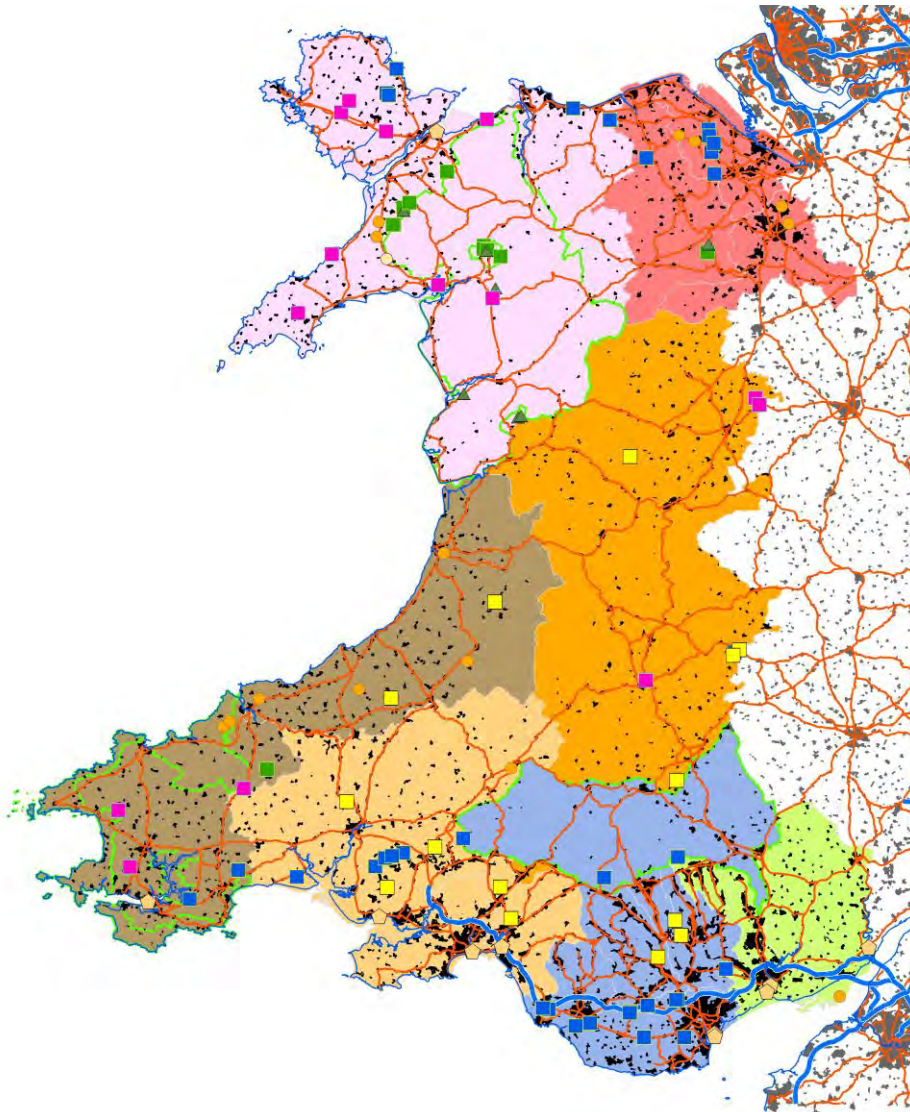


Regional Technical Statements

for the North Wales and South Wales

Regional Aggregate Working Parties

- 2nd Review -
(Main Document)



Final - September 2020

North Wales
Regional
Aggregates
Working Party



Llywodraeth Cymru
Welsh Government

South Wales
Regional
Aggregates
Working Party

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Foreword

Since the original Regional Technical Statements (RTS) were issued in October 2008, forward planning for minerals has formed an intrinsic part of the Local Development Plan (LDP) process. The LDPs have benefited from the clear direction the RTS has provided on the sustainable approach to mineral development in Wales. There is almost full LDP coverage and all have embraced the principal objectives of the RTS to provide adequate reserves of aggregate for the construction and other industries in the most sustainable manner reasonably achievable.

It is particularly satisfying to see certain elements of the RTS, such as the safeguarding of mineral resources, now enshrined in development plans to ensure such resources are protected for future generations. More importantly, new allocations, defined areas of search and preferred areas have also been incorporated into some LDPs.

As was the case with the First Review of the RTS, this Second Review has been prepared, on behalf of the North Wales and South Wales RAWPs, by Cuesta Consulting Ltd., with advice and peer review from a Steering Group which included representatives from both Regional Aggregate Working Parties (RAWPs), the Mineral Products Association and industry, Natural Resources Wales, officers from local government and the Welsh Government. The Steering Group provided vital technical information, updating and refining that given in previously published RAWP reports and in the original Regional Technical Statements. The Steering Group also provided or confirmed expert judgement, where this was called for in situations where precise factual detail was not available, and has provided a consensus endorsement of the various recommendations.

The Second Review RTS covers the 25 year period up to 2041, but further reviews will still be initiated every 5 years, in accordance with MTAN1, to ensure that the RTS can react to any significant change in circumstances. This will ensure that any major changes to supply and demand can be addressed and the RTS changed or modified as appropriate. This process underpins the plan, monitor and manage approach to aggregate planning in the UK. The new edition will continue to be considered as a strategic document for the purposes of Development Plan preparation and may be a material consideration when determining planning applications. We remain confident that all authorities will continue to embrace and implement the recommendations of the revised RTS in their development plans on a voluntary basis, and that Welsh Government (WG) will not need to have recourse to its powers of direction.

We would like to take this opportunity to gratefully acknowledge the considerable amount of work that has been undertaken to complete the Second Review, which includes the significant efforts of the RTS steering group and the diligent work of the consultant appointed to undertake and complete the work on schedule on behalf of the Welsh Government, and the participation of key stakeholders.

The Second Review has built on the foundation of the original RTS and the First Review and has been further refined and now offers greater clarity and is more concise. Most importantly, it provides a strong and improved statement of the desire to ensure that sustainability is at the heart of all future mineral planning in Wales.

Llinos Quelch

Chair of the South Wales Regional Aggregates Working Party.

Andrew Farrow

Chair of the North Wales Regional Aggregates Working Party.

Date 22nd July 2020

Statement from the Minister for Energy, Planning & Rural Affairs

To be Added.

Executive Summary

Minerals Technical Advice Note 1: Aggregates (2004) (MTAN 1) requires the preparation of Regional Technical Statements (RTS) for the areas covered by both the South Wales and North Wales Regional Aggregates Working Parties (RAWPs). Whereas MTAN1 develops the national policy set out originally in Minerals Planning Policy Wales (now part of Planning Policy Wales - PPW), the RTS provides the supporting detail which allows this to be implemented.

The original RTS documents for both regions were completed in 2008 and are required, by MTAN 1, to be reviewed every five years. The First Review was undertaken in 2013/2014 and this, the Second Review, commenced in 2018.

In contrast with the former guidelines for aggregate provision issued for England and Wales, prior to devolution, the RTS process has always avoided any attempt to make detailed forecasts of future demand based on econometric modelling. In the past, these had been found to be unreliable and were criticised for their lack of transparency. Instead, a series of alternative approaches have been used in Wales and each 5-yearly review of the RTS provides opportunities for further refinement.

The methodology used in the previous (First) Review, in 2014, had been based primarily on historical sales averages, combined with an assessment of the various 'drivers' of potential future change. For the Second Review, this has been combined with an attempt to reflect *planned* future requirements for housing construction activity, and to avoid perpetuating historical supply patterns in areas where there is scope to encourage more sustainable patterns of supply. Data used for this purpose have been the housing requirement figures established for existing, adopted, Local Development Plans (LDPs) for each individual Local Planning Authority (LPA). Given that LDP progress has varied from one authority to another, some of the earlier figures are now several years old, but all of them were valid for (or beyond) the 'baseline' period (2007 – 2016) covered by this Review. The Steering Group considered that these were the best available consistent source of data for this purpose, with the benefit of having been scrutinised by Inspectors at individual LDP Examinations.

A key factor in the new methodology has been recognition that these housing requirements, in all Local Authority areas in Wales, are more than double the average levels of house completions seen over the last 10 years, and that a corresponding increase in the planned provision of construction materials associated with house construction should therefore be allowed for. This is not necessarily a prediction of future demand, since the housing figures set out in adopted Development Plans will only materialise if economic conditions allow. There is, however, a clear logic in land use planning terms in linking the planned provision of aggregates with that for housing, to ensure that housing plans are not thwarted by an under-provision of aggregates.

Of course, housing accounts for only part of overall construction activity. At a national scale, however, Welsh statistics have revealed a very high degree of correlation between housing completions and aggregate sales. Other statistics (for Great Britain as a whole) show that housing accounts for approximately 30% by value of all new construction. Putting both of these observations together, the implication is that a doubling of house construction would

necessitate a doubling of that 30% element of aggregate sales. At a national level, therefore, and on the basis of being consistent in terms of planned provision for both housing and aggregates, the RTS Steering Group¹ agreed that the provision required for aggregates should be guided by a 30% uplift on historical sales figures.

A further consideration agreed by the Steering Group was that the historical sales figures should reflect, not just the 10-year average (as had been used in the First Review, and as required by the NPPF, in England), but the highest of the 10-year and 3-year averages for each individual LPA. This reflects the fact that in some parts of Wales – notably in the Cardiff City Region – there has been a marked upsurge in construction activity in recent years, and a corresponding growth in aggregate sales.

In **STAGE 1** of the RTS process, the 30% uplift is applied to this composite historical sales figure to obtain an overall **National Guideline** figure for future aggregate production. The uplift is applied only at the national level, because the relationship between construction activity and aggregate sales breaks down at more detailed levels (this being primarily because of the spatial differences between areas of supply and demand).

In **STAGE 2** of the process, the National figure is broken down into two **Regional Guideline** figures (based simply on the historical split of total land-won primary aggregate sales between North and South Wales, which has remained reasonably consistent over many years).

In **STAGE 3**, the regional figures are then apportioned between a series of seven ‘**sub-regions**’, as shown below and, *provided that it is feasible to do so*, between each of the constituent Local Planning Authorities (LPAs). The sub-regions were created, at Welsh Government’s suggestion, for the specific purpose of facilitating strategic minerals planning and collaborative approaches between LPAs. They each represent distinctive ‘market areas’ between which there is relatively little movement of aggregates, except for exports to England, and within which detailed, strategic consideration can be given as to the most appropriate patterns of supply.

In most cases, the distribution of apportionments within each sub-region is achieved through a combination of *quantitative* and *qualitative* judgements, exercised by the RTS Steering Group and facilitated by the appointed consultant. The judgements seek to reflect the Steering Group’s collective understanding of market requirements (reflecting both historical sales and the distribution of planned housing activity) together with considerations of existing landbanks, the proximity principle and environmental capacity.

In the final **STAGE 4** of the process, the total apportionments for each LPA are separated into figures for sand & gravel and crushed rock production (based on historical sales proportions in each LPA). Those figures are then multiplied by the number of years required (22 years for sand & gravel, and 25 years for crushed rock) to obtain the total provision required, in millions of tonnes. Comparison of those figures with existing landbanks and existing unworked

¹ comprising Welsh Government, the two RAWP secretaries, National Resources Wales, the Mineral Products Association, the British Aggregates Association and representatives of one local authority from each Region.

allocations then determines the extent to which any new permissions and/or allocations for future working are required within each authority.

The outcome of this exercise has been a deliberate attempt to control, and in some cases to modify, the future pattern of supply of land-won primary aggregates in Wales, in line with sustainability principles. In a small number of areas, notably where there has been no production of land-won aggregates for many years, with no permitted reserves and zero apportionments, the Steering Group accepted that there may be insufficient evidence, at present, to determine the precise levels of apportionment and resulting allocations required for individual LPAs. In such cases, more detailed analysis will be required, at the local level, through collaboration between adjoining LPAs and consultation with industry, in order to confirm realistic figures for those particular LPAs and (*in exceptional circumstances*) to consider the possibility of alternative patterns of supply within the sub-region concerned.

To this end (and more generally, to ensure that the regional and sub-regional totals recommended by the RTS are achieved), this Review introduces a requirement for all LPAs within each sub-region to produce Statements of Sub-Regional Collaboration (SSRCs), in consultation with industry, through the RAWPs, prior to the Examination of any individual LDP within that area. Specific guidelines relating to the preparation of SSRCs, including details of the circumstances under which alternative patterns of supply may be justified, are provided at Annex A of this document.

More generally, it must be emphasised that the RTS recommendations are intended to be of a **strategic** nature. The recommendations do not provide site-specific information or guidance. It is for the individual LPAs to determine how the strategic requirements identified in the new RTS should be met within their areas. This includes identifying the size and location of new allocations (where these are required by the RTS or, in some cases, by other local factors), and setting out corresponding policies within their LDPs to guide the Development Management process for future mineral extraction.

Moreover, where it is justified by new (e.g. more up to date, more detailed or more precise) evidence, it is open for individual LPAs to depart from the apportionment and allocation figures recommended by the RTS when preparing their LDP policies. In doing so, however, an LPA would need to demonstrate that their intended departure would not undermine the overall strategy provided by the RTS itself (e.g. by working together with other LPAs within the same sub-region to ensure that sub-regional and regional totals are still achieved) and this would need to be reflected in the SSRC agreed with all other constituent LPAs within that sub-region, prior to Examination.

Where the local authorities involved are unable to reach agreement, or if individual local authorities do not accept the revised Regional Technical Statement, the Welsh Government will, as a last resort, consider its default powers to intervene in the Development Plan process (MTAN 1, paragraph A3).

1. The Purpose and Objectives of the RTS

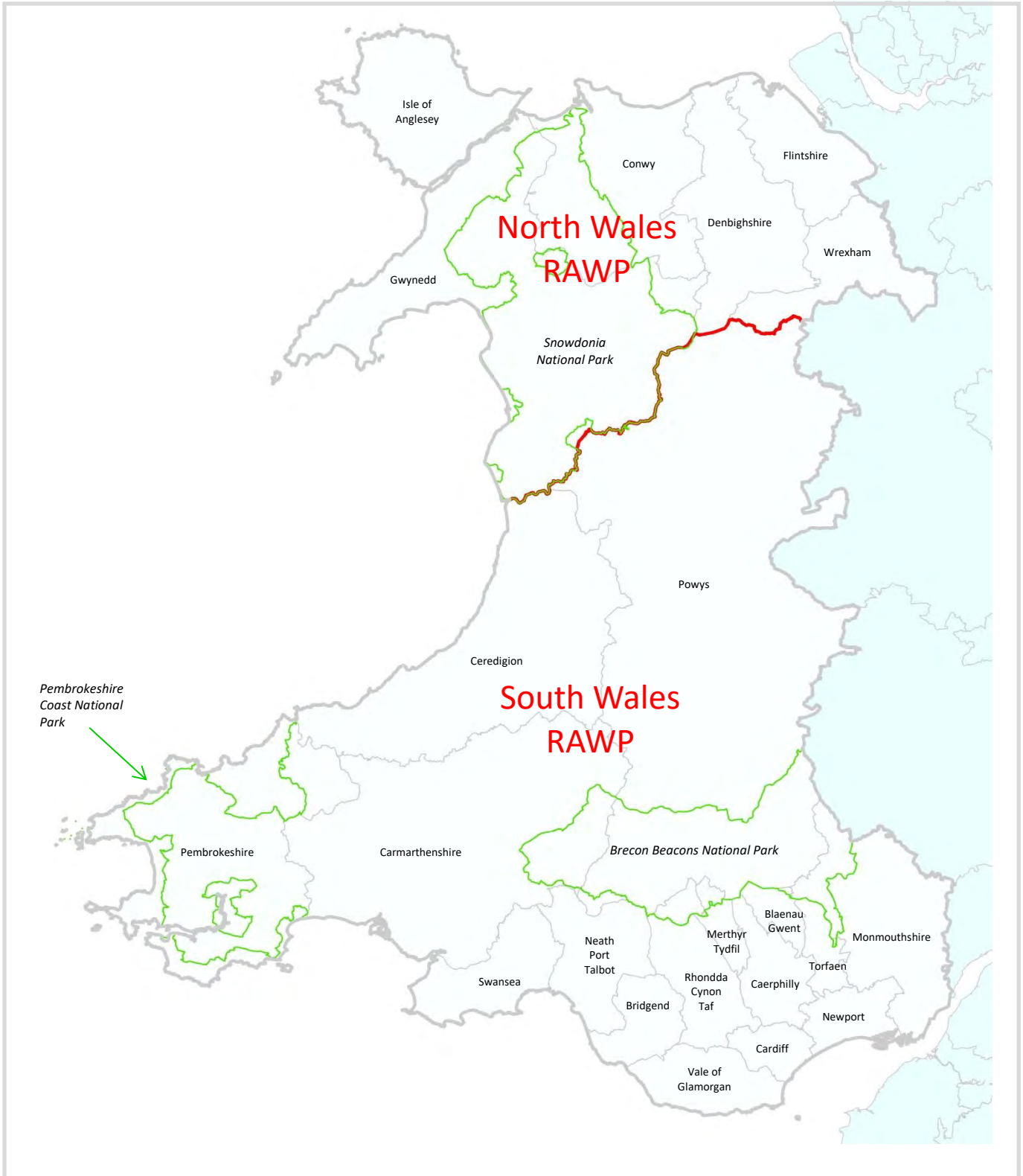
Introduction

- 1.1 Minerals Technical Advice Note 1: Aggregates (2004) (MTAN 1) requires the preparation of Regional Technical Statements (RTS) for the areas covered by both the South Wales and North Wales Regional Aggregates Working Parties (RAWPs) – as shown in Figure 1.1, below. The original RTS documents for both regions were completed in 2008 and are required, by MTAN 1, to be reviewed every five years. The First Review was undertaken in 2013/2014 and this, the Second Review, commenced in 2018.
- 1.2 The Review comprises this main document and the Regional Appendices for North Wales and South Wales, which are issued separately. The two components of the new RTS for each Region (i.e. the main document and the relevant Appendix) are intended to provide a strategy for the future supply of construction aggregates within that Region, taking account of the latest available information regarding the balance of supply and demand, and current notions of sustainability (see below). Together, the two revised RTSs aim to ensure that an adequate and steady supply of aggregates can be maintained throughout Wales (and beyond, in the case of materials that are exported), taking into account the key objectives of sustainable supply outlined in MTAN 1.

Policy Context and Sustainability Objectives

- 1.3 Since the First Review of the RTS was completed in 2014, there have been some important changes in National legislation and Policy within Wales which have a bearing on mineral development. MTAN 1 – and thus the requirement for Regional Technical Statements to be produced and periodically updated – remains extant, but the former Minerals Planning Policy Wales (MPPW) is now subsumed within Planning Policy Wales (PPW), which itself has been updated several times in response to changing legislation and other factors.
- 1.4 The most significant legislative change since 2014 has been the **Well-being of Future Generations (Wales) Act 2015**. This places a statutory duty on public bodies in Wales to consider sustainable development in their decision-making. Whilst sustainability has been at the heart of PPW since it was first published in 2002, the concept has been expanded so that it now incorporates, more explicitly, cultural heritage and well-being.
- 1.5 **Sustainable Development** (in Wales) is now defined, by the 2015 Act, as meaning: *“the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals”*.
- 1.6 This is linked to the more traditional definition by the explanation that: *“Acting in accordance with the sustainable development principle means that a body must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs”*.

Figure 1.1: The Distribution of Local Planning Authorities (LPAs) between the two Regional Aggregate Working Parties (RAWPs) in Wales



- 1.7 The 2015 Act requires public bodies to set out plans as to how they will take decisions in order to meet seven well-being goals that are set out in law. These relate to **prosperity, resilience, health, equality, community cohesion, vibrant culture** (including a thriving Welsh language) and **global responsibility**.
- 1.8 The Act also outlines five ways of working which authorities need to demonstrate they have carried out in undertaking their sustainable development duty. These require consideration to be given to **long term** visions; the **prevention** of adverse impacts; the **integration** of policies to promote balanced decision-making; **collaboration** between public bodies and the private and third sectors; and the built-in **involvement** of the public and stakeholders in the planning system through statutory consultation and engagement. The Regional Technical Statements have always reflected all five of these ways of working, with the concepts of policy integration and collaborative working being enhanced further still in this Review.
- 1.9 In 2018, the Welsh Government updated **Planning Policy Wales** to assist in the delivery of the new act through the planning system. The latest version (Edition 10) was published in December 2018. This introduced five new Key Planning Principles linked variously to the five ways of working. One of these: **Making the Best Use of Resources**, is clearly of direct relevance to mineral planning and thus to the Regional Technical Statements. This principle is explicitly linked, in PPW, to the concept of maintaining a 'long-term' vision with regard to climate change, decarbonisation and the circular economy. The Proximity Principle, which plays an important role in the RTS methodology, is highlighted as a means of ensuring that problems are solved locally rather than passing them on to other places or future generations, and so that the use of land and other resources are sustainable in the long term.
- 1.10 The fifth key planning principle: **Maximising Environmental Protection and Limiting Environmental Impact** is also of direct relevance. This refers explicitly to the need for respecting environmental limits (thereby supporting the notion of Environmental Capacity as used within the RTS). It also highlights the importance of the precautionary principle in ensuring that cost-effective measures to prevent possibly serious environmental damage are not postponed just because of uncertainty regarding the seriousness of potential risks. Whilst this is not explicitly part of the RTS process, it may nevertheless have a bearing on the spatial planning of future allocations.
- 1.11 Specific **minerals planning policies** are now incorporated within PPW (in paragraphs 5.14.1 to 5.14.57), rather than being in the separate Minerals Planning Policy Wales document, as had previously been the case (before 2016). Although the sequence and structure of these policies has been modified, not least to embrace certain aspects of the cultural environment now included within the definition of sustainable development, there are no significant changes in policy requirements that have a bearing on the present Review.
- 1.12 In this regard it is worth noting that one change, which had been introduced in versions 8 and 9 of PPW, has been reversed in the latest edition. This relates to the treatment of Sites of Special Scientific Interest (SSSIs) and National Nature Reserves

(NNRs). In versions 8 and 9 of PPW, these areas were included, along with National Parks and Areas of Outstanding Natural Beauty, as locations where minerals development should not take place, save in exceptional circumstances (whereas previously, in MPPW, that had not been the case). Version 10 has reversed that change, so that SSSIs and NNRs are now included (along with SPAs, SACs and Ramsar sites) within para. 5.14.37, where the requirement is for proposals to be ‘carefully examined’, rather than in para. 5.14.35, which retains the ‘exceptional circumstances’ test. Had this not been reversed, it would have had major implications on the allocation of sites for future working – significantly reducing the scope for finding such sites in areas where the available geological resources are highly constrained.

- 1.13 Overall, the new PPW changes nothing with regard to the RTS process, other than reinforcing the principles which are already enshrined within it.
- 1.14 **The Environment (Wales) Act 2016** introduced the Sustainable Management of Natural Resources (SNMR) and set out a framework to achieve this as part decision-making. The main objective is to maintain and enhance the resilience of ecosystems and the benefits they provide.
- 1.15 The Act requires the Welsh Government to prepare, publish and implement a statutory **Natural Resources Policy** (NRP) setting out its priorities in relation to the sustainable management of natural resources, while Natural Resources Wales (NRW) is required to produce a ‘**State of Natural Resources Report**’ and to prepare ‘**Area Statements**’ to inform place-based action.
- 1.16 The NRP sets out three National Priorities, linked directly to achieving goals within the Well-being of Future Generations (Wales) Act. These are: **delivering nature-based solutions; increasing renewable energy and resource efficiency; and taking a place-based approach.**
- 1.17 The first of these focuses on maintaining and enhancing the ecosystem services derived from natural resources. As well as the more obvious biodiversity-related resources, these include services associated with both mineral extraction and the restoration of former mineral workings. Though not mentioned in the NRP, these are examined in detail in reports for Natural England and Defra on an ecosystems approach to long-term mineral planning in the Mendip Hills (Thompson & Birch 2009; Thompson *et al.* 2010). Ecosystem services have an important bearing on site-specific aspects of mineral development, though probably not at the more strategic regional level being considered within the RTS.
- 1.18 Minerals are more explicitly noted in relation to the second priority (resource efficiency), both in relation to the promotion of recycled and secondary aggregates and the optimal utilisation of primary aggregates. These imperatives are already enshrined within the minerals policies of PPW, however, and are therefore fully incorporated in the methodology for producing apportionments within the RTS.

- 1.19 The third priority – taking a place-based approach – can also be very applicable to mineral development (e.g. through community involvement in planning decisions and restoration proposals). By definition, however, this again is a site-specific issue and is not something which can be addressed at the wider strategic level of the RTS.
- 1.20 It is concluded that, as with the Well-being of Future Generations (Wales) Act 2015 and the revision of PPW, the Environment (Wales) Act 2016 appears to reinforce the principles already enshrined within the RTS process, without imposing any new or different requirements.
- 1.21 In line with those requirements, ***the overarching objective in planning for aggregates provision***, as set out in paragraph 7 of MTAN1 is “*to ensure supply is managed in a sustainable way so that the best balance between environmental, economic and social considerations is struck, while making sure that the environmental and amenity impacts of any necessary extraction are kept to a level that avoids causing demonstrable harm to interests of acknowledged importance*”.
- 1.22 Subsidiary objectives in paragraph 29 of MTAN1, which relate to delivering a more sustainable pattern of supply include:
- examining very carefully existing (permitted) reserves on a national and regional basis to see if they are adequate in the short, medium and long term;
 - only granting permission for future extraction to take place in the most environmentally acceptable locations, in accord with development plans that are informed by the Regional Technical Statement which in turn is based on the environmental capacity assessment;
 - actively reducing the proportion of primary aggregates used in relation to secondary, recycled or waste materials;
 - minimising the transportation of aggregates by road;
 - seeking self-sufficiency within regions, thereby avoiding the need to transfer the environmental costs of aggregates extraction to other areas; and
 - careful and continual assessment of existing and anticipated future exports of aggregates to areas outside Wales (in consultation with those importing regions outside Wales) to determine whether that supply is the best environmental and practicable option for all.
- 1.23 These various objectives, combined with the increased emphasis on collaborative, sub-regional working embedded within this 2nd Review, are fully in line with the Sustainable Management of Natural Resources principles enshrined within the Environment (Wales) Act 2016.

The Scope and Purpose of RTS Recommendations

- 1.24 Each RTS Review provides a mechanism for encouraging the national sustainability objectives relating to minerals to be met by the individual Local Planning Authorities (LPAs) within each Region over a period of up to 25 years (for crushed rock) or 22 years, in the case of land-based sand & gravel (sufficient to cover the MTAN1 requirements for maintaining minimum landbanks of 10 years and 7 years,

respectively, throughout the full 15-year term of each LDP). In the case of Cardiff, which has a 20-year Plan Period, these durations are increased to 30 years (for crushed rock) and 27 years for sand & gravel.

- 1.25 The RTS provides specific recommendations to the constituent LPAs regarding the quantities of aggregate which need to be supplied from each area (**apportionments**) and the nature and size of any **allocations** which may need to be made in their Local Development Plan (LDP) to ensure that adequate provision is maintained throughout the relevant Plan Period. In this Review, the basic recommendations are set out within this document with further details being given in the Regional Appendices.
- 1.26 Paragraph 50 of MTAN1 specifically requires the relevant parts of the RTS strategy (principally, the RTS apportionments and allocation requirements) to be incorporated into individual LDPs. In the present Review, however, apportionment figures are also identified for sub-regional groupings of LPAs and, in a small number of cases, the requirements for individual LPAs within those areas may need to be adjusted, subject to more detailed investigation by the LPAs involved and to industry responses to future calls for sites. Further details of the sub-regional groupings and the apportionment methodology are set out in Chapter Five of this Review.
- 1.27 *In exceptional circumstances*, sub-regional analysis may result in the possibility of alternative patterns of supply being considered within a particular sub-region. In order to facilitate this, and to ensure that the regional and sub-regional totals recommended by the RTS are achieved, this Review introduces a requirement for all LPAs within each sub-region to produce Statements of Sub-Regional Collaboration (SSRCs), in consultation with industry, prior to the Examination of any individual LDP within that area. Specific guidelines relating to the preparation of SSRCs, including of the circumstances under which alternative patterns of supply may be justified, are provided at Annex A of this document.
- 1.28 It must be emphasised that the RTS recommendations are intended to be of a **strategic** nature. The recommendations do not provide site-specific information or guidance. It is for the individual LPAs to determine how the strategic requirements identified in the new RTS should be met within their areas. This includes identifying the size and locations of new allocations (where these are required by the RTS or, in some cases, by other local factors), and setting out corresponding policies within their LDPs to guide the Development Management process for future mineral extraction.
- 1.29 Moreover, where it is justified by new (e.g. more up to date, more detailed or more precise) evidence, it is open for individual LPAs to depart from the apportionment and allocation figures recommended by the RTS when preparing their LDP policies. In doing so, however, an LPA would need to demonstrate that their intended departure would not undermine the overall strategy provided by the RTS itself (e.g. by working together with other LPAs within the same sub-region to ensure that sub-regional and regional totals are still achieved) and this would need to be reflected in

the SSRC agreed with all other constituent LPAS within that sub-region, prior to Examination.

- 1.30 MTAN 1, paragraph A3, notes that *“If the local authorities reach no agreement or if individual local authorities do not accept the Regional Technical Statement, the Welsh Assembly Government will consider its default powers to intervene in the planning process as a last resort”*.
- 1.31 For each Region, Sub-region and individual LPA, the RTS recommendations are informed by the analysis of:
- available resources, permitted reserves, sales and landbanks of primary land-won aggregates;
 - the availability and supply of marine, secondary and recycled materials;
 - levels of demand upon the region for the supply of aggregates, including exports;
 - levels of imports of aggregate into the region;
 - the proximity principle, in relation to the transportation of aggregates; and
 - the environmental capacity of areas to accept the impacts of future quarrying
- 1.32 Further details of the key principles and approaches used within this analysis are set out in the next chapter.

Aims and Objectives of the RTS 2nd Review

- 1.33 The Welsh Government’s **aims** of the 2nd Review have been:
- (i) to confirm or refine the existing methodology and update the current data/information inputs of the current RTS documents; and
 - (ii) to prepare new apportionments and an updated RTS for each RAWP region
- 1.34 These are precisely the same as the aims for the 1st Review.
- 1.35 The **guiding principles** for the review (changed only very slightly from those relating to the 1st Review) were identified by Welsh Government as follows:
- (i) *The RTS will be reviewed at 5-year intervals, in line with policy, with a second review to be completed in 2019. The plan period for each RTS will be 25/22 years;*
 - (ii) *To utilise data for the latest year for which information is available as baseline information for the purposes of the review;*
 - (iii) *To have regard to recent research which may identify any issues that need to be covered in the review;*
 - (iv) *The review itself needs to be transparent, engage appropriate stakeholders but recognise that the exercise is largely technical and aimed at providing*

information and evidence to be utilised in planning processes and therefore consultation and governance should be proportionate,

- (v) *The review will result in an updated statement for each region which is clear, concise and user friendly;*
- (vi) *Recognise that WG is supportive of collaboration between authorities in negotiating how need, as represented by RTS apportionments, is met, if appropriate;*
- (vii) *The reviews will not start from scratch but will build on the current RTS documents.*

1.36 In order to consider what further adjustments might be needed to the guiding principles and/or the methodology to be used, an RTS Technical Group was convened by the South Wales and North Wales RAWPs. Following internal consultation among RAWP members, the Group's final recommendations were as follows:

- 1) The **base year** for calculation of the apportionment and allocations should be the date of the latest year for which information is available;
- 2) The RTS 2nd Review should calculate the **3-year average** annual production figure and the **10-year average** annual production figure and use the higher of the two figures as the basis for apportionment calculations;
- 3) There should not be a separate landbank for **high PSV rock** but there should be a narrative included in the RTS setting out the considerations to be undertaken if high PSV rock is part of the crushed rock landbank in a particular MPA area;
- 4) Regarding the question of whether **regional groupings of LPAs** should be used for the calculation of landbanks, the Technical Group supported this in principle but considered that identifying appropriate regional groupings should be a task undertaken by an independent Consultant as part of the RTS Review process. The Consultant should also consider whether apportionment should be for a regional area only or whether this should be broken down to each LPA area;
- 5) Regarding the treatment of **ongoing quarrying activity within National Parks**, the Group considered that the position is adequately covered in National Policy. There should therefore be no change to the way in which production within National Parks is monitored and reported. This question specifically relates to current production. It does not relate to landbanks for National Parks as they are subject to the 'exceptional circumstances' test;
- 6) Regarding the issue of **maintaining production capacity** within a particular area, the Group resolved that the consultant appointed to produce the RTS should be asked to consider this for each LPA or region and to identify where there is a danger of under provision within the lifetime of the RTS 2nd Review, even though the apportionment figure may be met arithmetically.

- 1.37 Concern was also expressed by the Technical Group about the **potential impact of major projects** on landbanks and the ability of the quarrying industry in Wales to respond to these potential spikes in demand. It therefore advised that one of the considerations to be addressed in carrying out the 2nd Review is whether the apportionment calculations for each LPA or region need to be adjusted to reflect these major ‘spikes’ in demand and, if so, how that could be done.
- 1.38 The first of these recommendations is now embedded within the Guiding Principles note above. The second, third and fifth recommendations are also regarded as settled matters and form part of the methodology for the determination of apportionments and allocations within the 2nd Review. The fourth and sixth recommendations, together with the additional concern regarding major projects, noted above, were discussed at a series of Stakeholder meetings in Stage 1 of the Review, and are incorporated in the adopted methodology.
- 1.39 Whether or not **Strategic Environmental Assessment** (SEA) should be undertaken was considered as part of the original development of the Regional Technical Statements. It was felt, however that, as the RTS documents primarily represent a collaboratively prepared evidence base and are neither required nor constitute a plan or programme for the purposes of the SEA Directive, such an assessment was not necessary. As with the original RTS documents and the First Review, therefore, at this broad level, and given the further detailed analysis and Plan-making that will be required to implement the RTS through Local Development Plans (where SEA is a formal requirement), it was not considered appropriate or required that SEA should be conducted as part of the Second Review.
- 1.40 Several of the terms used above (e.g. apportionments, allocations, landbanks, permitted reserves and resources) have very specific meanings with respect to minerals planning, which need to be understood. These are all defined in the **Glossary of Terms** at the back of this report. Similarly, a number of commonly-used abbreviations, although explained in the text where they are first introduced, are summarised in the list which follows the glossary.

2. Key Principles

The RTS Approach

- 2.1 A key principle which underpins the overall approach within the RTS and MTAN1 is the need to move away from the old, demand-led system of '**Predict and Provide**' to the more modern concept of '**Plan, Monitor and Manage**'. These terms originated in relation to the planning for housing provision but can also be applied to minerals.
- 2.2 It is important to recognise, however, that the Plan, Monitor and Manage system still depends, crucially, on an assessment of demand. At the heart of MTAN1 is the aspiration that, once a reasonable estimate of demand has been obtained, any subsequent fluctuations above that level should be accommodated by increased supplies from secondary and recycled sources (see glossary for definitions), rather than being seen as a justification for granting new planning permissions for primary aggregate extraction. Whilst that aspiration is widely supported, there is evidence to suggest that the percentage contribution available from secondary and recycled sources, having risen from around 10% of the total aggregates market in the 1990s to around 28% during the last decade (as a direct result of financial incentives and promotional work to increase acceptability) is now likely to have peaked. As a consequence of this, the future use of recycled/secondary materials is likely to depend mainly on the level of future construction output (since the availability of recycled materials is closely dependent on rates of new construction). It is therefore perhaps more reasonable to assume that secondary and recycled aggregates will continue to provide a high proportion of total aggregate production but will not be able to be relied upon to fulfil any future peaks in demand on their own: there may also need to be increased contributions from primary aggregate sources.
- 2.3 The RTS process supports this approach by investigating the likely continued availability of secondary and recycled aggregates from all available sources within each area, and factoring this in to an assessment of the residual demand for land-won primary aggregates, as informed primarily by historical sales data and the consideration of planned future construction activity. That residual level of demand is then translated into **apportionments** for each local authority, subject to the consideration of other sustainability issues including proximity and environmental capacity (see below).
- 2.4 An important tool in the ongoing management of the supply of aggregates is the monitoring of **landbanks**. A landbank, as defined in paragraph 45 of MTAN1, is the stock of planning permissions for the winning and working of minerals at *active* and *inactive* sites², at any given point in time and for a given area. Where there is an insufficient landbank of permitted reserves in a particular area to meet the identified demand, over a sustained period of time, the RTS recommends the need for **allocations** for future working to be identified in LDPs. Provided that the

² Detailed definitions of active, inactive, dormant and suspended sites are given in the **Glossary of Terms** at the back of this report, as are the full definitions of resources, permitted reserves, apportionments, landbanks, allocations and provision.

reserves at *dormant* sites have not already been included in the landbank calculations³, and where a Local Planning Authority considers that such reserves are likely to be capable of being worked within the relevant period (subject to the agreement of modern conditions) it is suggested here that these may be offset against the requirement for new allocations. The same logic applies to sites where permission has been *suspended*, following a stalled IDO or ROMP review (see **Glossary** for full explanations of these various terms).

- 2.5 Thereafter, by virtue of the Plan-led approach, additional applications for new permitted reserves are unlikely to be granted except within allocated sites or areas, unless there are compelling reasons why fluctuations in demand cannot be met from those locations or from alternative (secondary and recycled) sources. The situation is monitored annually by the RAWPs and managed, as required, through periodic (5-yearly) revisions of the Regional Technical Statements.
- 2.6 In terms of its overall approach, the RTS concept represents an important modification of the more general Managed Aggregate Supply System (MASS) which had previously operated across both England & Wales for many years. The main difference is that the Welsh system explicitly seeks to incorporate two key principles of sustainability with respect to aggregates supply: the ***proximity principle*** and the notion of ***environmental capacity***, as explained in the following sections.

The Proximity Principle

- 2.7 This relates simply to the objective of minimising unnecessary transportation of bulk materials, particularly by road, by ensuring that sources of supply (e.g. aggregate quarries) are located as closely as possible to the main centres of demand (primarily centres of population and major infrastructure projects). The minerals planning system has only limited controls on this: it cannot dictate where aggregates are supplied to, from any given source, and it cannot dictate where suitable sources exist (since minerals can only be worked where they are found). The planning system can, however, provide strong guidance in terms of where planning permissions are likely to be given for new quarries (or extensions to existing quarries) within areas of suitable geology, and it can take account of transportation factors in deciding where these ought to be. In the long term the RTS process has a key role to play in this, by gradually modifying the overall pattern of supply, where this is needed.
- 2.8 The proximity principle needs to be modified, in some cases, by recognition that certain types of ‘high specification aggregate’ (HSA) serve quite different markets and are therefore required for distribution over much greater distances. This applies especially to the skid-resistant aggregates derived from the Pennant Sandstones of South Wales and from a range of other formations within Powys and elsewhere, which are essential for road surfacing applications throughout England and Wales (Thompson, Greig & Shaw, 1993; Thompson *et al.*, 2004). Indigenous sources of HSA

³ There are differences of interpretation (of MTAN1 guidance) regarding whether or not the permitted reserves at dormant sites should be included in landbank calculations that are used for the purpose of assessing the need, or otherwise, for new allocations. As explained in the **Glossary**, for the purposes of this review, such reserves, and those at suspended sites, have been excluded.

materials within England are very limited, and many are constrained by their location within National Parks. HSA exports from Wales are therefore of major significance. Separate consideration also needs to be given to the issue of high purity limestone production for use as a metallurgical flux, for chemical production and for the manufacture of cement. Whilst these are all non-aggregate end-uses, they are frequently produced from the same geological resources as crushed rock aggregates, but the quarry locations may be determined or justified primarily by the requirements for the higher value industrial products.

- 2.9 The proximity principle is further modified by the requirement in MTAN 1 (paragraph 49) that landbanks do not need to be maintained, and that there should therefore be no future allocations, within National Parks or Areas of Outstanding Natural Beauty (AONBs). This is in line with Planning Policy Wales, which states (at para. 5.14.35) that mineral extraction should not take place in National Parks and AONBs, except in very exceptional circumstances.
- 2.10 The original Regional Technical Statements aimed to reflect the Proximity Principle by providing ‘per capita’ apportionments for future aggregate provision (i.e. proportionate to the population within a given LPA area, as a surrogate for the likely distribution of demand). Major drawbacks of this approach, however, were found to be the lack of correlation between existing population figures and either the demand for, or availability of, aggregate supplies.
- 2.11 In the 1st Review of the RTSs, general consideration was given, instead, to variations in *population density*, but account was also taken of a range of other influences, including access routes and transport distances, which neither population nor population density figures are able to reflect. That analysis was, necessarily, of a qualitative nature because of the complexities involved, and to avoid the spurious precision associated with inappropriate quantitative analysis. It allowed the Proximity Principle to be acknowledged but relied primarily on historical sales figures as indicators of demand. This recognised that the demand for supplies from a particular quarry must inevitably be influenced (very strongly) by transport distances, since these constitute a major element of the delivered price. Local sources of supply will therefore always be preferred to those from more distant locations, provided that the material supplied is fit for purpose. Equally, more remote sources would only maintain their commercial viability if they are capable of supplying aggregates of a type that are in high demand but not available from sources located nearer to the markets.
- 2.12 The main criticism of that approach has been that reliance on historical sales figures inevitably perpetuates the historical pattern of supply, giving very limited scope for this to be changed, over time, to achieve any improvement in sustainability. In the present Review, an attempt has therefore been made to use recent data on housing completions and planned future housing provision, both as part of the overall assessment of future demand, and to influence the sub-regional apportionment of future aggregates provision. This is explained more fully in Chapter 3.

Environmental Capacity

- 2.13 By comparison, the notion of environmental capacity has always been a more controversial issue. The basic principle is clear enough: i.e. that quarrying should be focused, as far as possible, on areas which have the greatest capacity to ‘absorb’ the environmental impacts that are (or may be) associated with quarrying activity, and thus to contribute to future supply with a minimum of adverse impacts. The controversy derives from the lack of consensus in terms of how ‘environmental capacity’ should be defined, and from the way in which this has influenced the allocation targets within the Regional Technical Statements.
- 2.14 In Wales, two previous research projects provided the evidence base for the system that is currently used: **EMAADS** (Establishing a Methodology for Assessing Aggregates Demand and Supply - Arup, 2004) and **IMAECA** (Implementing the Methodology for Assessing the Environmental Capacity for primary Aggregates - Enviro, 2005). These projects resulted in a set of ‘traffic light’ maps (as they are often referred to) being issued to each LPA within Wales to indicate areas of *relatively* high (green), medium (amber) and *relatively* low (red) environmental capacity. The thresholds between these categories were arbitrarily set, but the differentiation between them does at least provide a starting point for the consideration of environmental capacity and thereby enables nationally consistent *strategic* decisions to be made, by the RAWPs, with respect to future aggregates provision.
- 2.15 The colours shown on these maps reflect combined scores from the assessment of twelve different ‘national environmental indicators’ for each square kilometre. These comprised:
- (i) Settlements
 - (ii) Roads
 - (iii) Land Use
 - (iv) SSSIs
 - (v) Heritage
 - (vi) Public Enjoyment
 - (vii) Landscape
 - (viii) Local Landscape
 - (ix) Watercourses
 - (x) Spheres of Influence
 - (xi) Existing Workings
 - (xii) Cumulative Effects
- 2.16 It is important to understand that the IMAECA tool was designed to be used *only* to inform the Regional Technical Statements and explicitly *not* to be used directly in Local Development Plans, Development Management processes and decisions or planning appeal decisions.

- 2.17 The consideration of Environmental Capacity at this strategic level deliberately avoids the direct use of more detailed ‘primary’ environmental information such as the locations of individual designations (other than National Parks and AONBs). Once again, this is to avoid being site-specific and to avoid prejudging issues which need to be addressed in more detail through LDP and Development Management processes at a local level - either within individual local authorities and/or through joint working between neighbouring authorities. Joint consideration of the relationship between mineral resources and environmental designations on a sub-regional basis would potentially allow more detailed consideration to be given to these important issues at a spatial scale which extends beyond the boundaries of an individual local authority. This could tie-in well with the Area-Based Natural Resource Management Approach being promoted by Welsh Government through the **Environment (Wales) Act 2016**.
- 2.18 However, despite this information being available, and being described for each LPA within the original RTSs, the environmental capacity results from the IMAECA study had no influence at all on setting the apportionment figures within those reports. That may partially have been due to concerns about not prejudging matters that should properly fall to be dealt with through the Local Development Plan process. This certainly applies to any site-specific judgements but, at a more strategic level, there is both scope and wide support for environmental capacity data to inform and potentially influence the bigger picture.

Changing the Pattern of Supply

- 2.19 Important consideration also needs to be given to existing patterns of supply. MTAN 1 suggests that these patterns are largely a historical residual and ‘...*will need to gradually change to reflect current notions of sustainability*’. That may, or may not be the case, however, since the historical supply patterns already have much to commend them: they reflect the ***spatial distribution of available resources*** (which is of fundamental importance, since minerals can only be worked where they are found) and the ***economic imperative*** of industry to establish quarries as close as possible to areas of demand (in order to minimise transport costs), subject to a range of environmental designations, planning policies and other constraints. Over many decades, quarries which have become uneconomic because of changing demand or outdated transport networks and rising costs have naturally fallen into disuse. Those which remain are generally (though not always) well-placed to serve the current markets although some remain in conflict with designations, environmental concerns or neighbouring land uses which, in many cases, post-date the mineral planning permissions involved. Where this is the case then, unless there are no sensible alternatives in terms of the availability of resources, it may not be appropriate for the historical supply pattern from a given area to be used as a proxy for future supply from that area.
- 2.20 Together, the implementation of the proximity principle and the notion of environmental capacity, as described above, may gradually induce changes to the existing patterns of supply. But this would only be justified if it is found that, once all aspects of sustainability are taken into account, alternative patterns are seen to

have clear advantages over those which currently exist. Even where changes are clearly justified, these cannot generally be immediately implemented, since (unless Prohibition Orders are issued) existing quarries will be able to continue until their existing planning permissions expire and/or until they run out of permitted reserves.

- 2.21 Nevertheless, the RTS can help to influence future changes in supply pattern, where this is found to be desirable, by adjusting the apportionments given to individual LPAs. This, in turn, will then help to focus new allocations in the areas required, and should eventually result in a shift towards a more sustainable pattern of supply. Chapter 4 of this report presents an overview of the existing supply pattern, highlighting the need for limited adjustments in certain areas, drawing on the more detailed analyses presented in the two Regional Appendices (A and B).

3. Methodology for the 2nd Review of the RTS

Introduction

- 3.1 In the original and First Review of the Regional Technical Statements, the starting point for the apportionment of future aggregates provision⁴ was to make an assessment of the likely future demand. However, in contrast with the former guidelines for aggregate provision issued for both England and Wales, prior to devolution, the RTS process has always avoided any attempt to make detailed forecasts of future demand based on econometric modelling. In the past, these had been found to be unreliable and were criticised for their lack of transparency. Instead, a series of alternative approaches have been used in Wales and each 5-yearly review of the RTS provides opportunities for further refinement.
- 3.2 The methodology used in the previous (First) Review, in 2014, had been based primarily on historical sales averages, combined with an assessment of the various ‘drivers’ of potential future change – much like the methodology for producing Local Aggregate Assessments in England, but carried out at a national scale. For the present Review, this has been combined with an attempt to reflect planned future requirements for construction activity (particularly housing)⁵, and to avoid perpetuating historical supply patterns in areas where there is scope to encourage more sustainable patterns of supply.
- 3.3 Given the importance of the Plan-led system, there is a need for joined-up thinking between planned construction activity and the planned provision of associated construction materials. This resonates strongly with the integration of policies to promote balanced decision-making: one of the five key ways of working identified in the Well-being of Future Generations (Wales) Act 2015. The concept applies irrespective of whether the planned construction (e.g. housing or major infrastructure projects) materialises. If the planned activity *does* take place, then it will not be hampered by a shortage of materials; if it does not, then there will have been an over-provision of aggregates, but that would not equate to excess production (since aggregates will only be quarried as and when the demand occurs).

Preliminary Research

- 3.4 In developing the methodology to be applied in the 2nd Review, it was first necessary to undertake some preliminary analysis of the source data. This is briefly outlined below under five headings: historical sales data, housing data, economic forecasts, availability of alternative materials and the balance between imports and exports.

⁴ This analysis relates only to the requirements for primary, land-won aggregates. As noted in the original RTS documents, targets for the production of alternative aggregates (i.e. secondary aggregates, recycled materials and marine-dredged aggregates) have traditionally been ‘top-sliced’, leaving a residual demand for land-won primary aggregates. As with the First Review, it was agreed with the Steering Group that the proportion of total aggregates supply provided from secondary and recycled aggregate sources would remain approximately constant, with the actual quantities rising and falling in relation to overall levels of economic activity.

⁵ Although planned housing construction may be no more reliable, as an indicator of future demand, than the former aggregate guidelines were, the justification for using such figures is different: it is not an attempt to predict demand, only to ensure consistency in the planning process and to give tangible recognition to the link between construction and aggregates.

Historical Sales Data

- 3.5 The Annual Reports of the South Wales and North Wales Regional Aggregate Working Parties provide an important source of data regarding annual sales and annual updates to the stock of permitted reserves of land-won primary aggregates. They also provide information on secondary aggregates and on landings of marine-dredged aggregates.
- 3.6 The published reports for South Wales currently provide data up to the end of 2016. Those for North Wales provide data up to 2015 but, for the purpose of this Review, the previously published figures have been refined and updated (to include 2016), by the RAWP secretary. The resulting annual totals for the period 2007 to 2016 are presented in Table 3.1, below. This represents the main 'baseline' period for use in the Second Review. All figures are given in millions of tonnes (mt).

Table 3.1: Annual Sales of Land-won Primary Aggregate in North Wales and South Wales, from RAWP reports.

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| North Wales Crushed Rock (mt) | 6.298 | 6.225 | 3.674 | 4.381 | 4.348 | 3.938 | 4.052 | 4.626 | 5.003 | 5.023 |
| North Wales Land-won Sand & Gravel (mt) | 1.063 | 0.711 | 0.599 | 0.664 | 0.641 | 0.588 | 0.529 | 0.892 | 0.940 | 0.726 |
| NW Total (mt) | 7.361 | 6.936 | 4.273 | 5.045 | 4.989 | 4.526 | 4.581 | 5.518 | 5.943 | 5.749 |
| South Wales Crushed Rock (mt) | 12.51 | 10.35 | 8.13 | 7.20 | 7.73 | 7.39 | 7.55 | 7.87 | 8.31 | 8.41 |
| South Wales Land-won Sand & Gravel (mt) | 0.24 | 0.03 | 0.14 | 0.12 | 0.11 | 0.27 | 0.28 | 0.20 | 0.27 | 0.16 |
| SW Total (mt) | 12.75 | 10.38 | 8.28 | 7.32 | 7.84 | 7.66 | 7.83 | 8.07 | 8.58 | 8.57 |
| Wales Total (mt) | 20.11 | 17.32 | 12.54 | 12.37 | 12.83 | 12.19 | 12.41 | 13.59 | 14.52 | 14.32 |
| NW/SW Split (%) | 37/63 | 40/60 | 34/66 | 41/59 | 39/61 | 37/63 | 37/63 | 40/60 | 41/59 | 40/60 |

SOURCE: Annual RAWP reports, updated (for North Wales) by the RAWP Secretary, for the purposes of this review⁶.

- 3.7 It is important to remember that the historical sales figures represent only the *residual demand* for land-won primary aggregates, since the overall demand over this period was also satisfied, to varying degrees, by supplies from secondary, recycled and marine aggregate sources, as well as by small amounts of imports from primary aggregate sources in England. By default, therefore, using historical sales data as part of the basis for estimating future demand assumes that the supply of secondary, recycled, marine and imported aggregates will continue as before (with different levels of contribution from each source in each of the various LPAs).

⁶ Whilst the data presented in Table 3.1 are useful in showing the year-to-year variations, the totals are slightly different from those presented in all subsequent tables in this report, which were derived from new, and more accurate figures collated by both RAWP secretaries for the specific purpose of this review.

- 3.8 In the First Review, historical sales data were represented by the average sales over the preceding 10-year baseline period. For the present Review, it was decided that consideration should also be given to average sales over the most recent 3-year period (2014 to 2016), in recognition of the fact that for some areas (notably Cardiff, and the three main 'exporting' LPAs of Flintshire, Wrexham and Powys), there has been a sharp increase in recent production. The RTS Steering Group's view was that the highest of the 10-year and 3-year averages, for each LPA, should be used in calculating a more representative National total. Table 3.2, below, presents the figures for each LPA and the derived total. The LPAs are listed simply in alphabetical. Their geographical distribution and arrangement into the North Wales and South Wales RAWP areas, are shown in Figure 1.1, above.

Table 3.2: 10-year and 3-year Total Land-Won Primary Aggregates Sales Averages (to 2016) for each LPA.

| Unitary Authority | 10-yr Average Aggregate Sales (total) (mtpa) | 3-yr Average Aggregate Sales (total) (mtpa) | Highest of 3-yr and 10-yr ave. sales in each LPA (mtpa) |
|------------------------------|---|--|--|
| Blaenau Gwent | 0.170 | 0.180 | 0.180 |
| Brecon Beacons National Park | 0.490 | 0.540 | 0.540 |
| Bridgend | 0.580 | 0.600 | 0.600 |
| Caerphilly | 0.390 | 0.100 | 0.390 |
| Cardiff | 0.830 | 1.060 | 1.060 |
| Carmarthenshire | 0.832 | 0.821 | 0.832 |
| Ceredigion | 0.300 | 0.240 | 0.300 |
| Conwy + Snowdonia NP | 0.955 | 0.813 | 0.955 |
| Denbighshire | 0.329 | 0.043 | 0.329 |
| Flintshire | 2.663 | 3.204 | 3.204 |
| Gwynedd | 0.868 | 0.898 | 0.898 |
| Isle of Anglesey | 0.236 | 0.255 | 0.255 |
| Merthyr Tydfil | 0.150 | 0.010 | 0.150 |
| Monmouthshire | 0.070 | 0.060 | 0.070 |
| Neath Port Talbot | 0.460 | 0.300 | 0.460 |
| Newport | 0.000 | 0.000 | 0.000 |
| Pembrokeshire | 0.510 | 0.360 | 0.510 |
| Pembrokeshire Coast NP | 0.330 | 0.270 | 0.330 |
| Powys | 2.470 | 2.650 | 2.650 |
| Rhonda Cynon Taf | 0.610 | 0.670 | 0.670 |
| Swansea | 0.000 | 0.000 | 0.000 |
| Torfaen | 0.000 | 0.000 | 0.000 |
| Vale of Glamorgan | 0.660 | 0.580 | 0.660 |
| Wrexham | 0.435 | 0.514 | 0.514 |
| TOTAL, Wales | | | 15.557 |

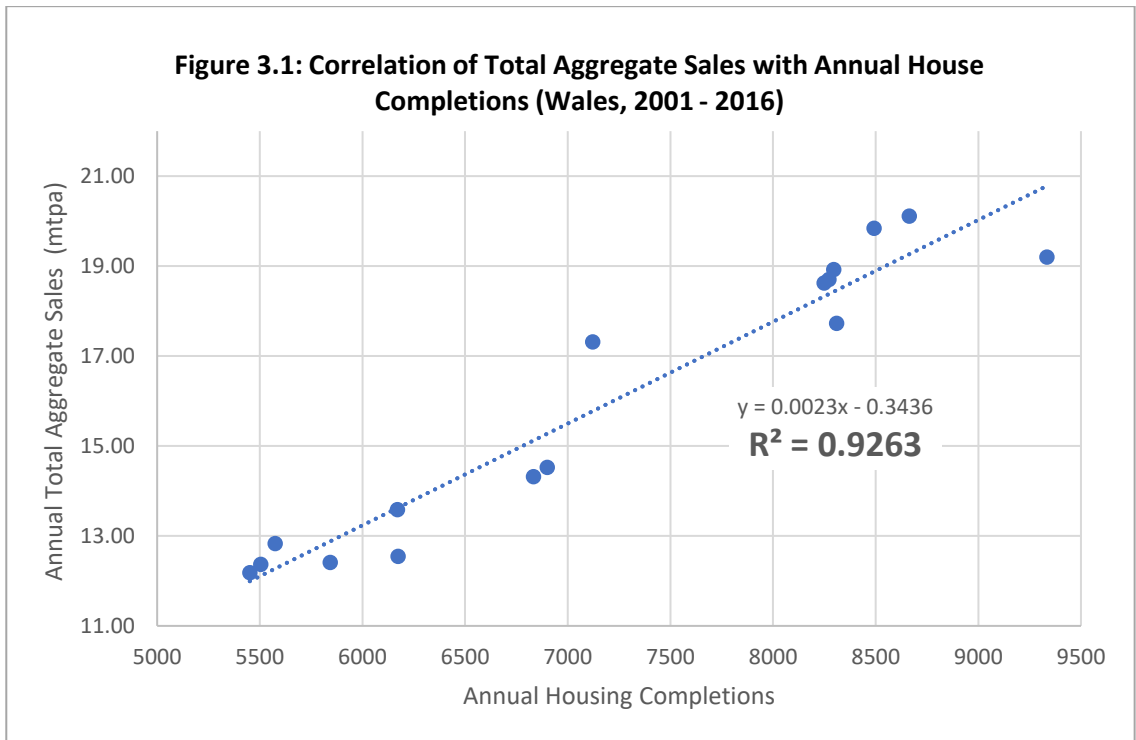
(SOURCE: RAWP Secretaries, 2018)

- 3.9 This National total of 15.557mt compares with an equivalent figure of 17.69 mt for the First Review (based on the 10-year average, only, for the period 2001 to 2010).

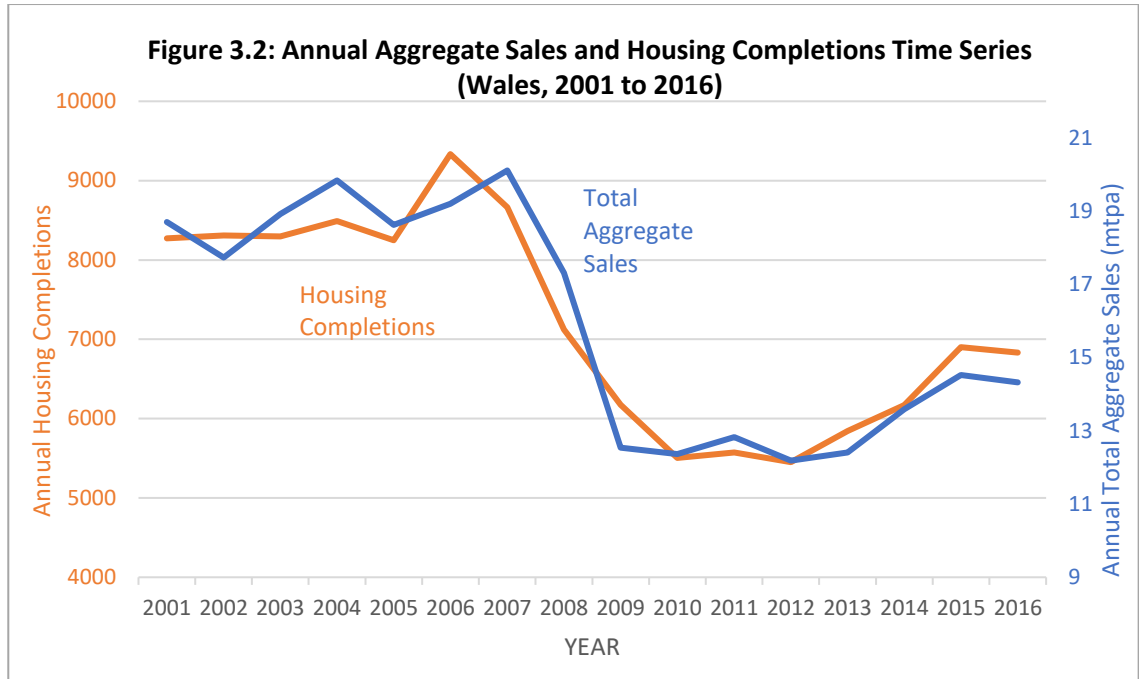
This marked reduction reflects the fact that the baseline for the present Review includes the whole of the recent economic recession, whereas the previous baseline period incorporated only part of the recession together with a preceding period of significantly higher sales.

Housing Data

- 3.10 Statistics on housing completions (and housing starts) for each LPA in Wales are reported on the Welsh Government’s ‘StatsWales’ website⁷. The data are reported in financial, rather than calendar years, so are not directly compatible with aggregate sales data, but comparisons over time can nevertheless reveal important trends. In doing so, two particular findings clearly emerged.
- 3.11 Firstly, an extremely high degree of correlation was revealed, at a national level, between annual house completions and annual sales of aggregates, with a correlation coefficient (R^2) of 0.9236. This is illustrated in Figure 3.1 below. The two time series are compared in Figure 3.2, demonstrating their very close similarity of responses to the recent sharp recession and subsequent faltering recovery.



⁷ <https://statswales.gov.wales/Catalogue/Housing/New-House-Building/newdwellingscompleted-by-area-dwellingtype-numberofbedrooms>



- 3.12 In considering the correlation shown in these diagrams, it is important to note that, whilst there is obviously a causal link between house building and aggregate consumption, the apparent strength of that correlation may be at least partly explained by the fact that both factors are governed by a separate, completely independent variable – that of economic growth.
- 3.13 It must also be recognised that housing accounts, directly, for only a proportion of aggregate sales. A projection of future housing growth (or decline), however reliable, could not be used with any confidence to predict the exact growth or decline of aggregate sales (at most it could only help to predict the proportion of those sales which are directly associated with house construction).
- 3.14 Similar analyses at regional and sub-regional levels were attempted but produced much weaker correlations – particularly in areas where a significant proportion of demand is associated with exports to England, rather than with domestic construction activity (as is the case in north-east Wales, for example, and in Powys).
- 3.15 The second observation relates to the comparison between annualised figures for future housing requirements⁸, derived from the totals set out in adopted Local Development Plans throughout Wales, and actual housing completions data over the 10-year baseline period, as recorded by the Welsh Government. This comparison is presented in Table 3.3. below, with the LPAs again listed in alphabetical order.

⁸ The data used here relates specifically to housing **requirements**, as objectively assessed for each LPA, rather than the figures for housing **provision** adopted in LDPs which are usually higher, following the inclusion of variable allowances in each LPA for ‘flexibility’. The requirement figures were agreed, at a meeting of the two RAWPs, in July 2019, to be a more reliable basis for analysis. Given that LDP progress has varied from one authority to another, some of the earlier figures are now several years old, but all of them were valid for (or beyond) the ‘baseline’ period (2007 – 2016) covered by this Review. The Steering Group considered that these were the best available, consistent source of data for this purpose, with the benefit of having been scrutinised by Inspectors at individual LDP Examinations.

Table 3.3: Comparison of Housing Requirements in Local Development Plans with average Annual Housing Completions in Wales (as of December 2018)

| Unitary Authority | Plan Status | Plan period | Planned Future Housing Requirements | Annualised Future Housing Requirements | Average House Completions per year (2008 – 2017) |
|------------------------|-------------------|------------------------|-------------------------------------|--|--|
| Blaenau Gwent | Adopted | 2006-2021 | 3,500 | 233 | 99.1 |
| Bridgend | Adopted | 2006-2021 | 9,690 | 646 | 365 |
| Caerphilly | Adopted | 2006-2021 | 8,625 | 575 | 335.2 |
| Cardiff | Adopted | 2006-2026 ⁹ | 41,415 | 2,761 | 825.3 |
| Carmarthenshire | Adopted | 2006-2021 | 15,197 | 1,013 | 517.8 |
| Ceredigion | Adopted | 2007-2022 | 6,000 | 400 | 126.1 |
| Conwy | Adopted | 2007-2022 | 6,520 | 435 | 178.6 |
| Snowdonia | Adopted | 2016-2031 | 770 | 51 | |
| Denbighshire | Adopted | 2006-2021 | 7,500 | 500 | 156.2 |
| Flintshire | in Progress | 2015-2030 | 6,950 | 463 | 288.6 |
| Gwynedd | Joint LDP Adopted | 2011-2026 | 7,184 | 479 | 170.4 |
| Isle of Anglesey | | | | | 109.6 |
| Merthyr Tydfil | Adopted | 2006-2021 | 2,250 | 150 | 133.2 |
| Brecon Beacons N.P. | Adopted | 2007-2022 | 1,990 | 133 | |
| Monmouthshire | Adopted | 2011-2021 | 4,500 | 450 | 228.6 |
| Neath Port Talbot | Adopted | 2011-2026 | 7,800 | 520 | 274.3 |
| Newport | Adopted | 2011-2026 | 10,350 | 690 | 527.5 |
| Pembrokeshire | Adopted | 2006-2021 | 5,700 | 380 | 240 |
| Pembrokeshire Coast NP | Adopted | 2006-2021 | 1,599 | 107 | |
| Powys | Adopted | 2011-2026 | 4,500 | 300 | 191.7 |
| Rhonda Cynon Taf | Adopted | 2006-2021 | 14,385 | 959 | 373.9 |
| Swansea | Adopted | 2010-2025 | 15,600 | 1,040 | 519.4 |
| Torfaen | Adopted | 2006-2021 | 4,700 | 313 | 174.6 |
| Vale of Glamorgan | Adopted | 2011-2026 | 9,460 | 631 | 284.3 |
| Wrexham | at Examination | 2013-2028 | 7,750 | 517 | 304.2 |
| TOTAL, Wales | | | 203,935 | 13,746 | 6,423.6 |

3.16 It is evident from Table 3.3 that in every local authority, the levels of future housing requirements are substantially greater than recent levels of completion. For the country as a whole, the planned figures are more than double the average level of annual completions.

3.17 In reality, notwithstanding the fact that the housing figures have been scrutinised in terms of their 'deliverability' as part of the Local Plan process, and should therefore

⁹ Although Cardiff's adopted LDP covers the period 2006 to 2026, work on the plan actually commenced in 2011 following withdrawal of the previous LDP (which covered the period 2006 to 2021). The start date remained at 2006 because much of the evidence base for the withdrawn plan was used to inform the new plan in order to avoid unnecessary expenditure in preparing new evidence where it was not required. This effectively means the plan is a 15-year plan (as for all others), expiring in 2026.

be 'sound', the planned delivery of new houses will only be achieved if economic and other conditions allow. The figures are therefore not predictions and cannot be used as a basis for predicting future demand.

- 3.18 There is, nevertheless, a clear logic behind the notion that levels of housing requirements that are accepted for inclusion in adopted LDPs should be underpinned by a planned sufficiency of construction aggregates. As noted in para. 3.3, above, this ties-in with, and is supported by, the notion of integrating policies to promote balanced decision-making: one of the five key ways of working identified in the Well-being of Future Generations (Wales) Act 2015. **A decision was therefore made to move away from any attempt to predict future demand and to focus, instead, on making sure that future aggregates provision is reasonably matched to the planned requirements for housing construction.**

Economic Forecasts

- 3.19 Notwithstanding that decision, it is still useful to give at least some consideration to established economic forecasts, since these may have a bearing on whether or not the planned construction activity is able to be delivered.
- 3.20 In the First Review, it was found that there was a degree of correlation between past aggregate sales and the annual change (% growth or decline) in **Gross Domestic Product** (GDP), as a measure of economic activity. GDP out-turn figures are readily available (on the Eurostat website) and GDP forecasts are published regularly in the Economic and Fiscal Outlook reports from the Office of Budget Responsibility. Table 3.4, below, compares land-won aggregate sales in Wales, over each of the last 16 years (again combining data for the last review period as well as this one), against published data on the annual percentage change in GDP for the UK.
- 3.21 The resulting graphs (Figures 3.3 and 3.4) reveal the a relatively limited degree of correlation between the two datasets and a noticeable disconnect between the speed of recovery of aggregate sales following the recession, compared with that of GDP growth. This may be at least partly because the GDP figures are available only for the UK as a whole, and not specifically for Wales. It is concluded that these offer very limited insight regarding future aggregate requirements in Wales, and that GDP data should not be used in the assessment of future requirements for aggregates provision.

Availability of Alternative Aggregates

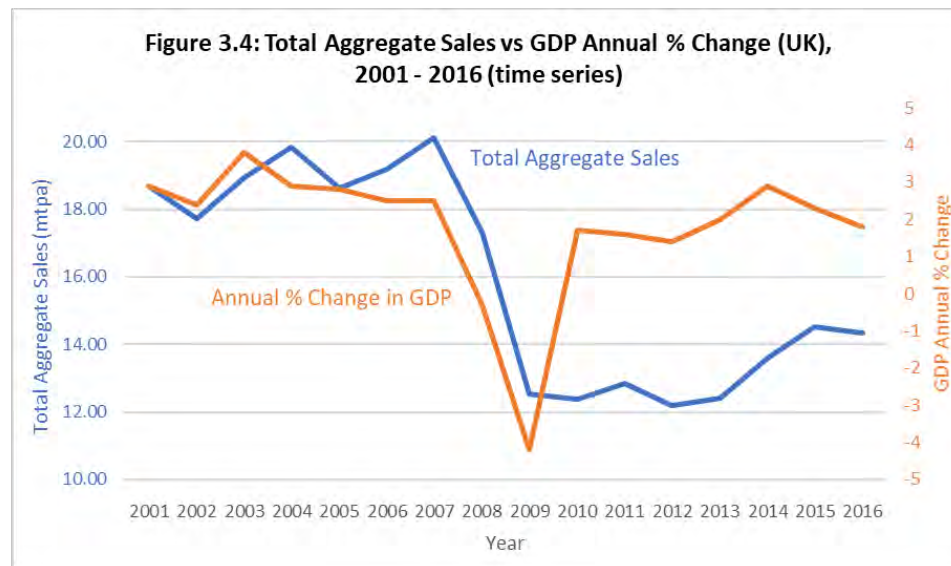
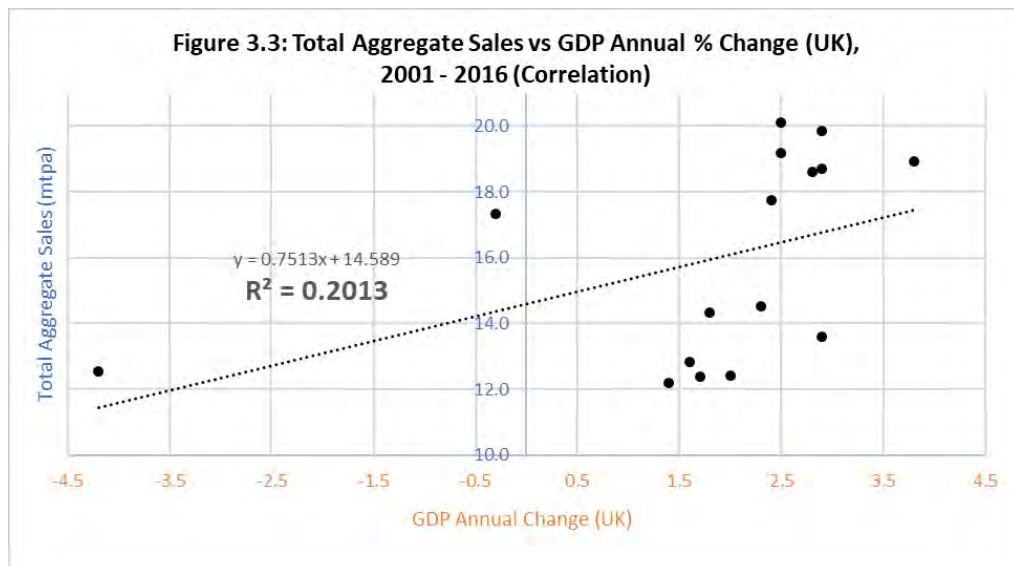
- 3.22 In considering possible trends in the demand for land-won primary aggregates, consideration needs to be given to the availability of alternative (particularly secondary and recycled but also marine) aggregate sources. Such materials are 'top sliced' in terms of policy preferences, such that only the 'residual' demand needs to be supplied from primary, land-won materials.

Table 3.4: Annual Aggregate Sales and GDP Data.

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Crushed Rock * (mt) | 16.97 | 16.18 | 17.46 | 18.30 | 16.95 | 17.75 | 18.81 | 16.58 | 11.8 | 11.58 | 12.08 | 11.33 | 11.6 | 12.5 | 13.31 | 13.43 |
| Land-won Sand & Gravel * (mt) | 1.73 | 1.55 | 1.47 | 1.54 | 1.68 | 1.45 | 1.3 | 0.74 | 0.74 | 0.78 | 0.75 | 0.86 | 0.81 | 1.09 | 1.21 | 0.89 |
| Total * (mt) | 18.70 | 17.73 | 18.92 | 19.84 | 18.62 | 19.20 | 20.11 | 17.32 | 12.54 | 12.37 | 12.83 | 12.19 | 12.41 | 13.59 | 14.52 | 14.32 |
| GDP (UK) – Annual % change ** | 2.9 | 2.4 | 3.8 | 2.9 | 2.8 | 2.5 | 2.5 | -0.3 | -4.2 | 1.7 | 1.6 | 1.4 | 2 | 2.9 | 2.3 | 1.8 |

* SOURCE: Annual RAWP reports, updated (for North Wales) by the RAWP Secretary, for the purposes of this review.

** SOURCE: (https://ec.europa.eu/eurostat/data/database?p_p_id=NavTreeporletprod_WAR_NavTreeporletprod_INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_pos=1&p_p_col_count=2)



Secondary Aggregates

- 3.23 Secondary aggregates comprise the by-products of various industrial processes, including metallurgical slags and power station arisings, but also the by-products from certain types of non-aggregate mineral extraction, such as colliery spoil and slate waste, and from the recycling of glass, ceramics, asphalt planings and rail ballast¹⁰.
- 3.24 Aggregate production from metallurgical slags occurs only in South Wales. Port Talbot continues to produce both blast furnace (iron) and steel slag, whilst electric arc furnace steel slag is still produced from one site in Cardiff. The processing of older stockpiles of blast furnace slag at the former Llanwern steel works is now understood to have ceased. Secondary aggregates are produced from all of these materials although volumes are thought to be declining, with a consequent increase in the demand for primary aggregates.
- 3.25 Coal-fired power station arisings, comprising pulverised fuel ash (PFA) and furnace bottom ash (FBA) are currently produced only at the Aberthaw Power Station, in South Wales. With the planned closure of all coal-fired power stations by 2025, this production will cease. Whether or not historic PFA stockpiles will be able to be worked in future remains to be seen.
- 3.26 Small amounts of aggregate minerals (sandstone and occasionally sand) arise adventitiously from the reworking of former colliery spoil tips or from the working of opencast coal. The amounts and their suitability for use as construction aggregates are highly unpredictable, however, and quantities can vary greatly over time. Many former colliery waste tips in Wales have either been landscaped as part of reclamation schemes or utilised for base fill material. Volumes still available are very limited in North Wales but more significant in parts of the South Wales coalfield. The overall potential for producing aggregate from this material is considered to be small, for a combination of local, fiscal and regulatory reasons, but could be locally significant, particularly within Torfaen and Blaenau Gwent. Here, there may be opportunities for the material to make up for the very limited existing and potential sources of primary aggregate production, although the quality of the material and the quantities available for anything other than low grade fill, have yet to be demonstrated.
- 3.27 Sandstone arisings from new opencast workings have been important as ‘windfall’ resources at a number of sites within the South Wales coalfield, but these are classed as primary aggregates and are therefore not considered further here.
- 3.28 Crushed slate, derived either from slate waste (as a by-product of roofing material production) or quarried specifically for use as aggregate, features significantly in the overall pattern of supply with in North Wales (particularly in Gwynedd), but not in South Wales. Slate is included in the overall figures for crushed rock production

¹⁰ it might appear more logical to group these recycled materials with aggregates produced from recycled construction, demolition and excavation wastes (CD&EW). However, the coverage of CD&EW is already well defined in terms of survey returns, so those items are included here as secondary aggregates.

within the North Wales RAWP reports though not in the AM Surveys. Although output fell during the recent recession, the proportions have remained high, suggesting an underlying increase in the market for slate aggregate. However, given that slate production is already included in the crushed rock statistics, this trend has no implications for the overall level of future demand for primary aggregates, only for the balance between slate and other types of crushed rock.

- 3.29 The various sources of secondary aggregate noted above, together with recycled aggregates, as discussed below, are currently exempt from the Aggregates Levy, in a deliberate attempt to minimise the use of primary aggregates. During 2019 and 2020, the Aggregates Levy was comprehensively reviewed by HMRC, but no changes have been made to those exemptions.

Recycled Aggregates

- 3.30 Aggregates produced from the recycling of construction, demolition and excavation wastes (CD&EW) form an important contribution to the overall supply of construction aggregates. The 2008 RTSs identified a total output for the whole of Wales of 3.97mt, based on 2005 survey data, and suggested a roughly 3 to 1 split between South Wales and North Wales, based on earlier surveys and population ratios. They also noted that, despite the lack of quantitative detail, it is inevitable that the greatest volumes of CD&EW arisings and usage are in the urban areas. The RTS documents emphasised, however, that all statistics for this sector need to be used with a high degree of caution, because of the low rate of response to the surveys.
- 3.31 The situation, in terms of available data, has not improved since the original RTSs were published. No new survey data is available, so any observations on recent or future trends can only be regarded as broad approximations. If anything, the efficiency of recycling is likely to have increased, and the introduction of WRAP's (2005) 'Quality Protocol' for the production of aggregates from inert waste may have increased the proportion and usage of higher value products derived from the various recycled sources. Such improvements, however, represent only small increments on the progress which had previously been made - primarily as a consequence of the price advantages resulting from the landfill tax and, to a lesser extent, the aggregates levy. The view of the Mineral Products Association (MPA), which is not disputed by the NRW, remains that there is little opportunity for significant further increase in the proportion of construction aggregate likely to be derived from this sector. As noted earlier, the future availability of recycled aggregates seems likely to be inextricably linked to the overall rates of construction activity and economic growth, so the safest assumption is that it will rise and fall in a very similar way to overall demand, and will thus have a neutral impact on the demand for primary aggregates, compared to the baseline period (2007 to 2016).

Marine-dredged Aggregates

- 3.32 Marine-dredged aggregates are of major importance in South Wales, with supplies being sourced from the Severn Estuary and the Bristol Channel, but are of very limited importance in North Wales. In south east Wales, marine-dredged material

accounted for 100% of all sand & gravel production over the baseline period (2007 to 2016), reflecting the complete lack of historical (or current) land-based sand & gravel extraction in that area, despite the existence of potential land-based resources.

- 3.33 For the time being, it seems reasonable to suppose that marine-dredged aggregates will continue to supply a similar proportion of overall demand as they have done over the last decade, so the demand for land-won aggregates in any of the sub-regions of either South Wales or North Wales is not likely to be affected.

Imports and Exports

- 3.34 The periodic Aggregate Mineral (AM) Surveys usefully include data on the distribution of aggregates from supply areas to destinations, and on the mode of transportation used. Such data is far from perfect, not least because it is only the initial destination that is recorded. In many cases this may be simply an intermediate processing and/or distribution depot, from which the products travel further. Nevertheless, it is the only available source of distribution data, and is therefore very important to the RTS process.
- 3.35 Table 3.5, on the following page, derived from information presented in Tables 4j and 4k of the AM Reports, reveals the extent to which aggregates produced in North Wales and South Wales are exported (either between those regions or, primarily, to England).
- 3.36 In North Wales, the main aggregate exports, by far, are those of Carboniferous Limestone which primarily are supplied to North West England. The AM Survey figures for North Wales generally show that, as overall sales fell during the recent recession – between 2005 and 2009, the proportion (as well as the totals) of exports also fell. This implies that, during periods of recession, for general-purpose limestone aggregates, there is a reduced dependence by importing regions on supplies from more distant sources, as would be expected. But the reverse is also true: as the economy has recovered from recession, since 2009, the demand for exports from North Wales has increased once again, and more quickly than the overall rate of economic growth.
- 3.37 In South Wales, the main export is of sandstone, the vast majority (almost 90%) of which is High Specification Aggregate (HSA) - skid-resistant road surfacing material with a Polished Stone Value (PSV) of 58 or above, and generally much higher (Thompson, Greig & Shaw 1993; Thompson *et al*, 2004). As noted earlier, these exports are of major importance because of the limited sources of unconstrained HSA materials within England. Reference to Table 3.5 shows that, although there was a reduction in sandstone exports between 2005 and 2009, the difference was much less marked than was the case for limestone exports from North Wales, especially in percentage terms. This reflects the fact that the market for skid-resistant road aggregate held up better, during the recession, than was the case for more general-purpose limestone aggregate (presumably because of the safety imperative of continuing to maintain skid resistance on major roads).

Table 3.5: Summary of Regional-scale export data from recent AM Surveys

| <i>Note: all figures exclude sales for non-aggregate use</i> | AM2001 (mt) | AM2005 (mt) | AM2009 (mt) | AM2014 (mt) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| North Wales (data from Table 4k of the AM reports) | | | | |
| Land won Sand & Gravel Sales | 1.342 | 1.192 | 0.589 | 0.897 |
| S&G Exports* | 0.544 | 0.508 | 0.128 | 0.158 |
| Exports as % of S&G total | 41% | 43% | 22% | 18% |
| Limestone Sales | 6.062 | 4.641 | 2.636 | 3.508 |
| Limestone Exports* | 3.344 | 2.973 | 1.116 | 2.226 |
| Exports as % of Limestone total | 55% | 64% | 42% | 64% |
| Igneous Sales | 1.136 | 1.022 | 0.610 | 0.660 |
| Igneous Exports* | 0.091 | 0.277 | 0.064 | 0.054 |
| Exports as % of Igneous total | 8% | 27% | 10% | 8% |
| Sandstone Sales | 0 | 0 | 0 | 0 |
| Sandstone Exports* | 0 | 0 | 0 | 0 |
| Exports as % of Sandstone total | 0% | 0% | 0% | 0% |
| Total Crushed Rock Sales** | 7.198 | 5.663 | 3.245 | 4.168 |
| Total CR Exports* | 3.436 | 3.251 | 1.178 | 2.280 |
| North Wales CR Exports as % of CR total | 48% | 57% | 36% | 55% |
| South Wales (data from Table 4j of the AM reports) | | | | |
| Land won Sand & Gravel Sales | 0.115 | 0.304 | 0.144 | 0.205 |
| S&G Exports* | 0.001 | 0.011 | 0 | 0 |
| Exports as % of S&G total | 1% | 4% | 0% | 0% |
| Limestone Sales | 6.536 | 6.137 | 4.554 | 4.540 |
| Limestone Exports* | 0.262 | 0.154 | 0.052 | 0.332 |
| Exports as % of Limestone total | 4% | 3% | 1% | 7% |
| Igneous Sales | 0.838 | 1.238 | 1.025 | 1.577 |
| Igneous Exports* | 0.572 | 0.430 | 0.694 | 0.829 |
| Exports as % of Igneous total | 68% | 35% | 68% | 53% |
| Sandstone Sales | 2.648 | 3.498 | 2.605 | 1.709 |
| Sandstone Exports* | 1.457 | 1.941 | 1.258 | 0.852 |
| Exports as % of Sandstone total | 55% | 55% | 48% | 50% |
| Total Crushed Rock Sales** | 10.310 | 10.873 | 8.185 | 7.825 |
| Total CR Exports* | 2.302 | 2.527 | 2.003 | 2.013 |
| South Wales CR Exports as % of CR total | 22% | 23% | 24% | 26% |

* 'exports' are primarily to England but include some movement between South Wales and North Wales.

** Unlike the figures used elsewhere in this Review, crushed rock sales in the AM reports exclude slate

3.38 Wales has always been a net exporter of construction aggregates and imports of land-based aggregates from England are very minor, by comparison with exports. In North Wales, imports in 2014 (from Table 5k of the AM 2014 report) amounted to just 0.023mt of land-won sand & gravel, and only 0.128mt of crushed rock, most of which comprised igneous rock from neighbouring South Wales and Limestone from South West England. In South Wales in 2014 (from Table 5j), land-based imports amounted to 0.042mt of sand & gravel and 0.079mt of crushed rock, primarily limestone from South West England.

- 3.39 Imports and exports of marine-dredged sand and gravel between England and Wales are only relevant to the RTS apportionment exercise if they affect the continuity of supply of these materials to Wales and thus give rise to increased demand on land-based resources. This is potentially an issue in South East Wales which, as noted earlier, is heavily dependent upon marine aggregates. At the time of the First Review, Wales was a net importer of marine sand & gravel, dredged from the English side of the median line in the Bristol Channel and the Severn Estuary. This was noted in the Review as being likely to change, subject to the approval of new licence applications within Welsh waters. By 2019, the relative balance between imports and exports has shifted as a consequence of a new licence that has been recently permitted across the median line between English and Welsh waters. However, significant trade continues from English licences to Welsh markets as well as vice versa. In Liverpool Bay, the only licence area in Welsh waters remains a net exporter to north west English markets.
- 3.40 Recent AM Surveys have also included information on aggregate movement between sub-regions. In Wales the sub-regions used for this purpose¹¹ comprise:
- **North-East Wales** (Conwy, Denbighshire, Flintshire and Wrexham);
 - **North-West Wales** (Isle of Anglesey, Gwynedd & the Snowdonia National Park);
 - **South-East Wales** (Swansea, Neath Port Talbot, Bridgend, Rhondda Cynon Taf, Merthyr Tydfil, Caerphilly, Blaenau Gwent, Torfaen, Monmouthshire, Newport, Cardiff and the Vale of Glamorgan); and
 - **‘the Remainder of South Wales’** (Pembrokeshire, Pembrokeshire Coast National Park, Ceredigion, Carmarthenshire, Powys and the Brecon Beacons National Park).
- 3.41 Table 3.6, below, shows the results for crushed rock, for each mineral planning authority. In each case, figures are given for sales within the same sub-region, sales to directly adjoining sub-regions within Wales, and sales to other sub-regions, including those in England.
- 3.42 Similar data is available for sand & gravel aggregates, although the quantities involved are extremely small, except in the case of Wrexham, where 51% is sold within NE Wales, 27% in NW Wales and 22% elsewhere (primarily England).

¹¹ The sub-regions used for the AM Surveys should not be confused with those used for the analysis of future apportionments in this Review, as described on page 53 and shown in Figure 5.2.

Table 3.6: Sub-Regional export data for crushed rock aggregates* from the AM 2014 Survey report (Mankelov et al, 2016), expressed as percentages of total sales.

| <i>Note: all figures exclude sales for non-aggregate use</i> | Sales within sub-region | Sales to adjoining sub-regions in Wales | Sales to other sub-regions and to England |
|--|-------------------------|---|---|
| North Wales (data from Table 9k of the AM report) | | | |
| Conwy | 25% | 40% | 35% |
| Denbighshire** | (44%) | (0%) | (56%) |
| Flintshire | 33% | 0% | 66% |
| Gwynedd | 77% | 21% | 3% |
| Isle of Anglesey | 70% | 17% | 12% |
| Wrexham | - | - | - |
| South Wales (data from Table 9j of the AM report) | | | |
| Blaenau Gwent | 100% | | 0% |
| Brecon Beacons National Park | 2% | 98% | 0% |
| Bridgend | 100% | 0% | 0% |
| Caerphilly | 54% | 46% | |
| Cardiff | 39% | 61% | 0% |
| Carmarthenshire | 23% | 77% | 0% |
| Ceredigion | 100% | 0% | 0% |
| Monmouthshire | - | - | - |
| Neath Port Talbot | 11% | 57% | 32% |
| Newport | - | - | - |
| Pembrokeshire | 66% | 34% | 0% |
| Pembrokeshire Coast National Park | | | |
| Powys | 26% | 6% | 68% |
| Rhondda, Cynon, Taf | 80% | 0% | 20% |
| Swansea | - | - | - |
| Torfaen | - | - | - |
| Vale of Glamorgan | 65% | 35% | 0% |

* Unlike the figures in Tables 3.3 and 3.4, above, crushed rock sales exclude slate

** Denbighshire was omitted from Table 9k of the AM 2014 report, so the figures shown here are from AM 2009.

Agreed Methodology

- 3.43 The foregoing analysis indicates that there is very little clarity in terms of likely future trends in the demand for construction aggregates in Wales. As noted earlier, a decision was therefore made that the RTS should focus on matching future aggregates provision with a combination of historical sales data and the planned requirements for housing construction in Local Development Plans, rather than relying on any kind of detailed econometric forecasting.
- 3.44 Given that the relationship, such as it is, between house construction and aggregate sales is demonstrable at the national level, but not at regional or sub-regional levels, it is logical that figures for future provision should be set at the national level, and subsequently cascaded down to the regions, sub-regions and individual LPAs.

3.45 Following a detailed consideration of several options and permutations, the methodology agreed with the RTS Steering Group¹² was that this should entail four sequential stages, as set out below.

STAGE 1: National Provision

- Calculate the overall level of future aggregates provision in Wales at a national level by combining the historical sales average (taking the highest of the 10-year and 3-year averages for each LPA, for the reasons given in para. 3.8 above) with a factor which reflects the planned level of future housing construction activity, compared with that seen over the same 10-year baseline period (for details, see Chapter 5);

STAGE 2: Regional Split

- Divide the national figure between North Wales and South Wales, on the basis of the historical sales split between those regions which, as noted in paragraph 24 of MTAN1, has remained reasonably consistent over many years;

STAGE 3: Sub-Regional and LPA Apportionments

- Sub-divide the regional figures between a series of seven **sub-regions** (defined for the purpose of this Review¹³) and, *provided that it is feasible to do so*, between each of the constituent Local Planning Authorities (LPAs).
- In most cases, the distribution of apportionments within each sub-region is to be achieved through a combination of quantitative and qualitative judgements, exercised by the RTS Steering Group and facilitated by the appointed consultant. The judgements should aim to reflect the Steering Group's collective understanding of market requirements (reflecting both historical sales and the distribution of planned housing activity) together with considerations of existing landbanks, the proximity principle and environmental capacity.
- In a few areas, notably where there has been no production of land-won aggregates for many years, with no permitted reserves and zero apportionments, it might sometimes be more appropriate for the RTS apportionments to be subject to more detailed investigation by all of the LPAs within that particular sub-region and to industry responses to future calls for sites within those LPAs. In such cases, LPA apportionments will still be recommended but the possibility of alternative (more sustainable) sub-regional patterns of supply being found through sub-regional collaboration between LPAs and industry will be noted;

¹² comprising Welsh Government, the two RAWP secretaries, National Resources Wales, the Mineral Products Association, the British Aggregates Association and representatives of one local authority from each Region

¹³ The sub-regions were created, at Welsh Government's suggestion, for the specific purpose of facilitating strategic minerals planning and collaborative approaches between LPAs. They each represent distinctive 'market areas' between which there is relatively little movement of aggregates, except for exports to England, and within which detailed, strategic consideration can be given as to the most appropriate patterns of supply.

STAGE 4: Sand & Gravel / Crushed Rock Split, and Allocations

- Sub-divide each LPA apportionment by aggregate type (sand & gravel or crushed rock), based on the recent historical sales split for that LPA and/or resource availability;
- Then determine the requirements for new allocations within individual LPAs by comparing the apportionment requirements over 22 years (for sand & gravel) or 25 years (for crushed rock)¹⁴ with existing landbanks.

3.46 Further details regarding the implementation of this methodology are presented in Chapter 5, below but first, to inform the qualitative element of Stage 3, it is useful to review the nature and adequacy, or otherwise, of the existing pattern of supply.

¹⁴ These derive from the minimum landbank requirements of 7 years for sand & gravel and 10 years for crushed rock, being required throughout an *entire* 15-year plan period, as set out in MTAN 1.

4. Analysis of the Existing Supply Pattern

Introduction

- 4.1 Planning Policy Wales, paragraph 5.14.1 requires that, in order to provide for society's ongoing needs there should be a steady and adequate supply of construction-related minerals and mineral products. Paragraph 5.14.2 highlights the need to balance this fundamental requirement with the protection of amenity and the environment. This goes to the heart of the RTS process and requires that, as well as balancing supply and demand, consideration is given to the adequacy or otherwise of the existing pattern of supply, from a sustainability perspective. As explained in Chapter 2, this requires at least qualitative assessment of the pattern with respect to both proximity and environmental capacity.
- 4.2 In the original (2008) RTS, proximity was only considered in terms of the 'per capita' demand analysis which, as noted earlier, is difficult to justify. There is little, if any, correlation between aggregate sales and population size. Population density, together with the location of existing urban development, were examined, qualitatively, in the First Review, to provide some indication of the geographical areas where new construction is most likely to be concentrated. Proximity to such areas was seen as one measure of the sustainability of existing quarries, and a desirable factor in the location of new ones - subject, of course, to the availability of resources in those locations and to the consideration of other practical and environmental factors. In the present review, as well as population density, the additional factor of planned housing construction is also being considered.
- 4.3 The concept of environmental capacity was considered, in the original RTSs, only in terms of providing qualitative descriptions for each LPA, based on outputs from the IMAECA analysis. It had no influence at all on the resulting apportionments or allocations (although future working within National Parks was discouraged as a more general matter of Policy - paragraphs 21 and 22 of the former MPPW; and paragraphs. 46, 49, 51, 52 & 53 of MTAN1).
- 4.4 In the course of the First Review, a determined attempt was made to use both the proximity principle and environmental capacity to better effect, in conjunction with an understanding of resource availability and historical supply patterns, in order to enhance, if possible, the spatial distribution of future supply sources. That process is continued in this Review, taking account of the additional information now available on the spatial distribution of planned future housing provision.
- 4.5 In considering such enhancement, it must be remembered that supply patterns are crucially dependent on the availability of suitable resources and on the commercial viability of working them. Minerals can only be worked where they are found. Moreover, they can only be worked on a commercial scale where quarry operators are willing to invest in their extraction, and in the procedures necessary to avoid (or minimise) potential adverse environmental impacts. In most cases, the detailed economic and commercial factors involved for individual sites cannot adequately be assessed at the strategic level represented by the RTS.

- 4.6 It must also be remembered that improved proximity might sometimes be at the expense of reduced environmental capacity; whilst improved capacity might be at the expense of increased transportation distances, with consequential increases in carbon emissions and traffic impacts. The two factors therefore need to be considered in combination.
- 4.7 Consideration also needs to be given to other factors, including the relative merits of extensions to existing quarries as opposed to new 'greenfield sites'; the need to avoid stifling competition between different operators; and the need to maintain productive capacity – both to maintain a healthy degree of competition between different operators and to ensure that the supply pattern has the necessary resilience to be able to cope with periodic spikes in demand (as, for example, may be associated with major infrastructure projects or other large-scale development initiatives).
- 4.8 These detailed issues can most effectively be dealt with at a local level, however, once the overall strategy has been established. For this reason, the following analysis begins with a consideration of the broad, national and regional picture, with more detail being provided in the sub-Regional analyses presented in Appendices A and B. The key findings are then carried through to the assessment of future apportionments and allocations, in Chapter 5.

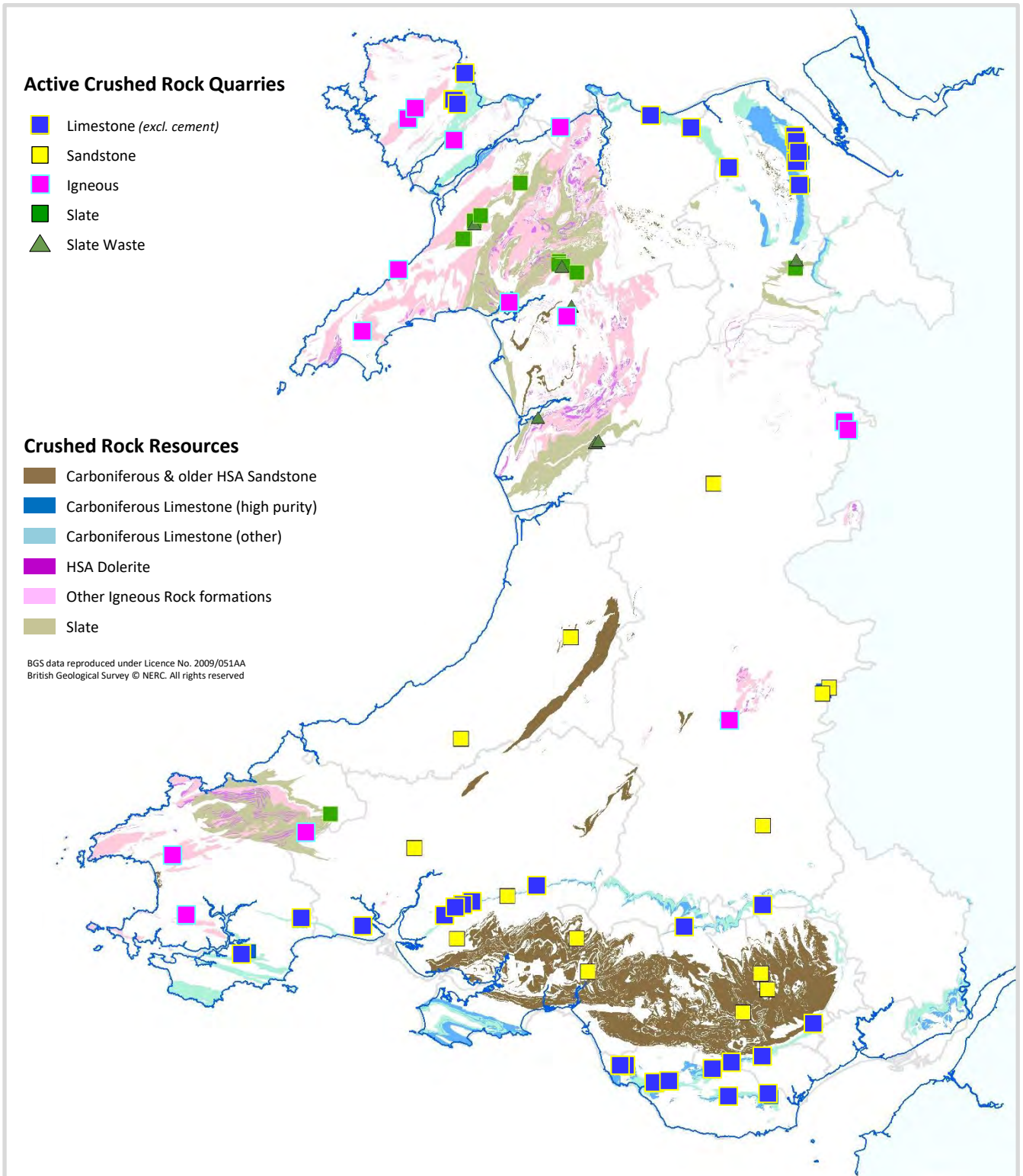
National and Regional Analysis

Distribution of Quarries and Resources

- 4.9 As noted above, the distribution of suitable geological resources is of fundamental importance in understanding the distribution of existing quarries, and in understanding the limitations involved in locating potential new ones. Once again, it is important to stress that minerals can only be worked where they are found.
- 4.10 Figure 4.1, below, shows the distribution of crushed rock quarries in Wales which were active in 2018, together with the outcrops of the key resources. The quarry locations are taken from an updated edition of the BGS 'Britpits' database¹⁵, limiting the selection to those which produce hard rock aggregates, either as a primary product or (in the case of slate waste tips) as a secondary material. Larger scale maps, which show the locations of inactive and dormant, as well as active quarries, are presented in the more detailed analysis contained within the Regional Appendices (A and B).

¹⁵ A 2018 edition of the Britpits database was supplied by the BGS at the outset of this study but was then updated by the RAWP secretaries, particularly in terms of current operational status and ownership.

Figure 4.1: Active Crushed Rock Aggregate Quarries and Resources in Wales, 2018



4.11 The resource outcrops on Figure 4.1 are taken directly from the digital dataset produced for the BGS Mineral Resources Map of Wales (Humpage & Bide, 2010), but are limited to those resources which are important for the production of crushed rock aggregates. These include all 'Category 1' resources, as identified on the BGS

maps, and some (but not all) 'Category 2' resources. They fall into seven main groups, as follows:

- Carboniferous HSA sandstones (Category 1)
- Pre-Carboniferous HSA sandstones (Category 2)
- High Purity Carboniferous Limestone (Category 1)
- Other Carboniferous Limestone (Category 2)
- HSA dolerites (Category 1)
- Other igneous rock formations (Category 2)
- Slate (Category 2)

4.12 The term 'HSA' refers to 'High Specification Aggregate', which is suitable for use as skid-resistant road surfacing aggregate as defined in the original 'Travers Morgan' report on these materials for the former Department of the Environment (Thompson, Greig & Shaw, 1993). They are characterised by a high Polished Stone Value (PSV \geq 58) in combination with a low Aggregate Abrasion Value (AAV \leq 16) and tend to command a premium price compared with other types of road aggregate. They are also transported over much greater distances in order to meet specification requirements in areas which have no comparable indigenous resources (which includes most of eastern and southern England). HSA aggregates in Wales include certain types of hard sandstone (particularly the Carboniferous 'Pennant' Sandstones of the South Wales coalfield, and some older sandstones - mainly within Powys), and certain types of dolerite (a particular variety of igneous rock) which occurs within various parts of south-west, north-west and mid-Wales.

4.13 It should be noted that some of the extensive sandstone formations within mid-Wales and North Wales that were identified as potential HSA resources within the 1993 Travers Morgan report have since been refined by the most recent and more detailed BGS resource mapping, such that only parts of those resources are now identified as potential sources of HSA material on a commercial scale.

4.14 The usual caveat should be added that not all of the outcrops, of any of the rock types or formations listed at para. 4.11, above, will necessarily be suitable for commercial quarrying. This is because all geological materials are inherently variable, from one part of their outcrop to another. Moreover, the commercial viability of extraction is also influenced by a large number of other practical issues including the local extent of the deposit, land ownership, access, and distance from market, as well as planning and environmental constraints.

4.15 Above all, it must be emphasised that Figure 4.1 (and Figure 4.2 below) displays the extent of potential **resources** and not **permitted reserves**. Resources are geological materials, including rock formations and naturally occurring sand & gravel deposits, which have the *potential* to be used for a particular purpose (in this case as construction aggregates). Reserves, in the broadest sense, are those parts of a resource which are *known* to be suitable for this purpose (usually as a result of detailed ground investigations and laboratory testing) and permitted reserves are

those which have valid planning permission for the winning and working of the materials in question.

- 4.16 Excluded from Figure 4.1 are a range of weaker sandstones and limestones, including some 'Category 2' resources, which are not currently exploited as sources of crushed rock aggregate on anything other than an extremely local scale (e.g. for use on farms etc.), and where this is most unlikely to change in future, because of their inherent unsuitability for more commercial applications. Such resources include all Devonian sandstones and all post-Carboniferous sandstones and limestones. Whilst many of these have been identified by the BGS as being worthy of safeguarding within Local Development Plans (Wrighton & Humpage, 2012), they do not represent practical alternatives to the resources listed above, in terms of their ability to meet the same commercial specifications and are therefore not considered further here.
- 4.17 Figure 4.2, below, provides a similar map of the distribution of land-based sand & gravel pits, together with the corresponding potential resources. The latter are once again taken largely from the BGS Mineral Resources Map of Wales and include a wide range of sediments which have potential as sources of natural aggregate. The same caveats apply as for the crushed rock resources noted above.
- 4.18 Figure 4.2 also shows, within NW Wales and SE Wales, more specific potential resource blocks which were identified in more detailed studies carried out for the National Assembly for Wales (Thompson et al., 2000; University of Liverpool, 2003). These are not necessarily the only potential worthwhile resources, but they are the most rigorously assessed, within the areas concerned.
- 4.19 Figure 4.3, which follows, shows the areas which are within an illustrative 20km radius of one or more currently active crushed rock quarries; and Figure 4.4 provides a similar illustration in respect of both land-based sand & gravel quarries and ports which receive marine-dredged aggregates (principally sand).
- 4.20 In most cases, the economic radius of distribution from these locations is considerably greater than 20km: typically up to 50km for 'ordinary' graded aggregate or further in the case of value-added products (e.g. ready-mixed concrete and asphalt materials) that are often produced at remote depots for onward distribution, and much further still in the case of High Specification Aggregates or High Purity limestone.
- 4.21 The diagrams merely illustrate that the existing pattern of supply within Wales already conforms reasonably well to the Proximity Principle: very few parts of the country (those shown in black on Figure 4.3) are more than 20km from a source of crushed rock aggregate and many of those which are further away fall within 20km of either a land-based sand & gravel pit or a wharf which imports marine-dredged aggregates. Elsewhere, the distances are more than 20km but rarely more than 30km, and in most cases these are remote rural areas which are unlikely to generate significant levels of demand.

Figure 4.2: Land-based Sand & Gravel Pits and Resources in Wales, 2018

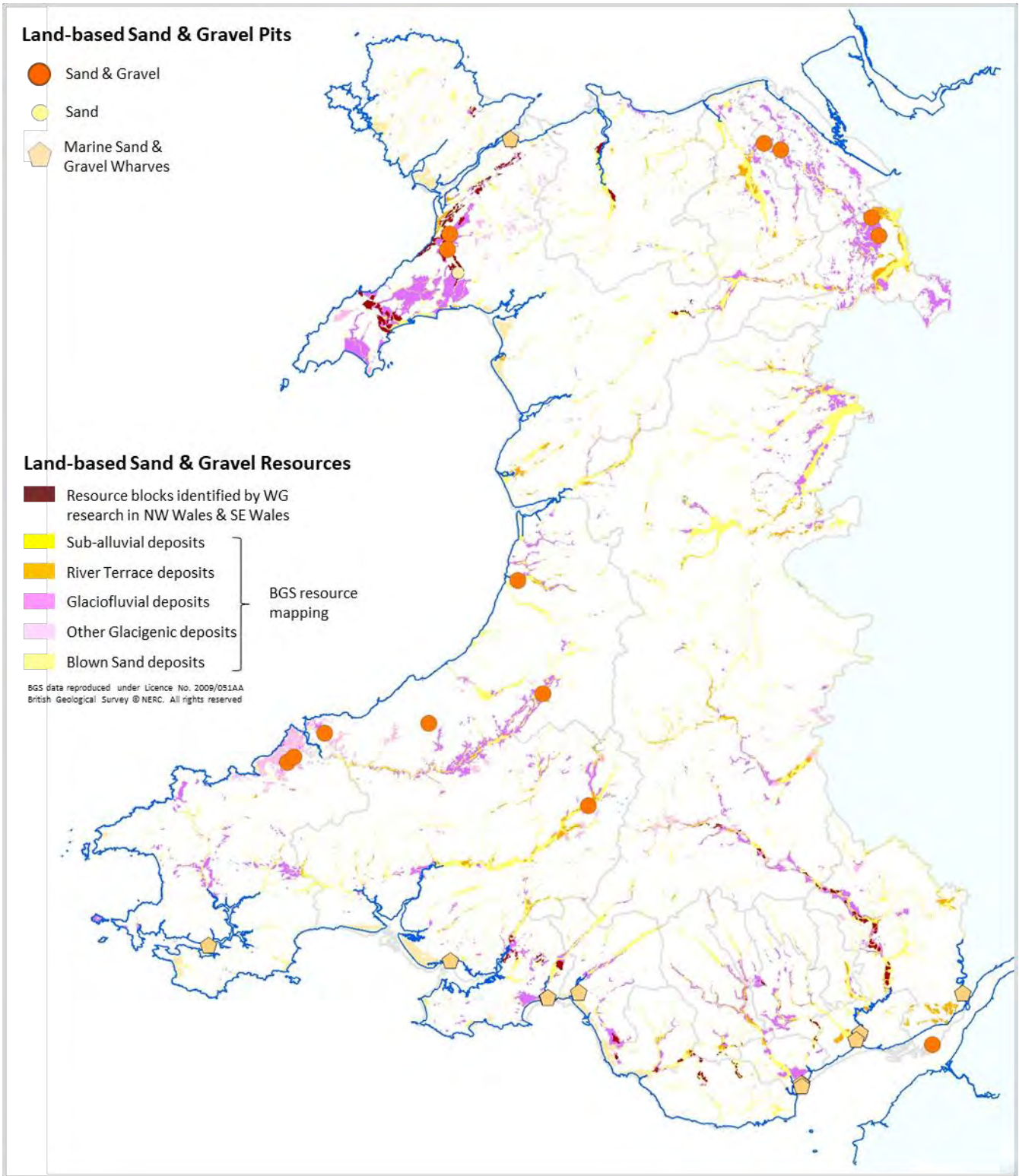


Figure 4.3: illustrative 20km radii from all active crushed rock quarries in Wales, 2018.

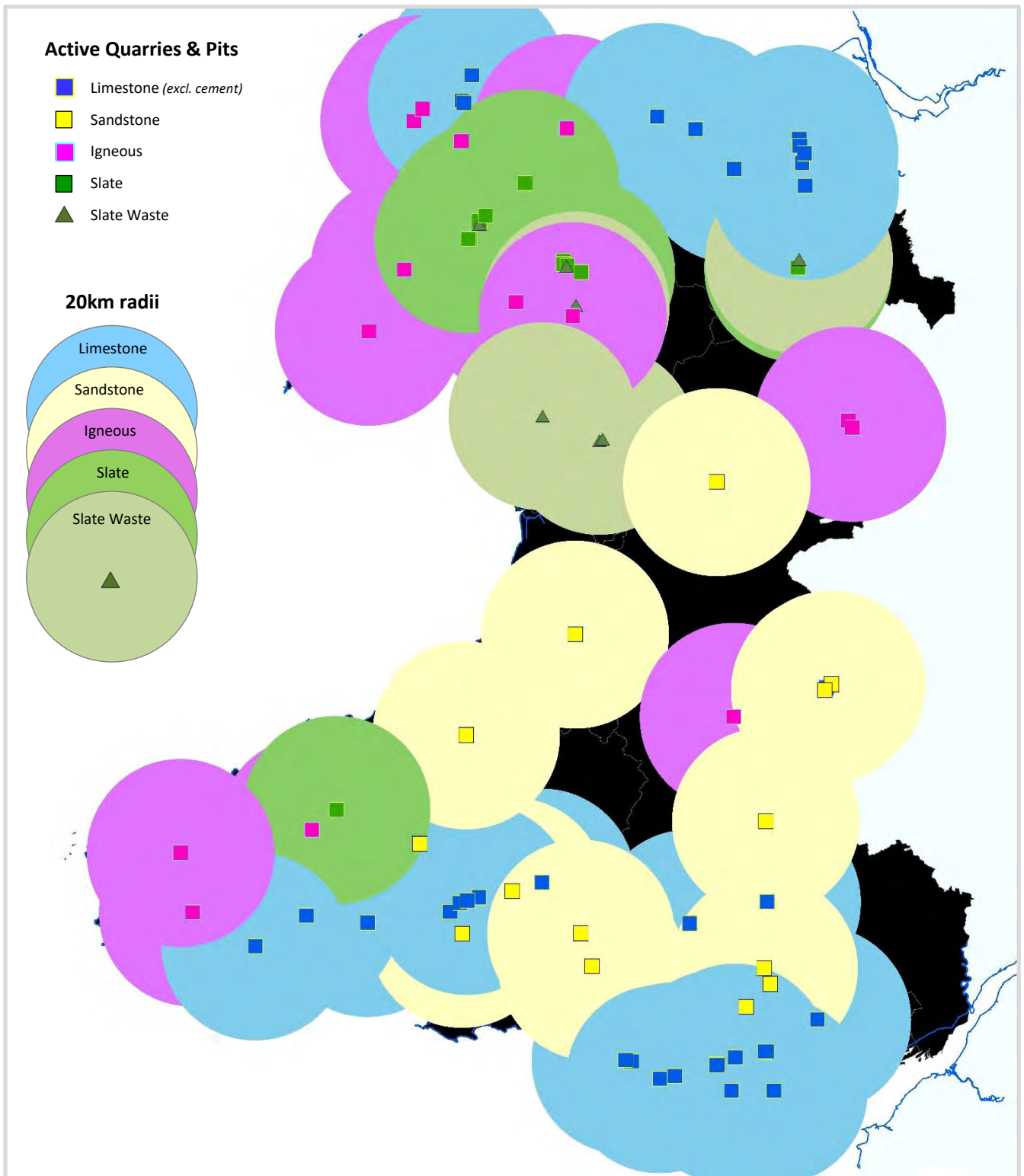
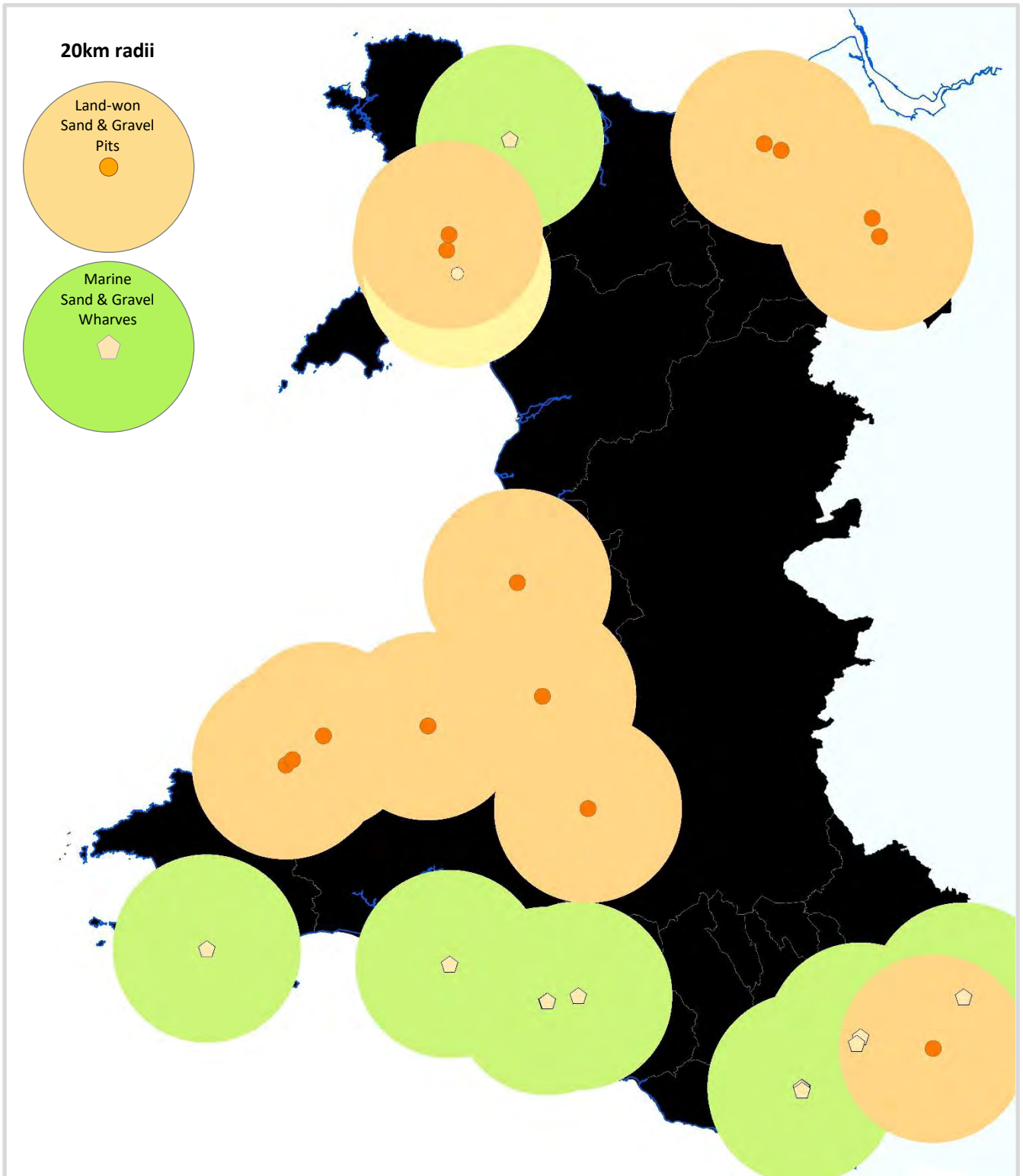


Figure 4.4: illustrative 20km radii from all active sand & gravel pits & wharves in Wales, 2018.



4.22 Figure 4.5, below, shows the distribution of crushed rock quarries in relation to the scale of crushed rock aggregate production, as measured by average historical sales figures for each LPA over the baseline period (2007-2016). The shading corresponds

to the figures given in Tables 5.4 and 5.6 in Chapter 5¹⁶. It is emphasised that this illustrates variations in production, not demand, and therefore includes both domestic consumption and exports to adjoining areas, including England. Figure 4.6 then provides a similar map for land-based sand & gravel production, displaying the data from Tables 5.3 and 5.5.

- 4.23 The focus of production for crushed rock is clearly seen, from Figure 4.5, to be in North-East Wales - particularly Flintshire (which is where most of the exporting Carboniferous Limestone quarries are located); and in Powys, where a number of sandstone and igneous rock quarries supply HSA material to England - particularly to adjoining parts of the West Midlands. In the rest of South Wales the picture is distorted by the much smaller size of many of the individual unitary authorities, particularly in the south-east, where the totals for each LPA are less than for the much larger county of Powys, even though overall production within SE Wales is double the total for Powys.
- 4.24 Historical crushed rock sales in South Wales have been concentrated within the Carmarthenshire, Bridgend, Vale of Glamorgan, Rhondda Cynon Taf and Cardiff LPAs (which is where most of the larger Carboniferous Limestone quarries in South Wales are located), and in the adjoining LPAs of Caerphilly and Neath Port Talbot, where additional HSA sandstone quarries are also located. Whereas much of the crushed rock production within NE Wales is supplied to the neighbouring parts of North West England, particularly Merseyside, most if not all of the limestone production in South East Wales appears to be utilised locally, within the producing areas, and within the adjoining LPAs of Swansea and Neath Port Talbot, to the west, and those of Merthyr Tydfil, Caerphilly and the 'Former Gwent' authorities to the east. Although Carboniferous Limestone resources do exist in these adjoining areas, they are either less extensive and/or more heavily constrained (see Appendix B for more detailed analysis).
- 4.25 The fact that little or none of the limestone from South Wales is exported further east, into England, is evidenced by the fact that additional Carboniferous Limestone from the Forest of Dean in Gloucestershire is currently being imported into the former Gwent area to make up for what would otherwise be an overall shortfall of supply. Although SE Wales has significant exports of crushed rock to England, most if not all of those exports are of HSA from the Pennant Sandstone formations of the South Wales Coalfield.
- 4.26 Overall, the pattern of crushed rock aggregate production outlined above relates largely to the availability of resources, the location of established supply units and the proximity of these to the main areas of construction activity and/or to major transport routes such as M4 corridor. Further analysis of the supply pattern, including the relationships between quarry locations, resources, markets, major designations and environmental capacity, is provided in paragraphs 4.30 *et seq.*, below, and in the two Regional Appendices.

¹⁶ The exception being Snowdonia National Park, which is combined with Conwy in Table 3.1, for confidentiality reasons, but which in fact had very limited production over the baseline period, from a single site.

Figure 4.5: Spatial Distribution of Crushed Rock Production within each LPA, based on Average Sales 2007 - 2016, with locations of Active Crushed Rock Aggregate Quarries (2018)

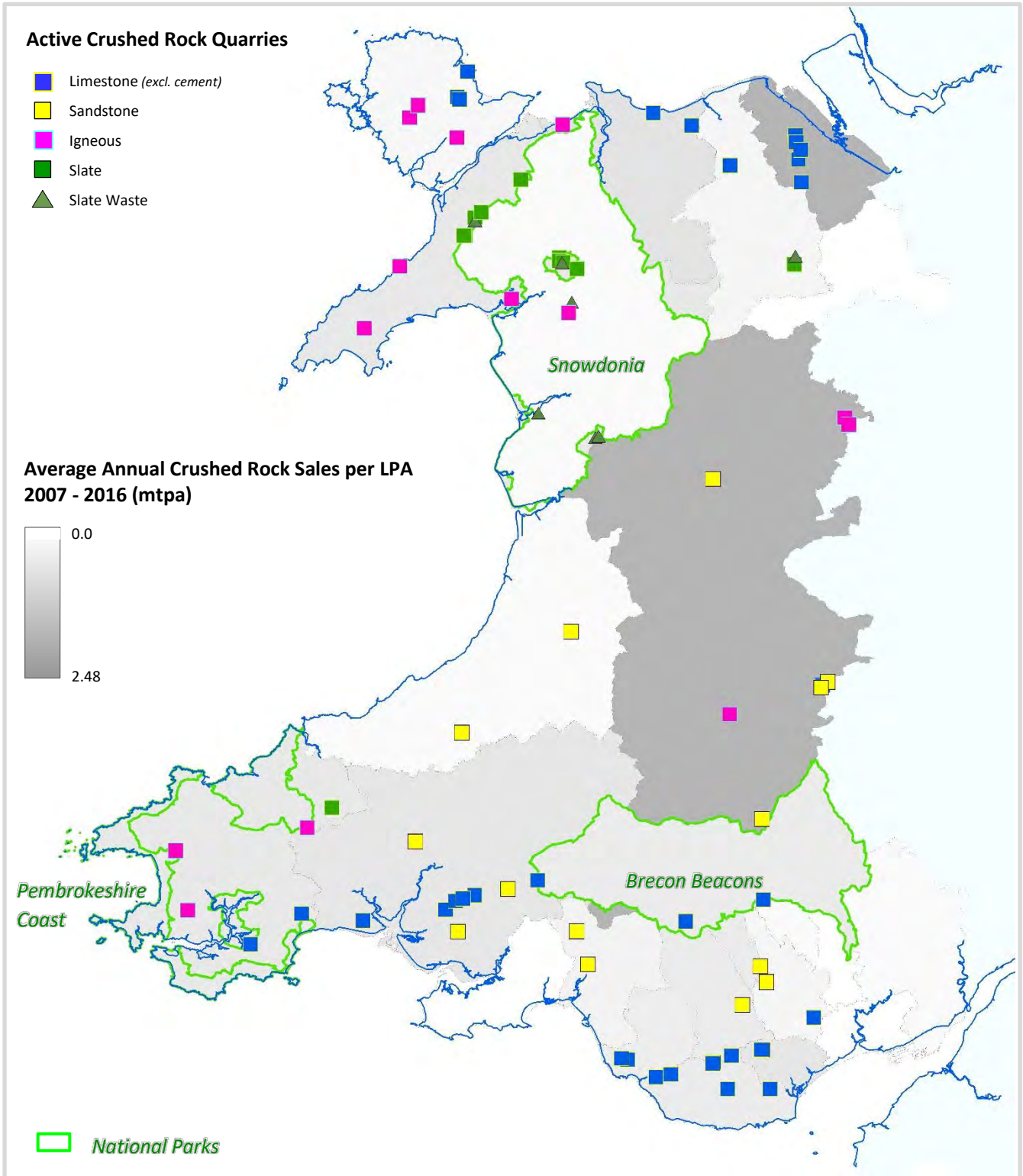
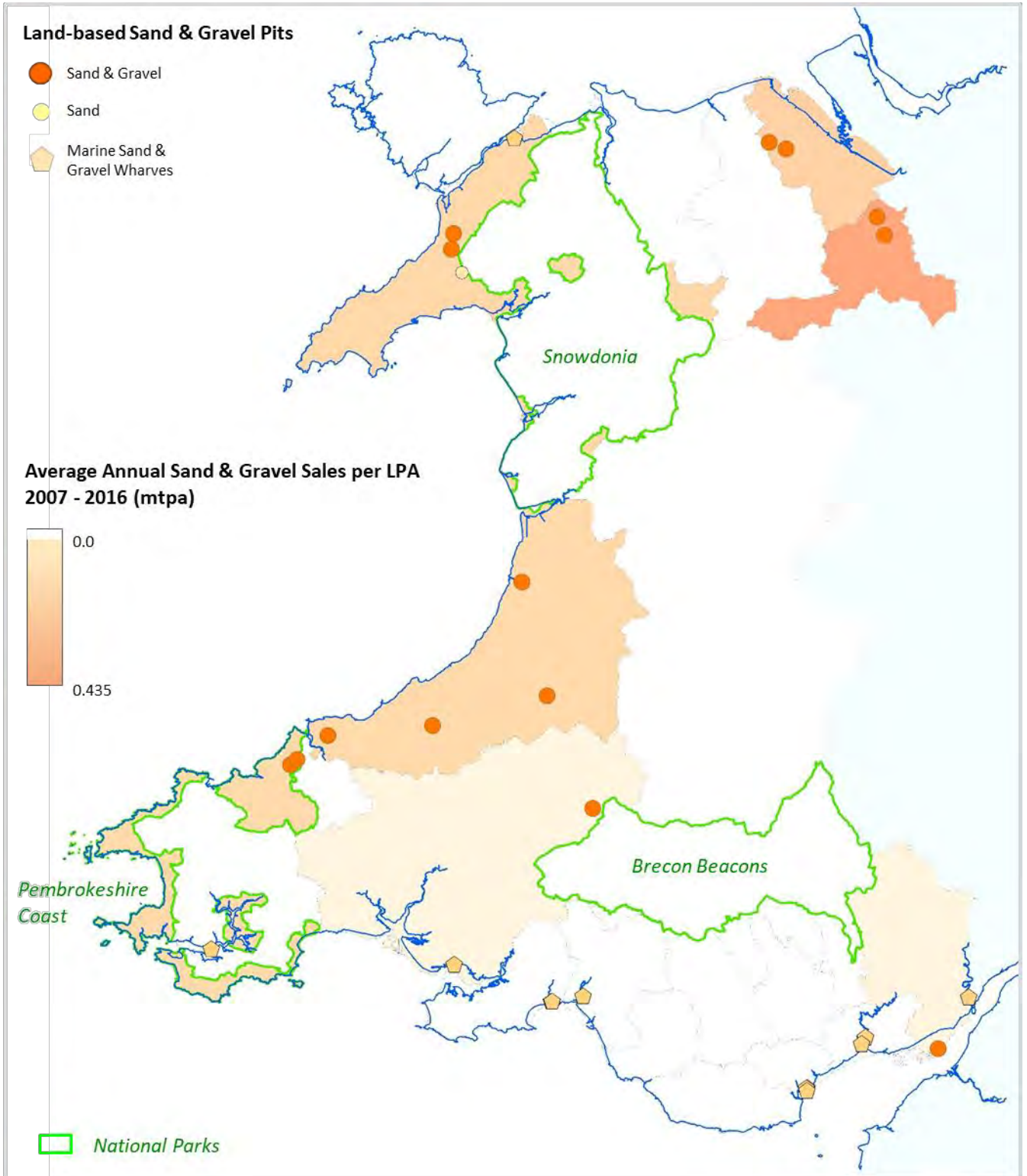


Figure 4.6: Spatial Distribution of Land-won Sand & Gravel production within each LPA, based on Average Sales 2007 - 2016, with locations of Sand & Gravel Pits (2018)

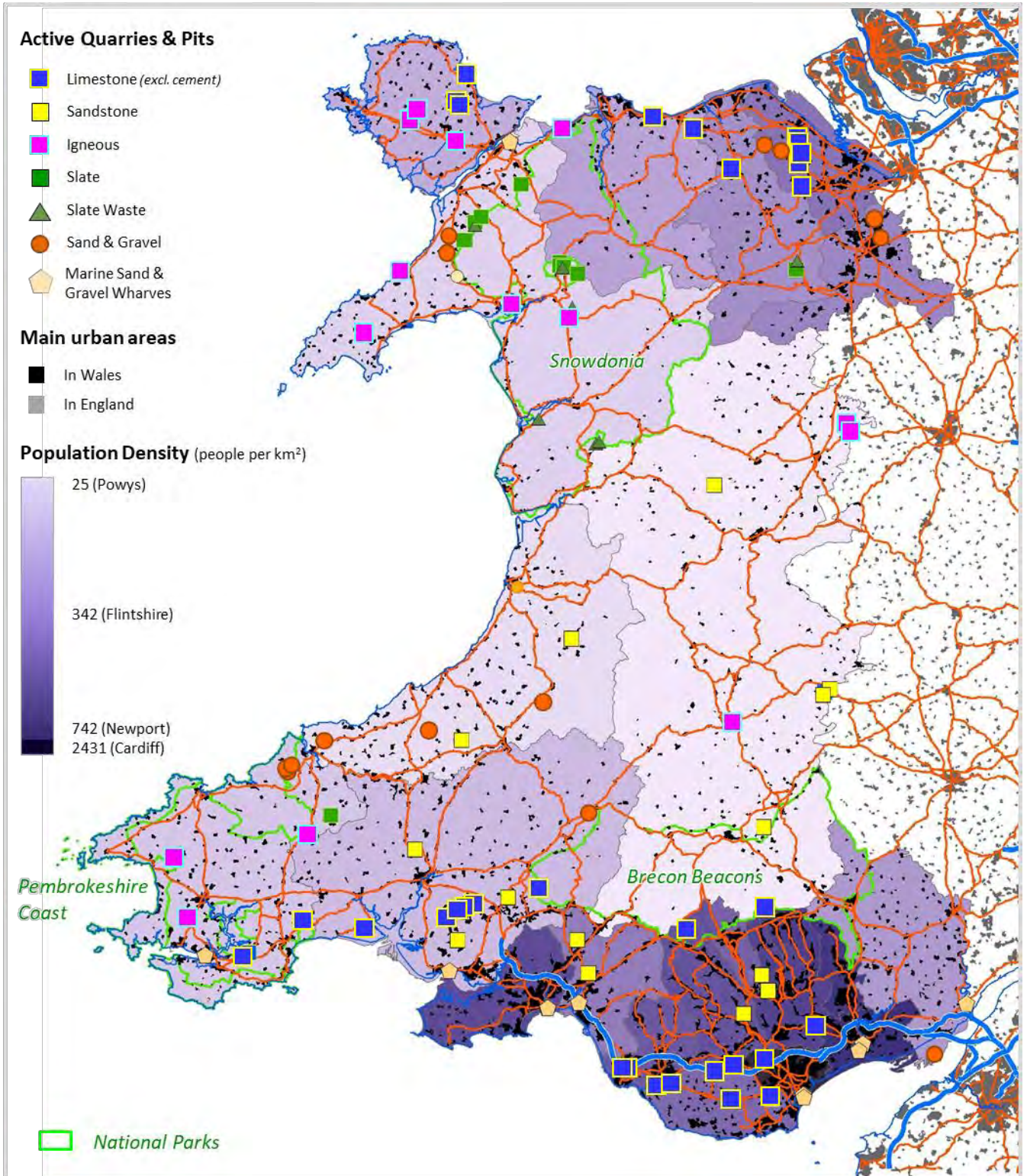


- 4.27 Looking to the future, any undue reliance on historical supply data would inevitably reinforce and perpetuate the same patterns of supply. More careful consideration is therefore needed where such reliance would unnecessarily perpetuate adverse environmental effects or unjustified inequalities in the balance of supply between neighbouring authorities (see also para. 4.27, above); or where undue reliance might otherwise be placed on the continued availability of supplies from an adjoining LPA or country (e.g. imports from Gloucestershire into SE Wales). In addition, any imposed change to the existing supply pattern may, in some cases, either necessitate working less suitable, thinner or otherwise less viable resources, where these exist, or (in some cases at least) may entail increased transportation distances, with consequential increases in carbon emissions and traffic impacts. All of these issues are explored in more detail in the sub-regional analyses within Appendices A and B.
- 4.28 In the case of sand & gravel production, as illustrated in Figure 4.6, the picture is greatly distorted by the reliance of South East Wales, in particular, on marine-dredged aggregates from the Bristol Channel and the Severn Estuary. South West Wales is less dependent on marine aggregates and has a small number of active land-based sites. Powys is too far removed from the coast to be influenced to any significant degree by marine aggregates, but still has only one very small land-based sand & gravel site currently in operation. It is reliant instead on crushed rock material, despite the apparent resources of natural sand & gravel within the upper reaches of the Severn, Wye and Usk valleys. In North Wales, there are, once again, apparently plentiful resources of natural sand & gravel in Gwynedd (as indicated in both BGS and Liverpool University mapping) but the supply pattern is dominated by one major quarry within Wrexham and (to a much smaller extent) by two further units within Wrexham and two or three others in Flintshire. Further details are given in the Regional Appendices.
- 4.29 Overall, in South Wales and much of North Wales, the relative lack of land-based sand & gravel production is influenced to a very large extent by environmental and landscape concerns, as well as by the relative ease of availability of alternative materials (marine aggregates, crushed rock and slate, including slate waste).

Comparison of the Supply Pattern with Population Density and Transport Links

- 4.30 Figure 4.7, below, shows the distribution of all currently active quarries and pits throughout Wales in relation to variations in population density by local authority area. It also shows urban areas, A-roads and motorways. Additional local roads, not shown on this map, will also be utilised close to individual quarries, distribution depots or customer locations. Together, the areas of high population density and the main urban areas provide a good indication of where construction activity, as a whole, is most likely to be concentrated, but the locations of major transport routes, such as the A55 in North Wales, and the M4 corridor in South Wales have important influences on export distribution. The map does not show railways, which are generally not used for aggregate distribution, though they are important for a few of the quarries in the South Wales coalfield area and along the North Wales coast.

Figure 4.7: LPA Population Densities (2010) and main urban areas, as approximations for the overall pattern of demand for construction aggregates, with motorways, A-roads, national landscape designations and locations of all active quarries & pits (2018)



- 4.31 In North Wales, the highest population density occurs within Flintshire and Wrexham, coinciding with the highest levels of crushed rock and sand & gravel output, respectively, within that region (see figures 5.5 and 4.6, above). The road network in these areas also provides ease of access for exports into the conurbations of North West England, including the Wirral, Liverpool and Warrington. The main apparent anomaly here is the absence of crushed rock production within Wrexham. Although Carboniferous Limestone resources do exist in the western part of this authority, they fall almost entirely within the Clwydian Range & Dee Valley AONB. It will generally not be appropriate for new allocations to be identified within such areas, unless there are no viable alternatives within neighbouring Flintshire or Denbighshire. This is discussed at greater length in Appendix A, as is the need to maintain sand & gravel supplies within North West Wales by developing further resources in Gwynedd.
- 4.32 In South Wales, there is some coincidence between the areas of high population density and urban areas, on the one hand, and the distribution of crushed rock sales and quarries, on the other, but the relationship is less clear than in the north and the need for adjustments to the future supply pattern is, in some cases, more compelling. In particular, the areas of Newport, Torfaen, Blaenau Gwent and Caerphilly have higher population densities than those of the Vale of Glamorgan, Bridgend and RCT, but it is in the latter areas where most of the Carboniferous Limestone outcrops and quarries are located. Similarly, Swansea has a high population density but no active quarries or pits, relying instead on neighbouring Carmarthenshire for most of its limestone supplies, on Neath Port Talbot for supplies of road surfacing aggregate, and on marine dredged sources landed at Swansea Wharf for building sand. As with Wrexham in North Wales, Swansea does have indigenous resources of Carboniferous Limestone but again these are almost entirely within an AONB designation – that of the Gower Peninsula.
- 4.33 As noted in the First Review, the distribution of crushed rock quarries in this area as a whole is therefore not ideally matched with the main areas of demand, suggesting that there may need to be some adjustment in terms of future apportionments, on the grounds of proximity. This, however, needs to be examined in more detail and balanced against both environmental capacity and commercial factors – not least including the availability or otherwise of workable resources within and outside national landscape designations. Further commentary on this is given in Appendix B.
- 4.34 In mid Wales, there is a marked contrast between the very low population density of Powys and the high level of demand placed upon that County, in terms of crushed rock sales (compare Fig 4.7 with Fig 4.4). This, as noted earlier, is primarily due to a number of large quarries within Powys which export High Specification Aggregates by road to markets in England. Taking that into account, together with the distribution of these important resources, these quarries are clearly well-placed in terms of proximity to the relevant markets and transport routes.

Comparison of the Supply Pattern with Planned Development

- 4.35 Consideration also needs to be given to the distribution of supply sources in relation to that of the planned distribution of new housing provision since, as explained in Chapter 3, this is likely to have an important influence on the location of future aggregate consumption. Figure 4.8, below, therefore illustrates the distribution of active quarries in relation to the annualised housing requirement set out in Local Development Plans.
- 4.36 In this case, the indicated pattern of consumption is somewhat closer to the pattern of supply, than is the case when looking at population density. In South East Wales, especially, the housing requirement figures are relatively modest in Blaenau Gwent, Torfaen and Monmouthshire, which are served by only a single quarry, but the anomaly is still seen in Swansea, which has the second highest housing requirement figures, after Cardiff.

Comparison with Environmental Capacity

- 4.37 Figure 4.9, below, compares the distribution of active quarries with the spatial variations in Environmental Capacity across most (but not all) of Wales, as indicated by the 'combined scores' from the IMAECA Geographic Information System tool developed by Enviro Consulting Ltd. (2005). As explained more fully in paragraphs 2.14 et seq., above, the tool provides values, relative to arbitrary thresholds between the three coloured categories, for each 1km square which was assessed by the IMAECA project. The areas assessed were identified on the basis of whether or not aggregate resources were present within all or part of each square. Areas which were considered not to contain such resources were not assessed, which is why many parts of the country are left blank.
- 4.38 It should be noted that, whilst the GIS tool allows separate results to be shown for different resource categories, those categories do not entirely match with the current BGS mineral resource maps and the resource outlines are therefore quite different. It is therefore more useful to look at the overall picture, as shown in Figure 4.9 (and, at a slightly larger scale but at the same level of detail, in the various maps which accompany the sub-Regional analysis in Appendices A and B).
- 4.39 It must be emphasised that the IMAECA results are intended only to provide a very broad indication of the capacity of different areas to accept the environmental impacts of additional quarrying activity. They are necessarily generalised and are specifically *not* intended to take the place of conventional 'sieve-mapping' within individual Local Authorities, where more detailed constraint maps can be used and site-specific issues can be examined to determine the relative pros and cons of different factors.

Figure 4.8: Annualised Planned (LDP) Housing Requirements in LPAs and National Parks, as partial indicators of the pattern of demand for construction aggregates, with motorways, A-roads, and locations of all active quarries & pits (2018)

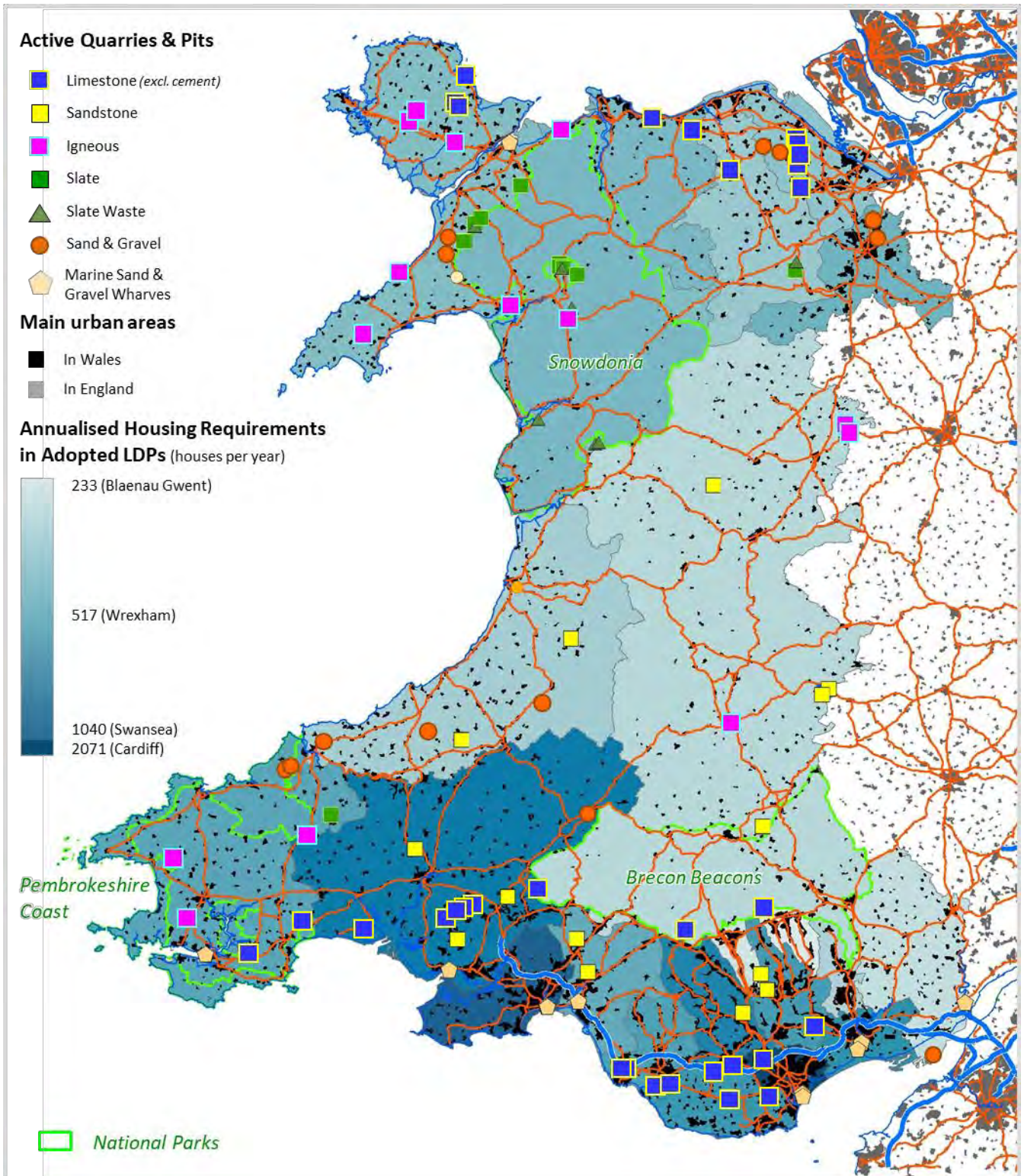
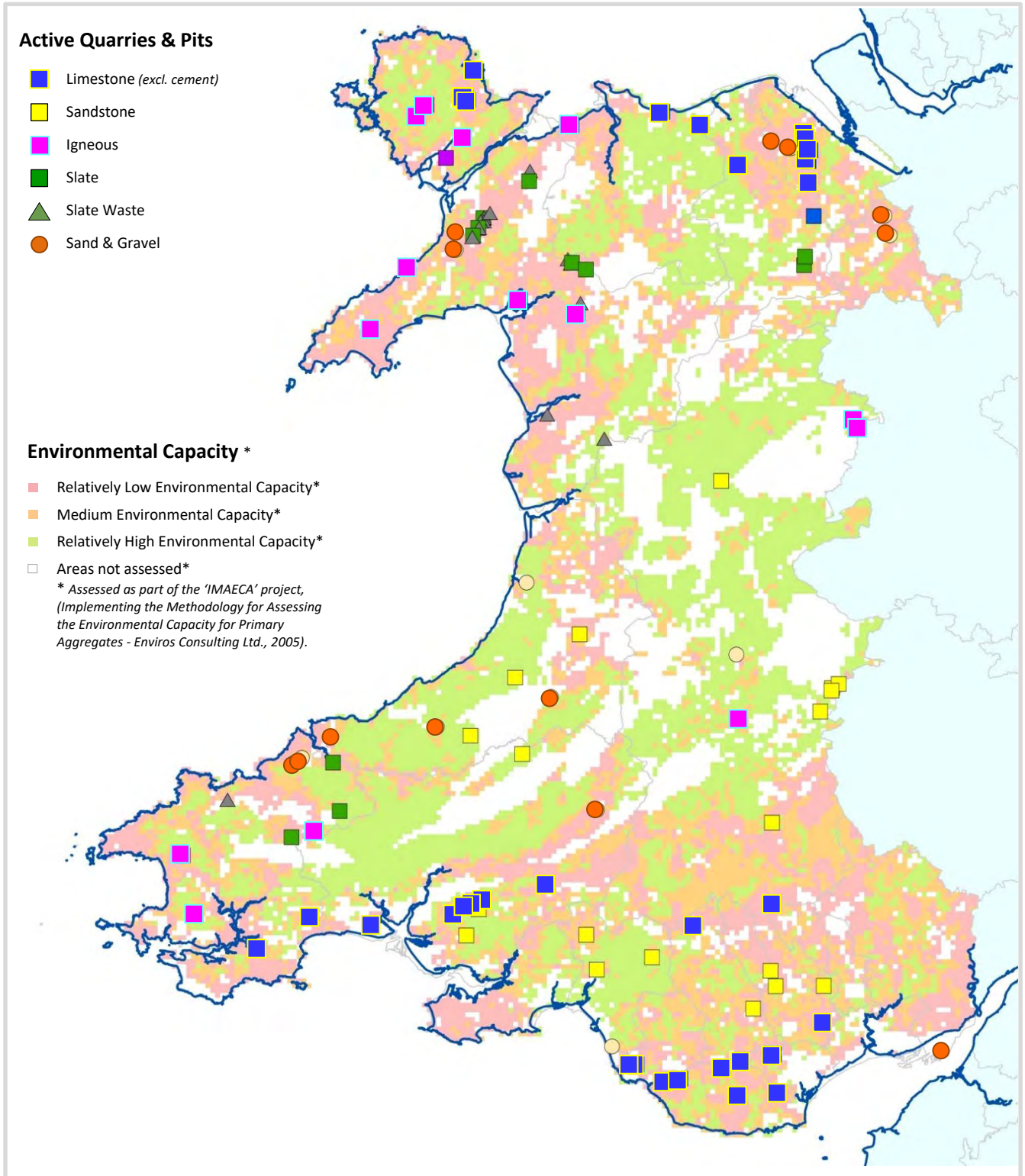


Figure 4.9: Environmental Capacity Assessment (combined scores for each km²), as assessed by the IMAECA project, with locations of all active quarries & pits (2018)



4.40 The IMAECA results have also been criticised for the fact that the presence of an existing quarry is treated, in the IMAECA analysis, as a factor which reduces the capacity for further quarrying in that area. Whilst there might be some justification for this, in terms of seeking to minimise cumulative impacts, it conflicts with the

widely-held notion that well-designed extensions to existing quarries are likely to be more acceptable, at least in terms of public perception, than the introduction of quarrying to previously undisturbed 'greenfield' sites.

- 4.41 Bearing all of that in mind, the IMAECA results nevertheless provide a useful starting point for comparing environmental capacity issues with other factors (including resource availability, proximity and commercial viability) in areas where the historical supply pattern is thought to be in need of improvement, from a sustainability point of view. This is examined further in the Regional Appendices (A and B), the key findings of which are summarised at the end of this chapter.

Sub-Regional Analysis of Supply Patterns

- 4.42 More detailed, sub-regional analyses of the inter-relationships between each of the various factors outlined above were taken into account during Stage 3 of the apportionment process, as summarised in Chapter 5, below. They are described more fully in the Regional Appendices for North Wales (Appendix A) and South Wales (Appendix B).

5. Assessment of Apportionments and Allocations

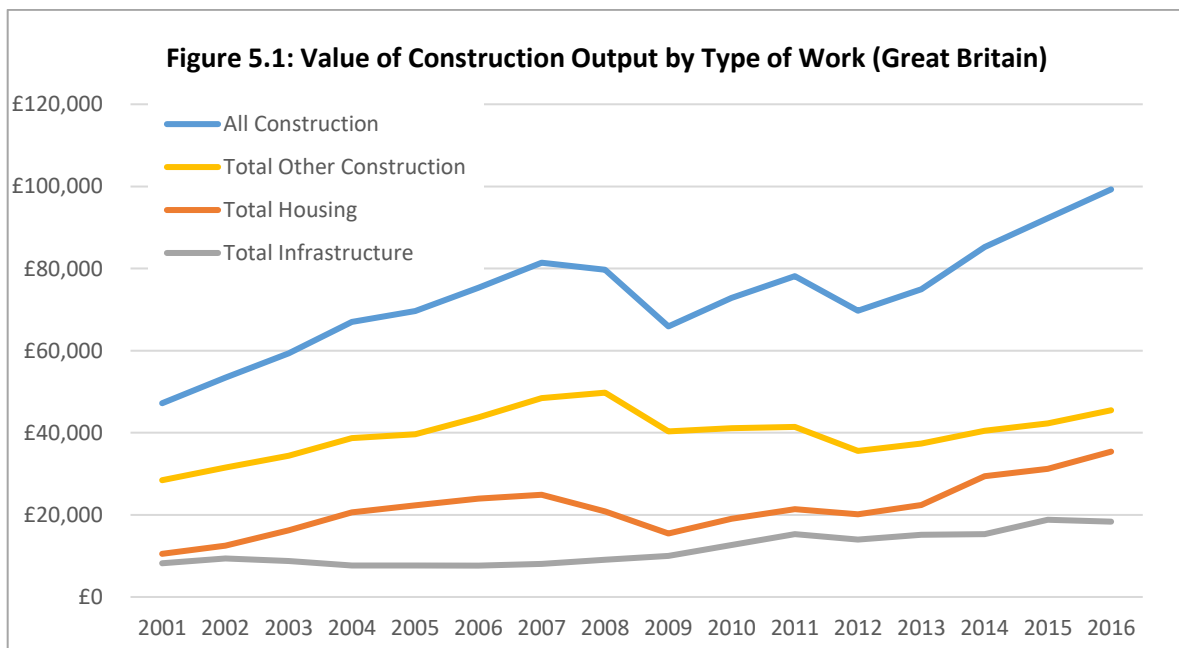
5.1 The foregoing review of the existing supply pattern feeds into the overall methodology for determining apportionments and allocations for future working, as set out in Chapter 3. This Chapter implements the four sequential stages of that methodology.

STAGE 1: Setting the National Level for Future Aggregates Provision

5.2 The agreed methodology begins by establishing the overall (national) level of future provision for all land-won primary aggregates in Wales. This is required to be assessed by combining historical sales data (using the highest of 10-year and 3-year averages, as explained in para. 3.8, above, and totalling 15.557mt) with a factor which reflects the planned level of future construction activity, compared with that seen over the same 10-year baseline period.

5.3 Housing is an important element of such activity and one for which quantified requirements and levels of provision are made in local development plans, in a way which can readily be related to aggregate consumption. Clearly, however, housing accounts for only part of the overall level of aggregate consumption. Before deciding on how best to use the housing figures, it is therefore useful to consider the overall breakdown of construction activity. Statistical information on this is not readily available for Wales, but a useful insight can be gained by using data for the whole of Great Britain, which is published annually by the Office of National Statistics (ONS).

5.4 Figure 5.1 and Table 5.1, below, derived from the ONS Construction Statistics Annual 2017, show how housing accounts for just under 30% on average of all new construction work, in terms of value, varying over time from 22% to 36%.



SOURCE: Combined public & private sector data from Table 2.4c in the ONS Construction Statistics Annual, 2017.
<https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/constructionstatisticsannualtables>

Table 5.1: Percentage value of construction output by type of work, Great Britain. (SOURCE: as for Figure 5.1)

| YEAR | 2001 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Housing % | 22% | 23% | 27% | 31% | 32% | 32% | 31% | 26% | 24% | 26% | 27% | 29% | 30% | 34% | 34% | 36% |
| Infrastructure % | 17% | 18% | 15% | 11% | 11% | 10% | 10% | 11% | 15% | 17% | 20% | 20% | 20% | 18% | 20% | 18% |
| 'Other' % | 60% | 59% | 58% | 58% | 57% | 58% | 59% | 62% | 61% | 56% | 53% | 51% | 50% | 48% | 46% | 46% |

- 5.5 Major infrastructure projects can have a very substantial effect on the demand for construction aggregates within particular areas or regions. Whilst this needs to be reflected in the planning for future aggregates provision, the difficulty lies in the fact that such projects are rarely planned to a reliable delivery timescale and are susceptible to major political and investment decisions which are beyond the scope of the planning system (as demonstrated, for example, in the case of the proposed Swansea Tidal Lagoon, the Wylfa Newydd nuclear power station and the M4 Newport relief road). There is also considerable difficulty in quantifying the requirements for individual projects in terms of the need for construction aggregate. Overall, infrastructure accounts for between 10% and 20% of total construction value, averaging just under 16%. Its influence on overall demand is therefore likely to be much less than that of housing, and far more difficult to quantify.
- 5.6 The majority (more than half, on average) of total spending is associated with 'other' types of construction activity. These include schools & universities, offices, entertainment, hospitals, factories, warehouses and a variety of miscellaneous work. Whilst all of these will influence the overall demand for construction materials, in many cases the materials used are likely to be dominated by steel and glass, rather than aggregates. Moreover, whilst much of the building work is recognised in Local Development Plans, in terms of allocations for employment, hospitals, schools, etc., there is no mechanism for quantifying the aggregate requirements involved or for comparing planned activity with historical data.
- 5.7 In recognition of these various observations, and taking account of the close correlation between house building and aggregates provision; the fact that housing accounts for around 30% of all construction activity (at a GB level); and the fact that provision for house building is set to double (at a national level); it would seem justified to allow for a doubling of that 30% element of the overall supply. In other words, in order to ensure that adequate provision is made for the future supply of aggregates to support planned housing construction, the national level of overall provision should be set at 130% of the historical sales figure. The latter, as noted above, has been calculated as 15.557 mtpa. Applying a 30% uplift to this figure thus gives a **headline, national figure for future primary, land-won aggregates provision is calculated to be 20.224 mtpa.**
- 5.8 This figure is only marginally higher than the actual recorded sales total of 20.11mt for the year 2007 at the start of the baseline period, immediately prior to the economic recession, so is demonstrably not an unreasonable figure.

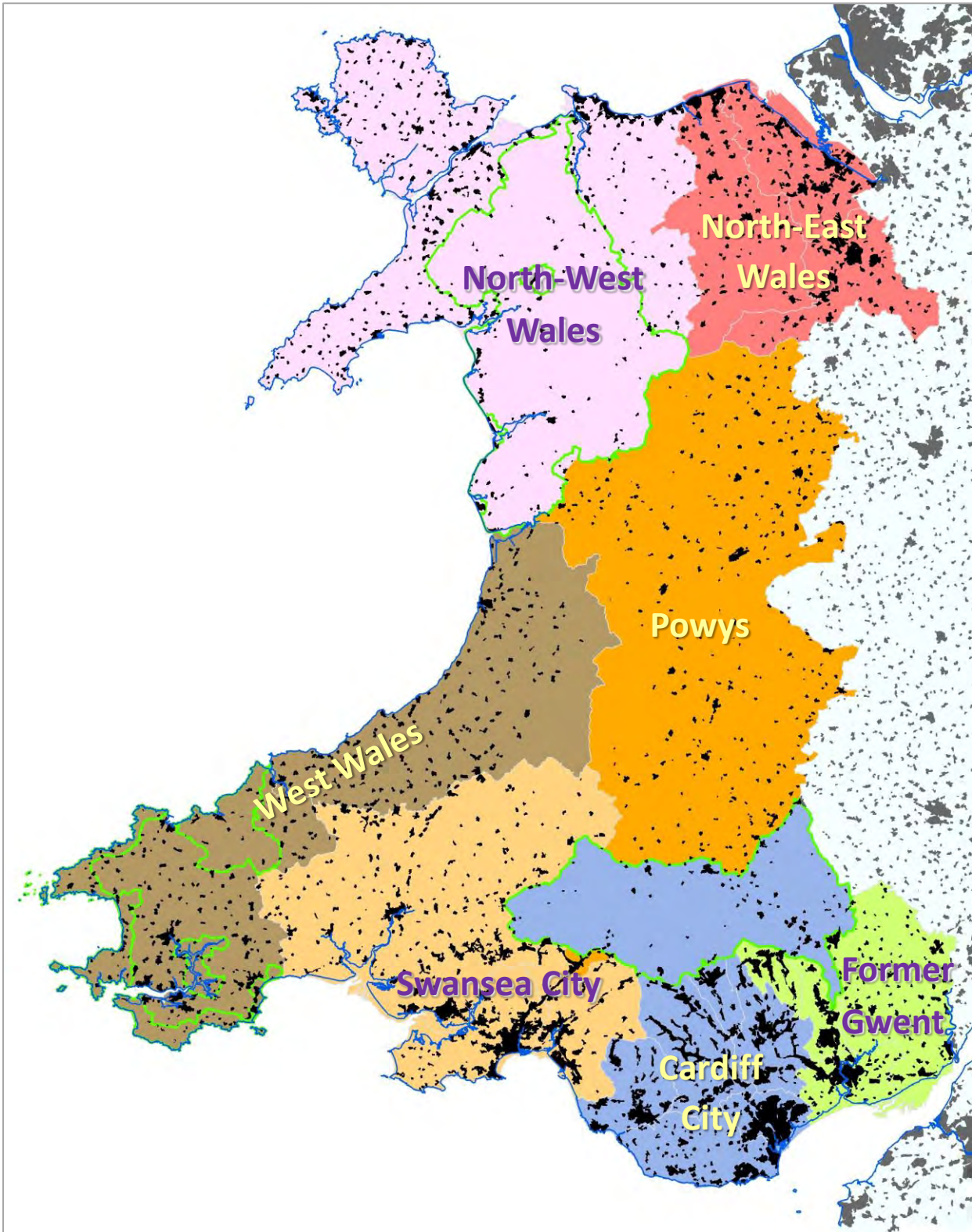
STAGE 2: Calculation of the Regional Split between North Wales and South Wales

- 5.9 Table 3.1, in Chapter 3, shows how the regional split of primary aggregate sales between North Wales and South Wales has varied only slightly over the baseline period, ranging from 34/66% at one extreme to 41/59% at the other. Over the period as a whole, the average split (calculated from the more detailed and updated figures in Tables 5.2 to 5.5, below) has been **38.26% / 61.74%**
- 5.10 Applying this ratio to the national total from para. 5.7 above gives the following headline apportionments for each of the two regions:
- **North Wales primary land-won aggregates: 7.738 mtpa**
 - **South Wales primary land-won aggregates: 12.486 mtpa**

STAGE 3: Calculation of Sub-Regional and LPA Apportionments

- 5.11 Stage 3 of the apportionment process requires that the regional figures are apportioned between a series of seven **sub-regions**, created for the purpose of the RTS and, *provided that it is feasible to do so*, between each of the constituent Local Planning Authorities (LPAs).
- 5.12 The sub-regions were created, at Welsh Government's suggestion, for the specific purpose of facilitating strategic minerals planning and collaborative approaches between LPAs. They each represent distinctive 'market areas' between which there is relatively little movement of aggregates, except for exports to England, and within which detailed, strategic consideration can be given as to the most appropriate patterns of supply.
- 5.13 The sub-regions, as listed below, are illustrated in Figure 5.2, which also shows (in black), the main urban areas and (in shades of grey) the neighbouring authorities in England.
- **North West Wales** (comprising Anglesey, Gwynedd, Conwy and the Snowdonia National Park), and
 - **North East Wales** (comprising Denbighshire, Flintshire & Wrexham);
 - **Powys**;
 - **West Wales** (Pembrokeshire, Pembrokeshire Coast National Park and Ceredigion);
 - **Swansea City-Sub-Region** (Swansea, Neath Port Talbot and Carmarthenshire);
 - **Cardiff City Sub-Region** (Cardiff, RCT, Merthyr Tydfil, Caerphilly, Bridgend, the Vale of Glamorgan and the Brecon Beacons National Park); and
 - **'Former Gwent'** (Blaenau Gwent, Torfaen, Newport and Monmouthshire).

Figure 5.2: Sub-Regional Groupings of Local Planning Authorities in Wales, as determined for the purposes of land-won primary aggregate apportionment



5.14 The sub-regional groupings, thus defined, provide the basis for dividing the Regional Apportionment figures (from para 5.10, above), between the various groups of LPAs and, where feasible, between individual LPAs. The methodology for doing this, as

agreed by the RTS Steering Group, was based on a combination of quantitative calculations and qualitative judgements, as described below.

- 5.15 Dealing first with the **quantitative data**, it was agreed that the pattern of apportionments should reflect, not only the pattern of historical sales (as had been used in the First Review) but also, where necessary, the pattern of house construction achieved over the baseline period¹⁷. This would have the added benefit of introducing changes to the supply pattern so that it becomes more aligned with the spatial pattern of observed (and likely future) demand, thereby addressing some of the inequalities that are reflected in the existing (historical) pattern of supply.
- 5.16 Two sets of ‘theoretical’ figures were therefore produced, one relating to historical sales (“Option A”) and one relating to the housing figures (“Option B”). The term ‘theoretical’ is used here to indicate that these are the figures that would result from using only one or the other of the two datasets.
- 5.17 The historical sales data for Option A are derived from Table 3.2, above, using the highest of the 10-year and 3-year averages, for each LPA. In Tables 5.2 and 5.3 below, those figures are then expressed as percentages of the Regional totals and applied to the appropriate Regional figures from Stage 2, above, to obtain the Option A figures shown on the left hand side of the tables.
- 5.18 For Option B, the housing completions data for each LPA, taken from Table 3.3, were initially expressed as percentages of the Regional housing completion totals, in a similar way to the analysis of sales data for Option A. However, applying those percentages to the Regional apportionments from Stage 2 resulted in theoretical LPA figures which were felt to be too far removed from the ‘reality’ of the historical supply pattern. Instead, the process was therefore taken down to the sub-regional level: the housing figures were expressed as percentages of the sub-regional housing totals and applied to the sub-regional apportionment totals obtained from Option A, to give the Option B figures shown in columns 5 to 7 of Tables 5.2 and 5.3. For the purpose of this exercise (only), the two sub-regions in south-east Wales (i.e. Cardiff and Former Gwent) were combined. This was to address the fact that Former Gwent, as a whole, was considered, by the Steering Group, to have been making a relatively limited contribution to the overall supply pattern for many years.
- 5.19 Option A has the advantage of reflecting the existing distribution of supply sources (quarries) and is therefore realistic in terms of ‘deliverability’ but carries the disadvantage of perpetuating the historical supply pattern and the various inequalities contained therein. It represents the preferred option in areas where the historical supply pattern appears to provide a sensible balance between the availability of resources and the location of demand, but requires modification elsewhere.

¹⁷ Whilst future housing requirement figures have been used to influence the overall quantum of future supply, in Stage 1 of the Methodology, for Stage 3 it was considered that the housing completion figures, over the baseline period covered by this review, would provide a more reliable metric for the demonstrable spatial pattern of this element of demand.

Table 5.2: Assessed Sub-Regional and LPA Apportionments, North Wales.

| Local Planning Authority | OPTION A | | | OPTION B | | | Preferred Annualised Apportionments (mtpa) <small>[By default = Option A, but modified in some cases (red figures) to allow for Option B or qualitative observations as noted in column to right]</small> | Qualitative Observations |
|-------------------------------|--|---------------------------|---|---|-------------------------------|---|--|---|
| | highest of 10-yr and 3yr Ave. Aggregate Sales (total) (mtpa) | % share of Regional total | Resulting Annualised Apportionments for all Land-Won Primary Aggregates ¹ (mtpa) | Annualised House Completions over the baseline period (2007 – 2016) | % share of Sub-Regional total | Resulting Annualised Apportionments for all Land-Won Primary Aggregates ² (mtpa) | | |
| N. WALES TOTAL (from Stage 2) | 7.738 | | | | | | | |
| NE Wales Sub-Region | 4.047 | 65.75% | 5.088 | 749.0 | 100.00% | 5.088 | 5.088 | The existing supply pattern here (Option A) provides an appropriate balance between market forces (including substantial exports) and the availability of unconstrained resources. Flintshire has much higher aggregate sales than Denbighshire, despite similar housing requirements. This reflects local market distortion by exports to NW England. The slight modification shown within the preferred apportionment figures is to make the best use of existing landbanks and thereby reduce future allocation requirements overall. Wrexham supplies only sand & gravel as its limestone resources are largely constrained by the AONB. The existing supply pattern in NW Wales is well balanced with the distribution of planned housing provision and is unaffected by exports. Option A should therefore be used. Supplies are sourced primarily from outside the National Park and AONBs and are well distributed between the main producing areas of Conwy and Gwynedd, with more limited supplies from Anglesey to local markets. |
| Denbighshire | 0.329 | 5.35% | 0.414 | 156.2 | 20.85% | 1.061 | 0.860 | |
| Flintshire | 3.204 | 52.06% | 4.028 | 288.6 | 38.53% | 1.960 | 3.582 | |
| Wrexham | 0.514 | 8.35% | 0.646 | 304.2 | 40.61% | 2.066 | 0.646 | |
| NW Wales Sub-Region | 2.108 | 34.25% | 2.650 | 969 | 100.00% | 2.650 | 2.650 | |
| Conwy + Snowdonia NP | 0.955 | 15.52% | 1.201 | 178.6 | 39.26% | 1.041 | 1.201 | |
| Gwynedd | 0.898 | 14.59% | 1.129 | 170.4 | 36.60% | 0.970 | 1.129 | |
| Isle of Anglesey | 0.255 | 4.14% | 0.321 | 109.6 | 24.14% | 0.640 | 0.321 | |

Notes:

1. The annualised apportionments for Option A were obtained by applying the percentages in column 3 (representing each LPA's share of Regional historic sales totals) by the Regional Apportionment total from Stage 2 (as shown at the top of the table).
2. The annualised apportionments for Option B were obtained by applying the percentages in column 6 (representing each LPA's share of sub-regional housing requirement totals) by the corresponding Sub-regional Apportionment totals from column 4.

Table 5.3: Assessed Sub-Regional and LPA Apportionments, South Wales.

| Local Planning Authority <i>(see Table 5.2 for footnotes)</i> | OPTION A | | | OPTION B | | | Preferred Annualised Apportionments (mtpa) <small>[By default = Option A, but modified in some cases (red figures) to allow for Option B or qualitative observations as noted in column to right]</small> | Qualitative Observations |
|--|--|---------------------------|---|---|-------------------------------|---|--|--|
| | highest of 10-yr and 3yr Ave. Aggregate Sales (total) (mtpa) | % share of Regional total | Resulting Annualised Apportionments for all Land-Won Primary Aggregates ¹ (mtpa) | Annualised House Completions over the baseline period (2007 – 2016) | % share of Sub-Regional total | Resulting Annualised Apportionments for all Land-Won Primary Aggregates ² (mtpa) | | |
| S. WALES TOTAL (from Stage 2) | 12.486 | | | | | | | |
| West Wales Sub-Region | 1.140 | 12.13% | 1.514 | 366.1 | 100.00% | 1.514 | 1.514 | Some adjustment is required to increase the provision from Ceredigion whilst reducing that from the Pembrokeshire Coast National Park but leaving the total unchanged. Ceredigion currently supplies aggregates in proportion to its share of planned housing at a regional level, but not at the sub-regional level. Provision from this LPA should therefore be increased (to an average of Options A and B), with a corresponding reduction from the National Park. |
| Ceredigion | 0.300 | 3.19% | 0.398 | 126.1 | 34.44% | 0.521 | 0.460 | |
| Pembrokeshire | 0.510 | 5.42% | 0.677 | 240 | 65.56% | 0.992 | 0.677 | |
| Pembrokeshire Coast NP | 0.330 | 3.51% | 0.438 | | | | 0.377 | |
| Swansea Sub-Region | 1.292 | 13.74% | 1.716 | 1,311.5 | 100.00% | 1.716 | 1.716 | The Option A figure for Carmarthenshire should be retained, with the remainder of production (mostly HSA - high PSV sandstone) being divided between Swansea and NPT. Option B addresses the current zero apportionment for Swansea, but realistic opportunities for resource development in Swansea relate only to high PSV sandstone which, at present, is supplied primarily from NPT. Limestone is supplied only from Carmarthenshire, which therefore needs to retain its apportionment from Option A in full, with the balance of apportionments (for sandstone) being shared between Swansea and NPT. The figures shown here for those two LPAs assume an equal split between them. If a different balance is preferred, this would need to be agreed by those LPAs as part of their Statement of Sub-Regional Collaboration. |
| Carmarthenshire | 0.832 | 8.85% | 1.105 | 517.8 | 39.48% | 0.677 | 1.105 | |
| Swansea | 0.000 | 0.00% | 0.000 | 519.4 | 39.60% | 0.680 | 0.305 | |
| Neath Port Talbot | 0.460 | 4.89% | 0.611 | 274.3 | 20.91% | 0.359 | 0.305 | |
| Powys Sub-Region | 2.650 | 28.19% | 3.519 | 191.7 | 100.00% | 3.519 | 3.519 | Option A provides the most reliable reflection of future demand for Powys, being dominated, as it is, by exports of HSA (high PSV) Aggregates to England. That option is therefore preferred without modification |
| Powys | 2.650 | 28.19% | 3.519 | 191.7 | 100.00% | 3.519 | 3.519 | |

Continued ...

REGIONAL TECHNICAL STATEMENT FOR NORTH WALES AND SOUTH WALES: 2nd REVIEW.

|Table 5.3 continued | OPTION A | | | OPTION B | | | Preferred Annualised Apportionments (mtpa) <small>[By default = Option A, but modified in some cases (red figures) to allow for Option B or qualitative observations as noted in column to right]</small> | Qualitative Observations | |
|--|--|---------------------------|---|---|---|---|--|---|--|
| Local Planning Authority <small>(see Table 5.2 for footnotes)</small> | highest of 10-yr and 3yr Ave. Aggregate Sales (total) (mtpa) | % share of Regional total | Resulting Annualised Apportionments for all Land-Won Primary Aggregates ¹ (mtpa) | Annualised House Completions over the baseline period (2007 – 2016) | % share of Sub-Regional total <small>(or of combined SE Wales total, for Cardiff & Former Gwent)</small> | Resulting Annualised Apportionments for all Land-Won Primary Aggregates ² (mtpa) | | | |
| Cardiff City Sub-Region | 4.070 | 43.29% | 5.405 | 2,316.9 | 66.48% | 3.814 | 4.609 | ALL of the apportionments within the combined SE Wales area (i.e. the Cardiff sub-region and Former Gwent) need to be adjusted to reflect the fact that Former Gwent, <u>as a whole</u> , has not been supplying its fair share of aggregates for many years (this being largely but not only due to the lack of production in both Torfaen and Newport). Option B addresses this issue by calculating requirements based on % shares of planned housing demand in both sub-regions combined. However, those figures, on their own, do not take account of resource availability. The preferred figures are therefore the average of Options A and B. In the case of BBNP and Merthyr, where that calculation provides only a combined figure (= 0.567mtpa), it is suggested that Merthyr should retain the Option A figure of 0.199mtpa, with the balance of 0.368mtpa being assigned to the National Park. | |
| Brecon Beacons NP | 0.540 | 5.74% | 0.717 | 133.2 | 3.82% | 0.219 | 0.368 | | |
| Merthyr Tydfil | 0.150 | 1.60% | 0.199 | | | | 0.199 | | |
| Bridgend | 0.600 | 6.38% | 0.797 | 365 | 10.47% | 0.601 | 0.699 | | |
| Rhondda Cynon Taf | 0.670 | 7.13% | 0.890 | 373.9 | 10.73% | 0.615 | 0.753 | | |
| Vale of Glamorgan | 0.660 | 7.02% | 0.876 | 284.3 | 8.16% | 0.468 | 0.672 | | |
| Caerphilly | 0.390 | 4.15% | 0.518 | 335.2 | 9.62% | 0.552 | 0.535 | | |
| Cardiff | 1.060 | 11.27% | 1.408 | 825.3 | 23.68% | 1.359 | 1.383 | | |
| Former Gwent Sub-Region | 0.250 | 2.66% | 0.332 | 1,168.2 | 33.52% | 1.923 | 1.128 | | The figures shown for the Former Gwent LPAs are simply averages of Options A and B. Torfaen and Newport currently have zero apportionments and the feasibility of being able to make future provision in those areas needs to be examined in greater detail by those Authorities. If the balance of supply needs to depart from these figures (but without reducing the sub-regional total), this would need to be agreed by all four LPAs as part of their Statement of Sub-Regional Collaboration. |
| Blaenau Gwent | 0.180 | 1.91% | 0.239 | 99.1 | 2.84% | 0.163 | 0.201 | | |
| Monmouthshire | 0.070 | 0.74% | 0.093 | 228.6 | 6.56% | 0.376 | 0.235 | | |
| Newport | 0.000 | 0.00% | 0.000 | 527.5 | 15.14% | 0.868 | 0.434 | | |
| Torfaen | 0.000 | 0.00% | 0.000 | 313 | 8.98% | 0.515 | 0.258 | | |

- 5.20 Option B, based purely on the distribution of planned housing activity, theoretically provides a way of changing the pattern of supply to one that is more equitable, and in line with the distribution of a very significant element of demand (i.e. house building and associated other construction), but takes no account of the spatial pattern of geological resources or existing quarries. On its own, this would be wholly inappropriate as a future supply strategy as it would not be deliverable within the timescale required, since it requires supplies to be provided from areas with no existing quarries. It does, however, provide a useful indication of the ‘direction of travel’ that may be needed in order to improve the existing pattern of supply from a sustainability perspective.
- 5.21 In practice, where the supply pattern was considered to be in need of adjustment to achieve an improved balance, the two sets of figures were combined (by taking the average of Options A and B, for each LPA). In each of the tables, the **preferred option** (usually either option A or the average of A and B) are shown in the eighth column. In a few cases, however, further adjustments were required on the basis of more nuanced **qualitative judgements**, as described in the right-hand column of the tables.
- 5.22 Decisions regarding which option to select for each LPA, and qualitative judgements regarding other factors which needed to be taken into account, were made by the RTS Steering Group through a process of round-table discussion. Importantly, the analysis and discussions were focused on each of the self-contained sub-regional areas in turn, so as to achieve a preferred balance of supply within each of those areas, whilst not disturbing the broader-scale pattern of supply within each Region as a whole. The only exception to this was in South-East Wales where, as noted earlier, the two sub-regions (Cardiff and Former Gwent) were combined for the quantitative stage of analysis.
- 5.23 The summaries given in the right hand column of Tables 5.2 and 5.3 describe the main reasoning for selecting the preferred distribution of apportionments within each sub-region. Fuller explanations, including details of the consideration given to the distribution of resources, practicalities of mineral extraction, major constraints (National Parks and AONBs), environmental capacity and the proximity principle, are given within the Regional Appendices.

STAGE 4: Sand & Gravel / Crushed Rock Split and Allocations for Future Working

- 5.24 The final stage of the RTS process relates to the separation of each LPA’s apportionment figure by aggregate type (i.e. natural sand & gravel, and crushed rock), and then comparison of the total requirements for each of those, over the relevant Plan periods, with the current stock of permitted reserves, in order to determine whether or not new allocations are required to meet any shortfalls. Tables 5.4 to 5.7 below present the data and calculations involved.

Table 5.4: Calculation of Allocations Required for Land-won Sand & Gravel Aggregates – North Wales

| Local Planning Authority | Overall 'Preferred' Apportionment (S&G & CR) ¹ (mt) | Historic proportion supplied from sand & gravel sources ² | New Annualised Apportionment for sand & gravel ³ (mt) | Total Apportionment Required over 22 years | Existing permitted reserves at end of 2016 in mt ^{4,5} | Existing landbank ⁶ (years) | Surplus or Shortfall (-) of Existing Permitted Reserves (mt) | Minimum Allocation needed to meet Required Provision ⁷ (mt) | Additional reserves at Dormant sites, 2016 ⁴ (mt) |
|--------------------------------|--|--|--|--|---|--|--|--|--|
| Denbighshire | 0.860 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Flintshire | 3.582 | 6.23% | 0.223 | 4.912 | 1.369 | 6.1 | -3.543 | 3.543 | 0.5 |
| Wrexham | 0.646 | 100.00% | 0.646 | 14.217 | 12.652 | 19.6 | -1.565 | 1.565 | 0 |
| Conwy + Snowdonia NP | 1.201 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Gwynedd | 1.129 | 15.44% | 0.174 | 3.834 | 1.175 | 6.7 | -2.659 | 2.659 | 0 |
| Isle of Anglesey | 0.321 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Sub-totals, North Wales | 7.738 | 13.40% | 1.044 | 22.963 | 15.196 | | -7.767 | 7.767 | 0.5 |

NOTES:

1 Taken from Tables 5.2 (North Wales) or Table 5.3 (South Wales)

2 Based on RAWP data over the 10-year baseline period (2007 – 2016)

3 Assumes that the historic proportion is maintained, with the exception of the Pembrokeshire Coast National Park where a slight adjustment has been made to avoid the need for allocations.

4 Data provided by the RAWP secretary for December 2016

5 Permitted reserves exclude those at dormant sites.

6 Landbanks = stock of permitted reserves at active and inactive sites, expressed in terms of the annualised apportionment

7 Allocations required = calculated shortfall, if any.

8. The sand & gravel allocations needed for Ceredigion could potentially be provided, in part, from resources in neighbouring parts of Carmarthenshire, despite being in a different sub-region.

Where allocation requirements are shown these are the minimum amounts required to meet the RTS requirements. In many cases an application for an individual new permission will exceed these amounts, in the interests of economic viability. Such applications should not be rejected purely on the grounds of exceeding the minimum requirements shown here. In some cases, the suggested allocations may already have been partially or entirely fulfilled, either by new permissions granted since December 2016, or by allocations that have already been identified in LDPs. Further details are given in the Regional Appendices.

Table 5.5: Calculation of Allocations Required for Land-won Sand & Gravel Aggregates – South Wales.

| Local Planning Authority <small>*see Table 5.4 for footnotes</small> | Overall 'Preferred' Apportionment (S&G & CR) ¹ (mt) | Historic proportion supplied from sand & gravel sources ² | New Annualised Apportionment for sand & gravel ³ (mt) | Total Apportionment Required over 22 years | Existing permitted reserves at end of 2016 in mt ^{4,5} | Existing landbank ⁶ (years) | Surplus or Shortfall (-) of Existing Permitted Reserves (mt) | Minimum Allocation needed to meet Required Provision ⁷ (mt) | Additional reserves at Dormant sites, 2016 ⁴ (mt) |
|---|--|--|--|--|---|--|--|--|--|
| Ceredigion | 0.460 | 36.67% | 0.188 | 4.136 | 0.510 | 2.7 | -3.626 | 3.626 | 0 |
| Pembrokeshire | 0.677 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Pembrokeshire Coast NP | 0.377 | 36.36% | 0.118 | 2.600 | 2.600 | 22 | 0.000 | 0.000 | 0 |
| Carmarthenshire | 1.105 | 0.24% | 0.003 | 0.058 | 0.100 | 37.7 | 0.042 | See note 8 below Table 5.4 | 0.35 |
| Swansea | 0.305 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Neath Port Talbot | 0.305 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Powys | 3.519 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Brecon Beacons NP | 0.368 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Merthyr Tydfil | 0.199 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Bridgend | 0.699 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Rhondda Cynon Taf | 0.753 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Vale of Glamorgan | 0.672 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Caerphilly | 0.535 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Cardiff | 1.383 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Blaenau Gwent | 0.201 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Monmouthshire | 0.235 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Newport | 0.434 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Torfaen | 0.258 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Sub-totals, South Wales | 12.485 | 2.96% | 0.309 | 6.784 | 3.21 | | | 3.626 | 0.35 |
| TOTALS Wales | 20.224 | 6.95% | 1.353 | 29.758 | 18.406 | | | 11.394 | 0.85 |

Table 5.6: Calculation of Allocations Required for Crushed Rock Aggregates – North Wales.

| Local Planning Authority | Overall 'Preferred' Apportionment (S&G & CR) ¹ (mt) | Historic proportion supplied from crushed rock sources ² | New Annualised Apportionment for crushed rock ³ (mt) | Total Apportionment Required over 25 years | Existing permitted reserves at end of 2016 in mt ^{4,5} | Existing landbank ⁶ (years) | Surplus or Shortfall (-) of Existing Permitted Reserves (mt) | Minimum Allocation needed to meet Required Provision ⁷ (mt) | Additional reserves at Dormant sites, 2016 ⁴ (mt) |
|--------------------------------|--|---|---|--|---|--|--|--|--|
| Denbighshire | 0.860 | 100.00% | 0.860 | 21.500 | 21.710 | 25.2 | 0.210 | 0.000 | 0 |
| Flintshire | 3.582 | 93.77% | 3.359 | 83.968 | 48.040 | 14.3 | -35.928 | 35.928 | 1.41 |
| Wrexham | 0.646 | 0.00% | 0.000 | 0.000 | 0.000 | n/a | 0.000 | 0.000 | 0 |
| Conwy + Snowdonia NP | 1.201 | 100.00% | 1.201 | 30.016 | 62.500 | 52.1 | 32.484 | 0.000 | 0.25 |
| Gwynedd | 1.129 | 84.56% | 0.955 | 23.867 | 28.540 | 29.9 | 4.673 | 0.000 | 0 |
| Isle of Anglesey | 0.321 | 100.00% | 0.321 | 8.015 | 14.400 | 44.9 | 6.385 | 0.000 | 0 |
| Sub-totals, North Wales | 7.738 | 86.60% | 6.695 | 167.366 | 175.19 | | | 35.928 | 1.66 |

NOTES:

1 Taken from Tables 5.2 (North Wales) or Table 5.3 (South Wales)

2 Based on RAWP data over the 10-year baseline period (2007 – 2016)

3 Assumes that the historic proportion is maintained, with the exception of the Pembrokeshire Coast National Park where a slight adjustment has been made to avoid the need for allocations.

4 Data provided by the RAWP secretary for December 2016

5 Permitted reserves exclude those at dormant sites.

6 Landbanks = stock of permitted reserves at active and inactive sites, expressed in terms of the annualised apportionment

7 Allocations required = calculated shortfall, if any.

Where allocation requirements are shown these are the minimum amounts required to meet the RTS requirements. In many cases an application for an individual new permission will exceed these amounts, in the interests of economic viability. Such applications should not be rejected purely on the grounds of exceeding the minimum requirements shown here. In some cases, the suggested allocations may already have been partially or entirely fulfilled, either by new permissions granted since 2016, or by allocations that have already been identified in LDPs. Further details are given in the Regional Appendices.

Table 5.7: Calculation of Allocations Required for Crushed Rock Aggregates – South Wales.

| Local Planning Authority <small>*see Table 5.6 for footnotes</small> | Overall 'Preferred' Apportionment (S&G & CR) ¹ (mt) | Historic proportion supplied from crushed rock sources ² | New Annualised Apportionment for crushed rock ³ (mt) | Total Apportionment Required over 25 years | Existing permitted reserves at end of 2016 in mt ^{4,5} | Existing landbank ⁶ (years) | Surplus or Shortfall (-) of Existing Permitted Reserves (mt) | Minimum Allocation needed to meet Required Provision ⁷ (mt) | Additional reserves at Dormant sites, 2016 ⁴ (mt) |
|---|--|---|---|---|---|--|---|--|--|
| Ceredigion | 0.460 | 63.33% | 0.272 | 6.798 | 5.370 | 19.7 | -1.428 | 1.428 | 0 |
| Pembrokeshire | 0.677 | 100.00% | 0.677 | 16.932 | 16.720 | 24.7 | -0.212 | 0.212 | 0 |
| Pembrokeshire Coast NP | 0.377 | 63.64% | 0.259 | 6.475 | 10.370 | 40.0 | 3.895 | 0.000 | 0 |
| Carmarthenshire | 1.105 | 99.76% | 1.102 | 27.556 | 59.900 | 54.3 | 32.344 | 0.000 | 13.82 |
| Swansea | 0.305 | n/a | 0.305 | 7.636 | 0.000 | 0.0 | -7.636 | 7.636 | 0 |
| Neath Port Talbot | 0.305 | 100.00% | 0.305 | 7.636 | 16.480 | 54.0 | 8.844 | 0.000 | 0 |
| Powys | 3.519 | 100.00% | 3.519 | 87.981 | 139.240 | 39.6 | 51.259 | 0.000 | 0 |
| Brecon Beacons NP | 0.368 | 100.00% | 0.368 | 9.200 | 120.100 | 211.8 | 105.925 | 0.000 | 0.36 |
| Merthyr Tydfil | 0.199 | 100.00% | 0.199 | 4.975 | | | | | |
| Bridgend | 0.699 | 100.00% | 0.699 | 17.471 | 27.270 | 39.0 | 9.799 | 0.000 | 0.15 |
| Rhondda Cynon Taf | 0.753 | 100.00% | 0.753 | 18.816 | 9.830 | 13.1 | -8.986 | 8.986 | 0 |
| Vale of Glamorgan | 0.672 | 100.00% | 0.672 | 16.806 | 18.730 | 27.9 | 1.924 | 0.000 | 13 |
| Caerphilly | 0.535 | 100.00% | 0.535 | 13.371 | 31.280 | 58.5 | 17.909 | 0.000 | 5.21 |
| Cardiff | 1.383 | 100.00% | 1.383 | 34.578 | 27.800 | 20.1 | -6.778 | 6.778 | 0 |
| Blaenau Gwent | 0.201 | 100.00% | 0.201 | 5.027 | 1.320 | 6.6 | -3.707 | 3.707 | 0 |
| Monmouthshire | 0.235 | 100.00% | 0.235 | 5.866 | 11.250 | 47.9 | 5.384 | 0.000 | 0 |
| Newport | 0.434 | n/a | 0.434 | 10.854 | 0.000 | 0.0 | -10.854 | 10.854 | 0 |
| Torfaen | 0.258 | n/a | 0.258 | 6.441 | 0.000 | 0.0 | -6.441 | 6.441 | 0 |
| Sub-totals, South Wales | 12.485 | 97.04% | 12.176 | 304.420 | 495.66 | | | 46.043 | 32.54 |
| TOTALS Wales | 20.224 | 93.05% | 18.872 | 471.786 | 670.850 | | | 81.971 | 34.20 |

- 5.25 The requirements, as set out in paragraph 49 of MTAN1, are that a minimum 10-year landbank of crushed rock and a minimum 7-year landbank for sand and gravel should be maintained throughout the entire plan period of each LDP. In effect, this means having a minimum landbank for sand & gravel of 22 years, at the start of a 15-year Plan period, and a minimum crushed rock landbank of 25 years. In each case, the landbank is required, by MTAN 1 to be based on an average of the most recent 3 years' production figures. That was modified, in the RTS First Review, to be based on an average of 10-years production figures, since that was adopted as the main guide for future levels of demand. For the present review, a further modification is needed, such that the landbank is expressed in terms of the annualised apportionment figure recommended for each LPA. In all cases, these are higher than the 10-year or 3-year historical sales averages, and the landbanks are therefore correspondingly reduced, increasing the likelihood for new allocations being required. It must be emphasised, however, that at the start of any given Plan period, the overall provision (total apportionment) can be represented by a combination of existing landbanks of permitted reserves and (where necessary) new allocations (subject to the minimum landbank figures being available).

Sand & Gravel / Crushed Rock Aggregates Split

- 5.26 In order to carry out the required calculations, it was necessary first to distinguish between natural sand & gravel and crushed rock requirements. To do this, it has been assumed that the new apportionments will be divided between the two aggregate types in the same ratio as shown by the historical sales data, over the 10-year baseline period. One exception to this has been The Pembrokeshire Coast National Park where the apportionment has been reduced slightly, so as not to exceed the remaining landbank of permitted reserves. This has been to avoid the necessity of requiring new allocations to be identified within the National Park¹⁸ and has been achieved by a corresponding slight increase in the apportionment for Ceredigion, and with corresponding changes to the crushed rock apportionments in order to maintain the overall apportionments for each area.
- 5.27 Theoretically, there may sometimes be opportunities to achieve the overall requirements with a different balance of aggregate types – for example where there is a surplus of permitted crushed rock reserves but a shortage of sand & gravel. In practice, however, this combination of circumstances occurs in only one LPA – Gwynedd. Even in that area, the substitution may not be appropriate, depending on the particular end-uses involved. The reverse situation, where there are surpluses of permitted sand & gravel reserves, is found only in Carmarthenshire. In that case, however, there is a much larger surplus of crushed rock, so no necessity for substitution to occur.

Surpluses, Shortfalls and Allocations

- 5.28 For **land-won sand & gravel**, Tables 5.4 and 5.5 reveal that new allocations to meet RTS requirements over the next 22 years will be required within Flintshire, Wrexham, Gwynedd and Ceredigion. Current landbanks, expressed in terms of the

¹⁸ MTAN 1 (para 52) seeks to avoid new allocations within National Parks, save in exceptional circumstances.

new annualised apportionments, are already less than the minimum level of 7 years in three of these areas, demonstrating the urgency for granting new permissions, as well as longer-term allocations for future working. In the fourth area (Wrexham), the landbank is currently adequate, at just under 20 years, but a further allocation is needed to meet the RTS requirement over the full plan period.

- 5.29 Only one LPA in the whole of Wales (Carmarthenshire) currently has a surplus of existing permitted reserves of sand & gravel. The remaining LPAs have neither a surplus nor deficit for sand & gravel provision but, in most cases, this is simply because they currently have no production and no apportionment. An exception to this is the Pembrokeshire Coast National Park which (as a consequence of ensuring that it's apportionment will not exceed the current landbank) has just sufficient reserves to cover the 22-year period required. In future years, the requirement which has hitherto fallen on the National Park will need to be supplied by other adjoining areas. In South East Wales, the zero requirements for land-won sand & gravel production are critically dependent upon the continued availability of marine-dredged aggregates. If that source of supply were to be disrupted, there would be an urgent need to reconsider the apportionments to all of the authorities in that area.
- 5.30 For **crushed rock**, Tables 5.6 and 5.7 reveal that many parts of Wales already have substantial permitted reserves of crushed rock, with landbanks in excess of the required minimum of 25 years. However, shortfalls of permitted reserves, with corresponding requirements for new allocations and/or new permissions, are identified in nine separate LDP areas.
- 5.31 Three of these (Swansea, Newport and Torfaen) correspond to the areas which previously had zero apportionments, and where new sources of supply now need to be found, either within those areas or, if it cannot be avoided, in neighbouring parts of the same sub-regions (subject to the preparation of Statements of Sub-Regional Collaboration with the other LPAs, in accordance with the guidelines set out in Annex A of this document). In the case of Swansea, the reserves requirement (specifically for HSA (high PSV) sandstone) could *theoretically* be subsumed within the surplus available in adjoining Neath Port Talbot, though that would defeat the objective of seeking a more equitable sub-regional balance. For Newport and Torfaen, part of their combined requirement of almost 17.3 million tonnes could *theoretically* be offset by the surplus of almost 5.4 million tonnes in Monmouthshire¹⁹, although that would still leave a considerable deficit and again would defeat the objective of seeking a more equitable balance. The word 'theoretically' is italicised in these observations because it is not the intention of the RTS to encourage the 'trading' of apportionments between LPAs, other than in *exceptional circumstances*, as set out in the Guidelines at Annex A.
- 5.32 The six other LPAs with shortfalls of permitted crushed rock reserves are Flintshire, Ceredigion, Pembrokeshire, Rhondda Cynon Taf, Cardiff and Blaenau Gwent. In the case of RCT and the Cardiff, the combined shortfall of more than 15.7 mt is dwarfed

¹⁹ The surplus reserves in Monmouthshire are bound up in a single site which has been inactive for many years and are constrained, in part, by the need for dewatering the Carboniferous Limestone aquifer, which would be subject to abstraction licensing requirements.

by the net surplus of almost 120 mt within the Cardiff City sub-region as a whole, though most of that lies within the Brecon Beacons National Park and the RTS seeks to reduce, rather than increase, the dependency on that area for future supply. The shortfall in RCT is matched by the slightly larger surplus in Bridgend, whilst that in Cardiff is more than matched by the surplus in Caerphilly. Once again, however, to rely on those reserves instead of finding new allocations as indicated in Table 5.7 would defeat the objective of seeking a more sustainable long-term pattern of supply in the area and is therefore not encouraged.

- 5.33 The remaining LPA facing a shortfall of permitted crushed rock reserves – Blaenau Gwent – falls within the same ‘Former Gwent’ sub-region as Torfaen, Newport and Monmouthshire which, even combined, have a net shortfall of more than 15.6 mt.

Types and Size of Allocations

- 5.34 A key requirement, in terms of identifying allocations for future working within an LDP, is to be able to demonstrate that adequate provision has been made for supplying *at least* the minimum quantity identified for the authority in the RTS (or in a SSRC where a different figure has been agreed through sub-regional collaboration). This, in turn, means that the quantity of workable mineral within the allocation needs to be known, as far as possible. In most cases, this is only likely to be feasible within Specific Sites. Preferred Areas will generally not have sufficient information to be able to do this, though it may sometimes be possible for reasonable estimates to be made.
- 5.35 In each case, where sufficiently detailed information exists, it is therefore recommended that the allocations should take the form of **Specific Sites**, as defined in Paragraph 5.14.19 of Planning Policy Wales (PPW) i.e. *“where mineral resources of commercial significance exist, and where any planning applications which come forward for those sites are likely to be acceptable in planning terms”*. In terms of size, Specific Sites should aim, not simply to deliver the bare minimum identified as an allocation requirement in the RTS (or SSRC) but may need to be larger: they will need to be of sufficient size to be commercially viable.
- 5.36 Where Specific Sites cannot be defined, allocations should normally at least take the form of **Preferred Areas** (*“areas of known resources with some commercial potential, and where planning permission might reasonably be anticipated”*), within which operators should be encouraged to bring forward more specific proposals. Inevitably, for a given minimum size of allocation, such areas will need to be significantly larger than individual sites, in recognition of the fact that only part of the area may eventually be brought forward.
- 5.37 **Areas of Search** (*“...broad areas that are believed to contain mineral resources of commercial significance but whose extent is uncertain...”*) will usually have only minimal information on the suitability and commercial viability of the resources for commercial development and, as noted in PPW, it will not usually be appropriate to only rely on these for the purposes of making allocations. There will be some situations, however, where there is insufficient knowledge about potential resources to identify anything other than Areas of Search. Where this is the case, it

is recommended that the Area(s) so identified should provide the potential for the release of new permitted reserves which are far greater than the minimum allocation recommended, in order to allow for the uncertainties involved.

- 5.38 In some cases, it may be better, in terms of deliverability, to rely on specific sites (whether existing permissions or new allocations) in neighbouring authorities (additional to those LPAs' own requirements), where such reliance has been agreed through collaborative working and formalised within an agreed SSRC (see para. 1.27, above), in preference to relying upon the uncertainty associated with broad Areas of Search.

Treatment of Dormant Sites

- 5.39 As noted in Chapter 2 (para. 2.4), where an LPA considers that the permitted reserves at dormant sites are likely to be capable of being worked in the relevant period (subject to Environmental Impact Assessment and the agreement of modern conditions) it may be possible for those reserves to be offset against the requirement for new allocations. This would only work, however, if the sites in question meet the same expectations as for other allocations, i.e. that they comply with the definition of Specific Sites or at least Preferred Areas, as given in PPW.

Compliance with and Departures from RTS Recommendations

- 5.40 The outcome of this strategic exercise has been a deliberate attempt to control, and in some cases to modify, the future pattern of supply of land-won primary aggregates in Wales, in line with sustainability principles. In a small number of areas, notably where there has been no production of land-won aggregates for many years, with no permitted reserves and zero apportionments, the Steering Group accepted that there may be insufficient evidence, at present, to determine the precise levels of apportionment and resulting allocations required for individual LPAs. In such cases, more detailed analysis will be required, at the local level, through collaboration between adjoining LPAs and consultation with industry, in order to confirm realistic figures for those particular LPAs and (*in exceptional circumstances*) to consider the possibility of alternative patterns of supply within the sub-region concerned.
- 5.41 To this end (and more generally, to ensure that the regional and sub-regional totals recommended by the RTS are achieved), this Review has introduced a requirement for all LPAs within each sub-region to produce Statements of Sub-Regional Collaboration (SSRCs), in consultation with industry, through the RAWPs, prior to the Examination of any individual LDP within that area. Specific guidelines relating to the preparation of SSRCs, including details of the exceptional circumstances tests, are provided at Annex A of this document.
- 5.42 Finally, it should be noted that the recommendations made in this Chapter are based on currently available information regarding permitted reserves, production, proximity and environmental capacity. As noted in 'Box 1' of the original RTS documents, and repeated in the First Review, the suggested apportionments and allocations do not take fully into account all factors that may be material to the

ensuring an adequate supply of aggregates obtained from appropriately located sources. Such factors may, *inter alia*, include such things as:

- The technical capability of one type of aggregate to interchange for another;
- The relative environmental cost of substitution of one type of aggregate by another;
- The relative environmental effects of changing patterns of supply; and
- Whether adequate production capacity can be maintained to meet the required level of supply.

5.43 For such reasons, and as already noted in Chapter 1 (para. 1.29), where it is justified by new (e.g. more up to date, more detailed or more precise) evidence, it is open for individual LPAs to depart from the apportionment and allocation figures recommended by the RTS when preparing their LDP policies. In doing so, however, an LPA would need to demonstrate that their intended departure would not undermine the overall strategy provided by the RTS itself (e.g. by working together with other LPAs within the same sub-region to ensure that sub-regional and regional totals are still achieved) and this would need to be reflected in the SSRC agreed with neighbouring LPAs for that area, prior to Examination.

5.44 Where the local authorities involved are unable to reach agreement, or if individual local authorities do not accept the revised Regional Technical Statement, the Welsh Government will, as a last resort, consider its default powers to intervene in the Development Plan process (MTAN 1, paragraph A3).

6. Consultation Process

- 6.1 This First Review of the RTS documents for North Wales and South Wales has been undertaken as a collaborative exercise with several stages of consultation and technical peer review.
- 6.2 At the outset of the project, initial consultation meetings were held with a range of stakeholders to ensure that the Review was properly focused and that key sources of information were made available for consideration. The organisations and/or representative individuals consulted were as follows:
- Hugh Towns, Secretary of the South Wales Regional Aggregates Working Party
 - Gary Nancarrow, Secretary of the North Wales Regional Aggregates Working Party
 - Nick Horsley and others, representing the Mineral Products Association (MPA)
 - Trefor Evans representing the British Aggregates Association (BAA)
 - Ian Gorton and others, representing Natural Resources Wales (NRW)
- 6.3 The findings of this early stage of consultation are detailed in the Interim Report, issued on 18th January 2019 (pdf copies available on request from the author).
- 6.4 Initial drafts of the revised RTS were then produced in stages between May and August 2019. At each stage, consultation was held with a Project Steering Group made up of the RTS sub-committees of the two Regional Aggregate Working Parties (including mineral operators, mineral planning authorities and Natural Resources Wales). This consultation entailed issuing drafts for comment, Steering Group meetings chaired by Joanne Smith of the Welsh Government, and the preparation of revised drafts incorporating responses to all Steering Group comments received, including the receipt of new technical data. Each successive draft superseded previous versions.
- 6.5 The second draft was issued to the entire membership of both RAWPs and comments on that version were received at a joint North Wales and South Wales RAWP meeting in July 2019.
- 6.6 Following discussion at that meeting, and written comments received from members, a third draft was produced. English and Welsh versions were then issued for wider (public) consultation and drawn to the attention of all Local Planning Authorities in Wales, by the Welsh Government's Chief Planner. Those versions were made available via the Websites of both RAWPs for an eight-week consultation period, between 30th September and 25th November, 2019. Within that period, two consultation events were held, on 11th November at Bridgend in South Wales and on 15th November at Llandudno Junction in North Wales. At each event, the RTS review process was clearly explained and the findings, including recommendations to individual LPAs, were presented for discussion and comment. This was the main opportunity for interested parties to scrutinise the documents and to be satisfied that they were acceptable and fit for purpose, taking account of local and sub-regional perspectives.

- 6.7 Following consultation, additional meetings were held with a number of LPAs in South Wales, and with representatives of the Mineral Products Association, to discuss particular concerns relating to sub-regional collaboration and to finalise guidance on this (which had been called for during consultation). A consultation report, which included the Steering Group's recommended responses to the various issues raised by consultees, was produced in June 2020.
- 6.8 A further revision of the RTS (this document and the two Regional Appendices) was then carried out to reflect the recommendations of the consultation report and to incorporate the finalised version of the guidance, (Annex A).
- 6.9 The final edition will be translated into Welsh and issued for endorsement by individual LPAs, after which it will be endorsed for publication by the Welsh Government.
- 6.10 As with previous editions of the RTS, in the interests of sustainability, it is not intended that printed copies will be issued.

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Annex A: Guidance Note on Sub-Regional Collaboration

This Second Review of the Regional Technical Statements for Aggregates Provision in Wales (RTS) introduces a new requirement for all LPAs to agree **Statements of Sub-Regional Collaboration** (SSRCs) in respect of their contributions to the future provision of land-won primary aggregates. In response to suggestions received during the public consultation of the 2nd Review, the following Guidance has been prepared on behalf of the Welsh Government and the two Regional Aggregate Working Parties, in consultation with the project Steering Group.

SSRCs are required to be prepared, collaboratively, by all constituent LPAs within each RTS sub-region (as defined by the RTS 2nd Review) as part of the evidence base needed to support each Local Development Plan (LDP) or Strategic Development Plan (SDP). The timescale for preparing SSRCs will therefore need to be geared towards the timescale for the earliest LDP (or SDP) submission within that sub-region. Once agreed, an SSRC will remain in place until it becomes superseded by the requirements of future reviews of the RTS, or new information comes forward which justifies a change.

By default, each SSRC will simply confirm that all constituent LPAs within a particular RTS sub-region accept the individual apportionments for aggregates for their individual Authority areas, as set out in the latest Review of the RTS, and that (*as a minimum*) the RTS requirements for that sub-region as a whole will therefore be met.

In exceptional circumstances, an SSRC may identify an alternative pattern of supply which achieves the RTS requirements for that particular sub-region in a different way. Such circumstances may arise either where one or more LPAs within the sub-region are unable to meet the minimum requirements of their apportionments identified in the RTS or where an alternative, achievable and more sustainable pattern of supply is identified through collaboration between the LPAs involved.

The following considerations will apply, in such circumstances:

1. **Inability to meet RTS apportionments:** In order to demonstrate an inability to meet RTS apportionments, an LPA would need to show either that it has no (or insufficient) workable aggregate resources of the type required by the RTS and/or that there is no interest from the minerals industry in developing such resources within the area. It will *not* be sufficient simply to demonstrate that the area has no existing quarries or no recent production, or that alternative resources and/or permitted reserves exist within another LPA.
2. **An alternative pattern of supply:** Where an alternative pattern of supply is proposed this will entail transferring some or all of the RTS apportionment from one LPA to one or more other LPAs within the same sub-region, so as to make corresponding increases in provision within those authorities, as required by MTAN 1. The receiving authorities

will need to increase their apportionments²⁰ (and, where necessary, allocations²¹), to ensure that *as a minimum*, the overall requirements for ongoing supply within that sub-region, as set out in the RTS, are met (both numerically and in terms of aggregate type²²). It will not normally be appropriate to merely transfer apportionments to an LPA with sufficient existing reserves to arithmetically absorb the apportionment, without reference to the additional consideration of productive capacity²³.

Where any adjustments are made, the details and justifications will need to be set out clearly in the SSRC and will be subject to Examination as part of the LDP or SDP process.

The LPAs involved should demonstrate, as far as possible, that the SSRC has been produced in consultation with relevant stakeholders, including the Regional Aggregate Working Party (RAWP), as part of the LDP process. The RAWP would not have any powers of approval over SSRCs but would simply provide a forum for discussion of proposed arrangements and, where necessary, could raise objections.

Where there is clear evidence that the sub-region as a whole cannot meet its collective apportionment, SSRCs may be extended to include one or more other LPAs in directly adjoining parts of a neighbouring sub-region. This may be appropriate, for example, for LPAs which become part of a single SDP sub-region, even though they are in different RTS sub-regions. However, the considerations, as outlined above, would still apply.

²⁰ This will not apply to National Park Authorities, where the apportionments stated within the RTS shall not be increased.

²¹ Where an apportionment (or part thereof) is transferred from one LPA to another, the receiving authority will need to calculate its resulting total apportionment, over 25 years (for crushed rock) or 22 years (for sand & gravel) and compare those figures with existing landbanks. Where this results in a shortfall of permitted reserves, corresponding allocations for future working will need to be identified within that authority's area to make up the deficit.

²² Where alternative sources of supply are to be considered, the alternative must either be of the same type or, at least, one that is fully capable of meeting the same end-use specifications. For this reason, and to avoid the inappropriate use of specialist aggregate types, it should be noted that High Specification Aggregates such as those with a high Polished Stone Value (PSV) are not interchangeable with other aggregate types.

²³ Whether or not adequate productive capacity is maintained within a given area will, in part, be the responsibility of industry. All that is expected of LPAs in such cases is that they facilitate such capacity through planning permissions and realistic allocations for future working in accordance with Planning Policy Wales and MTAN 1.

Glossary

The following terms are frequently used in relation to aggregate supply and apportionment. The terms are listed in topic groupings rather than alphabetically.

| Term | Definition, in relation to the supply of aggregates |
|---|---|
| TOPIC: Aggregate Materials | |
| Aggregate | Crushed rock, natural sand and gravel or artificial granular material that is used in construction, often in conjunction with a suitable binding agent such as bitumen or cement. |
| Primary Aggregates | Aggregates sourced directly from naturally occurring geological materials as a primary product (as distinct from secondary aggregates, including excavation wastes, produced as a by-product from the extraction or processing of geological materials for other primary purposes). |
| Secondary Aggregates | These are usually by-products of other industrial processes, or the arisings from non-aggregates extractive operations, that have been processed to meet the specification requirements for construction aggregate materials. They can be sub-divided into manufactured and natural materials, depending on their source. Examples of manufactured secondary aggregates are pulverised fuel ash (PFA) and metallurgical (iron and steel) slags. Natural secondary aggregates include china clay sand, ball clay sand, aggregate produced from slate waste or colliery spoil and excavation wastes (as defined below). All of these are exempt from the aggregates levy, giving them a deliberate cost advantage over primary materials, in an attempt to encourage their greater use. |
| Construction, Demolition and Excavation Wastes (CD&EW) | A term referring to wastes (see below) arising from the construction or demolition of buildings and/or civil engineering infrastructure, or from excavations associated with land levelling, foundations or other civil engineering works. Aggregates may be derived from some of these various waste streams, either as recycled materials or from excavation wastes (both of which are defined separately below). |
| Waste | Any substance or object which the holder discards or intends, or is required, to discard. In CD&EW surveys, materials arising from construction or demolition works, or from associated excavations, which are beneficially used <i>in an unprocessed form</i> on the site on which they arise are generally not regarded as waste, because they are not generally regulated as waste. |
| Road planings | A particular example of CD&EW materials, comprising aggregate and bituminous or cement binder materials that have been 'planed' from the surface of a worn out road prior to resurfacing with new or recycled materials. |
| Recycled Materials suitable for use as Aggregate | These are materials, usually arising from construction or demolition projects, which have previously been used for construction purposes, and which are capable of being recycled or re-used as construction aggregates for a second or further time. In the Finance Act 2001, all materials previously used in construction are exempt from the aggregates levy, giving them a deliberate cost advantage over primary aggregates in an attempt to encourage their greater utilisation. |
| Excavation Waste suitable for use as Aggregate | These are materials that may be suitable, with or without processing, for use as secondary aggregates, arising from excavation works: <ul style="list-style-type: none"> a) on the site of any building or proposed building, where the excavation is undertaken exclusively for the purposes of laying foundations, pipes or cables; b) on the site of any river, canal, watercourse or navigational channel, where the excavation is undertaken exclusively for the purpose of creating, restoring, improving or maintaining that feature; c) along the line or proposed line of any highway or proposed highway, where the excavation is undertaken for the purpose of constructing, improving or maintaining the highway and not wholly or mainly for the purpose of extracting aggregate. Each of these categories, as defined more precisely in the Finance Act 2001, is exempt from the aggregates levy, giving these materials a deliberate cost advantage over primary materials in an attempt to encourage their greater utilisation. |
| Mineral Wastes | Mineral wastes are identified in MTAN1 as a further category of material with potential for use as aggregate. The term is specifically used to encompass aggregates from slate waste, colliery spoil, and crushed rock fines (i.e. the "dust" generated from crushing and screening operations in hard rock primary aggregate quarries). It may also include aggregates produced from the excavation and processing wastes at building stone (dimensional stone) quarries. Aggregates produced from slate waste and colliery spoil are classed as secondary materials (see above) and are exempt from the aggregates levy. The same is not true of crushed rock fines, or of the residue from building stone production, both of which remain classed as primary aggregates and are not exempt. |

| TOPIC: Supply and Demand | |
|---------------------------------|--|
| Production | The overall rate at which products are generated, in tonnes (or millions of tonnes) per year, <i>whether or not they are sold</i> . In quarrying, production includes any unsaleable materials that may be produced, including overburden, interburden and processing waste, which may or may not be useable. |
| Sales | The rate at which products are sold, in tonnes (or millions of tonnes) per year. In quarrying, for the reasons outlined above, this will usually be less than the rate of production. |
| Consumption | The rate at which products are used, within a specified market area, measured in tonnes (or millions of tonnes) per year. |
| Demand | The need or desire for a product, backed by an ability to pay. Demand is measured over a given time period, and is affected by budgets, prices, preferences and the availability and price of alternative products. Demand for aggregates may be expressed in terms of the rate at which it is expected to be used within a particular market area (which is rarely known), or the rate at which it is expected to be supplied from a given source area, and is measured in tonnes (or millions of tonnes) per year. |
| Supply | The amount of a product which is supplied. Supply of aggregates is normally expressed in relation to a particular source area and is measured in tonnes (or millions of tonnes) per year. |
| Distribution | The pattern of market destinations served by the sales from a particular quarry or group of quarries. |
| Proximity Principle | The general concept of minimising the transportation of aggregates (and other bulk materials) by road, in accordance with para. 26 of MTAN1, in order to reduce associated impacts on the environment. |

| TOPIC: Resources, Reserves and Landbanks | |
|--|---|
| Resources (of primary aggregate) | Geological materials, including rocks and naturally occurring sand & gravel, which have the potential to be used as aggregates. The presence of a resource does not imply an acceptance of mineral working. |
| Permitted Reserves (of primary aggregate) | Primary aggregate resources which have the benefit of planning permission for the winning and working of minerals. |
| Landbank (of primary aggregate reserves) | In general, a landbank is a stock of planning permissions for the winning and working of minerals within a specified area, expressed both in millions of tonnes and in terms of the number of years' supply which they represent. The latter is usually calculated on the basis of recent rates of production. |
| Current Landbank (of permitted primary aggregate reserves) | In MTAN1 (paragraph 45), this is defined as <i>"the sum of all permitted reserves at active and inactive sites at a given time and for a given area"</i> , and is required to be based on <i>"the latest 3 years production figures"</i> (production, in this case, usually being represented by sales). For the purposes of the RTS, and in the interests of adopting a more practical approach to the strategic planning of aggregates provision in Wales, two deliberate departures from this definition were agreed by the Steering Group at the time of the First Review. Firstly, although 'inactive sites' technically include those which are dormant or suspended, the current landbank has been taken to exclude those sites (but see also 'Dormant Reserves' below). Secondly, in recognition of the prolonged economic recession, the agreed method of calculating the landbank has been to use the average of the latest 10 (rather than 3) years' sales figures. |
| Dormant Reserves | The permitted reserves of primary aggregates at Dormant sites (see below). MTAN1 (paragraph 47) requires these to be <i>"clearly shown in the landbank calculations as a separate category"</i> . For the purposes of this review, such reserves and those at sites where permission has been suspended (see below) have therefore been excluded from the main landbank calculations used to determine future allocation requirements, though in some cases they might be able taken into account by local authorities to offset any requirement for new allocations, subject to more detailed local knowledge. |
| Future Landbank (of primary aggregate reserves)* | In MTAN1 (paragraph 45), the Future (or 'Extended') Landbank is defined as <i>"land specifically allocated for the working of aggregates"</i> (but see footnote below*) |
| Apportionment | The rate for which the mineral planning system requires provision to be made, in Development Plans, for the supply of aggregates from a given area or region. This may be expressed either in terms of millions of tonnes over a specified period, and/or as an averaged 'annualised apportionment' in millions of tonnes per year. |
| Allocation | The identification, within a Local Development Plan, of an area of land for future mineral working. In Wales, the size (in terms of tonnage) of allocations required in specific LDPs are defined in the Regional Technical Statements, but only for areas in which the cumulative apportionments over the period covered by the RTS are in excess of the available landbank of permitted reserves, at the time of the baseline date used in the assessment (in this case 31/12/16). |
| Provision | The total amount of aggregate required to be supplied from a particular local authority over a period of time, such as the duration of its Local Development Plan. The overall provision may comprise both a landbank of permitted reserves and allocations for future working. |
| * The term 'Future Landbank' is somewhat confusing, since a landbank is a stock of planning permissions and (by definition), allocations do not have this status. Allocations may thus form part of the overall 'provision' within a Local Development Plan, but cannot form part of the landbank. | |

| TOPIC: Quarry Status | |
|--|---|
| Active Site | Active sites in Wales are explicitly defined by the Town and Country Planning (Fees for Applications and Deemed Applications) (Amendment No.2) (Wales) Regulations 2006 as sites where “ a) <i>development to which the relevant mineral permission or landfill permission relates is being carried out to any substantial extent; or b</i>) <i>other works to which a condition attached to such permission are being carried out to any substantial extent</i> ”. “Substantial extent” is not defined, but relevant guidance is provided in Minerals Planning Guidance Note 14 (MPG14): Environment Act 1995:- Review of Mineral Planning Permissions. |
| Inactive Site | Defined by the Town and Country Planning (Fees for Applications and Deemed Applications) (Amendment No.2) (Wales) Regulations 2006 as one “ <i>which is not an active site</i> ”, as defined above. Inactive sites thus include, but are not limited to, those which are classified under the Environment Act 1995 as being dormant and those where planning permission has been suspended (see below). |
| Dormant Site | <p>As defined in the Environment Act 1995, this refers specifically to quarries with mineral permissions granted between 30th June 1948 and 22nd February 1982 (i.e. “Phase I” and “Phase II” sites, as defined in the Act) where no minerals development was carried out to any substantial extent in, on, or under the site at any time in the period beginning on 22 February 1982 and ending with 6 June 1995. These sites still have valid planning permissions but, since 1st November 1995 it has not been lawful to recommence or carry on working a dormant site until full modern planning conditions have been approved by the Local Planning Authority (LPA), through the process of an initial ROMP review (see below).</p> <p>In some areas there are additional, ‘dormant IDO’ sites, as defined within the Planning and Compensation Act, 1991. These are sites which were originally granted consent under ‘Interim Development Orders’ (IDOs), in the period between 22 July 1943 and 1 July 1948, and which were subsequently registered under the 1991 Act (thus retaining valid planning permission), but where no substantial work was carried out between 1 May 1989 and 30th April 1991. For these sites, a scheme of operation and restoration conditions is required to be submitted to the relevant LPA together with an acceptable Environmental Assessment, before they can lawfully be reactivated.</p> |
| ROMP | <p>The acronym for ‘Review of Old Mineral Permissions’ carried out in accordance with the Environment Act 1995. Sites which obtained planning permission between 1948 and 1982, whether active, inactive or dormant, were required by this Act to be subject to an Initial Review in order that modern planning conditions can be agreed. In addition, all sites (including reactivated ISO permissions) are required to be subject to subsequent Periodic Reviews at intervals of not less than 15 years. ROMP applications cannot be refused, since valid planning permissions already exist.</p> <p>However, court judgments, guidance and regulations have since clarified that both the ROMP process, and the approval of new conditions at IDO sites, amount to obtaining new development consents and are therefore subject to Environmental Impact Assessment.</p> |
| Stalled ROMP / Suspended Permission | Where a ROMP review has begun but has not been completed (e.g. because an Environmental Statement has not been submitted), the ROMP process is said to have ‘stalled’. In accordance with the Town and Country Planning (Environmental Impact Assessment) (Undetermined Reviews of Old Mineral Permissions) (Wales) Regulations 2009, planning permission then becomes ‘suspended’ - i.e. it ceases to authorise any minerals development. As with dormant sites, suspended permissions cannot lawfully be operated until the process (including Environmental Impact Assessment) has been completed and modern conditions agreed. |

Abbreviations

The following abbreviations are commonly used throughout the RTS.

| | |
|-----------|---|
| AAV | Aggregate Abrasion Value |
| AM survey | Aggregate Minerals survey |
| AONB | Area of Outstanding Natural Beauty |
| BAA | British Aggregates Association |
| BGS | British Geological Survey |
| BMAPA | British Marine Aggregate Producers Association |
| CD&EW | Construction, Demolition and Excavation Waste |
| CPRW | Council for the Protection of Rural Wales |
| EA | Environmental Assessment |
| EC | European Commission |
| EIA | Environmental Impact Assessment |
| EMAADS | <i>Establishing a Methodology for Assessing Aggregates Demand and Supply</i> (project title) |
| ES | Environmental Statement |
| EU | European Union |
| FBA | Furnace Bottom Ash |
| GDP | Gross Domestic Product |
| GIS | Geographic Information System |
| HMRC | Her Majesty's Revenue & Customs |
| HSA | High Specification Aggregate |
| IDO | Interim Development Order |
| IMADP | Interim Marine Aggregates Dredging Policy |
| IMAECA | <i>Implementing the Methodology for Assessing the Environmental Capacity for primary Aggregates</i> (project title) |
| ISO | International Organisation for Standardisation |
| LDP | Local Development Plan |
| LPA | Local Planning Authority |
| MASS | Managed Aggregate Supply System |
| MHCLG | Ministry of Housing, Communities and Local Government |
| MPA | Mineral Products Association |
| MPPW | Minerals Planning Policy Wales |
| mt | Million tonnes |
| mtpa | Million tonnes per annum |
| MTAN | Minerals Technical Advice Note |
| NPA | National Park Authority |
| NRW | Natural Resources Wales |
| OBR | Office of Budget Responsibility |
| PFA | Pulverised Fuel Ash |
| POS | Planning Officers Society |
| PPW | Planning Policy Wales |
| PSV | Polished Stone Value |
| RAWP | Regional Aggregate Working Party |
| ROMP | Review of Old Mineral Permissions |
| RTS | Regional Technical Statement |
| SAC | Special Area of Conservation |
| SEA | Strategic Environmental Assessment |
| SSSI | Site of Special Scientific Interest |
| WG | Welsh Government |

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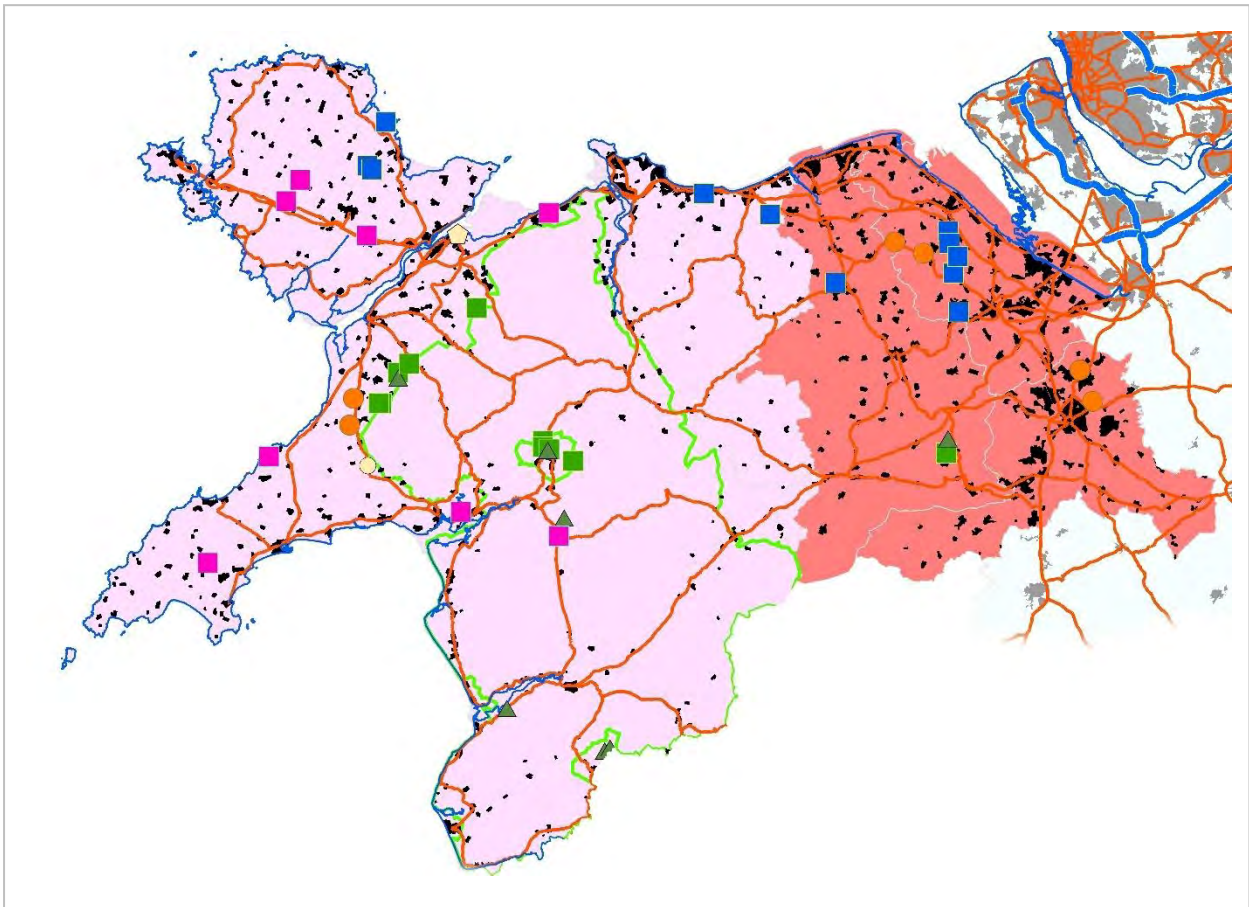
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* It is noted with deep sadness that Trefor passed away in April 2020

Regional Technical Statement (2nd Review)

Appendix A (North Wales)



Final – September 2020

North Wales
Regional
Aggregates
Working Party



Llywodraeth Cymru
Welsh Government

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Appendix A: North Wales Region - Detailed Analysis & Recommendations

Introduction

- A1. This appendix is intended to complement, and should be read in conjunction with, the main document of the Second Review of the RTS. It provides additional explanation, specific to the North Wales Regional Aggregate Working Party (RAWP) Region, relating to the consideration of existing supply patterns, the detailed breakdown of sub-regional apportionments and requirements for new allocations. The final part of the Appendix, from paragraph A52 onwards, incorporates that information into specific recommendations and guidance for each individual Local Planning Authority (LPA).

Existing Supply Patterns in North Wales – Regional Overview

- A2. As explained in Chapter 3 of the main document, historical sales figures have been used in this review as a starting point for calculating the overall National requirement for land-won primary aggregate production in Wales, over the period covered by the revised RTS (i.e. 2020-2045). After applying a 30% uplift to reflect the planned increase in housing construction, this enhanced total has then been apportioned between North Wales and South Wales on the basis of their recent historical share of sales. The sub-regional apportionment of those regional figures has then been determined by looking carefully at the patterns of supply within each of seven sub-regions, created specifically for this purpose. That examination is briefly outlined in the main report and described more fully here.
- A3. Figure A1 shows how the North Wales RAWP area is divided into two sub-regions. The sub-regions were created, at Welsh Government's suggestion, for the specific purpose of facilitating strategic minerals planning and collaborative approaches between LPAs. They each represent distinctive 'market areas' between which there is relatively little movement of aggregates, except for exports to England, and within which detailed, strategic consideration can be given as to the most appropriate patterns of supply. Looking carefully at the balance of supply between the LPAs within each sub-region is an important aspect of this. It should be noted that Conwy, though previously forming part of the North-East Wales group of LPAs in the North Wales RAWP reports, is now included in the North-West Wales sub-region of the RTS. The decision to make this change was made following extensive discussion amongst the RTS Steering Group and was agreed by the RAWP.
- A4. For some LPAs, where the existing supply pattern already seems to provide a sensible balance between the spatial distributions of demand, resource availability and other factors, the new apportionments simply reflect the pattern of historical sales (i.e. the regional figures have been divided between the LPAs in proportion to their share of recent historical sales). In other areas, the new apportionments have been adjusted – primarily to take account of the distribution of planned housing activity, as indicated by the housing requirement figures in adopted LDPs - so that they reflect an improved (more equitable, more sustainable) spatial balance between supply and demand. In all cases, consideration has also been given, at least qualitatively, to factors such as environmental capacity, proximity and transport networks. The later sections of this document provide more detailed observations regarding these various factors within each of the North Wales sub-regions.
- A5. It should be noted that the historical sales figures and apportionments relate only to land-won primary aggregates. These materials are needed to satisfy the residual levels of demand, once allowance has been made for the 'top-sliced' proportion of supply which is obtained from secondary and recycled sources and from marine-dredged aggregates. These materials contributed to the overall market throughout the baseline period and will continue to do so, leaving only the residual demand to be supplied from primary land-won sources.

Figure A1: Sub-Regional Areas and their constituent Local Planning Authorities in North Wales

- A6. No reliable monitoring data on recycled and secondary aggregate production is currently available for any part of the UK. The recently updated Mineral Planning Factsheet on aggregates produced by the British Geological Survey (BGS, 2019)¹ estimates that these materials now constitute approximately 30% of overall supply (based on data provided by the Mineral Products Association), and that most of the material that is suitable for aggregates use (primarily construction, demolition and excavation waste – CD&EW) is already being recovered and utilised. This has been the case since around 2005² and the proportion is thought unlikely to change in the foreseeable future. Being closely dependent upon the rate of construction activity, the actual tonnages can therefore be expected to rise and fall in line with variations in the overall rates of economic growth and will have a neutral impact on the demand for primary aggregates, compared to that seen during the baseline period (2007 to 2016). Moreover, in the case of recycled aggregates, since the arisings of CD&EW are (by definition) very closely associated with the occurrence of new construction work, their availability is unlikely to have any significant influence on spatial patterns of demand.
- A7. That might not be the case for secondary aggregates, which have a more varied spatial distribution, with different types and different quantities being available within each LPA. Again, there are no up-to-date data sources to provide further details, but there are indications that some of these sources may be declining in availability, which would potentially increase the demand on primary aggregates within those areas. Further observations on this are noted, where appropriate, in the later sections on individual sub-regional areas.

Land-won Primary Aggregate Production

- A8. The historical sales figures for all land-won primary aggregates within each LPA in North Wales (including both crushed rock and natural sand & gravel) are shown in Table A1, below. The

¹ <https://www.bgs.ac.uk/downloads/start.cfm?id=1355>

² https://mineralproducts.org/documents/Contribution_of_Recycled_and_Secondary_Materials_to_Total_Aggs_Supply_in_GB.pdf

proportion supplied from crushed rock sources (averaged over 10 years) is shown in the right-hand column – the balance being sourced from land-won sand & gravel sites. The LPAs are grouped according to the sub-regions shown in Figure A1. The origin of the data is explained fully in Chapter 3 of the main text.

Table A1: 10-year and 3-year Total Land-Won Primary Aggregates Sales Averages (to 2016) for each LPA in North Wales.

| Local Planning Authority | 10-yr Average Aggregate Sales (total) (mtpa) | 3-yr Average Aggregate Sales (total) (mtpa) | Highest of 3-yr and 10-yr ave. sales in each LPA (mtpa) | Proportion from crushed rock sources |
|---------------------------|--|---|---|--------------------------------------|
| Denbighshire | 0.329 | 0.043 | 0.329 | 100% |
| Flintshire | 2.663 | 3.204 | 3.204 | 93.77% |
| Wrexham | 0.435 | 0.514 | 0.514 | 0% |
| Conwy + Snowdonia NP | 0.955 | 0.813 | 0.955 | 100% |
| Gwynedd | 0.868 | 0.898 | 0.898 | 84.56% |
| Isle of Anglesey | 0.236 | 0.255 | 0.255 | 100% |
| TOTAL, North Wales | | | 6.155 | 86.6% |

SOURCE: Collated by the North Wales RAWP secretary from confidential industry data.

- A9. The figures show that the supply of land-won sand & gravel has been dominated by Wrexham and Flintshire, this being largely a reflection of their proximity and good access to the main market areas in both North East Wales and adjoining parts of North West England. It also reflects the existence of substantial glacio-fluvial sand & gravel resources in those areas - particularly to the east of Wrexham. Whilst similar deposits exist in North West Wales, particularly in Gwynedd, these are less well-placed to serve the main markets, and production there is therefore more limited.
- A10. In the case of crushed rock aggregates, historical demand has again been focused primarily on North East Wales, and for the same reasons, but in this case the materials have overwhelmingly been supplied from Flintshire. This reflects the extensive resources of high quality Carboniferous Limestone within relatively unconstrained areas to the east of the Clwydian Range & Dee Valley AONB, in contrast to the situation in Wrexham, where the continuation of these resources falls almost entirely within the AONB. Significant quantities of limestone from Flintshire, including high purity limestone for industrial uses, are exported into England, and some are used for cement manufacture at Padeswood near Mold. Limestone produced for non-aggregate uses, however, is excluded from the statistics given in this report. Limestone production also takes place elsewhere in North Wales, together with igneous rock and slate production, particularly in Gwynedd. In the case of Conwy, the output figures incorporate sales from one small igneous rock quarry within the Snowdonia National Park, in order to maintain confidentiality.
- A11. Further observations on the relationships between production, resources, markets and environmental capacity within each of the sub-regions are given in paragraphs A26 *et seq.*, below.

Marine-dredged Aggregates

- A12. In North Wales, very little marine-dredged sand & gravel is used. The figures for marine aggregates are combined, in the annual RAWP reports, with those for land-won sand & gravel, but are shown, in the latest AM Survey report (for 2014) to be in the order of 30,000 tonnes per annum (tpa) (a figure which has gradually declined from 48,000 tpa in 1997). Dredging licences within the coastal waters of North Wales are primarily used to supply Merseyside, with substantial quantities being landed in Liverpool. This, in turn, offsets the pressure for exports to NW England from land-based resources in North-East Wales.
- A13. For the time being, it seems reasonable to suppose that marine-dredged aggregates will continue to supply a similar (very small) proportion of overall demand as they have done over at

least the last twenty years, so the demand for land-won aggregates in any of the LPAs in North Wales is not likely to be affected.

Secondary Aggregate Production

- A14. Secondary aggregates comprise the by-products of various industrial processes, including metallurgical slags and power station arisings, but also the by-products from certain types of non-aggregate mineral extraction, such as colliery spoil and slate waste, and from the recycling of glass, ceramics, asphalt plantings and rail ballast³.
- A15. Aggregate production from metallurgical slags and from coal-fired power station arisings, no longer occurs in North Wales. Small amounts of aggregate minerals (sandstone and occasionally sand) arise adventitiously from the reworking of former colliery spoil tips or from the working of opencast coal. In North Wales, almost all former colliery waste tips (mainly in Flintshire/Wrexham) have been either landscaped as part of reclamation schemes or utilised for base fill material. Volumes still available have not been assessed recently but are understood to be small or insignificant.
- A16. In North Wales, crushed slate, derived either from slate waste (as a by-product of roofing slate production) or quarried specifically for use as primary aggregate, features significantly in the overall pattern of supply, especially in Gwynedd. Depending upon the quality and characteristics of the material involved, it is used not only in bulk fill applications, but also as an uncoated road stone and, increasingly, as an aggregate in the production of concrete building blocks.
- A17. Both slate waste and quarried slate have been included in the overall figures for crushed rock production within the North Wales RAWP reports since 2008 and, over the 10-year baseline period (up to 2016), have accounted for an average of 9.7% of total crushed rock sales. The proportion fell abruptly after 2009, from a peak of more than 16% in 2007. Although sales volumes fell sharply, to less than half of the levels seen in 2007, the reduction in proportional share was less dramatic and this had recovered to more than 11% by 2016. However, given that slate production is already included in the crushed rock statistics, this trend has no implications for the overall level of future demand, only for the balance between slate and other types of crushed rock.
- A18. In August 2019, Gwynedd Council published a draft management plan for the slate areas of north west Wales, relating to their identification as a UK candidate for potential UNESCO World Heritage status. The proposals include bans on quarrying in some areas alongside the revocation of all extant mineral working permissions. Depending on details, if implemented, this could have a significant effect on the future demand for other sources of primary crushed rock aggregates in the region.
- A19. The various sources of secondary aggregate noted above, together with recycled aggregates, as discussed below, are currently exempt from the Aggregates Levy, in a deliberate attempt to minimise the use of primary aggregates. During 2019 and 2020, the Aggregates Levy was comprehensively reviewed by HMRC, but no changes have been made to those exemptions.

Recycled Aggregates

- A20. Aggregates produced from construction, demolition and excavation wastes (CD&EW) form an important contribution to the overall consumption of construction aggregates. The 2008 RTSs noted a total output for the whole of Wales of 3.97mt, based on 2005 survey data, and suggested a roughly 3 to 1 split between South Wales and North Wales, based on earlier surveys and population ratios. They also noted that, despite the lack of quantitative detail, it is inevitable that the greatest volumes of CD&EW arisings and usage are in the urban areas. The RTS documents emphasised, however, that all statistics for this sector need to be used with a high degree of caution, because of the low rate of response to the surveys.
- A21. The situation, in terms of available data, has not improved since the original RTSs were published. No new survey data is available, so any observations on recent or future trends can only be regarded as broad approximations. If anything, the efficiency of recycling is likely to

³ it might appear more logical to group these substances with other recycled materials from construction, demolition and excavation wastes (CD&EW). However, the coverage of CD&EW is already well defined in terms of survey returns, so those items are included here as secondary aggregates.

have increased, and the introduction of WRAP's (2005) 'Quality Protocol' for the production of aggregates from inert waste may have increased the proportion and usage of higher value products derived from the various recycled sources. Such improvements, however, represent only small increments on the progress which had previously been made - primarily as a consequence of the price advantages resulting from the landfill tax and, to a lesser extent, the aggregates levy. The view of the Mineral Products Association (MPA), which is not disputed by the NRW, remains that there is little opportunity for significant further increase in the proportion of construction aggregate likely to be derived from this sector. As noted earlier, the future availability of recycled aggregates seems likely to be inextricably linked to the overall rates of construction activity and economic growth, so the safest assumption is that it will rise and fall in a very similar way to overall demand, and will thus have a neutral impact on the demand for primary aggregates, compared to the baseline period (2007 to 2016).

Imports and Exports

- A22. Wales has always been a net exporter of land-won aggregates. Data on both exports and imports is recorded in the periodic Aggregate Minerals (AM) Surveys, and data for exports in the last four surveys is summarised in Table A2, below.

Table A2: Summary of key export statistics for North Wales from recent AM surveys

| <i>Note: all figures exclude sales for non-aggregate use</i> | AM2001 (mt) | AM2005 (mt) | AM2009 (mt) | AM2014 (mt) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| (data from Table 4k of the AM reports) | | | | |
| Land won Sand & Gravel Sales | 1.342 | 1.192 | 0.589 | 0.897 |
| S&G Exports* | 0.544 | 0.508 | 0.128 | 0.158 |
| Exports as % of S&G total | 41% | 43% | 22% | 18% |
| Limestone Sales | 6.062 | 4.641 | 2.636 | 3.508 |
| Limestone Exports* | 3.344 | 2.973 | 1.116 | 2.226 |
| Exports as % of Limestone total | 55% | 64% | 42% | 64% |
| Igneous Sales | 1.136 | 1.022 | 0.610 | 0.660 |
| Igneous Exports* | 0.091 | 0.277 | 0.064 | 0.054 |
| Exports as % of Igneous total | 8% | 27% | 10% | 8% |
| Sandstone Sales | 0 | 0 | 0 | 0 |
| Sandstone Exports* | 0 | 0 | 0 | 0 |
| Exports as % of Sandstone total | 0% | 0% | 0% | 0% |
| Total Crushed Rock Sales** | 7.198 | 5.663 | 3.245 | 4.168 |
| Total CR Exports* | 3.436 | 3.251 | 1.178 | 2.280 |
| North Wales CR Exports as % of CR total | 48% | 57% | 36% | 55% |

* 'exports' are primarily to England but include some movement between South Wales and North Wales.

** Unlike the figures used elsewhere in this Review, crushed rock sales in the AM reports exclude slate

- A23. In North Wales, the main aggregate exports, by far, are those of Carboniferous Limestone which are supplied mainly to North West England. These exports, in turn, are sourced primarily from the NE Wales sub-region (mostly from Flintshire) with smaller quantities from NW Wales (especially Conwy). The AM Survey figures generally show that, as limestone (and overall) sales fell during the recent recession, the proportion (as well as the totals) of exports also fell, but that both have since recovered substantially. This implies that, during periods of recession, for general-purpose limestone aggregates, there is a reduced dependence by importing regions on supplies from more distant sources, as would be expected. But the reverse is also true: as the economy rebounds from the recession, the demand for exports from North Wales has begun to increase once again, and more quickly than the overall rate of economic growth. However, whether or not this will eventually reach or exceed the levels of demand experienced prior to the recession is uncertain: it will depend, to a large extent, on the future level of economic growth and construction activity within North West England.

- A24. Imports of land-based aggregates are very minor, by comparison with exports. In North Wales in 2014 (from Table 5k of the AM 2014 survey report), land-based imports amounted to 0.023mt of sand & gravel (mostly from NW England) and 0.128mt of crushed rock, primarily igneous rock from South Wales. These compare with imports of 0.03mt of land-won sand & gravel and 0.653mt of crushed rock in the previous (AM 2009) survey. The reduction in crushed rock imports from South Wales has been quite significant.
- A25. Imports and exports of marine-dredged sand and gravel between England and Wales are only relevant to the RTS apportionment exercise if they affect the continuity of supply of these materials to Wales and thus give rise to increased demand on land-based resources. This is potentially an issue in South East Wales (see Appendix B) but not in North Wales, where the quantities involved are relatively minor. In Liverpool Bay, the only licence area in Welsh waters remains a net exporter to north west English markets.

Sub-Regional Analysis

- A26. In the First Review, the analysis of patterns supply and demand for North Wales was carried out for the region as a whole. In this review, as explained earlier and as illustrated in Figure A1, above, it is based on two separate sub-regions, each one being intended to approximate a relatively 'self-contained' market area for aggregate production and sales, with little movement of aggregate taking place between adjoining areas, other than exports to England.
- A27. Maps corresponding to each of these areas are presented in Figures A2 to A5, below. For each sub-region there are three maps. The first one shows the distribution of aggregate resources and existing quarries. The second map, at a smaller scale, deals with 'proximity' issues (i.e. the relationships between resources, quarry locations, major roads and the distribution of both planned housing requirements in each LPA and existing urban areas). Planned housing requirements are used in preference to the population density maps that were used in the First Review, although both distributions are shown, for comparison, in Figures 4.7 and 4.8 of the main document. The third map for each sub-region then deals with environmental capacity issues, utilising output from the earlier IMAECA analysis (Enviros, 2005). The maps are presented at slightly different scales (as indicated in each case by the 30km scale bar).
- A28. It must be emphasised that these maps show only resources and not permitted reserves. **Resources** are geological materials, including rocks and naturally occurring sand & gravel, which have the potential to be used for a particular purpose (in this case as construction aggregates). **Permitted Reserves** are those parts of a resource which are known to be suitable for this purpose (usually as a result of detailed ground investigations and laboratory testing) and which have valid planning permission for the winning and working of the materials in question. The outlines of permitted reserves are not shown on the maps.
- A29. The resources are illustrated in several main categories. Natural **sand & gravel resources**, as mapped by the British Geological Survey (BGS) may be associated with five different types of 'superficial' deposits, as shown on the key to each map, though the extent of workable mineral within these deposits is highly variable. The maps for NW Wales show an additional category of sand & gravel resource blocks (shown by the deep red shading) that were identified in more detailed study for the Welsh Assembly by the University of Liverpool and Enviros (2003).
- A30. **Crushed rock resources** within the area comprise Carboniferous Limestones (which are subdivided, on the larger maps, into high purity (>97% CaCO₃) and other limestones); Igneous Rocks (including HSA dolerites, which are differentiated on the larger maps); and Slates. Numerous small outcrops of HSA Sandstone are also shown, though none of these have been worked in recent decades.
- A31. The quarries shown on the maps are categorised in the same way as the resources. They include both active and inactive units (as of 2018), the latter including a small number of dormant sites. Separate listings of all active, inactive and dormant sites in North Wales are given in Tables A3, A4 and A5, respectively.

North East Wales Sub-Region

- A32. Figure A2, below illustrates the distribution of quarries and land-based aggregate resources within North-East Wales, incorporating Denbighshire, Flintshire and Wrexham. The crushed rock resources here comprise:
- **Carboniferous Limestone**, currently worked at Aberdo, Halkyn, Pant, Hendre and Cefn Mawr quarries in Flintshire, and at Denbigh Quarry in Denbighshire;
 - **Silurian slates**, currently worked, on a small scale, at the Berwyn Slate Quarry and from slate waste tips at Moel-y-Faen Quarry – both in Denbighshire; and
 - **Ordovician igneous rocks**, predominantly volcanic tuffs in southern Denbighshire and adjoining parts of Wrexham. None of these is currently worked;
- A33. In addition, there are extensive **glaciofluvial sand & gravel** deposits, primarily in Wrexham (where they are worked at Borrás and, intermittently, at Ballswood) but also in Flintshire (where they are currently worked, on a smaller scale, at the Maes Mynan and Fron Haul gravel pits) and in parts of Denbighshire. There are also quite extensive mapped deposits of **Sub-Alluvial** and **River Terrace sand & gravel**, though these are not commercially exploited.
- A34. Figure A3 illustrates the relationships of these quarries and resources to issues relating to the likely pattern of demand (as indicated by proximity to existing urban areas, planned housing requirements and the primary road network); and issues relating to environmental capacity.
- A35. Carboniferous Limestone is by far the main source of crushed rock production within the sub-region. The resources are widespread but are primarily worked in Flintshire since, in this area, they are very well placed in terms of proximity to the main centres of demand, including exports to Chester, Merseyside and other parts of north west England. In this respect, proximity to the A55 North Wales coast road is a major factor. Unworked resources close to these quarries are characterised by generally low environmental capacity, whereas some of the resources further north, in Flintshire, and in parts of Denbighshire, are better-placed in that respect. Whilst those areas are less ideal in terms of proximity to major markets and transport routes, they could have an important role to play in supplementing future supplies from the main quarrying areas, as well as supplying urban areas and infrastructure projects along the North Wales coast. The southern part of the Carboniferous Limestone outcrop in Flintshire, and almost all of the outcrop within Wrexham, are heavily constrained by their location within the Bryniau Clwyd a Dyffryn Dyfrdwy AONB.
- A36. The only two operational slate workings in the sub-region are also located within the southern part of that area but are understood to produce little or no aggregate material other than decorative chippings.
- A37. Overall, there is limited justification for changing the existing pattern of supply of crushed rock within the sub-region, other than to encourage an increase in the proportion supplied from Denbighshire. This is in recognition of the surplus of existing permitted reserves within that county, which can be used to offset some of the very large projected shortfall of reserves in neighbouring Flintshire. This has been accomplished through an adjustment of the apportionments given to each LPA as explained in Table 5.2 of the main report. Even with that adjustment, Flintshire is facing the need to make new allocations for Carboniferous Limestone production, totalling at least 35.928 million tonnes (Table 5.6 of the main document).
- A38. In the previous (First) review of the RTS, the crushed rock apportionment for Flintshire had been increased, with a corresponding reduction in those for Gwynedd and Anglesey, in order to encourage an eastward shift in future crushed rock production. This was intended to better reflect the anticipated distribution of demand. In practice, although the level of production in Anglesey in subsequent years has been close to (less than) the previous apportionment, sales in Gwynedd have been much higher, suggesting that there is a corresponding demand in north-west Wales for which supplies need to be maintained. The notion of shifting production from Gwynedd to Flintshire has therefore been discontinued.

Figure A2: Aggregate Resources and Quarries in the North East Wales Sub-Region

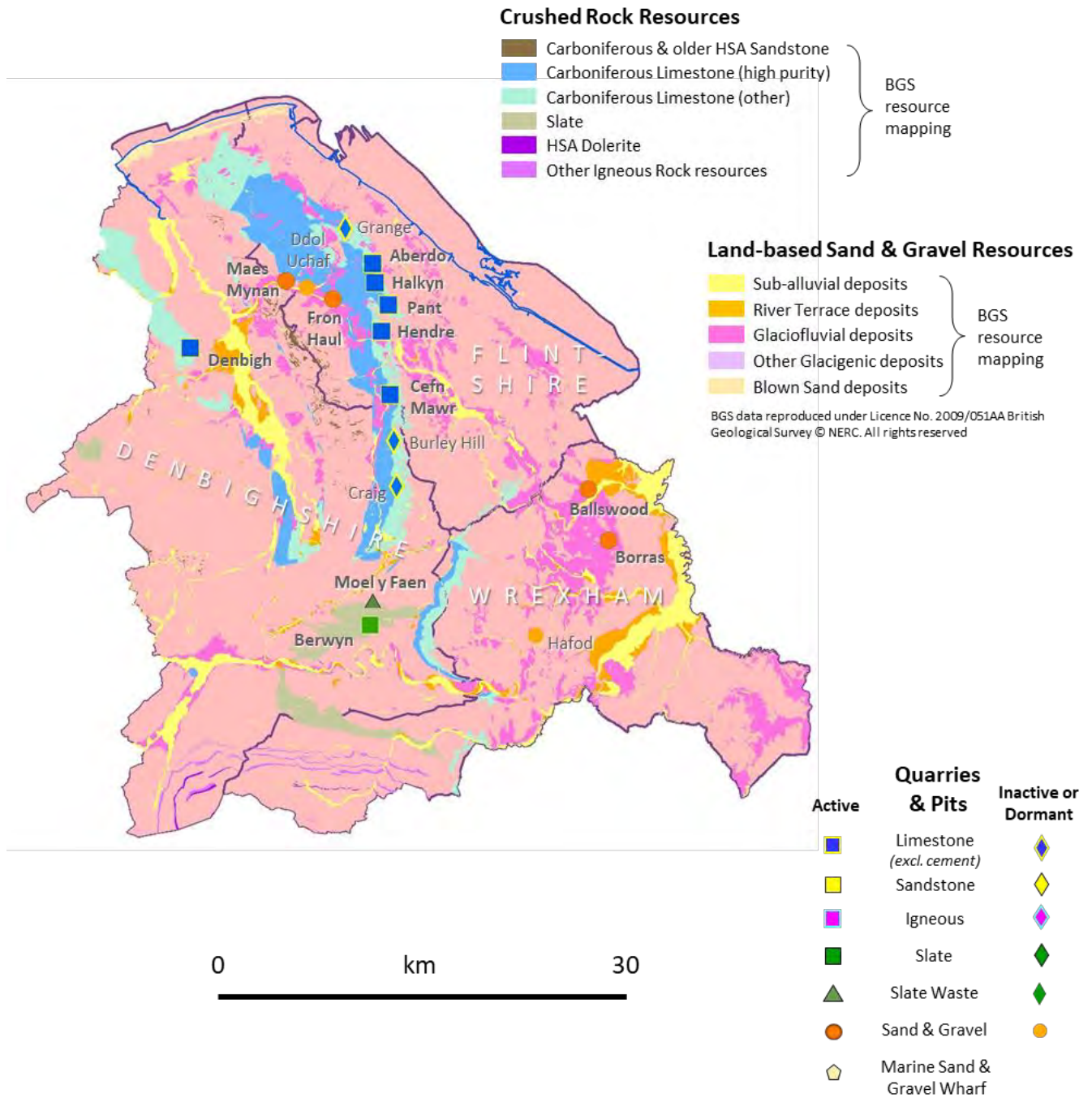
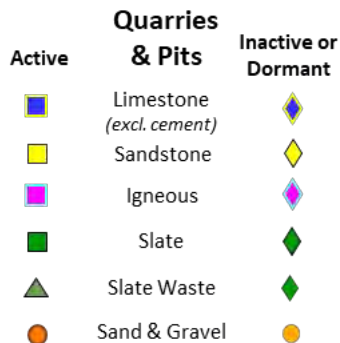
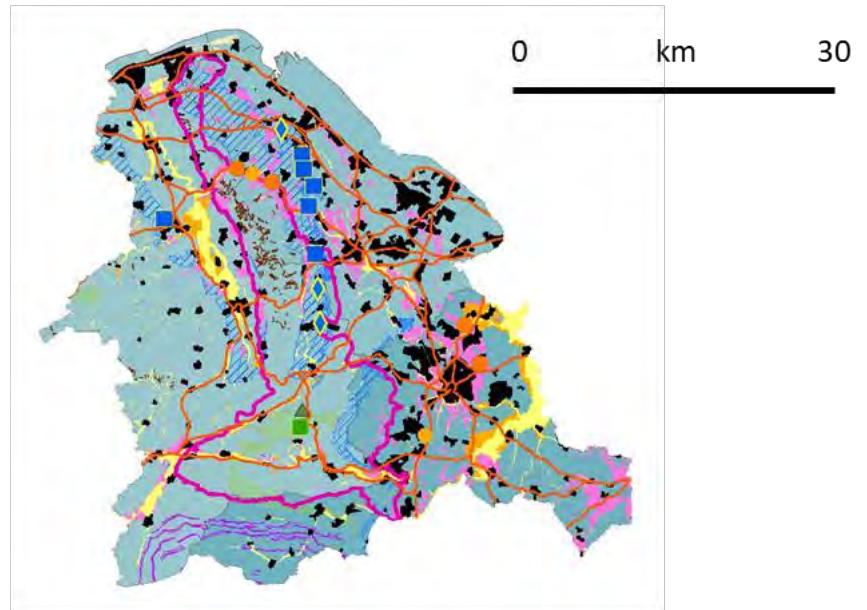
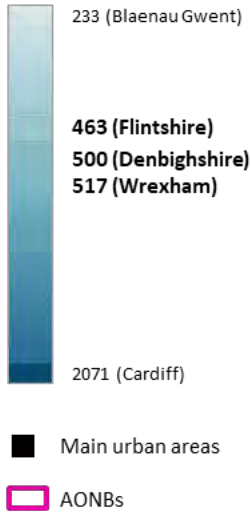
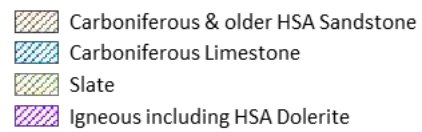


Figure A3: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the North East Wales Sub-Region

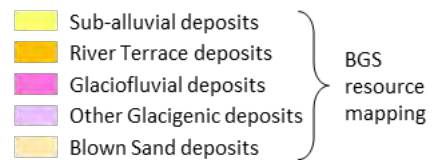
Annualised Housing Requirements in Adopted LDPs (houses per year)



Crushed Rock Resources



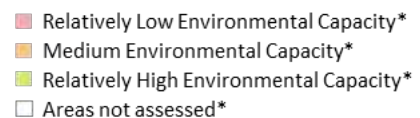
Land-based Sand & Gravel



BGS data reproduced under Licence No. 2009/051AA British Geological Survey © NERC. All rights reserved



Environmental Capacity *



* Assessed as part of the 'IMAECA' project, (Implementing the Methodology for Assessing the Environmental Capacity for Primary Aggregates - Enviro, 2005).

A39. In the case of land-based sand and gravel extraction in North-East Wales, the current supply pattern is dominated by one site within Wrexham, although smaller contributions are also made by three other active (or intermittently active) pits: one other in Wrexham, and two in Flintshire. Whilst the Wrexham sites are ideally placed in relation to the markets of Flintshire, Wrexham and adjoining parts of NW England, they are much further away from the smaller but important local markets along the North Wales coast (both in Denbighshire and neighbouring Conwy). From a proximity point of view there is therefore a need to maintain adequate supplies to those areas from the sites and resources in both Flintshire and Denbighshire. Although some mapped resources do exist in Conwy, the nearest other working gravel pits are much further west in Gwynedd. As shown in Table 5.4 of the main document, there is a significant shortfall of existing permitted reserves of sand & gravel within Flintshire, and a landbank (at the end of 2016) of only 6.1 years. This is below the minimum requirement of 7 years stipulated in MTAN 1 and points to an urgent need for the release of further permitted reserves. There is also a shortfall in Wrexham, though in that case the landbank (in 2016) stood at 19.6 years. Nevertheless, there is a need for further allocation within that area, in order to meet RTS requirements.

North West Wales Sub Region

A40. Figure A4 illustrates the distribution of quarries and land-based aggregate resources within the North West Wales sub-region, incorporating Gwynedd, the Isle of Anglesey, Conwy and the Snowdonia National Park. In these areas, the crushed rock resources comprise:

- **Carboniferous Limestone**, currently worked at two quarries northern Conwy (Raynes and Abergele), and three units on Anglesey (Aber, Nant Newydd and Rhuddlan Bach);
- A wide range of **igneous rock resources**, including the Precambrian Coedana Granite of Anglesey (worked at Gwalchmai, Gwyndy and Gaerwen quarries); Granite of unknown age (currently worked at Trefor Quarry on the north coast of the Llŷn Peninsula); Ordovician diorite (worked at Penmaenmawr quarry the Conwy coast); Ordovician dolerite (worked as an important High Specification (skid resistant) aggregate at Minffordd in Gwynedd); and other Ordovician igneous rocks at Nanhoron Quarry on the Llŷn Peninsula; and
- **Cambrian and Ordovician slates**, currently worked either as virgin aggregate or from previously discarded slate waste at numerous sites within Gwynedd and at two sites within the Snowdonia National Park.

A41. In addition, there are **glaciofluvial sand & gravel** deposits primarily in northern Gwynedd and, especially, across the Llŷn Peninsula. In addition to the deposits mapped by the BGS, these include a number of potential resource blocks identified in more detail by the University of Liverpool and Enviro (2003) in a study for the Welsh Assembly. At present, sand & gravel is worked only at two sites in Gwynedd (Penygroes and Cefn Grainog Farm), whilst sand (only) is worked at Chwarel Bryncir. Additional, but relatively minor sand & gravel deposits are mapped by the BGS as glacial, sub-alluvial, river terrace and blown sand deposits, though none of these is currently worked.

A42. Figure A5 illustrates the relationships of the various resources and quarries to issues relating to the likely pattern of demand (as indicated by proximity to existing urban areas, planned housing requirements and the primary road network); and issues relating to environmental capacity. Each of these factors is discussed below in relation to each type of resource.

Figure A4: Aggregate Resources and Quarries in the North West Wales Sub-Region

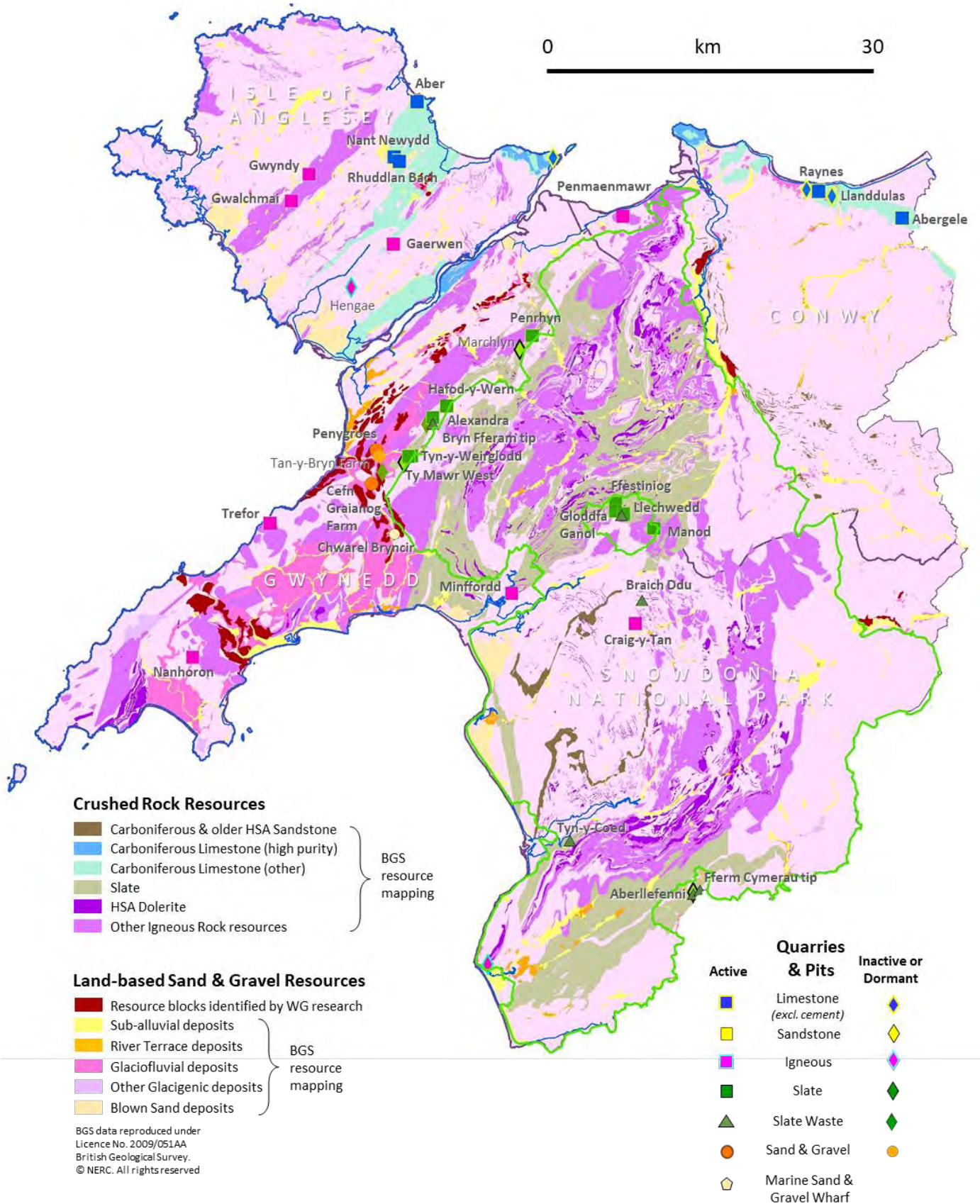
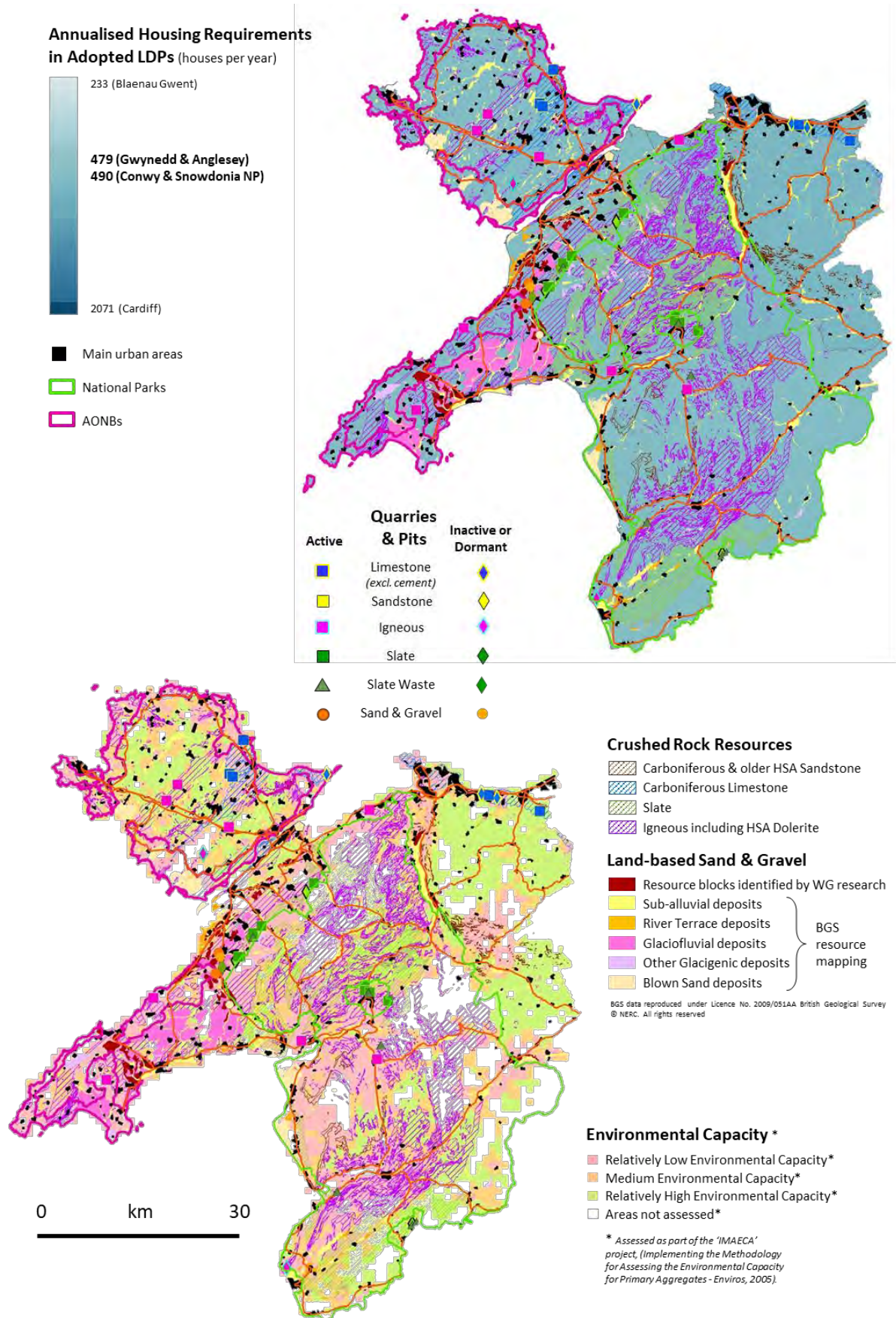


Figure A5: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the North West Wales Sub-Region



- A43. Carboniferous Limestone resources within North West Wales are restricted to the northern part of Conwy, Anglesey and one (currently unworked) area on the Gwynedd side of the Menai Straits, to the south-west of Bangor. Whilst some of these outcrops coincide with areas of relatively low environmental capacity, or are constrained by Areas of Outstanding Natural Beauty, others (including those surrounding Abergele Quarry and smaller areas within Anglesey) are characterised by relatively high environmental capacity and may therefore offer scope for future resource development. The two quarries in Conwy are both operated by major aggregate producers and serve wide market areas along the north Wales coast. In terms of proximity to both urban areas and transport links, they are both well-placed, though they are close to the limits of viability for exports by road into England. Raynes Quarry also exports significant quantities of limestone to North West England, and elsewhere, via a dedicated jetty. The three limestone quarries in Anglesey, by comparison, are all operated by small local firms and are presumed to serve only local markets.
- A44. The 'igneous rock' resources, as shown on the BGS maps, which encompass both igneous and metamorphic rock types, all have similar suitability for use as general purpose hard rock aggregates. This includes being used as a substitute for limestone in most construction applications. However, in almost all parts of the sub-region, the igneous rock resources are either subject to National landscape constraints (National Park or AONBs) or fall within areas of relatively low environmental capacity. The main exceptions are much of the Coedana Granite outcrop in central Anglesey and some of the igneous outcrops in the eastern side of the Llŷn Peninsula. In some areas, (shown on the maps as 'HSA Dolerite'), the rocks are potentially suitable for use as High Specification Aggregate for road surfacing materials (as defined in Chapter 4 of the main document) and are worked as such at Minffordd near Porthmadog in Gwynedd. This is currently the only unit in this group which exports aggregate to England. Penmaenmawr diorite quarry on the north coast of Conwy was formerly an exporter of rail ballast to England, by rail, but ballast production here has been greatly reduced since 2008, when the contract to supply Network Rail was lost. Both of these units fall outside the National Park but are within areas of low environmental capacity. All other igneous quarries in the sub-region tend to supply only local markets although, in the recent past, these have included major contracts such as upgrading the A55 North Wales Coast road and the A5 across Anglesey.
- A45. Slate resources, including both virgin material quarried specifically for the purpose, and material derived from the processing of previously discarded slate waste, are an important source of construction aggregate within North West Wales. Although materials from slate waste are technically classed as secondary aggregate, and although all types of slate are currently exempt from the Aggregates Levy, slate that is used as a construction aggregate has traditionally been counted as primary aggregate within the North Wales RAWP reports. Virtually all of the slate resources within the sub-region are located within the Snowdonia National Park, though only two operational sites, working former waste tips, lie within the Park. The majority of ongoing slate aggregate production is from sites located immediately outside the National Park boundaries although most (but not all) of these are within areas mapped as being of relatively low environmental capacity.
- A46. Given that most slate aggregate is used locally within NW Wales, and that most of the resources are constrained by the National Park, there is little to suggest that the existing supply pattern either needs to change or is capable of doing so. There is scope for the output from established sites in Gwynedd to increase, in response to any future rise in demand in the NW Wales sub-region, but there is limited (if any) likelihood of this material displacing sales of limestone aggregate to the main markets in North East Wales and North West England. This could potentially happen to some extent, if there were to be a significant increase in the Aggregates Levy, giving slate aggregates a further price advantage, but the reverse could be true if the Aggregates Levy were to be abolished, in line with the recent legal challenge by the British Aggregates Association. Moreover, any potential sustainability benefits associated with increased use of slate waste would need to be balanced against the increased radius of transportation from sites within Gwynedd, which would be contrary to the proximity principle. Slate would not be able to substitute, however, for all other types of crushed rock aggregate, particularly road surfacing materials, and applications where high crushing strength is required.
- A47. Overall, there appear to be few opportunities and little, if any, justification for the spatial pattern of crushed rock production in North West Wales to be altered. Both the markets and the

available resources are widely dispersed and, at the present time, there are adequate permitted reserves to provide for the RTS requirements over the next 25 years.

- A48. In the case of land-based sand and gravel extraction, the current supply pattern is limited to just three sites in Gwynedd (two sand & gravel operations and one supplying just sand). As shown in Table 5.4 of the main document, Gwynedd (and therefore North West Wales as a whole) is now facing a shortfall of permitted reserves, compared with the RTS 2nd Review requirements, with an existing (2016) landbank of only 6.7 years. This is below the minimum level required by MTAN 1 and points to an urgent requirement for further planning permissions to be granted. As noted earlier, there are extensive areas of potential sand & gravel resources within Gwynedd, both to the east and south of Caernarfon, and to the west of Pwllheli, within resource blocks identified by the Liverpool University (2003) study. An important requirement, however, is to ensure that the resources provide an appropriate balance between fine aggregate (sand) and coarse aggregate (gravel).

Summary of Current Sources of Supply in North Wales

- A49. Tables A3 to A5, below, list the currently active, inactive and dormant aggregate quarries (respectively) in each of the sub-regions of North Wales, updated to August 2018. The lists exclude quarries devoted to the manufacture of cement, building stone, silica sand, shale or other non-aggregate products.

Table A3: Active Aggregate Quarries in North Wales (2018)

| Quarry Name | Operator | Commodity | Easting | Northing |
|----------------------------|------------------------------|---------------------|---------|----------|
| DENBIGHSHIRE | | | | |
| Berwyn | Berwyn Slate Quarry Ltd | Slate | 318500 | 346300 |
| Denbigh | Breedon Southern | Limestone | 305090 | 367050 |
| Moel y Faen | Jones Bros Ruthin | Slate | 318700 | 348100 |
| FLINTSHIRE | | | | |
| Aberdo | CCP Building Products Ltd | Limestone | 318700 | 373300 |
| Fron Haul | Breedon Southern | Sand & Gravel | 315700 | 370600 |
| Halkyn | CEMEX UK | Limestone | 319000 | 372000 |
| Hendre | Tarmac | Limestone | 319400 | 368000 |
| Maes Mynan | Breedon Southern | Sand & Gravel | 311500 | 372100 |
| Pant | Tarmac | Limestone | 319800 | 370200 |
| WREXHAM | | | | |
| Ballswood | DP Williams Ltd | Sand & Gravel | 335200 | 356600 |
| Borras | Breedon Group | Sand & Gravel | 336300 | 352500 |
| CONWY | | | | |
| Abergele | Hanson Aggregates | Limestone | 296700 | 375800 |
| Penmaenmawr | Hanson Aggregates | Igneous | 270135 | 375515 |
| Raynes | CEMEX UK | Limestone | 289000 | 378190 |
| SNOWDONIA | | | | |
| Braich Ddu | John Roberts | Slate Waste | 271985 | 338460 |
| Craig y Tan | G E Williams | Igneous | 271349 | 336224 |
| Ty'n-y-Coed | R. Meredith, Arthog Slate Co | Slate Waste | 265030 | 315275 |
| GWYNEDD | | | | |
| Aberllefenni Slate Tip | R. Meredith, Arthog Slate Co | Slate Waste | 276920 | 310290 |
| Alexandra | Caernarfon Crown Slate | Slate + Slate Waste | 251800 | 356105 |
| Bryn-Fferam | Wynne's Transport Ltd | Slate Waste | 251810 | 355495 |
| Cefn Graianog | Tudor Griffiths Group | Sand & Gravel | 246000 | 349500 |
| Chwarel Bryncir | JC Evans Ltd | Sand | 248100 | 344855 |
| Fferm Cymerau tip | ? | Slate Waste | 277572 | 310485 |
| Ffestiniog | Welsh Slate (Breedon Group) | Slate + Slate Waste | 269206 | 347186 |
| Gloddfa Ganol quarry + tip | Welsh Slate (Breedon Group) | Slate Waste | 269325 | 347590 |

REGIONAL TECHNICAL STATEMENT: FIRST REVIEW - APPENDIX A (NORTH WALES)

| | | | | |
|----------------------------|----------------------------------|---------------------|--------|--------|
| Hafod-Y-Wern | Gwilym Elias Owen | Slate Waste | 253135 | 357215 |
| Llechwedd Slate Mine | Northern Welsh Quarries Ltd | Slate | 270200 | 346800 |
| Llechwedd tip | Northern Welsh Quarries Ltd | Slate Waste | 270000 | 346680 |
| Manod | Welsh Slate (Breedon Group) | Slate | 273100 | 345400 |
| Minffordd (HSA) | Breedon Group | Igneous | 259400 | 339100 |
| Nanhoron | E Thomas, Nanhoron Quarry | Igneous | 228650 | 332980 |
| Penrhyn Slate Quarry + tip | Welsh Slate (Breedon Group) | Slate + Slate Waste | 261375 | 364000 |
| Penygroes | Tudor Griffiths | Sand & Gravel | 246370 | 352985 |
| Trefor | R T Davies | Igneous | 236100 | 345900 |
| Ty Mawr West Quarry + tip | Ellis Jones | Slate + Slate Waste | 249650 | 352450 |
| Tyn-y-Weirglodd | Welsh Slate (Breedon Group) | Slate Waste | 249450 | 352195 |
| ISLE OF ANGLESEY | | | | |
| Aber | Anglesey Masonry Ltd | Limestone | 250300 | 386650 |
| Gaerwen | Anglesey Aggregates Ltd | Igneous | 248000 | 372830 |
| Gwalchmai | Hogan Aggregates | Igneous | 238175 | 376990 |
| Gwyndy | Hogan Aggregates | Igneous | 239955 | 379665 |
| Nant Newydd | Clive Hurt Plant Hire (Anglesey) | Limestone | 248100 | 381100 |
| Rhuddlan Bach | Clive Hurt Plant Hire (Anglesey) | Limestone | 248600 | 380700 |

Table A4: Inactive Aggregate Quarries in North Wales (2018)

| Quarry Name | Operator | Commodity | Easting | Northing |
|-------------------------|---------------------------|---------------|---------|----------|
| DENBIGHSHIRE | | | | |
| Burley Hill | Tarmac | Limestone | 320280 | 360075 |
| Graig | Tarmac | Limestone | 320500 | 356500 |
| FLINTSHIRE | | | | |
| Ddol Uchaf | Breedon Southern | Sand & Gravel | 313800 | 371500 |
| Pen-yr-Henblas | Grosvenor Estate | Limestone | 319100 | 372900 |
| WREXHAM | | | | |
| Hafod | Cory Environmental Ltd | Sand & Gravel | 330800 | 345600 |
| CONWY | | | | |
| Llanddulas | Waste Recycling Group | Limestone | 290300 | 377460 |
| Plas Gwilym | Plas Gwilym Environmental | Limestone | 287850 | 378100 |
| GWYNEDD | | | | |
| Aberllefenni Mine | Wincillate Ltd | Slate | 276920 | 310290 |
| Crown New | Caernarfon Crown Slate | Slate Waste | 251205 | 355465 |
| Greenarfon | Mulcair Ltd | Slate Waste | 246950 | 350840 |
| Twll Llwyd | W Humphries | Slate | 249000 | 351800 |
| ISLE OF ANGLESEY | | | | |
| Dinmoor | Buckley Estate, Beaumaris | Limestone | 263405 | 381173 |
| Hengae | Hogan Aggregates | Igneous | 244000 | 368600 |
| Penmon | Jones Bros Ruthin | Limestone | 263555 | 381290 |

Table A5: Dormant Aggregate Quarries in North Wales (2018)

| Quarry Name | Operator | Commodity | Easting | Northing |
|--------------------------------|--------------------------------|---------------|---------|----------|
| FLINTSHIRE | | | | |
| Grange | Mr. D. Priestley ? or Tarmac ? | Limestone | 316660 | 375935 |
| SNOWDONIA NATIONAL PARK | | | | |
| Tonfannau | Spencer Industrial (N. Wales) | Igneous | 257105 | 303345 |
| GWYNEDD | | | | |
| Marchlyn | First Hydro | Slate | 260200 | 362675 |
| Tan y Bryn Farm | G & G L Bowness | Sand & Gravel | 246640 | 352350 |
| Twll Coed | Welsh Slate (Breedon Group) | Slate | 249165 | 351945 |

- A50. Whilst any of the sites listed in these tables may be able to contribute to future supply (subject to the dormant sites obtaining new development consents through the ROMP process⁴), it is only the active and remaining inactive sites which contributed to the reserves figures presented in Table 5.4 and 5.6 of the main document. Reserves at dormant sites are noted separately in those tables. The active sites and some of the currently inactive ones, together with a small number of other sites which have since closed, contributed to the historical sales over the baseline period (2007 to 2016).
- A51. Full lists of active, inactive and dormant sites for individual years prior to 2018 are given in the relevant annual RAWP reports.

Apportionments, Allocations and Guidance to LPAs in North Wales

- A52. Tables A6 and A7, below, summarise the apportionments, permitted reserves and allocations for land-won sand & gravel and for crushed rock (respectively) which have been assigned to each Local Planning Authority in North Wales.
- A53. The pages which follow set out in more detail the recommendations and guidance for each individual LPA in the Region, drawing upon the figures set out in these tables. The LPAs are dealt with in alphabetical order. In each case, reference to the 'Plan period' relates to the end date of the Local Development Plan which has been adopted or is nearing completion (whichever is later) for that particular planning authority.
- A54. As explained more fully in the main document, the figures for each authority are based on the assumptions that future aggregate requirements will increase in future years to reflect the increased planned requirements for house construction, and that supplies of alternative aggregates, from marine, secondary and recycled sources, will continue to be maintained in proportions comparable to those experienced during the baseline period (2007 to 2016).
- A55. The validity of these assumptions will continue to need to be monitored by the planning authorities, using information from various data sources and new surveys (e.g. by Welsh Government, NRW, and the Mineral Products Association) and that data will be used to inform a revision of the apportionment requirements, if this is needed, as part of the next review of the RTS.
- A56. It should be emphasised that the annualised apportionment figures are given only as a guide to the calculation of the total apportionment required over the duration of the LDP. In practice, sales will vary from year to year and there is no requirement for an LPA to maintain or limit those sales in line with the annualised apportionments.

⁴ ROMP is the acronym for the Review of Old Mineral Permissions, under the Environment Act 1995. Further details are given in the Glossary at the end of the Main Document.

Table A6: Apportionments, Reserves and Allocations for Sand & Gravel in North Wales

| Local Planning Authority | New Annualised Apportionment for sand & gravel (mt) | Total Apportionment Required over 22 years | Existing permitted reserves at end of 2016 in mt | Minimum Allocation needed to meet Required Provision (mt) | Additional reserves at Dormant sites, 2016 (mt) |
|--------------------------------|---|--|--|---|---|
| Denbighshire | 0.000 | 0.000 | 0.000 | 0.000 | 0 |
| Flintshire | 0.223 | 4.912 | 1.369 | 3.543 | 0.5 |
| Wrexham | 0.646 | 14.217 | 12.652 | 1.565 | 0 |
| Conwy + Snowdonia NP | 0.000 | 0.000 | 0.000 | 0.000 | 0 |
| Gwynedd | 0.174 | 3.834 | 1.175 | 2.659 | 0 |
| Isle of Anglesey | 0.000 | 0.000 | 0.000 | 0.000 | 0 |
| Sub-totals, North Wales | 1.044 | 22.963 | 15.196 | 7.767 | 0.5 |
| TOTALS Wales | 1.353 | 29.758 | 18.406 | 11.394 | 0.85 |

SOURCE: Table 5.4 of the main document

Where allocation requirements are shown these are the minimum amounts required to meet the RTS requirements. In many cases an application for an individual new permission will exceed these amounts, in the interests of economic viability. Such applications should not be rejected purely on the grounds of exceeding the minimum requirements shown here. In some cases, the suggested allocations may already have been partially or entirely fulfilled, either by new permissions granted since 2016, or by allocations that have already been identified in LDPs. See following text for details

Table A7: Apportionments, Reserves and Allocations for Crushed Rock in North Wales

| Local Planning Authority | New Annualised Apportionment for crushed rock (mt) | Total Apportionment Required over 25 years (30 years in Cardiff) | Existing permitted reserves at end of 2016 in mt | Minimum Allocation needed to meet Required Provision (mt) | Additional reserves at Dormant sites, 2016 (mt) |
|--------------------------------|--|--|--|---|---|
| Denbighshire | 0.860 | 21.500 | 21.710 | 0.000 | 0 |
| Flintshire | 3.359 | 83.968 | 48.040 | 35.928 | 1.41 |
| Wrexham | 0.000 | 0.000 | 0.000 | 0.000 | 0 |
| Conwy + Snowdonia NP | 1.201 | 30.016 | 62.500 | 0.000 | 0.25 |
| Gwynedd | 0.955 | 23.867 | 28.540 | 0.000 | 0 |
| Isle of Anglesey | 0.321 | 8.015 | 14.400 | 0.000 | 0 |
| Sub-totals, North Wales | 6.695 | 167.366 | 175.19 | 35.928 | 1.66 |
| TOTALS Wales | 18.871 | 471.781 | 670.850 | 81.971 | 34.20 |

SOURCE: Table 5.6 of the main document

Where allocation requirements are shown these are the minimum amounts required to meet the RTS requirements. In many cases an application for an individual new permission will exceed these amounts, in the interests of economic viability. Such applications should not be rejected purely on the grounds of exceeding the minimum requirements shown here. In some cases, the suggested allocations may already have been partially or entirely fulfilled, either by new permissions granted since 2016, or by allocations that have already been identified in LDPs. See following text for details.

- A57. The need for provision to extend beyond the Plan period is based on the requirement in MTAN1 for maintaining landbanks of 7 years for sand & gravel and 10 years for crushed rock, throughout the full duration of the LDP. Subject to this requirement being met, the overall provision at any given time may comprise both landbanks of permitted reserves and allocations for future working, where these are required.
- A58. In all cases, the recommendations are based on currently available information regarding reserves, production, proximity and environmental capacity. As noted in 'Box 1' of the original RTS documents, the suggested apportionments and allocations may not take fully into account all factors that may be material to the ensuring an adequate supply of aggregates obtained from appropriately located sources. Such factors may include such things as:
- The technical capability of one type of aggregate to interchange for another;
 - The relative environmental cost of substitution of one type of aggregate by another;
 - The relative environmental effects of changing patterns of supply; and
 - Whether adequate production capacity can be maintained to meet the required level of supply.
- A59. For such reasons, and as already noted in Chapter 1 of the main document, *in exceptional circumstances*, and where it is justified by new (e.g. more up to date, more detailed or more precise) evidence, it is open for individual LPAs to depart from the apportionment and allocation figures recommended by the RTS when preparing their LDP policies. In doing so, however, an LPA would need to demonstrate that their intended departure would not undermine the overall strategy provided by the RTS itself (e.g. by working together with other LPAs within the same sub-region to ensure that sub-regional and regional totals are still achieved) and this would need to be reflected in the Statement of Sub-Regional Collaboration (SSRC) agreed with all other constituent LPAs within that sub-region, prior to Examination. Any shared arrangements that may be agreed between individual LPAs would need to offer advantages, in terms of the proximity principle, environmental capacity and other sustainable criteria, compared with the basic RTS recommendations. Guidelines relating to the preparation of SSRCs, including details of the circumstances under which departures from RTS recommendations may be made, are provided at Annex A of the Main Document.
- A60. As noted in MTAN 1, paragraph A3: If the local authorities reach no agreement or if individual local authorities do not accept the Regional Technical Statement, the Welsh Assembly Government will consider its default powers to intervene in the planning process as a last resort.

ANGLESEY

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.321 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Anglesey, as calculated in Tables 5.4 and 5.6 of the main document, over the 22-year horizon required for sand & gravel, and the 25-year timescale required for crushed rock, are zero for land-won sand & gravel and 8.015 million tonnes for crushed rock. These figures compare with existing landbanks of zero for sand & gravel and 14.4 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In view of the lack of any sand & gravel apportionment being required for Anglesey (which itself is a reflection of the very limited availability of potential resources on the island, by comparison with those available in neighbouring Gwynedd), there is no specific requirement for land-based sand & gravel allocations to be identified within the LDP. This represents no change from the First Review of the RTS but contrasts with the recommendations given in the original RTS which, purely on the basis of average regional proportions of total consumption, required Anglesey to make an allocation of 1.5 million tonnes of sand & gravel within its LDP.

Given that existing permitted reserves of crushed rock on Anglesey are now significantly greater than the RTS requirement, with a landbank of almost 45 years, there is no necessity for any further crushed rock allocations to be made within the LDP. However, consideration should be given to whether any of the factors set out in paragraph A58 above give rise to any other requirements for new resource allocations. If any adjustments are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration (produced in accordance with the Guidance set out in Annex A of the RTS Main Document), before any of the constituent LDPs within North West Wales are submitted for Examination.

As far as possible, any allocations that are needed should be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

In accordance with MTAN 1 (para. 49), no allocations should be identified within the Ynys Môn Area of Outstanding Natural Beauty, unless there are no environmentally acceptable alternatives.

Use of alternative aggregates

Little or no marine-dredged aggregates are thought to be utilised within Anglesey. As noted in the original RTS, the use of secondary aggregates is confined to occasionally processing locomotive ash at Trywyn Trewan and recycled glass is mixed with stone for asphalt at one quarry. There may be some additional potential for recycling construction, demolition and excavation wastes as aggregates in the event that MOD or industrial land is released for redevelopment but, otherwise, this source of alternative aggregate is also likely to be very limited.

Nevertheless, the residual requirements for primary land-won aggregates assume that these alternative materials will continue to be utilised to a level comparable to that seen in previous years, and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

CONWY AND THE SNOWDONIA NATIONAL PARK**Apportionment for the future provision of land-won primary aggregates**

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **1.201 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

The majority if not all of this provision is expected to be supplied from Conwy.

Comparison with existing landbanks

The total apportionments for Conwy and the Snowdonia National Park (combined), as calculated in Tables 5.4 and 5.6 of the main document, over the 22-year horizon required for sand & gravel, and the 25-year timescale required for crushed rock, are zero for land-won sand & gravel and 30.016 million tonnes for crushed rock. These figures compare with existing (combined) landbanks of zero for sand & gravel and 62.5 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In view of the surplus of existing permitted crushed rock reserves, no further allocations for crushed rock are required to be identified within either of the LDPs. However, consideration should be given to whether any of the factors set out in paragraph A58 above give rise to any further requirements for resource allocations within Conwy. If any adjustments are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration (produced in accordance with the Guidance set out in Annex A of the RTS Main Document), before any of the constituent LDPs within North West Wales are submitted for Examination.

As far as possible, any allocations should be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Paragraph 49 of MTAN 1 notes that landbanks are not required to be maintained within National Parks or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the National Park, unless there are no environmentally acceptable alternatives, and efforts should continue to be made to gradually transfer the very small amount of production which currently takes place within the National Park to Conwy and/or to other neighbouring authorities.

Treatment of Dormant sites

A single dormant quarry permission (Tonfannau) still exists within the Snowdonia National Park. The planning authority should assess the likelihood of this site being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and where the site is considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 14 of Minerals Planning Policy Wales, the extant permitted reserves may be offset against any requirements that may otherwise be identified for allocations for future working.

Use of alternative aggregates

Small quantities of marine sand are landed at Port Penrhyn in neighbouring Gwynedd, some of which may be utilised within the coastal towns in north east Conwy.

As noted in the original RTS, no significant sources of secondary or recycled aggregates have been identified in Conwy, with the possible exception of relatively small slate waste tips. Two small-scale slate waste tips are also active within the Snowdonia National Park

There is also likely to be continued recycled aggregate production, albeit at a modest level, from construction, demolition and excavation wastes, primarily within the towns along the Conwy coast.

Nevertheless, the residual requirements for primary land-won aggregates assume that these alternative materials will continue to be utilised to a level comparable to that seen in previous years, and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new wharves, jetties and railheads within Conwy should be identified for safeguarding, in order to provide a full range of sustainable transport options (whether or not they are currently utilised). This should include facilities for the transfer of slate waste from neighbouring areas, through Conwy.

DENBIGHSHIRE

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.860 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Denbighshire, as calculated in Tables 5.4 and 5.6 of the main document, over the 22-year horizon required for sand & gravel, and the 25-year timescale required for crushed rock, are zero for land-won sand & gravel and 21.5 million tonnes for crushed rock. These figures compare with existing landbanks of zero for sand & gravel and 21.71 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

Although Denbighshire has a zero apportionment for natural sand & gravel, and no existing permitted reserves, it does have potential resources – particularly within the Clwyd Valley, between Denbigh and Ruthin. Some of these fall within the Bryniau Clwyd a Dyffryn Dyfrdwy AONB, but others do not. It may be possible for these areas to be worked, in future, as alternatives to the deposits in adjoining parts of Flintshire, should that become necessary. It would therefore be useful for the two authorities to work collaboratively on this and, if necessary, for the allocation requirements for Flintshire to be shared.

In view of the surplus of existing permitted crushed rock reserves within Denbighshire, no further allocations for crushed rock are required to be identified within the LDP. In the longer term, however, it may become necessary for Denbighshire to take on a greater share of crushed rock production within the sub-region than is presently the case and, again, there would be merits in collaborative working on this between all three LPAs within the NE Wales sub-region.

Consideration should also be given to whether any of the factors set out in paragraph A58 above give rise to any further requirements for resource allocations within the area.

If any adjustments to the recommended apportionments and allocations are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration (produced in accordance with the Guidance set out in Annex A of the RTS Main Document), before any of the constituent LDPs within the North East Wales sub-region are submitted for Examination.

As far as possible, any allocations that are made should be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Paragraph 49 of MTAN 1 notes that landbanks are not required to be maintained within National Parks or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Bryniau Clwyd a Dyffryn Dyfrdwy AONB, unless there are no environmentally acceptable alternatives.

Use of alternative aggregates

Little or no marine-dredged aggregates are thought to be utilised within Denbighshire.

Slate waste is processed at one remaining active site within the southern part of the Bryniau Clwyd a Dyffryn Dyfrdwy AONB, but the material is believed to be used only as decorative chippings and low grade fill. Other than this, there are no other known sources of secondary aggregate within the county.

There is likely to be some recycled aggregate production from construction, demolition and excavation wastes, primarily within the main coastal towns, but also within some of the quarries.

Despite the limited availability of alternative materials within Denbighshire, the residual requirements for primary land-won aggregates assume that these will continue to form part of the overall supply pattern and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

FLINTSHIRE

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: **0.223 million tonnes per year** until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: **3.359 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Flintshire, as calculated in Tables 5.4 and 5.6 of the main document, over the 22-year horizon required for sand & gravel, and the 25-year timescale required for crushed rock, are 4.912 million tonnes for land-won sand & gravel and 83.968 million tonnes for crushed rock. These figures compare with existing landbanks of 1.369 million tonnes for sand & gravel and 48.04 million tonnes for crushed rock (as at 31st December 2016). The figures exclude limestone reserves which are allocated for non-aggregate use.

Allocations required to be identified in the Local Development Plan

In order to address the resulting shortfalls, new allocations totalling at least 3.543 million tonnes of sand & gravel and at least 35.928 million tonnes of crushed rock will need to be identified within the LDP. These are substantial increases compared with the requirements set out in the First Review and, amongst other things, they reflect the resurgent importance of Flintshire in exporting limestone aggregate to North West England. This is clearly demonstrated by the data in Table A2, above. The total allocations required for Flintshire have been minimised by increasing the sub-regional contributions from neighbouring Denbighshire, so as to utilise the existing permitted reserves in that area (see Table 5.2 and associated commentary in the main document). Further collaborative working, with Denbighshire and/or Wrexham may be needed to provide optimal solutions.

Any shared arrangements would need to be reflected in a Statement of Sub-Regional Collaboration (produced in accordance with the Guidance set out in Annex A of the RTS Main Document), before any of the constituent LDPs within the North East Wales sub-region are submitted for Examination.

Consideration should also be given to whether any of the factors set out in paragraph A58 above give rise to any further requirements for resource allocations.

As far as possible, allocations should be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Paragraph 49 of MTAN 1 notes that landbanks are not required to be maintained within National Parks or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Bryniau Clwyd a Dyffryn Dyfrdwy AONB, unless there are no environmentally acceptable alternatives.

Treatment of Dormant sites

A single dormant limestone quarry (Grange) still exists within Flintshire. The planning authority should assess the likelihood of this site being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and where the site is

considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 14 of Minerals Planning Policy Wales, it may be offset against any requirements that may otherwise be identified as allocations for future working. Subject to such assessment, this may help to address part of the requirement for new crushed rock allocations noted above.

Use of alternative aggregates

Unknown quantities of navigational dredgings from the Dee Estuary are landed at Mostyn Dock, some of which are understood to have been deployed for low specification construction fill. Other than this, no marine-dredged aggregates are thought to be used within Flintshire.

Colliery spoil would once have been available for use as a secondary aggregate within the coalfield area but, in most instances, the area has been redeveloped for use by new, high-tech industries, leaving little further opportunity for generating secondary aggregates on a regular basis.

The relatively high levels of industrial and commercial development and redevelopment (compared with most other parts of North Wales) generate significant quantities of construction, demolition and excavation wastes, from which (currently unknown quantities of) recycled aggregates are derived. Whilst redevelopment has already taken place in many areas, there may be some further opportunities in the south of the county.

The residual requirements for primary land-won aggregates assume that these varying quantities of alternative materials will continue to form part of the overall supply pattern and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

GWYNEDD

Apportionment for the future provision of land-won primary aggregates

For planning purposes, Gwynedd excludes the Snowdonia National Park, which is a separate Mineral Planning Authority (and is dealt with in combination with neighbouring Conwy, above). Gwynedd is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: **0.174 million tonnes per year** until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: **0.995 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Gwynedd, as calculated in Tables 5.4 and 5.6 of the main document, over the 22-year horizon required for sand & gravel, and the 25-year timescale required for crushed rock, are 3.834 million tonnes for land-won sand & gravel and 23.867 million tonnes for crushed rock. These figures compare with existing landbanks of 1.175 million tonnes for sand & gravel and 28.54 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In order to address the resulting shortfall for sand & gravel, new allocations totalling at least 2.659 million tonnes will need to be identified within the LDP. In view of the small surplus of existing crushed rock reserves, no crushed rock allocations are specifically required. However, consideration should also be given to whether any of the factors set out in paragraph A58 above give rise to any other requirements for resource allocations.

In particular, a sizeable part of the existing crushed rock landbank in Gwynedd is made up of permissions at slate quarries and slate waste tips and, whilst slate aggregate is able to substitute for other rock types in many situations, it is not suitable for all applications. Additional allocations for other types of crushed rock might therefore be required and the situation will need to be kept under close review by the planning authority. Particular attention will need to be given to the continuation (or otherwise) of the exemption of slate from the Aggregates Levy. If the exemption is removed at any stage in future, there could well be an increased demand for other types of crushed rock aggregate.

As noted in the original RTS, any future crushed rock permissions in Gwynedd may need to be specifically dependent upon justification for material of a particular quality (e.g. rail ballast or road surfacing aggregate) which cannot be met from processed slate waste.

As far as possible, any allocations should be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Paragraph 49 of MTAN 1 notes that landbanks are not required to be maintained within National Parks or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Llŷn Peninsula AONB, unless there are no environmentally acceptable alternatives.

If any adjustments to the suggested apportionments and allocations are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration (produced in accordance with the Guidance set out in Annex A of the RTS Main Document), before any of the constituent LDPs within North West Wales are submitted for Examination.

Treatment of Dormant sites

A total of three dormant quarry permissions still exist within Gwynedd, as detailed in Table A5, above. Two of these are slate quarries and one is a sand & gravel site. The planning authority should assess the likelihood of each of these sites being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and where the site(s) in question are considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 14 of Minerals Planning Policy Wales, they may be offset against any requirements that may otherwise be identified for allocations for future working. Subject to such assessment, the dormant sand & gravel unit may offer prospects for addressing part of the requirement for new allocations noted above.

Use of alternative aggregates

Small quantities of marine sand are landed at Port Penrhyn near Bangor. These are probably utilised within a radius of 20 to 30 miles within northern Gwynedd and (perhaps) neighbouring Conwy.

As noted earlier in this Appendix, crushed slate, derived either from slate waste or quarried specifically for use as primary aggregate, features significantly in the overall pattern of supply within Gwynedd. Together, over the 10-year baseline period (up to 2016), these products have accounted for an average of 9.7% of total crushed rock sales within North Wales as a whole, falling abruptly since 2009, from a peak of more than 16% in 2007, but recovering to more than 11% by 2016. However, given that slate production is already included in the crushed rock statistics for North Wales, this trend has no implications for the overall level of future demand, only for the balance between slate and other types of crushed rock.

Recycled aggregate production from construction, demolition and excavation wastes within Gwynedd is likely to be limited to small quantities within the main towns and utilised only for local projects.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised, particularly but not only in the case of crushed slate, and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

WREXHAM

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: 0.646 million tonnes per year until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: nil.

Comparison with existing landbanks

The total apportionments for Wrexham, as calculated in Tables 5.4 and 5.6 of the main document, over the 22-year horizon required for sand & gravel, and the 25-year timescale required for crushed rock, are 14.217 million tonnes for land-won sand & gravel and zero for crushed rock. These figures compare with existing landbanks of 12.652 million tonnes for sand & gravel and zero for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In order to address the sand & gravel shortfall, new allocations totalling at least 1.565 million tonnes will need to be identified within the Wrexham area.

In recognition of the constraints imposed by the Bryniau Clwyd a Dyffryn Dyfrdwy AONB on the working of crushed rock resources within most of the Wrexham area, the level of crushed rock provision (and thus the requirement for identifying allocations for future crushed rock working) has been set at zero. Small areas of crushed rock resources (both limestone and igneous rock) do exist, however, just outside the AONB in the south-western part of the area, and the possibility remains of identifying prospects for future extraction in those areas. If any such opportunities do arise, it may be possible for Wrexham to share part of the crushed rock allocation currently assigned to neighbouring Flintshire.

Any such shared arrangements would need to be reflected in a Statement of Sub-Regional Collaboration (produced in accordance with the Guidance set out in Annex A of the RTS Main Document), before any of the constituent LDPs within the North East Wales sub-region are submitted for Examination.

Consideration should also be given to whether any of the factors set out in paragraph A58 above give rise to any further requirements for resource allocations.

As far as possible, any allocations should be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Paragraph 49 of MTAN 1 notes that landbanks are not required to be maintained within National Parks or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Bryniau Clwyd a Dyffryn Dyfrdwy AONB, unless there are no environmentally acceptable alternatives.

Use of alternative aggregates

Little or no marine-dredged aggregate is thought to be utilised within Wrexham, not least because of the extensive and accessible reserves of land-based sand & gravel within the area.

As noted in the original RTS, slag banks were periodically processed at the former Brymbo Steelworks for construction fill and colliery spoil heaps were utilised as embankment fill, but

neither of these sources of secondary aggregate are now available. Similarly, a substantial amount of derelict land and buildings associated with the former mining and clay products industries, e.g. around Ruabon, has been cleared and other tips have been reprofiled leaving little scope for generating further material from such sources.

As in Flintshire, relatively high levels of industrial and commercial development and redevelopment (compared with other parts of North Wales) generate significant quantities of construction, demolition and excavation wastes, from which (currently unknown quantities of) recycled aggregates are derived. Significant further redevelopment is anticipated in the years ahead and this source of alternative aggregates is therefore likely to continue.

The residual requirements for primary land-won aggregates assume that all available alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).