Authority (MPA) of Kent to ensure a steady and adequate supply of land-won hard rock at this time, further work on the analysis of the permitted reserves is ongoing at this time to gain a greater resolution on this point. Table 5 (and Figure 5) below demonstrates the importance of this reserve to the supply of crushed rock in Kent, and how the landwon supply is supplemented by importation via wharves and railheads.

Table 5: Hard Rock Sales in Kent 2011-2020 (tonnes)

	Wharves	Rail Depots	Landwon	Total
2011	807,373	389,006	547,346	**1,743,725**
2012	432,677	270,586	526,281	**1,229,544**
2013	546,541	326,578	722,985	**1,596,104**
2014	697,421	375,938	767,198	**1,840,557**
2015	975,875	405,331	727,272	**2,108,478**
2016	1,052,971	452,751	811,935	**2,317,657**
2017	1,057,785	468,785	817,437	**2,344,007**
2018	1,043,721	533,110	880,063	**2,456,894**
2019	708,751	561,738	990,590	**2,261,079**
2020	1,119,202	538,458	1,508,239	**3,165,899**
Total	8,442,317	4,322,281	8,299,346	**21,063,944**
3-year average	**957,225**	**544,435**	**1,126,297**	**1,743,725**
10-year average	**844,232**	**432,228**	**829,935**	**3,829,808**

Figure 5: Hard Rock Sales in Kent, 2011-2020 (tonnes)



3.18 In the last two years landwon sales has overtaken importation via wharves, this is thought to be due to a local high demand reason as a consequence of preparing for the UK's exit from the European Union, where HGV parking areas have been developed close to the Port of Dover. It is not anticipated that the three-year sales value of 1.0+mtpa represents a long-term trend, that would erode the permitted landbank in this 'exponential' fashion over the remainder of the adopted Plan period. Sales from rail depots has shown a more moderate increase overtime and it is considered as essentially likely to remain in the order of the 0.40-0.50mtpa into the future, although the productive capacity is 2.38mtpa. The data shows that landwon and wharf importation are the dominant forms of supply at this time. The stated landwon hard rock per annum productive capacity is recorded as being 1.0mtpa, therefore 2020 sales, that exceed this, are likely to be exceptional, and do not represent a trend. However, it should be noted the operator has lodged a planning application (ref. https://www.kentplanningapplications.co.uk/Planning/Display/KCC/TM/0289/2020) with the County Council to enable an increase in HGV movements by modification of planning permission conditions, this application has not yet been determined as an acceptable change to the site's operation. Moreover, given that the productive capacity of Kent's wharves is some 5.60mtpa, and are running at only 54% capacity, there is flexibility in the ability to supply hard rock into the area and therefore maintaining landwon supply does not appear critical to Kent ensuring an adequate and steady supply of this aggregate. The crushed rock sales (from rail and sea imports) as a share of all aggregate importation into Kent in 2020 were 1.66mt out of 3.11mt overall. In 2019 the sales amounted to 1.27mt.

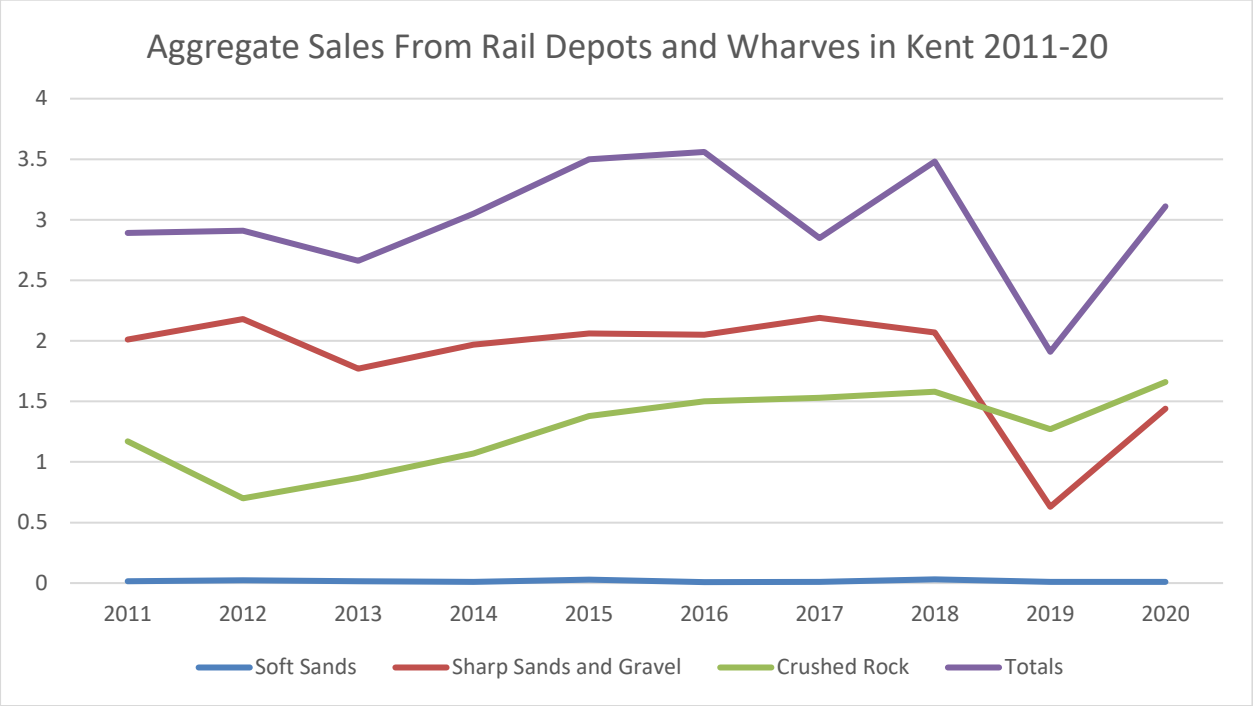
3.19 The 10-year average is 1.273mtpa only slightly higher, while the three-year average of 1.503mt is closer to importation between 2016 to 2018 indicating a recovery in crushed rock imports into Kent from the 2019 low of 1.27mt, when all importation fell. This is illustrated in Table 6 and graphically in Figure 6 below, they show the total aggregate (of all primary types) importation into Kent between 2011and 2020.

Table 6: Aggregate Sales from Rail Depots and Wharves in Kent, 2011-2020 (Million tonnes) including landwon and marine dredged materials in aggregated totals

Year	Soft Sands	Sharp Sands and Gravel	Crushed Rock	Totals
2011	0.0160	2.01	1.17	**2.89**
2012	0.0230	2.18	0.70	**2.91**
2013	0.0152	1.77	0.87	**2.66**
2014	0.0098	1.97	1.07	**3.05**
2015	0.0288	2.06	1.38	**3.50**
2016	0.0079	2.05	1.50	**3.56**
2017	0.0098	2.19	1.53	**2.85**
2018	0.0310	2.07	1.58	**3.48**
2019	0.0100	0.63	1.27	**1.91**
2020	0.0100	1.44	1.66	**3.11**
Last 3-year average	**0.0170**	**1.837**	**1.503**	**2.99**
Last 10-year average	**0.01615**	**1.380**	**1.273**	**2.833**

Source: Aggregate Monitoring Surveys, 2011-2020

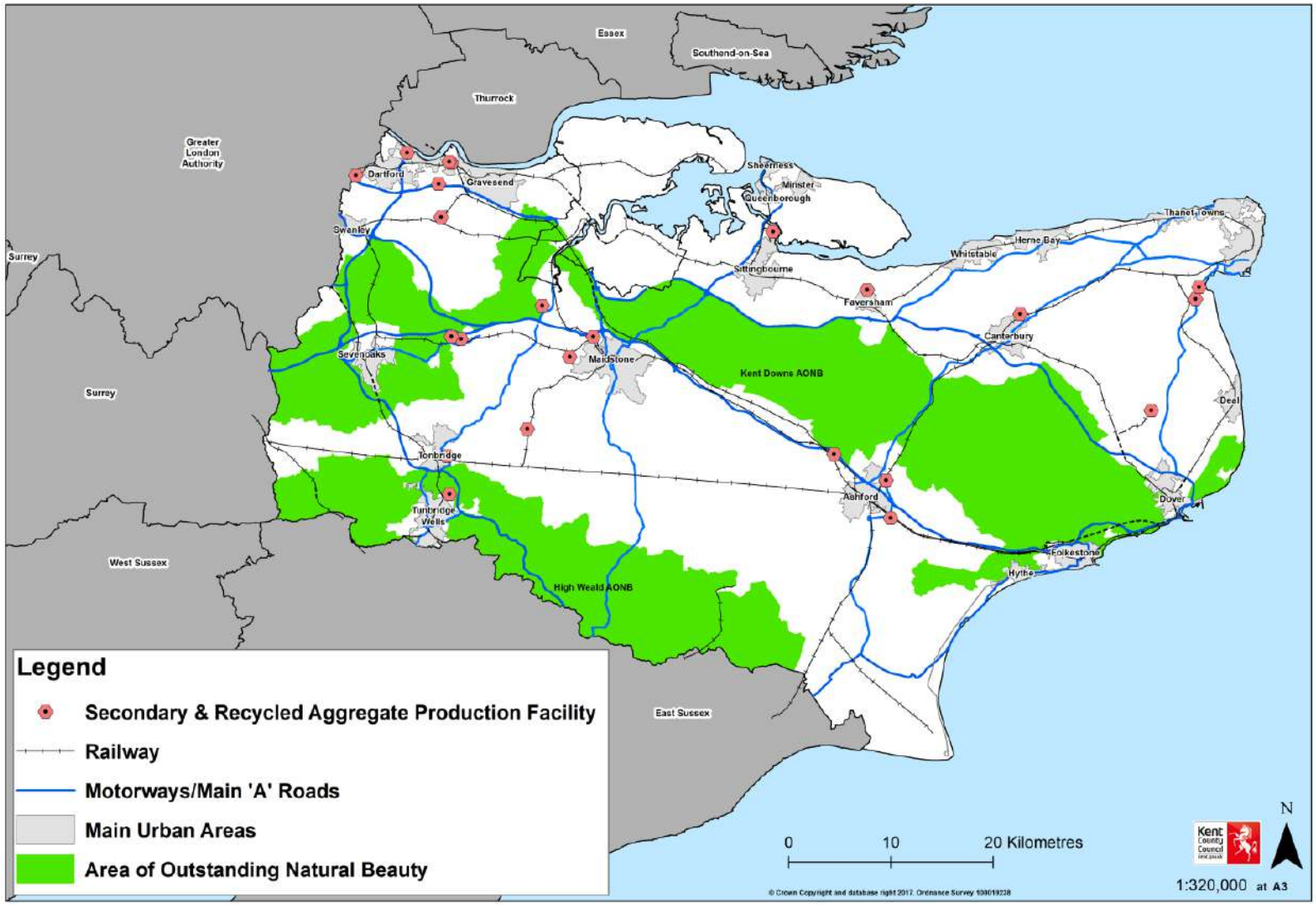
Figure 6: Aggregate Sales from Rail Depots and Wharves in Kent, 2011-2020 (Million tonnes) including land-won and marine dredged materials in aggregated totals



4 Chalk

4.1 There have been no sales of chalk as a graded aggregate in Kent in 2020.

Figure 7: Location Map of Active Recycled and Secondary Aggregate Sites in Kent



5 Recycled/Secondary Aggregates

5.8 Data pertaining to sales of recycled or secondary aggregates is collected annually as part of the surveys carried out by Mineral Planning Authorities. Figure 7 above shows the location of current active recycled sites in operation in Kent.

5.9 The sales figures of the recycled and secondary aggregate in Kent are shown in Table 7 below. Kent has 22 permitted sites engaged (some inactive in 2020) in producing recycled aggregates from the construction, demolition and excavation waste stream and secondary aggregates from industrial by-products. As was the case for AM2020 a significant number of producers of secondary aggregate did not participate in the survey. As a result, the reported sales data is likely to be significantly lower than actual sales that have occurred in 2020, this is not a unique position for AM2020. It is reasonable to assume that sales of materials from the recycled and secondary aggregate sector in Kent are over 1.0mtpa at this time. Moreover, the sector has an estimated reported productive capacity of 3.41mtpa for the recycled aggregates and 0.51mtpa for secondary aggregates giving a total of 3.92mtpa.

Table 7: Recycled and Secondary Aggregate Sales in Kent, 2011-2020 (Million tonnes)

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	3-year average	10-year average
0.774	0.688	0.836	0.729	0.845	1.029	0.906	0.757	0.419	0.909	**0.695**	**0.688**

Source: Aggregate Monitoring Surveys, 2011-2020

5.10 Of the total annual non imported production in the County of all types, primary and secondary/recycled combined the ‘artificial’ aggregates account for 30.45% (0.91mt) of the total. When considering all aggregate production, including the landwon, marine wharf and railhead imports (a total of 5.32mt recorded in 2020), the recycled and secondary sector amount to some 17.1%. This is an increase to that recorded in AM2020 (2019 data incorrectly reported in LAA2019 as 1.195mt) where the recycled and secondary aggregate share of the overall aggregate supply market was 0.419mt or 11.6%. This increase is significant as the 0.91mt production is a recovery to the levels seen in 2017. This essentially affirms that this sector of supply remains important, and 2019 sales was probably a short-lived pandemic lock-down related contraction.

6 Aggregate Importation

Marine and Landwon Sand and Gravel

6.8 Kent has 9 active/semi-active and 11 safeguarded wharves located on the coast of Kent, the locations of which are shown in figure 2 on page 15. There are a further three safeguarded wharves that are inactive at present, they are Sheerness, that is currently mothballed, Old Sun Wharf at Gravesend that is being used as a concrete manufacturing and batching facility, and Dunkirk Jetty at the Western Docks, Dover (capacity in the range of 0.1 to 0.35mtpa). This wharf has been completely decommissioned (as reported in AM2016) and has not been replaced. However, the site remains safeguarded by Policy CSM 6: Safeguarded Wharves and Rail Depots of the Kent Minerals and Waste Local Plan 2013-30.

6.9 The level of marine-won sand and gravel sales at wharves in Kent is shown in Table 8 below.

Table 8: Marine Sand and Gravel Sales in Kent, 2011-2020 (Million tonnes)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	3-year average	10-year average
Sales	1.844	2.014	1.743	1.938	1.874	1.788	1.773	1.809	0.608	1.440	**1.286**	**1.683**

Source: Aggregate monitoring surveys, 2011-2020

6.10 Kent's wharf capacity (with the loss of Dunkirk Jetty, Dover Western Docks, though the site remains a safeguarded by policy of the KMWLP) remains substantial, in the order of a theoretical 7.30mtpa, though it was reported to be 5.60mtpa in 2020. Sand and gravel imports via the wharves showed a marked decline in 2019, then a recovery to closer but still below the 10-year average of 1.683mtpa. See Figure 6 on page 32 that illustrates this graphically (though it should be noted that this graph includes rail depot as well as wharf sand and gravel sales). It is assumed that the uncertainty surrounding the UK's exit from the European Union was responsible for this observed rapid decline and recovery. The bulk of the sand and gravel imports are marine dredged in origin. Given that landwon supply of essentially similar resource is rapidly depleting in Kent this source will, it is assumed, become the main form of supply of this material into the future.

6.11 The marine deposits are mainly found in the English Channel and North Sea. These are defined sedimentary basins that are not being actively replenished by aggregate inputs, though they have a significant but finite, resource. The Crown Estate are responsible for licensing extraction from the seabed. It stated in 2012 (to the then Mineral Sites Plan, Preferred Options Consultation May 2012) the following:

- *Over 900 million tonnes of marine sand and gravel (aggregate) has been dredged from offshore seabed over the last 50 years and at least 1,250 million tonnes is available for sustainable supply of construction aggregate over the next 50 years and beyond. Currently marine sand and gravel supply some 20% of the county's demand.*

- *The marine aggregate resource available in the East Coast, Thames Estuary and East English Channel areas and which are used to supply Kent wharves is 994 million tonnes of which 31.25 million tonnes is permitted for extraction per annum. Kent wharves only received some 1.3 million tonnes (4.2% of total permitted per annum) in 2010 but increased in 2011 with 1.55 million tonnes (5%). There is therefore a long term viable and sustainable supply of marine dredged aggregate both for construction uses and for direct beach nourishment by vessel delivery.*

- *The current rate of extraction by all companies to all marine aggregate wharves in the UK and on the European mainland is some 45% of the quantities permitted per annum thus reinforcing the sustainability and long-term viability and requirement of marine aggregate wharves in Kent.*

6.12 The area of the overall resource that supplies Kent, was estimated as 99mt in 2011, and remains probably in the order of 88.95mt as of 2020 given the recorded landings in previous aggregate monitoring returns. The resource, therefore, is of a sufficient magnitude to supply Kent into the foreseeable future.

Crushed Rock Importation

6.13 The crushed rock sales (from rail and sea imports) as a share of all aggregate importation into Kent in 2020 were 1.66mt out of 3.11mt overall. In 2019 the sales amounted to 1.27mt. The 10-year average is 1.273mtpa only slightly higher, while the three-year average of 1.503mt is closer to importation between 2016 to 2018 indicating a recovery in crushed rock imports into Kent from the 2019 low of 1.27mt, when all importation fell. This is illustrated in Table 9 below shows the total aggregate (of all primary types) importation into Kent between 2011and 2020.

Table 9: Aggregate Sales from Rail Depots and Wharves in Kent, 2011-2020 (Million tonnes) including land-won and marine dredged materials in aggregated totals

Year	Soft Sands	Sharp Sands and Gravel	Crushed Rock	Totals
2011	0.0160	2.01	1.17	**2.89**
2012	0.0230	2.18	0.70	**2.91**
2013	0.0152	1.77	0.87	**2.66**
2014	0.0098	1.97	1.07	**3.05**
2015	0.0288	2.06	1.38	**3.50**
2016	0.0079	2.05	1.50	**3.56**
2017	0.0098	2.19	1.53	**2.85**
2018	0.0310	2.07	1.58	**3.48**
2019	0.0100	0.63	1.27	**1.91**

2020	0.0100	1.44	1.66	**3.11**
Last 3-year average	**0.0170**	**1.837**	**1.503**	**2.99**
Last 10-year average	**0.01615**	**1.380**	**1.273**	**2.833**

Source: Aggregate Monitoring Surveys, 2011-2020

6.14 Figure 8 below shows the primary aggregate importation (sales) into Kent 2011-2020. The marked reduction in 2019 and recovery in 2020 is clearly evident graphically. Figure 9 overleaf shows the rail depots in Kent, important sites for crushed rock importation.

Figure 8: Aggregate Sales from Rail Depots and Wharves in Kent, 2011-2020 (Million tonnes) including landwon and marine dredged materials in aggregated totals

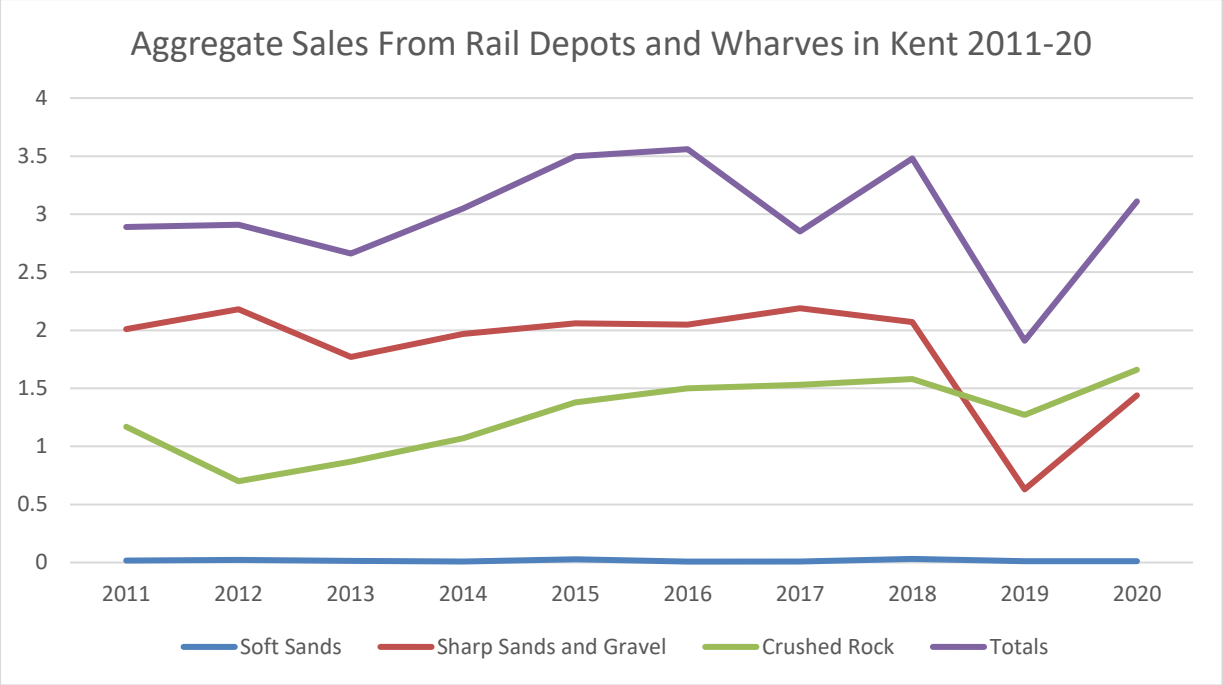
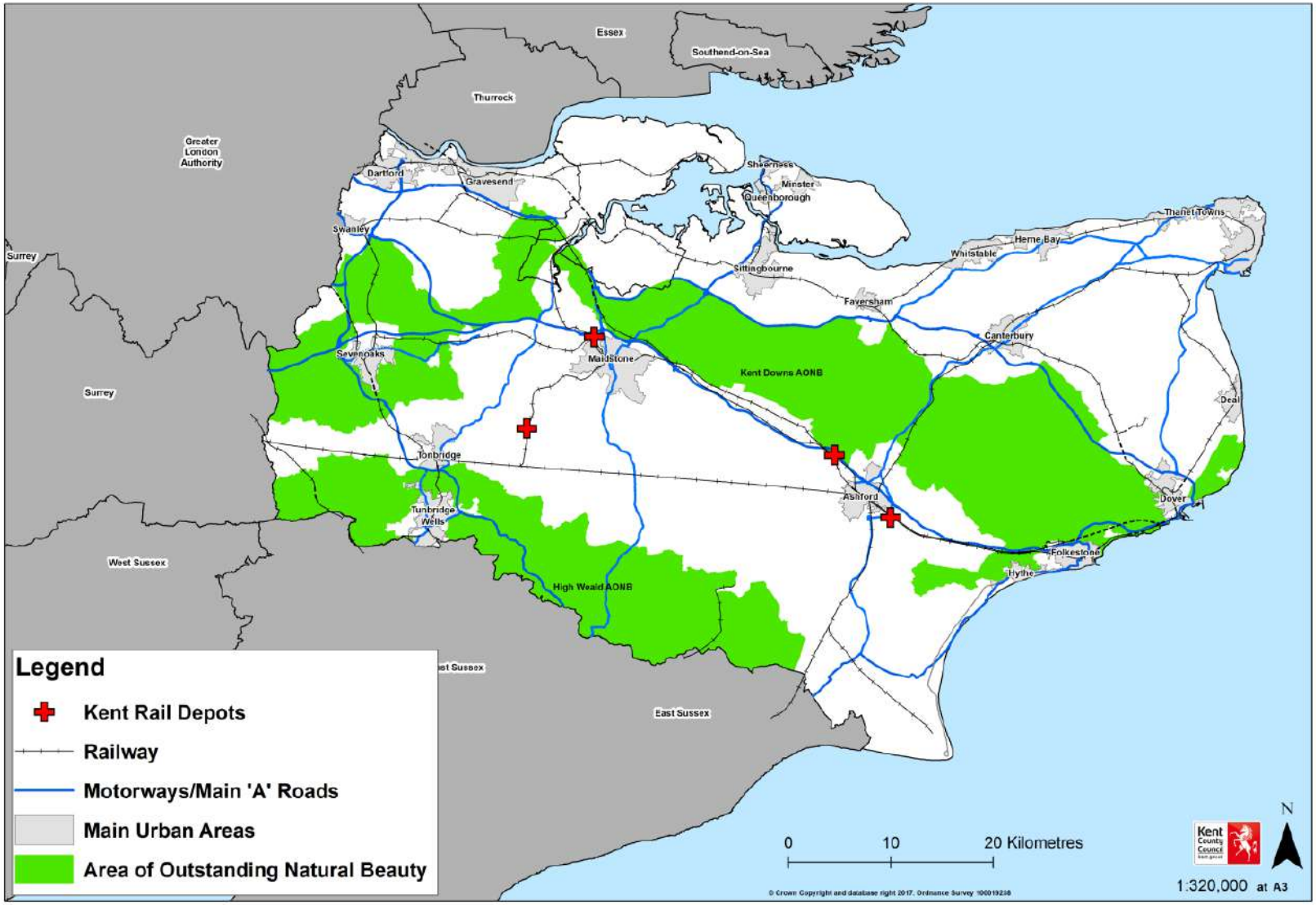


Figure 9: Location Map of Active Rail Depots in Kent, 2018



7 Total Aggregate Production in Kent in 2011-2020

7.1 During 2020 the total primary and recycled/secondary aggregate production (sales) (including imports) in Kent are shown on Table 10 below.

Table 10: Total Aggregate Production in Kent during 2011-2020 (Million tonnes)

Year	Soft Sands Land-won £	Soft Sands Imports	Sharp Sands & Gravel Land-won £	Sharp Sands & Gravel Imports $	Crushed Rock landwon	Crushed Rock Imports	Secondary/ Recycled Aggregates	Total
2011	0.44	0.0160	0.62	2.01	0.547	1.17	0.77	**5.85**
2012	0.39	0.0230	0.65	2.18	0.526	0.70	0.67	**5.40**
2013	0.48	0.0152	0.27	1.77	0.723	0.87	0.84	**5.00**
2014	0.29	0.0098	0.17	1.97	0.767	1.07	0.73	**5.02**
2015	0.48	0.0288	0.24	2.06	0.727	1.38	0.84	**5.77**
2016	0.51	0.0079	0.26	2.05	0.812	1.50	1.03	**6.14**
2017	0.52	0.0098	0.15	2.19	0.817	1.53	0.91	**6.09**
2018	0.49	0.0326	0.12	2.07	0.880	1.58	0.76	**5.83**
2019	0.42	0.0100	0.08	0.633	0.990	1.27	0.42	**3.61**
2020	0.39	0.0100	0.13	1.442	1.508	1.66	0.91	**5.32**
Total 2011-20	**0.44**	**0.1631**	**2.69**	**18.37**	**8.299**	**12.73**	**7.88**	**10-year average 5.40**
Last 3-year average	**0.433**	**0.0175**	**0.11**	**1.382**	**1.126**	**1.503**	**0.69**	**3-year average 4.92**
Last 10-year average	**0.441**	**0.01631**	**0.269**	**1.837**	**0.830**	**1.273**	**0.688**	

Source: Aggregate Monitoring Surveys, 2011-2020. $ denotes marine dredged and landwon sands and gravels via railheads and wharves. £ denotes any sales for constructional fill not included.

7.2 The data in Table 10 does not demonstrate actual consumption of aggregates within Kent from 2011 to 2020, as it is a reasonable assumption that a degree of exportation out of Kent has occurred in the same period. In addition, importation by road is not picked up by the most AM surveys during this period. The 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 and recently in 2019. Given the elapse of time (11 years) it would not be reasonable to place much reliance on the findings of AM2009 for future planning requirements, and the finalised national survey report on the 2019 movements are not yet available at the time of writing. Work on this matter was also commissioned in 2014.

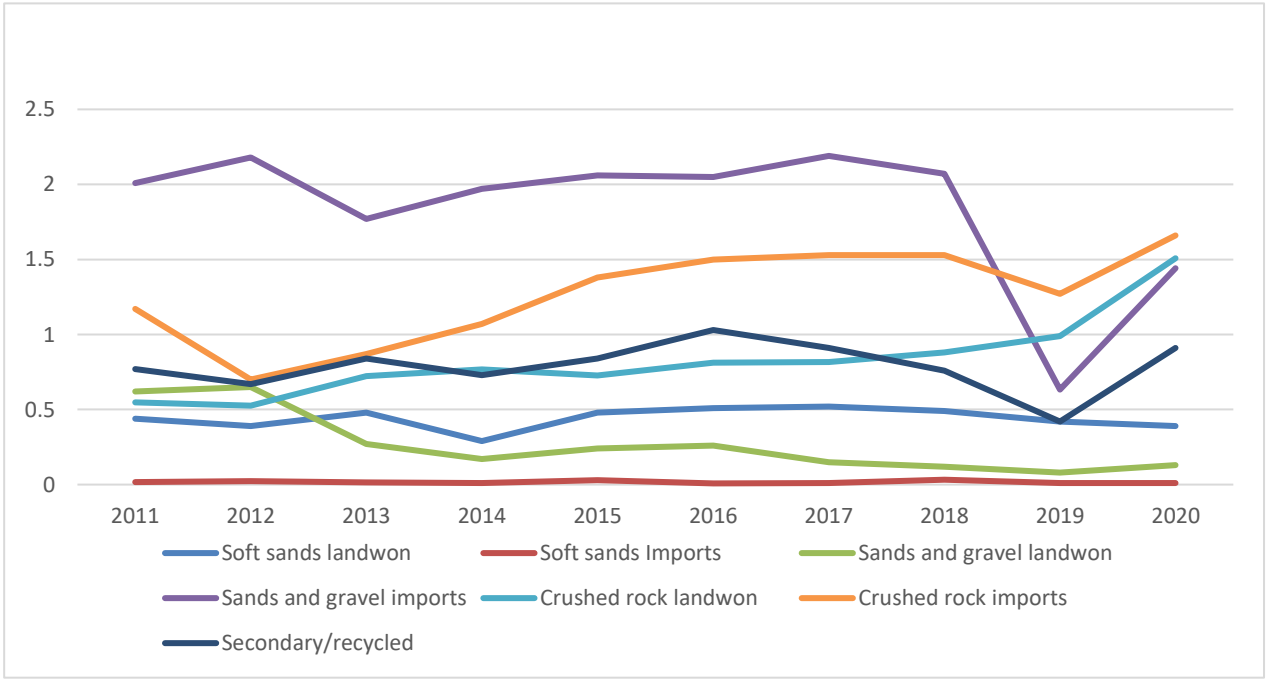
7.3 Whilst the data was unpublished (it is available from the British Geological Survey [BGS]) it showed that Kent consumes typically 80-90% of all the aggregate produced in Kent (both as land-won and the imports of sand and gravel and crushed rock) and 10-20% of

materials were exported to the wider South East. The data did not disaggregate between soft sand and sharp sands and gravels and thus has 'in built' limitations in how it can be used to determine what is happening with these different materials serving distinctly different markets for these aggregate materials. However, due to the relative scarcity of sharp and gravel reserves in Kent it is highly likely that exports of soft sand exceed those of any exports of land won sharp sand and gravel. The BGS 2019 data can be used to inform a national aggregate monitoring report and Kent's role in wider supply will be more objectively determined.

7.4 Imports of sharp sand and gravel in 2020 (1.442mt) was below the 10-year average of 1.817mt and crushed rock (1.66mt) in 2020 were greater than the 10-year average (1.273mt). The important observation is that, excepting soft sands, all sales of imported of primary aggregates is increasing.

7.5 Soft sand imports remain insignificant, landwon soft sand slightly contracted but not to any marked extent. The 10 and 3-year sales averages are comparable. Landwon sand and gravel is in depletion and landwon crushed rock sales have grown to 1.5mtpa and the 3-year average (1.126mtpa) is significantly greater than the 10-year sales average of 0.83mtpa. Similarly, recycled/secondary aggregates showed significant increase to 0.91mtpa in 2020, higher than the 10-year average of 0.688mtpa. Importation across all primary aggregate types have increased, though soft sand imports appear static and insignificant at 10,000 tonnes. Imports of sharp sand and gravel in 2020 (1.442mt) was below the 10-year average of 1.817mt and crushed rock (1.66mt) in 2020 were less than the 10-year average (1.273mt). Overall aggregate sales in Kent were, in 2020, 5.32mt. A marked recovery from 2019 sales that amounted to 3.61mt overall, a 31% recovery increase. Figure 10 below shows the separate aggregate type sales in Kent 2011 to 2020 graphically.

Figure 10: Total Aggregate Production in Kent during 2011-2020 (Million tonnes)



7.6 The economic uncertainty caused by the UK's exit from the European Union (EU) may explain why in 2019 aggregate importation and the utilisation of recycled and secondary aggregates experienced contraction. Landwon soft sands also experienced sales contraction, but of a lower degree of magnitude. The landwon sales of crushed rock, for the reasons given above, were the beneficially of very local circumstances in Kent.

8 Future Aggregate Supply

8.1 Housing growth is linked to aggregate requirements, as are infrastructure projects and infrastructure maintenance. Though a direct relationship between sales and construction in one Mineral Planning Authority area is not probable, given imports and exports that also occur. Though an examination of the main construction predictions can indicate whether aggregate needs are likely to grow or decline over a given Plan period. The November 2020 housing targets and infrastructure projects (anticipated until 2030 plus) are shown on Table 11 below.

Table 11: Levels of Planned Housing and Infrastructure in Kent excluding Medway

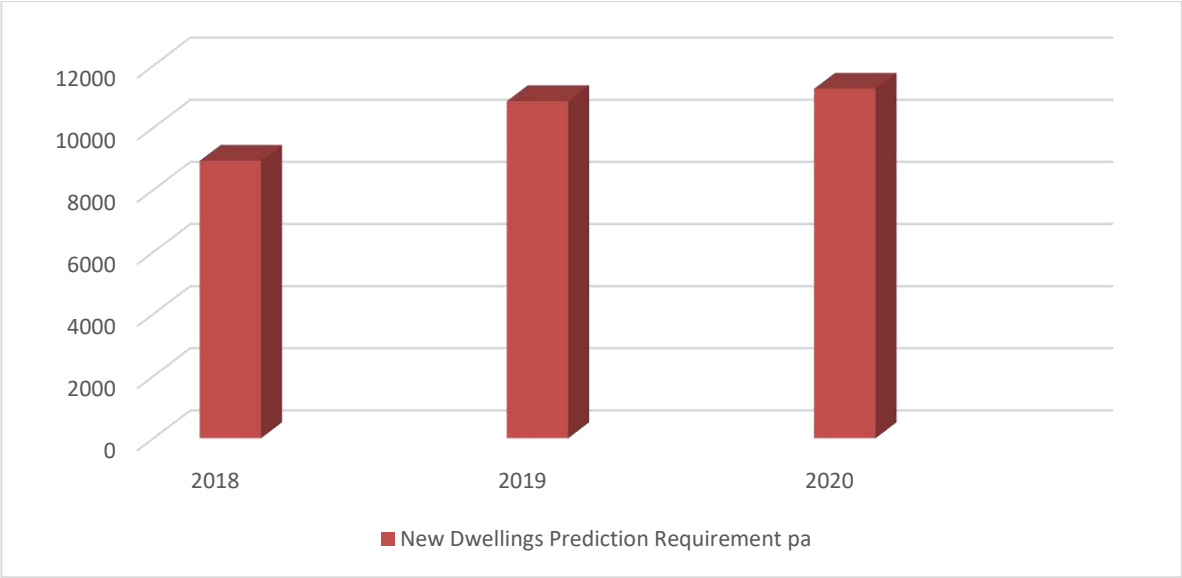
Demand Generation	**Approximate Timelines**
Dwellings	In LAA2018 it was reported that in Kent **178,600** additional homes between 2011-2031 or 8,930 per annum. This was revised by a 'Housing Trajectory' based on information provided by each local authority in Kent in November 2019. It concludes that there is to be **217,030** dwellings built between 2018 and 2038 in Kent and Medway, or 10,851 per annum. This has been revised in November 2020 and increased to **225,000** dwellings to be required between 2019 and 2039, 11,250 per annum. An increase of 3.5% over the 2019 estimation. However, in addition the Ebbsfleet Garden City (a planned development of up to **15,000** homes and 45,000m^2 of commercial floor space). The KMWLP period is 2021 to 2030, and then a maintained landbank of 7 years for sands and gravels and 10 years for hard rock. Thus, there is a need to maintain a 'steady and adequate' supply of aggregates until 2037-40. Essentially matching the November 2020 Housing Trajectory.

Education	**2020-24** Primary 12.8 FE Secondary 58 FE	**2024-28** Primary 26.6 FE Secondary 21 FE	**2028-30** Primary 11 FE Secondary 8 FE	**2030-38** No data
Significant Infrastructure	Up to 2030 in Kent A2 Bean and Ebbsfleet Junctions Lower Thames Crossing Bifurcation of Port Traffic and Ports Expansion (Dover significantly, including potentially Large Local Major (LLM) funding schemes for A229 Solution to Operation Stack and Overnight Lorry Parking Rail improvements to Thanet			

8.2 The planned level of dwellings has increased since LAA2019, an estimated 225,000 additional homes between 2019-2039 in late 2020. Though the timeline has now reached 3039, the earlier prediction had been a revision to 217,300 (in 2019) from 187,200 dwellings required between 2018 and 2038 (just beyond the Mineral Sites Plan of 2030 plus 7) in 2018. Figure 11 overleaf shows this graphically. Note that the graph is showing the per annum (pa) predicted requirements for different timelines, 2018 was for 2011-31, in 2019 this shifted to 2018-38 and the 2020 prediction pa requirement is for 2019-39. Essentially the pressure on housing growth, while evident is not markedly changing in these timelines, that largely coincide with the adopted Plan's remaining time span of 2021-30 plus the 7 maintained landbank for sands and gravel 10 maintained landbank for crushed rock.

[7] FE denotes Form Entry

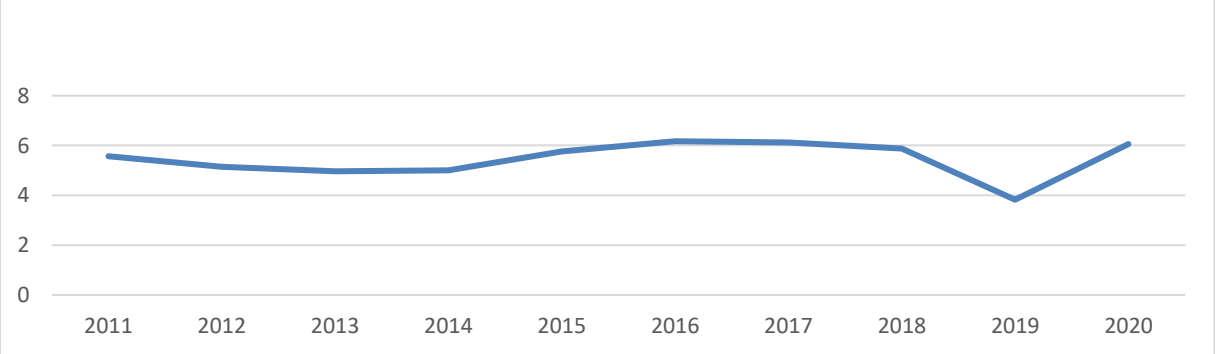
Figure 11 : New Housing Growth Per Annum Requirement Predictions in Kent



8.3 In addition to the above the Ebbsfleet Garden City (a planned development) will add a further 15,000 homes to the overall total. While this represents an increase, that will require an increase in aggregate supply, the overall magnitude of housing growth compared to previous monitoring periods is not markedly different.

8.4 The demand projections in infrastructural development, as reported in LAA2018 have not significantly altered. They include port expansion, east Kent rail connections and major highway schemes (A2 junction improvements) additional to the planned Lower Thames Crossing. The potential London Resort development area is identified in the emerging Dartford Local Plan (Issues and Options) consultation of January 2020 for mixed use and an ecological improvement area. Arguably this change would result in lower aggregate demand. As stated in pervious LAA monitoring reports, infrastructure maintenance would have to be commensurate with needs to maintain the network and ensure new schemes coming on stream by 2030-32 are also integrated and maintained. The demand for aggregates in Kent for house building and construction and concrete products for infrastructure and major projects is showing a market recovery from a 2019 fall off of sales of most aggregate types. This is graphically shown in Figure 12 below.

Figure 12: Total Aggregate (Primary and Secondary) Sales in Kent 2011-2020 (mt)



8.5 The curve in Figure 12 essentially demonstrates that 2019 was an 'exceptional' and temporary event, with sales falling to just under 4.0mtpa, most probably due to pre-Brexit trading uncertainty. The rapid recovery in 2020 back to 6.0mtpa may be representing how this 'uncertainty' dissipated once the nature of the UK's departure from the European Union was made more definitive as of late 2019. It is of note that landwon crushed rock did not 'suffer' this uncertainty. Though the aggregated curve in Figure 8 does not illustrate this feature in overall Kent sales.

8.6 For the future, and the remainder of the Plan period, it is considered that use of modelling to predict the actual quantum of demand from this sales recovery upturn is unreliable at the County Council scale. The observed 'uncertainty due to Brexit' effect in 2019 and the ongoing Covid19 pandemic effects (that may be also changing sales behaviour in response to demand being affected by pandemic alleviation measures (lockdowns) in 2020 and into 20210, the last three years of monitored sales data is considered unreliable as an indicator of future demand. It remains the County Council's position that the use of the latest 10-year sales averages is the most reliable metric for considering demand over the remaining Plan period, as this will continue to average out the inevitable fluctuations in overall supply that has and will occur.

Available Permitted Reserves and Landbanks

8.7 The 2020 data (AM2021) collected for Kent shows the reserves for the following aggregate mineral types *as of the end* of 2019:

- Soft sand 9,341,000 tonnes or 9.30 million tonnes
- Sharp sands and gravel 2,779,500 tonnes or 0.278 million tonnes
- Hard rock, confidentiality has been waived in LAA2021 by the operator, the overall estimation of permitted reserves (two sites, Blaise Farm and Hermitage Quarry) is a matter of ongoing analysis at the time of writing, it is estimated that they range from a minimum of 15.40mt to a maximum of 18.50mt.

8.8 These reserves are the estimates of all the respective aggregate mineral sites (soft sand, sharp and gravel, hard rock) operating in Kent for the end of 2020. Therefore, it is recognised that the data in 2021 needs to be recast to reflect almost another year of production. The magnitude of which will not be known until the data for 2021 is collected by AM2022. In the meantime, the reserves can be approximated for planning policy formulation purposes and determining planning applications and appeals by further reducing reserves by assuming at least the most recently recorded sales figures and the last 10-year averages.

Soft Sands

8.9 With regard to the soft sands landbank, the 2011-2020 ten-year average is 441,038 tonnes per annum, this is down by 6.4% from that reported in LAA2019. The three-year trend has changed from displaying an upturn in 2019, as this has also decreased to from 501,924 tonnes per annum to 434,352 tonnes per annum in 2020. The 10-year

average (Kent's LAA Rate) gives a landbank of 21.2 years based on a reserve of 9.30 million tonnes. Tonnes. The recorded sales since 2011 are shown on Table 12 below.

8.10 Soft sand sales in 2020 were 392,038 tonnes, down very slightly from the 417,027 tonnes recorded in 2019. The previous slight important point to note that the upturn from the low sales of 289,087 tonnes (recorded in 2014), first noticed in 2015-16 that appears to be levelling off at the 0.5mtpa mark has not continued. There appears now to be a year-on-year slight decline from 2018 to 2020. Why this is occurring is unclear at this time, it may be due to a combination of the previous uncertainty regarding the UK's exit from the European Union and in early 2020 cessation of construction activity during the Covid-19 pandemic 'lock downs' (March to June 2020). Further monitoring will determine if demand returns, and sales regain the levels seen in 2015-2018. Figure 12 below details the soft sand sales 2011-2020.

Table 12: Landwon Aggregates Sales - Soft Sands 2011-20

Year	Tonnes
2011	438,909
2012	387,746
2013	483,165
2014	289,087
2015	480,215
2016	506,663
2017	519,414
2018	493,179
2019	417,027
2020	392,850
Average last 10-years (2011-20)	**441,038**
Average last 3-years (2018-20)	**434,352**

Sharp Sands and Gravel

8.11 The marked fall in overall reserves from 3.18mt in 2019 tonnes to 2.78mt tonnes in 2020. In 2020 there was no replenishment in the form of additional planning permissions. Correspondingly available reserves are continuing to decline.

8.12 Recorded sales in 2020 were 132,231 tonnes, in 2019 they markedly fell to just 83,709 tonnes. The ten-year average sales of 270,309 tonnes as of 2020 is the lowest recorded. The landwon sharp sand and gravel landbank based on the last 10-year sales (the Kent LAA Rate) average is currently 10.29 years. However, given that this is a depleting resource this landbank period (below the requirements of the adopted Plan) is more of a reflection of declining sales than a landbank with sufficient reserve to meet needs for the next decade, this is increasingly being met by imports. Table 13 overleaf shows recorded tonnages of sales since 2011-20.

Table 13: Landwon Aggregates Sales Sharp Sands and Gravels 2011-20

Year	Tonnes
2011	619,855
2012	652,285
2013	273,000
2014	172,672
2015	239,366
2016	259,550
2017	151,165
2018	119,259
2019	83,709
2020	132,231
Average last 10-years (2009-18)	**270,309**
Average last 3-years (2016-18)	**111,733**

Crushed Rock

8.13 Hard rock sales were restricted given that Kent production from the landwon resource is represented by only two sites and the SEEAWP protocol required at least three sites to aggregate sales and reserves and maintain confidentiality. The operator has waived that requirement in order for the matter of future supply to be fully understood. The sales shown in Table 11 below detail the history of landwon crushed rock sales for the first time an LAA report. It can be seen that they have significantly increased year on year. With 1.5imt sold in 2020, far more than in any year since 2011. The reason for this may well be due to very local circumstances that exit in Kent. The need to supply crushed rock to construct HGV parking areas in the proximity of the Port of Dover in preparation for the UK's exit from the European Union probably explains these sales increases. Whether this rate of sales growth will level off or reduce again back to the 0.50mt to 1.0mt per annum range will be revealed by future monitoring.

8.14 The hard rock permitted landbank is a matter of ongoing analysis. Indications are it may now range from 15.4mt to 18.5mt in total, significantly less than the estimate in LAA2018, when it was thought that over 45.66 million tonnes were available at Hermitage Quarry and Blaise Farm Quarry combined. Whatever the correct level of workable reserves that are presently available, it is concluded that they are no longer significantly greater than 7.8 million tonnes that was the LAA Rate calculated landbank required to meet the NPPF 10-year requirement. The use of the LAA Rate of 0.83mtpa (the 10-year average) gives a NPPF maintained landbank of between 18.55 to 22.30 years. Essentially sufficient to meet the adopted Pan's needs to 2030 (plus 10 years) from 2021. Table 14 overleave details the crushed rock sales 201-2020.

Table 14: Landwon Aggregates Sales Crushed Rock 2011-20

Year	Tonnes
2011	547,346
2012	526,281
2013	722,985
2014	767,198
2015	727,272
2016	811,935
2017	817,437
2018	880,063
2019	990,590
2020	1,508,239
Average last 10-years (2009-18)	**829,935**
Average last 3-years (2016-18)	**1,126,297**

Future Potential Requirements and Resources

8.15 The County Council adopted the Mineral Sites Plan in September 2020. It identifies the required future resources to ensure a steady and adequate supply of minerals until 2030 (and the 7- and 10-year aggregate landbanks for sands and gravels and crushed rock respectively). There was a Call for Sites exercise in late 2016 into early 2017 resulted in several sites including those containing aggregates and other mineral types coming forward, though none for hard rock that could be crushed to give rise to a graded aggregate). The County Council was proceeding on the basis that there was a requirement to identify additional potential reserves of soft sand and sand and gravel, but not hard crushed rock reserves. The latter were determined to have sufficient reserves for the remainder of the Plan period and beyond. The County Council initially assessed the sites promoted that accord with the objectives of the adopted Kent Minerals and Waste Local Plan 2013-30. This exercise identified those sites that could go forward to a Mineral Sites Plan Options (Regulation 18) public consultation (19th December 2017 to 29th March 2018).

8.16 The nine sites that were part of the Regulation 18 Options consultation (two for soft sands and seven for sand and gravels, as set out on Table 12 below) were then subject to a Detailed Technical Assessment process. The findings of which informed the Pre-submission Mineral Sites Plan Regulation 19 publication and consultation in early 2019. Three sites were subsequently allocated in the Submission Kent Mineral Sites Plan in 2019. Table 15 overleaf details the sites considered by this local plan process.

Table 15: Mineral Sites Plan (Regulation 19 stage) Sites for Land-won Aggregates

Site	Amount (mt)	Aggregate	Proposed Allocation in Kent Mineral Sites Plan	Allocated in adopted Kent Mineral Sites Plan
Chapel Farm, Lenham	**3.2**	**Soft sand**	**Yes**	**Yes**
West Malling Sandpit, Ryarsh	3.1	Soft Sand (and 0.5mt of Silica sand)	No	No
Central Road, Dartford	0.9	Sand and Gravel	No	No
Joyce green Quarry, Dartford	1.5	Sand and Gravel	No	No
Lydd Quarry and Allen's Bank Extension, Lydd	3.1	Sand and Gravel	No	No
Moat Farm, Five Oak Green, Capel	**1.5**	**Sand and Gravel**	**Yes**	**Yes**
Postern Meadows, Tonbridge	0.23	Sand and Gravel	No	No
Stone Castle Farm Quarry Extension, Hadlow/Whetsted	**1.0**	**Sand and Gravel**	**Yes**	**Yes**
The Postern, Capel	0.5	Sand and Gravel	No	No

8.17 The Mineral Sites Plan was subjected to Independent Examination Hearings by an Inspector of the Planning Inspectorate during October 2019. A number of Main and Additional Modifications were promoted and consulted[8].upon as part of the Mineral Sites Plan examination. The Mineral Sites Plan was not modified to include any additional sites or any further reduction in sites from the three allocations proposed as shown on Table 12 above. The Inspector's report was received by the County Council in the Spring of 2020, with the fully adoption by the County Council occurring in September 2020. None of the sites allocated have yet received planning permission, nor have any applications been lodged for their development to date.

Sand and Gravel

8.18 With regard to the sharp sands and gravel reserves, now at 2.78 million tonnes it is recognised that this landbank for sharp sands is over the NPPF 7 year minimum (this being 1.89 million tonnes based on a ten-year average of 0.270 million tonnes per annum sales) remains essentially artificial. The observed fall in sales since 2016 was significantly due to the production of a notable site moving over the Kent administrative boundary into East Sussex. Production continued and served both a Kent and East Sussex market, and now the AM return for 2020 reflects that actuality, though for several AM monitoring reports was not included. However, the matter is now somewhat academic. Reserves are 2.78 million tonnes, and the real rate of need is in all probability higher than the LAA Rate of o.270mtpa based on the 10-year sales average. Therefore, it remains the case that the need to plan for additional resources is justified. However, it should also be noted that the requirements of the adopted Kent

[8] https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/planning-policies/minerals-and-waste-planning-policy#tab-2

Minerals and Waste Plan (Policy CSM 2), that were to be addressed in the Kent Mineral Sites Plan require significantly greater quantities of sharp sand and gravel aggregates than the combined reserves of 2020 and the allocated sites in the Mineral Sites Plan, now adopted, though only *"…while resources allow*."

8.19 This being due to the recognition that the landwon sands and gravels are a depleting resource in Kent. Therefore, the additional 2.5 million tonnes (two sites) that were allocated in the Mineral Sites Plan would not meet the KMWLP identified needs, and the remaining shortfall is to be made from alternative resources such as secondary and recycled material and marine dredged supply. The reasons for non-allocation of all the promoted Option sites including those promoting sharp sand and gravel are detailed in the Mineral Sites Plan-Site Assessment Document (document ref. KCC/SP41) found in the Submission Documents (May 3 May 2019) of the Examination Documents Library[9]. The essential position considered by the Independent Examination of the Mineral Sites Plan has not altered, the sand and gravel resources are depleted of sustainable resources to address the need identified by the KMWLP and other resources will now increasingly become more important in supply to meet need.

Soft Sands

8.20 In regard of the soft sand requirements, the existing reserves since those reported in 2019 has increased to 9.34mt compared to 7.8mt previously reported in 2019. This is due to revaluation, not from ne planning permissions, this gives a 21-year landbank at this time. The 10-year average has reduced, this and the expanded reserve base means that there are sufficient reserves to more than meet the soft sand need over the Mineral Sites Plan period (up to 2030+7). The requirement based on 16 years of the remaining Plan period in total; the following calculation demonstrates the way the Plan requirement is calculated:

10-year average figure x Years covered by the plan (16 years, 2021 to 2030 plus a 7-year landbank at the end of the Plan period) - Existing Permitted Reserves (estimated as the 2020 reserves minus one year of production to give a 2021 reserve figure) = Requirement tonnage to be provided over the remaining Plan period.

Estimated permitted reserves have been calculated as follows:

Reserves as of end of 2020 = 9.34mt

Available reserves by the end of 2021 would be reduced by 1-year equivalent extraction (using the 10-year sales average of 0.441mt for 2021 extraction)

Available reserves at end of 2021: 9.34 – 0.441 = 8. 899mt

[9] https://consult.kent.gov.uk/portal/second_call_for_sites_2016/document_library

Therefore:

Plan requirement (0.441 x 16) = 7.056mt

Available reserves 8.899mt minus Plan requirement (of 7.056mt) gives a surplus of 1.843mt above the Plan requirement.

8.21 However, the observed fall in sales that is depressing the LAA Rate may not be permanent. With a return to 0.50+mtpa type sales levels this surplus over the remainder of the Plan period would be reduced, correspondingly increasing the quantity of soft sand to be held as reserves to meet the NPPF requirement. Further monitoring over the life of the Plan will demonstrate if sales and thus the LAA Rate again change, and/or if reserves again alter due to revaluation.

Crushed Hard Rock

8.22 Given the past estimates of the consented reserves of hard (crushable) rock of the Hythe Formation in Kent being extensive there was no need for a consideration of any future supply needs in the Mineral Sites Plan. Now that the nature of the reserve base, in terms of its recent marked decline, and the significant increase in sales the matter of the life of the landbank and whether further resources will need to be identified over the remaining Plan period (2021-30 plus 10 giving a total of 19 years) should be considered.

8.23 The adequacy of the calculated landbank given the range of the permitted reserves are as follows:

Landbank with low range reserves of 15.40mt

Available reserves by the end of 2021 would be reduced by 1-year equivalent extraction (using the 10-year sales average of 0.830mt for 2021 extraction)

Available reserves at end of 2021: 15.40 – 0.830 = 14.57mt

Therefore:

Plan requirement (0.830 x 19) = 15.77mt

Available reserves 14.57mt minus the Plan requirement (of 15.77mt) gives a deficit of 1.2mt below the Plan requirement.

Landbank with high range reserves of 18.5mt

Available reserves by the end of 2021 would be reduced by 1-year equivalent extraction (using the 10-year sales average of 0.830mt for 2021 extraction)

Available reserves at end of 2021: 18.50 – 0.830 = 17.67mt

Therefore:

Plan requirement (0.830 x 19) = 15.77mt

Available reserves 17.67mt minus the Plan requirement (of 15.77mt) gives a surplus of 1.9mt above the Plan requirement.

8.23 Given the Plan length remaining (until 2030 plus 10 years) there are no compelling grounds for identification of further resources, as Mineral Site Plan allocations for hard (crushed) rock for the remaining adopted Plan period. However, the County Council is in discussion with the operator at this time regarding remaining reserves and the nature of the material as a source hard crushed rock to meet objectively assessed needs.

9 Productive Capacity

9.1 The monitoring in 2021 (AM2021 to gather 2020 data) included productive capacity, this was first done was in 2016. The understanding of capability of sites, through capacity, is a tool to be used to assist planning for future changes in demand. The results of the last two years of capacity monitoring are shown in Table 16 below.

Table 16: Total Sales and Estimated Production Capacity 2020 (million tonnes per annum)

For year 2020	Sales (mt)	Productive Capacity (mtpa)	% Sales/ Production
Land-won Aggregate			
• *Soft Sands*	392,850	1.145mtpa	34.3%
• *Sharp Sands and Gravels*	218,670	0.85mtpa	25.6%
• *Crushed Rock*	1,508,239	1.0mtpa	150.8%
Wharves	1,119,202	5.6mtpa	19.98%
Rail Depots	573,597	2.38mtpa	22.50%
Recycling/Secondary	909,703	4.0mtpa	22.72%

Source: Aggregate Monitoring Survey, 2020 and previous wharf capacity work (2010) undertaken to support the adopted Plan

9.2 This is the fourth year this data has been collected. It is recognised that capacity information will become increasingly important in future years, particularly in relation to wharves and rail depots. The study[10] by the Mineral Products Association into future aggregate requirements suggests that nationally there could be a decrease in the demand for land-won aggregates over time, as the land-won resource depletes (this is arguably occurring for sharp sand and gravels within Kent) and is substituted significantly by marine-won aggregates. Kent still has still has significant unused capacity in that wharfage, as it is operating at approximately 20% capacity at the end of 2020.

9.3 Rail importation has even more potential to expand, with some 77.5% of available capacity being unused. It remains imperative that the capacity of wharves and rail

[10] Long-term aggregates demand & supply scenarios 2016-30, Mineral Products Association (2017)

depots in Kent continue to be safeguarded, such that their operational capacity can ramped up as necessary as the land-won sands and gravels are understood to be depleting. The secondary and recycled aggregates are showing a decrease in sales, and there is significant capacity to be further utilised if sufficient market demand ramps up production in this sector.

9.4 Landwon soft sand extraction capacity remains significantly below its full potential, that and the recent expansion of reserves, will enable this important mineral resource to respond to any uplift in future demand.

9.5 Landwon hard rock extraction is now about the stated productive capacity of the effective planning permissions at this time. This is seen as a potentially 'exceptional' event due to very local circumstances and not necessarily indicative of future activity in this sector of aggregate supply.

10 Overall Conclusions of the Local Aggregate Assessment

10.1 This LAA is based upon data for 2020. It highlights that Kent is producing slightly more aggregates overall in 2019 that demonstrated a significant fall in that year (3.61mt as opposed to 5.32mt in 2020). However, the difference is considered to be the due to uncertainty that existed in 2019 due to the impending departure of the UK from the European Union. Thus, this is considered as unlikely to bee repeated in future monitoring.

10.2 The landwon sharp sands and gravels continue to decline as a share of overall supply, and the importance of importation, primarily via wharves, appears now set to be the pattern for future supply of this material.

10.3 The landwon soft sands have significant remaining capacity headroom and reserves have expanded on revaluation. Thus, if sales again increase to the 0.50mtpa and above rate the ability to maintain a steady and adequate supply over the remaining Plan period does not appear uncertain at this time. Importation of soft sands remains essentially insignificant in overall supply.

10.4 Landwon hard (crushed rock) has undergone a marked change from the position reported in pervious LAAs. The landbank has significantly reduced. At present the full technical reasons for this remain unclear. The rate of extraction in 2019 and into 2020 has significantly increased. While there appears to be sufficient reserves for the remainder of the adopted Plan period, future monitoring will demonstrate if the current rates of extraction are indeed an 'exceptional' period based on very local, and temporary circumstances. Importation of crushed rock have also increased in 2020, though this appears to be a result of a recovery from the 2019 marked downturn in sales to historically observed range of 1.40 to 1.50mtpa as seen since 2015.

10.5 Recycled and secondary aggregates also demonstrated a marked fall in sales in 2019, and by 2020 these had returned to the more historically observed level of just below 1.0mtpa.

10.6 The importance of safeguarding wharves and rail depots remains an important element in maintaining overall supply into the future, and this is particularly the case with the landwon sharp sands and gravels that have now, to all intents and purposes become of minor importance in overall supply terms in Kent.