Minerals Local Plan

MILTON KEYNES COUNCIL

Sustainability Appraisal
(Final draft) Environmental Report

June 2015

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Appendices

Non-technical summary

This Sustainability Appraisal (SA) Environmental Report has been developed to appraise the Milton Keynes Minerals Local Plan (final draft) and its contribution towards sustainable development. When adopted, the Local Plan will provide the land use planning strategy for minerals related development for the unitary authority. It also provides the basis for investment in minerals development in Milton Keynes and where in it should be located. The Local Plan will be the outcome of a review of the 2006 Minerals Local Plan for Milton Keynes.

Sustainability Appraisal

Under the Planning and Compulsory Purchase Act 2004 (s39) (the Act), SA is a mandatory part of the plan making process. The process of undertaking SA assists planning authorities to fulfil the objective of integrating sustainable development principles into the plan making process.

The aim of the SA Environmental Report is to fulfil requirements of both the Act and the SEA Directive, and has been produced in accordance with the NPPF. This SA Environmental Report has been prepared by Northamptonshire County Council on behalf of Milton Keynes Council under a Service Level Agreement (SLA).

The purpose of the SA Environmental Report is to detail the appraisal process and the likely significant sustainability effects of implementation of the Local Plan and reasonable strategic options. This SA Environmental Report was developed to appraise the contribution of this spatial plan towards sustainable development.

The integration of sustainability considerations into the preparation and adoption of plans is the key focus of the SA process. Within this capacity, as per Government guidance, the purpose of the SA Environmental Report is to determine consistency and compatibility between the SA Framework objectives and the plan objectives and to assess the level of impacts the implementation of the Plan would have on Milton Keynes.

The SA Environmental Report follows on from the SA Scoping Report (June 2014). This lays the foundation for the SA and focuses on the context of the plan, in this case, the Milton Keynes Minerals Local Plan (MLP). The Environmental Report acts to assess the plan's context in a holistic manner in order to determine if the plan's objectives contribute towards sustainable development.

Stage A: Setting the context and scope

The SA Scoping Report (June 2014) sets the context and scope for the Minerals Local Plan, provides a sound base for both the Minerals Local Plan and the SA Environmental Report and seeks to satisfy legislative and SEA Directive requirements.

Stage B: Options appraisal

Locally specific issues were explored through the issues and options process (Minerals Local Plan Issues and Options Paper) in order to address sustainability relating to minerals-related development at an appropriate level. Options were appraised to determine potential contribution towards sustainable development.

Stage C: Assessing sustainability effects of the Minerals Local Plan

The appraisal of the sustainability effects of the Minerals Local Plan and its components, including the key principles (or objectives), were addressed through the SA process and assessed through the SA Scoping Report. Each of the Minerals

Local Plan components have been assessed against the SA Framework Objectives identified through the SA Scoping Report.

Stage D: Consulting on the Minerals Local Plan and Sustainability Appraisal Environmental Report

The Minerals Local Plan and the SA Environmental Report were produced concurrently, as such public consultation for both the draft Local Plan and SA Environmental Report was undertaken over the period 30 October 2013 to 22 January 2014. Consultation on the draft Minerals Local Plan and SA Environmental Report were undertaken over the period 9 July to 5 November 2014. Public consultation was undertaken in accordance with the SCI and Regulations. Representations received were given due consideration in the development of the Minerals Local Plan (submission document) and the final SA Environment Report.

Stage E: Monitoring implementation of the Local plan

Following adoption, monitoring of the implementation of the Minerals Local Plan will be undertaken by Milton Keynes Council according to proposals for monitoring set out in the SA Environmental Report and in accordance with national guidance.

Milton Keynes' baseline characteristics and sustainability issues

Milton Keynes is a unitary area for local government and has a Borough status. The administrative area covers approximately 8,900 ha with a population of 248,800 (Census 2011) and is the seventh fastest expanding borough in the country (17% increase between 2001 and 2011).

The population of Milton Keynes Borough has expanded by almost 30% over the 20-year period between 1991 and 2011. Prior to its designation as a new town in 1967 the population of the current Borough area was less than 50,000. The new town incorporated the existing towns of Bletchley, Wolverton and Stony Stratford along with a number of other settlements. The area has been identified for continued growth and development through various plans and projects. The Borough area also includes more rural parts, particularly to its north. Within the rural areas are a number of small towns and villages such as Olney, Woburn Sands, Hanslope and Sherington.

Economy and growth

The high proportion of population in employment has resulted in a high economic activity rate within the area. Milton Keynes has maintained economic activity levels above the national average, including during the recession. Between 2004 and 2012 economic activity rates in Milton Keynes were consistently higher than that of the South East of England and nationally. The 2011 employment rate was above the national average with the highest level employer being the service industry. Between 2010 and 2011 GVA was at 6.1%, higher than it was prior to the recession. The future of economic development in Milton Keynes sees a continued targeted investment in the development of a knowledge-based economy (including research and development, design and software development). In turn this will see a concentrated move away from investment in mechanical and vehicular related economic development.

The key issues related to the achievement of economic growth in a sustainable manner include: enabling economic development that includes diversification of employment types ensuring quality employment opportunities for all; ensuring that economic activity is retained and increased enabling of communities and individuals to benefit; ensuring that an equilibrium is reached where growth; local communities

and the environment can positively exist and not to the detriment of each other; ensuring that any lack of innovation and enterprise is tackled, especially through targeting disadvantaged communities and attracting new businesses whilst encouraging existing businesses to grow along with ensuring that any subsequent growth and expenditure remains within the area.

Environment and land-use

Milton Keynes forms part of the Bedfordshire and Cambridgeshire Claylands character area that is characterised by gently undulating topography and plateau areas divided by broad shallow valleys. Milton Keynes has been planned and developed to include a large amount of accessible greenspace and linking residential areas, which benefits both wildlife and local residents, including a number of environmentally designated areas.

The urban area of Milton Keynes accounts for approximately 40% of the Boroughs land-use. The remaining area is predominantly rural with a number of scattered villages and smaller towns. The majority of landscape is designated as part of the Ouse Valley, which follows the River Ouse. As at December 2014 there were 50 Scheduled Monuments, three Registered Parks and Gardens and 27 Conservation Areas within Milton Keynes.

Key issues influencing the effective protection of the environment include: ensuring the integration of sustainable development and carbon reduction into the planning and delivery of further growth; ensure that future development is balanced with the need to protect the environment; targeting the reduction of CO2 emissions; ending the trend of biodiversity decline and ensuring that this trend is then reversed; ensuring the prudent use of natural resources (including minerals, water and fossil fuels); reducing the contribution to and the effects of climate change by increasing the use of renewable energies and limiting the effects of climate change and protection of and improvement to the natural and built environment.

Minerals requirement and development

The majority of minerals extraction and related development within Milton Keynes relates to sand and gravel. The majority of deposits are located in the Great Ouse river valley, north of the M1 motorway however these are still considered to be relatively shallow. There has also been a limited amount of limestone and building stone extraction. The Local Aggregate Assessment (LAA) has identified potential annual provision rates based on various different approaches. The figures for Milton Keynes range from 0.10 Mt per year to 0.28 Mt per year. The use of recycled aggregates in Milton Keynes is difficult to assess. The majority of this comes from construction and demolition waste, and asphalt road plantings.

Key issues influencing the prudent use of natural resources include; ensuring a steady and adequate supply of minerals; ensuring the prudent use of natural resources whilst also supporting current and future growth; ensuring the protection of the environment and the local communities; ensuring that development takes place on previously developed land where possible and ensuring appropriate and high level schemes for restoration and after-use of sites.

Society and community

The population of Milton Keynes is at almost 250,000 and is the seventh fastest growing in the country. The population profile is younger than that for the whole of England however is ageing over all. The population of Milton Keynes is becoming increasing ethnically diverse with black and minority ethnic groups having increased over the last decade. Whilst there are issues relating to social deprivation and

exclusion, over all the area is classed as above average in comparison to the rest of the UK.

Key issues influencing the development of sustainable communities include: ensuring that the areas growing population is provided for in terms of housing, employment, infrastructure, services and facilities; ensuring that growth related provisions reflect the demographics of the area and promote social inclusion through reducing deprivation, inequalities, discrimination and disadvantage; increasing and improving access to recreational opportunities and increasing awareness and engagement in relation to environmental issues.

Spatial planning and development

Centrally located within England, Milton Keynes is a fast growing unitary authority area. It is within the ceremonial county of Buckinghamshire and therefore within the South East standard region but adjacent to the East of England and East Midlands regions. Milton Keynes is bordered by the neighbouring mineral planning authorities of Northamptonshire, Bedford, Central Bedfordshire and Buckinghamshire.

Strategically Milton Keynes is well located adjacent to the M1 motorway and with the A5 forming one of the main arterial routes through the city. The development of the new town was based on a grid system which has resulted in segregated development and a hierarchical road system which has lead to a higher reliance of private vehicle use for travel and therefore increased traffic levels.

The more rural areas to the north of the Borough are connected to the urban area by the A509 heading north towards Wellingborough and the A508 towards Northampton. The River Ouse crosses the Milton Keynes / Northamptonshire border at Old Wolverton flowing east across the northern part of the city.

Key issues influencing development and spatial planning include: supporting the required development and that growth takes place; protecting and enhancing the urban and rural communities; supporting the existing road network and ensuring that further growth and development supports the reduction of private car use and increases the use of public transport and pedestrian travel.

Main strategic options

In conducting SA and SEA, the likely significant effects of implementing the plan and any reasonable alternatives must be appraised. It is normal practice when developing a plan to propose different ways of fulfilling the objectives. The strategic options explored during the development of the Minerals Local Plan include: developing the plan's vision and objectives; developing a Spatial Strategy; determining the plan period; identifying the minerals provision; safeguarding minerals resources; local planning considerations; other local planning matters, and allocations for minerals-related development.

Sustainability issues (including social, environmental and economic issues) were taken into consideration in identifying the preferred policy approach and developing the Local Plan through the application of the SA Framework in assessing the potential effects of the strategic options. This allowed for specific problems and issues within each option to be highlighted. In addition, the options were compared with each other and with the current social, environmental and economic characteristics of the area. This process assisted in identifying which option was the most appropriate to achieve sustainable development given local circumstances.

Predicting significant effects from implementation of the Local Plan

The SA Framework forms the basis for appraising sustainability effects, and represents relevant sustainability issues including economic, environmental, social and spatial issues. The SA Framework sets objectives, sub-objectives and indicators that are used to appraise the MLP objectives and policy options.

Consideration of sustainability issues and identified problems throughout the development of the Local Plan are summarised below. Conclusions drawn from the appraisal have influenced the development of the Local Plan. It is concluded that the proposed policies offer the most significant contribution towards sustainable development and provide a healthy balance of potential sustainability effects.

Significant effects resulting from implementation of the components of the Minerals Local Plan are assessed against the SA objectives in order to determine the overall effect of these components of the Local Plan in relation to sustainability issues. Many of the SA objectives (and issues or problems) are inter-related and can be captured through consideration under their broader titles. As such it was seen as unnecessary to undertake assessment against individual SA objectives. Specific sustainability issues and problems were identified and investigated through the appraisal.

The assessment of cumulative effects assists in the identification of the total effect of both direct and indirect impacts on receptors. The SEA Directive requires the assessment of effects including secondary, cumulative and synergistic effects.

Cumulative effects resulting from implementation of the components of the Local Plan were assessed against the individual SA objectives in order to identify the total effect of both direct and indirect effects on receptors.

The appraisal of significant and cumulative effects resulting from implementation of the Local Plan policies addresses all of the SA objectives to varying levels.

Economic

Economic effects can be predicted based on available evidence however the level of confidence in predictions, and magnitude of effects, is reliant on industry and market response to the policy context surrounding minerals and environmental management.

The assessment of cumulative effects indicates that the sustainability appraisal addresses all of the SA objectives to varying levels. The economic effects associated with the implementation of the Local Plan are likely to be cumulative with no direct positive impacts, however the provision of mineral development is likely to result in positive effects overall through the implementation of policy and the contribution that mineral extraction will have on the local economy. Whilst it is possible that the sustainability requirements associated with policy may initially have adverse affects as a result of increased financial cost, it is expected that this will stabilise relatively quickly and be succeeded by the increased potential for innovation and competitiveness of industry.

Environment

Environmental effects, although complex, can be predicted based on available evidence however the level of confidence in predictions, and magnitude of effects, is dependent on the nature of development and surrounding environment.

The assessment of cumulative effects indicates that the sustainability appraisal addresses all of the SA objectives in relation to environmental effects to varying levels. The assessment reveals that effects will be direct, cumulative and synergistic and both positive and negative in result. Positive effects will result from the overall implementation of the plan, however it is evident that there may initially be some local

adverse effects from the operation at individual sites. The level of these effects is dependent on the receiving environment and the nature of operations and is balanced by the requirements for implementing mitigation measures, protection of the natural and built environment and appropriate restoration and after-use.

Social

Social effects are often quite difficult to predict as they are most likely to be qualitative and occur through secondary effects rather than direct or manifest. The assessment of cumulative effects indicates that the sustainability appraisal addresses all of the SA objectives in relation to social effects to varying levels and does not indicate that implementation will result in negative impacts.

The more positive effects are likely to be gained from restoration schemes through the provision of recreational facilities and increased access to green infrastructure, the enhancement of the natural and built environment and through an increase in employment.

Spatial

Spatial effects can be predicted based on available evidence however the level of confidence in predictions, and magnitude of effects, is dependent on the nature of development and the broad landscape context.

The assessment of cumulative effects indicates that the sustainability appraisal addresses all of the SA objectives in relation to environmental effects to varying levels. The appraisal indicated that the more sustainable effects will come through the implementation of the spatial strategy and the safeguarding of minerals.

Mitigation measures

Measures to prevent, reduce or offset significant adverse effects, or ‘mitigation measures’ of implementing the Local Plan must be identified through the SA Environmental Report. Mitigation measures can include proactive avoidance of adverse effects, actions taken after effects are noticed, and recommendations for improving beneficial effects.

Mitigation measures – potential adverse effects

There are limited potential adverse effects resulting from the implementation of the Local Plan. Those identified through the SA and proposed mitigation measures are outlined below.

Initial minor financial and/or resource implications for developers have been identified as a potential adverse effect particularly with respect to incorporating sustainable transport movements and addressing the impacts of climate change along with the implementation of safeguarding minerals sites and potential prior extraction in order to avoid sterilisation. The protection of natural assets and resources, the historic environment and the townscape and landscape is also expected to include financial implications. It is believed that this effect will be localised and temporary, with implementation over the medium to long-term stabilising or reversing this effect in line with evolving industry practice and market capacity.

Operational effects resulting from individual minerals development on the receiving environment were also identified as a potential adverse effect. The level of impact is dependent on the nature of operations and receiving environment. Proposals for development are required to identify potential effects and provide for adequate mitigation measures to avoid and/or reduce the potential impact to an acceptable level.

Mitigation Measures – beneficial effects

The Local Plan seeks to set out the long-term vision for minerals development in Milton Keynes and identifies measures to ensure that the required provision of minerals is available to support growth and economic development. The most substantial benefits resulting from the Local Plan are likely to occur as a result of the cumulative effect of all the policies being implemented together.

In order to ensure consistent implementation and increase potential benefits a range of measures pertaining to practical implementation and awareness have been developed, these include: reporting requirements to address locally specific development criteria and sustainability issues; monitoring requirements and enforcement measures (annual reporting, standard conditions and planning agreements), and integration with the existing planning application process.

Uncertainties and risks

Uncertainties and risks identified through the SA process include limitations in terms of availability of quantitative information and subsequently confidence of assessment (where based on qualitative judgement). The process of undertaking SA inevitably relies on an element of subjective judgement. Resources utilised to assist in predicting and assessing the sustainability effects of the Local Plan include analysis of the baseline situation (evidence base), characteristics of Milton Keynes and relevant sustainability issues, relevant case studies, as well as professional experience and judgement (including formation of rational assumptions).

These resources have been applied where possible to determine potential effects of implementation of the Local Plan. It is important to recognise that there exists an inherent risk in all prediction techniques, and as such the worst case scenario has been assumed throughout the SA process where uncertainty exists.

Monitoring framework

The purpose of monitoring is twofold as it needs to consider both beneficial and adverse effects. Firstly, it should measure the actual significant sustainability effects of implementing the Local Plan against those predicted in the SA and measure contribution towards achievement of desired objectives. Secondly, it assists in identification of unforeseen adverse effects and the need to undertake appropriate remedial action. The SA monitoring framework for the Minerals Local Plan was developed to specifically focus on significant sustainability effects and seeks to measure indicators that may establish a causal link between implementation of the Minerals Local Plan and the likely significant effects being monitored.

SA process statement

SA is a mandatory component of the plan making process. The process of undertaking SA assists planning authorities to fulfil the objective of integrating sustainable development principles into the plan making process. The purpose of SA is to promote sustainable development through better integration of sustainability considerations into plan preparation and adoption. The application of the SA to the Minerals Local Plan was found to have four main beneficial outcomes.

Firstly, the appraisal of the components of the Minerals Local Plan assisted in identifying the likely significant sustainability effects (and their interactions) of implementation and capacity to contribute towards sustainable development.

Secondly, the SA process assisted in highlighting the need for the Minerals Local Plan to expand upon higher level policy and provide further detail and guidance in

relation to specific local issues faced by Milton Keynes, particularly in order to enhance beneficial effects and mitigate potential adverse effects.

Thirdly, the identification and development of the baseline situation, local characteristics and sustainability issues assisted in determining the scope and function of the Minerals Local Plan.

Lastly, the SA tested the different options for the delivery of the Minerals Local Plan in respect of their likely significant environmental, social and economic effects. The most sustainable options were then carried forward into the plan. In some cases the most sustainable option was not practical, in which case the option considered appropriate made an adequate contribution, and mitigation measures have been included in order to maximise potentially beneficial effects. The appraisal of significant effects assisted in developing appropriate mitigation and enhancement measures as well as proposed monitoring arrangements to measure the actual significant sustainability effects of implementing the Minerals Local Plan; contribution towards achievement of desired objectives; identification of unforeseen adverse effects; and the need to undertake appropriate remedial action. The identification of such measures has also assisted in forging links with other plans, policies and strategies.

1. Introduction

1.1. Under the Planning and Compulsory Purchase Act 2004 (the Act), Sustainability Appraisal (SA) is mandatory for Local Development Documents such as the Minerals Local Plan as part of the plan making process.

1.2. The process of undertaking SA assists planning authorities to fulfil the objective of integrating sustainable development principles into the plan making process.

1.3. There are a number of different definitions of sustainable development. The National Planning Policy Framework (NPPF) refers to the UK Sustainable Development Strategy Securing the Future in relation to its five 'guiding principles' of sustainable development: living within the planet's environmental limits; ensuring a strong, healthy and just society; achieving a sustainable economy; promoting good governance; and using sound science responsibly.

1.4. Sustainable development in England will be achieved partly through the planning system by the policies within the NPPF assisting it to fulfil a number of roles under three dimensions:

- "an economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;
- a social role – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and
- an environmental role – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy." (NPPF 2012)

1.5. The requirement to carry out SA and Strategic Environmental Assessment (SEA) are distinct. However it is possible to satisfy both through a single appraisal process. It should be noted that herein where reference is made to SA it should be taken to include the requirements of the SEA Directive.

1.6. The purpose of SA is to promote sustainable development through better integration of sustainability considerations into plan preparation and adoption. SA is an integral part of good plan-making and should not be seen as a separate activity.

1.7. SA is an iterative process that identifies and reports on the likely significant effects of the plan and the extent to which implementation of the plan will achieve the social, environmental and economic objectives by which sustainable development can be defined.

Purpose of the Sustainability Appraisal Environmental Report

1.8. Under the Planning and Compulsory Purchase Act 2004 (s39) (the Act), SA is a mandatory part of the plan making process. The process of undertaking SA assists planning authorities to fulfil the objective of integrating sustainable development principles into the plan making process.

1.9. The aim of the SA Environmental Report is to fulfil requirements of both the Act and the SEA Directive, and has been produced in accordance with the NPPF. This SA Environmental Report has been prepared by Northamptonshire County Council on behalf of Milton Keynes Council under a Service Level Agreement (SLA).

1.10. The purpose of the SA Environmental Report is to detail the appraisal process and the likely significant sustainability effects of implementation of the Local Plan and reasonable strategic options. This SA Environmental Report was developed to appraise the contribution of this spatial plan towards sustainable development.

1.11. The integration of sustainability considerations into the preparation and adoption of plans is the key focus of the SA process. Within this capacity, as per Government guidance, the purpose of the SA Environmental Report is to determine consistency and compatibility between the SA Framework objectives and the plan objectives and to assess the level of impacts the implementation of the Plan would have on Milton Keynes.

1.12. The SA Environmental Report follows on from the SA Scoping Report (June 2014). This lays the foundation for the SA and focuses on the context of the plan, in this case, the Milton Keynes Minerals Local Plan (MLP). The Environmental Report acts to assess the plan's context in a holistic manner in order to determine if the plan's objectives contribute towards sustainable development.

The current Milton Keynes Minerals Local Plan

1.13. The Milton Keynes MLP was adopted in 2006 (referred to as the MLP 2006) and is being reviewed and updated in order to ensure that it is up-to-date and in-line with current national policy and guidance. When this review is complete, the emerging MLP will provide the strategic spatial planning framework for Milton Keynes' minerals development that guides future land use planning and promotes sustainable development and sound planning.

1.14. The Act (2004), the NPPF and Government guidance provide for the transition between the existing MLP and the adoption of the reviewed and updated version.

1.15. The MLP 2006 will retain its current status until it is superseded by the updated MLP (upon adoption). The review of the existing policy document will result in an up-to-date MLP for Milton Keynes which will provide strategic minerals land-use planning policy.

Overview of the Minerals Local Plan

1.16. The emerging MLP will:

- Set out the broad strategy for minerals and the amount of provision needed to make for such development,
- Identify specific sites for minerals-related development,
- Cover aspects of controlling and managing minerals related development, and
- A detailed proposals map indicating the allocated sites for minerals related development.

1.17. Along with the MLP there will also be associated documents. These include:

- Statement of Community Involvement (SCI), which sets out how the council will consult and engage with people during the preparation of the MLP as well as on significant planning applications submitted to the council.
- The Minerals Development Scheme (MDS), which sets out the composition of, and the production process for, the plan development process and its individual components.
- Development Plan Monitoring Report (DPMR), which monitors how the council is progressing with the MLP and particularly how its policies are being implemented. The DPMR is an ongoing document that combines the monitoring of the other Local Development Framework documents.

Background

1.18. The MLP will be the main component of minerals planning policy and will set out the long-term spatial vision, spatial objectives and core policies that form the development strategy for minerals development in the Milton Keynes unitary area. The plan will outline the provision requirements for the unitary authority area up until 2031 and indicate the strategic spatial considerations that are required to enable this provision to be accommodated. The document will also set out the monitoring and implementation framework. Detailed locations for minerals development and the locational criteria for specific types of minerals development will be identified in order for site-specific allocations to be implemented.

1.19. The MLP will reflect Government guidance by taking account of the need to contribute towards the development of sustainable communities at acceptable social, environmental and economic costs.

Practical application of the Sustainability Appraisal Process to the Minerals Local Plan

1.20. This SA Environmental Report focuses on the continued development and appraisal of the MLP. Specific to Milton Keynes, the MLP will set out the long-term spatial objectives for minerals development. Each of the policies contained within the MLP expand upon and ensures the practical application of the plan's objectives across the unitary area.

1.21. The practical application of the SA process in relation to the MLP is illustrated in Figure 1.

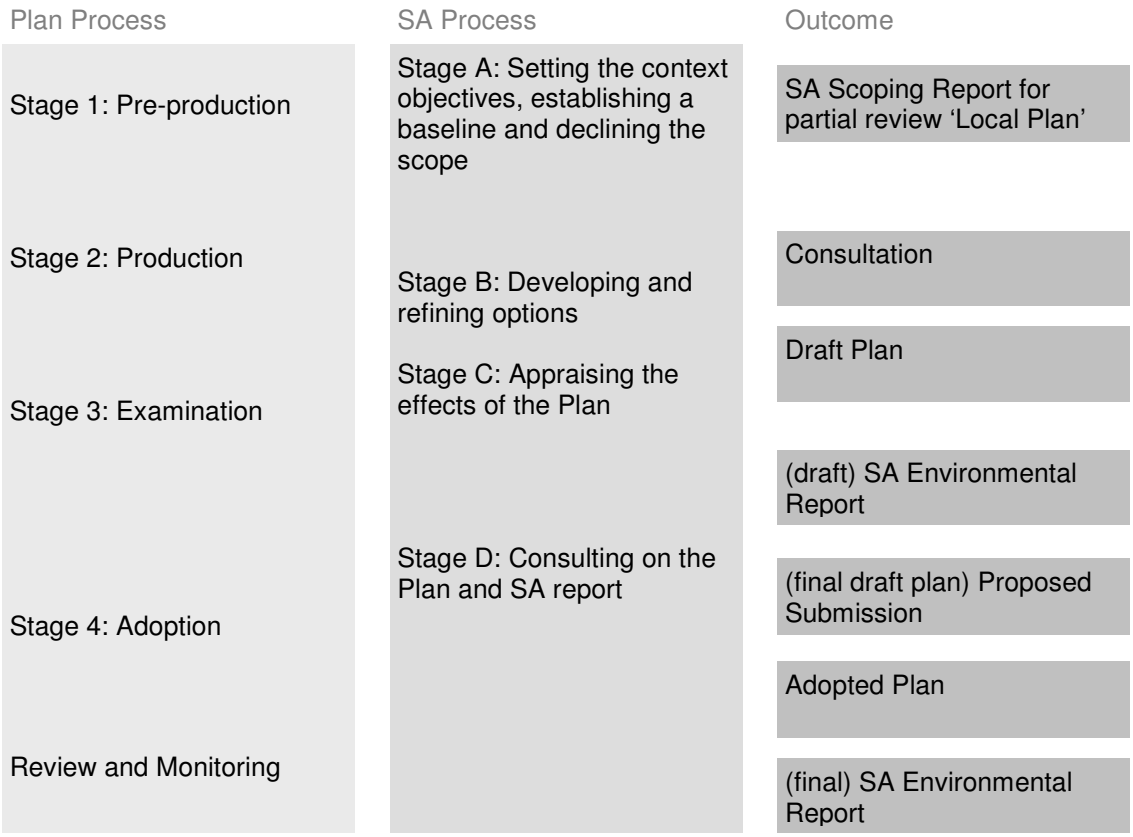


Figure 1: Practical application of the SA process in relation to the MLP

2. Appraisal Methodology

Approach adopted for the Sustainability Appraisal

2.1. This SA Environmental Report has been developed to appraise the Milton Keynes MLP for submission and its contribution towards sustainable development.

2.2. The approach adopted for the SA Environmental Report has been largely dictated by Government guidance. The SA was undertaken primarily on the basis of professional judgement informed by the evidence base and other information made available to the Council. In undertaking the assessment of the potential effects any judgements of significance were systematically documented in accordance with Government guidance. The range of techniques used in the prediction and assessment of effects included expert judgement, consultation, GIS, compatibility assessment, sensitivity analysis and multi-criteria analysis. The appropriateness of individual techniques to meet the Council's needs and requirements were assessed accordingly.

Production of the Sustainability Appraisal

2.3. The SA Environmental Report was prepared by Northamptonshire County Council's Planning Services on behalf of Milton Keynes Council under a Service Level Agreement (SLA) and has been developed alongside the Minerals Local Plan review, which commenced in April 2013.

Consultation on the Sustainability Appraisal Scoping Report

2.4. Public consultation is a key element of SA (including the SEA Directive) and the development planning system and is required under the Regulations for both the SA Scoping Report and SA Environmental Report.

2.5. Consultation on the Scoping Report helped to ensure that the SA is comprehensive and robust to support the Plan during later stages of full public consultation and examination. Consultation took place between 30 October and 22 January 2014. This consultation was undertaken in accordance with Government guidance and included the SEA Consultation Bodies as required by the SEA Directive (Natural England, Historic England and Environment Agency) and other appropriate social and economic consultees. The Scoping Report was also made available to other parties upon request and via the Council's website. Representations received were taken into consideration in finalising the Scoping Report.

2.6. The main outcomes achieved through consultation on the SA Scoping Report were the identification and consideration of the policy context. The consultation also assessed the baseline information and sustainability objectives, which influence the Plan and the SA. This helped to development of comprehensive and robust SA Framework and appraisal methodology able to support the Local Plan through the plan-making process.

Consultation on the Sustainability Appraisal Environmental Report

2.7. Both internal and external (informal) consultation is being undertaken throughout development of the Local Plan, this includes:

- seeking advice and comment from relevant sections of the Council, and
- external consultation with key stakeholders, including relevant District and Borough Council officers, SEA Consultation Bodies (Historic England, Natural England and Environment Agency) and other appropriate consultees (e.g. the Wildlife Trust).

2.8. Formal public consultation on the SA Environmental Report and the Local Plan document were undertaken in accordance with the 2004 Act and its Regulations (including the 2012 Amendment), the SEA Directive and the Statement of Community Involvement (SCI). The plan making and SA process have been undertaken

concurrently, and as such public consultation for both documents was undertaken simultaneously over the period 9 July to 5 November 2014. Public consultation was undertaken in accordance with the SCI and Regulations. Representations received were given due consideration in the development of the Minerals Local Plan (submission document) and the final SA Environment Report.

3. Background

Purpose of Sustainability Appraisal and the Environmental Report

3.1. Under the Planning and Compulsory Purchase Act 2004 (the Act), SA is mandatory for Local Plans as part of the plan-making process. The process of undertaking SA assists planning authorities to fulfil the objective of integrating sustainable development principles into the plan-making process.

3.2. When preparing Local Plans, (and Supplementary Planning Documents, SPD's) authorities must conduct an environmental assessment in accordance with the requirements of European Directive 2001/42/EC. This must include 'assessment of the effects of certain plans and programmes on the environment' (the Strategic Environmental Assessment or SEA Directive). SA effectively broadens the concept of SEA to encompass economic and social impacts.

3.3. The requirement to carry out SA and SEA are distinct. However, it is possible to satisfy both through a single appraisal process. It should be noted that where reference is made to SA it should be taken to include the requirements of the SEA Directive.

3.4. The purpose of SA is to promote sustainable development through better integration of sustainability considerations into plan preparation and adoption. SA is an integral part of good plan-making and should not be seen as a separate activity.

3.5. SA is an iterative process that identifies and reports on the likely significant effects of the plan and the extent to which implementation of the plan will achieve the social, environmental and economic objectives of sustainable development.

3.6. The purpose of the SA Environmental Report is to detail the appraisal process and the likely significant sustainability effects of implementation of the Local Plan and reasonable strategic options.

3.7. The SA Environmental Report details:

- The baseline situation and identification of sustainability issues and problems,
- Prediction and appraisal of the effects of implementation of the strategic options and the Local Plan,
- Consideration and selection of the preferred options (forming the Draft Plan),
- Consideration of sustainability issues in selection of preferred options,
- Mitigation measures incorporated into the Local Plan, and
- Proposed monitoring arrangements.

Detailed application of the Sustainability Appraisal process for the Local Plan

3.8. As part of the plan-making process plan objectives were developed with due consideration of the policy hierarchy influencing both the plan and the SA. Following the development of the plan objectives, key issues were identified. By examining the key issues various options were identified which were considered to address the issues and support plan development. These options were put forward for consideration through the issues and options consultation process (Minerals Local Plan Issues and Options Paper, October 2013) to aid in the development of the Local Plan policies.

3.9. Following consultation these options were refined and in most cases elements of several options were combined and enhanced through stakeholder review and

comment to form the preferred options. The sustainability of plan options has been tested in accordance with the SEA Directive. It is important to note that although the Council's officers retain the ultimate decision as to what plan options are to be taken forward both the SA and stakeholder engagement were considered key aspects guiding the selection of the preferred options that formed the Draft Plan.

3.10. The selection of the preferred options allowed for a set of draft policies to be developed. Following consultation on the draft plan and SA Environmental Report responses were taken into consideration in the preparation of the submission documents.

Stage A: Setting the context and scope

3.11. The SA Scoping Report (June 2014) sets the context and scope for the Minerals Local Plan, provides a sound base for both the Minerals Local Plan and the SA Environmental Report and seeks to satisfy legislative and SEA Directive requirements.

Stage B: Options appraisal

3.12. Locally specific issues were explored through the issues and options process (Minerals Local Plan Issues and Options Paper) in order to address sustainability relating to minerals-related development at an appropriate level. Options were appraised to determine potential contribution towards sustainable development.

Stage C: Assessing sustainability effects of the Minerals Local Plan

3.13. The appraisal of the sustainability effects of the Minerals Local Plan and its components, including the key principles (or objectives), were addressed through the SA process and assessed through the SA Scoping Report.

3.14. Each of the Minerals Local Plan components have been assessed against the SA Framework Objectives identified through the SA Scoping Report.

Stage D: Consulting on the Minerals Local Plan and Sustainability Appraisal Environmental Report

3.15. The Minerals Local Plan and the SA Environmental Report were produced concurrently, as such public consultation for both the draft Local Plan and SA Environmental Report was undertaken over the period 30 October 2013 to 22 January 2014. Consultation for the draft Minerals Local Plan and SA Environmental Report was undertaken over the period 9 July to 5 November 2014. Public consultation was undertaken in accordance with the SCI and Regulations. Representations received were given due consideration in the development of the Minerals Local Plan (submission document) and the final SA Environment Report.

Stage E: Monitoring implementation of the Local plan

3.16. Following adoption, monitoring of the implementation of the Minerals Local Plan will be undertaken by Milton Keynes Council according to proposals for monitoring set out in the SA Environmental Report and in accordance with national guidance.

Plan objectives and outline of the Minerals Local Plan contents

Overview of the Minerals Local Plan

3.17. The Milton Keynes Mineral Local Plan will:

- Set out the broad strategy for minerals within Milton Keynes and the amount of provision we will need to make for such development,
- Identify site specific allocations for minerals-related development,
- Cover aspects of controlling and managing minerals-related development, and

- A detailed policies map indicating the allocated sites for minerals related development.

3.18. Other documents related to the Local Plan include:

- The Local Development Scheme (LDS), which sets out the composition of and the production process, for the plan development process and its individual components.
- Statement of Community Involvement (SCI), which sets out how the council will consult and engage with people during the preparation of the Mineral Local Plan as well as on significant planning applications submitted to the council.
- Development Plan Monitoring Report (DPMR), which monitors how the council is progressing with the Minerals Local Plan (and the current Minerals Local Plan until superseded by the updated document), and particularly how its policies are being implemented; this is to be produced annually.

The vision for minerals related development in Milton Keynes

The MLP vision

Milton Keynes will continue to develop as a vibrant place featuring a modern city and sustainable rural settlements supporting a prosperous economy, sustainable growth and environmental networks/linear parks; underpinned by appropriate services, facilities and infrastructure. The community will benefit from access to green infrastructure and open spaces promoting health and quality of lifestyle.

This growth will be supported by the supply of a sufficient supply of minerals, recognising cross-boundary linkages. The sustainable use of resources and beneficial outcomes of restoration will contribute towards quality of life, local identity and environmental excellence. Milton Keynes will plan positively for the future through the safeguarding of minerals resources, reserves and ancillary development.

The MLP objectives

1. Support Milton Keynes', and wider, needs by ensuring a sufficient supply of aggregates in order to facilitate growth and the supply of infrastructure

2. Provide clear guidance regarding how minerals-related development should relate to growth patterns, other land-use forms and infrastructure networks and support industry investment through the spatial strategy for minerals-related development and the identification of specific sites and preferred areas / areas of search

3. Reinforce local identity through the supply of locally sourced building stone

4. Maximise the efficient recovery and use of mineral reserves and the use of secondary and recycled materials

5. Safeguard Milton Keynes' mineral resources of local and national importance (sand and gravel), reserves and ancillary development from other forms of development

6. Protect and enhance Milton Keynes' key (national and international) environmental designations and seek to avoid and / or minimise adverse effects of minerals-related development on environmental resources

7. Minimise adverse effects of minerals-related development and associated transport movements on human health and residential amenity

8. Support the provision of green infrastructure and recreational opportunities to promote healthy communities and quality of life in Milton Keynes

9. Ensure progressive restoration of mineral extraction sites and maximise environmental gains and benefits to local communities through appropriate after-uses that reflect local circumstance and landscape linkages

10. Support Milton Keynes' transition to a low carbon economy and tackle climate change through the promotion of sustainable development principles, alternative modes of transport and by addressing flood risk.

Compliance with the Strategic Environmental Assessment Directive and Regulations

3.19. The SA Environmental Report aims to fulfil requirements of the Act, its regulations and the SEA Directive, and has been produced in accordance with A Practical Guide to Strategic Environmental Assessment Directive (2005).

4. Sustainability objectives, baseline and context

Links to other strategies, plans, programmes and sustainability objectives

4.1. As part of plan preparation and SA process a review was conducted of relevant policies, plans and programmes influencing the policy context of the Plan and SA (refer to Appendix 1). Sustainability objectives within the policy context were also identified and taken into consideration through development of the SA Framework.

4.2. This process enables the identification of potential synergies between other policies, plans and programmes. It also assists in the identification and clarification of any inconsistencies and constraints. The review incorporated relevant material at an international (including EU), national and local policy context level.

4.3. The identification of documents forming the policy context is considered to comply with the requirements of the SEA Directive. No list or review of relevant policies, plans and programmes can ever be exhaustive. The review seeks to identify the key policy material and ensure that the key messages are given due consideration and appropriately incorporated into the Plan and SA. The hierarchical nature of policy has also been taken into consideration.

Baseline information, predictions, key sustainability issues and identified programs

4.4. Baseline information provides the basis for predicting and monitoring effects and helps to identify key sustainability issues. The baseline data was originally co-ordinated with the development of the evidence base as required by the MLP plan making process, and development of the SA Framework. This data is based on the monitoring period 1 January 2012 to 31 December 2012 (Appendix 2). Information on the current state and emerging trends of economic, environmental, social and spatial planning factors within Milton Keynes allow the MLP's effects to be adequately predicted and monitored.

4.5. Indicators have been tailored to specifically address issues of relevance to minerals development. Generic information has been included where it was believed to add value to the baseline.

4.6. Data limitations include availability of data (e.g. correct scale, up to date), unreliable sources or statistics and information being commercially sensitive.

4.7. Data collection is ongoing throughout the development and monitoring of the MLP. As such indicators and data will continue to be updated as necessary to ensure that the local factors are accurately reflected.

Overview of Milton Keynes

4.8. An overview of Milton Keynes, with respect to economic, environmental, social and spatial planning matters as they relate to mineral development, is provided in the following sections. This section also highlights key sustainability issues with regards to

planning and development. The identification of these key sustainability issues were derived from the analysis of the policy context, focussing on material of specific relevance to Milton Keynes (see Appendix 1) and assisted with the development of the SA Framework.

4.9. Milton Keynes is a unitary area for local government and has a Borough status. The administrative area covers approximately 8,900 ha with a population of 248,800 (Census 2011) and is the seventh fastest expanding borough in the country (17% increase between 2001 and 2011).

4.10. The population of Milton Keynes Borough has expanded by almost 30% over the 20-year period between 1991 and 2011. Prior to its designation as a new town in 1967 the population of the current Borough area was less than 50,000. The new town incorporated the existing towns of Bletchley, Wolverton and Stony Stratford along with a number of other settlements. The area has been identified for continued growth and development through various plans and projects. The Borough area also includes more rural parts, particularly to its north. Within the rural areas are a number of small towns and villages such as Olney, Woburn Sands, Hanslope and Sherington.

Economy and growth

4.11. The high proportion of population in employment has resulted in a high economic activity rate within the area. Milton Keynes has maintained economic activity levels above the national average, including during the recession. Between 2004 and 2012 economic activity rates in Milton Keynes were consistently higher than that of the South East of England and nationally. In December 2012 the economic activity rate in Milton Keynes was 81.1% compared to 79.3% in South East England and 76.9% nationally.

4.12. There are 137,700 people in Milton Keynes (2011) who are economically active (in/looking for work). This figure accounts for 75.9% of 16-74 year olds (compared with the 69.9% nationally). The overall employment rate for Milton Keynes is 68% (17-74 year olds), which is again higher than the national average of 62.1%.

4.13. The proportion of 16-74 year olds who are economically inactive in Milton Keynes is 24.1% (compared to 30.1% throughout England). 20.9% is accounted for as being either retired (10.3%), long-term sick or disabled (3.2%) or students not looking for work (3.9%) (all of which are below the national averages).

4.14. The 2011 unemployment rates in Milton Keynes were 4.8% compared to 4.1% nationally. The amount of people employed in full time employment has followed the national trend and has declined from 51.2% in 2001 to 46.3% in 2011. However the level of part-time employment has increased. 39.9% of females living in Milton Keynes are in part-time employment compared with 12.3% of male residents.

4.15. The employment type breakdown for Milton Keynes generally follows that of the rest of England with 85.3% of residents being employed within the service sector (4.1% above the national level). 8% are employed within the manufacturing sector (8.8% nationally). This sector has shown a decline in employment from 14.4% in 2001 to 8.0% in 2011, which follows the economic state nationally where manufacturing employment has fallen from 14.8% to 8.8%. 6.7% are employed in ‘other’ industries.

4.16. Breaking down employment by industrial type shows that wholesale and retail is the largest employer within the Milton Keynes area and is 4.7% higher that the national rate (20.6%). The second highest employing industry is education at 10.5%, with this not being a big variation from the national rate of 9.9%. The figures for transport and storage (6.5%) along with information and communication (6.4%) are higher than the national levels (5.0% and 4.1%) and provide some of the larger employing industries in the area. Other industries include: human health and social work (9.3%); construction (5.7%); accommodation and food service (4.5%); public administration, defence and

compulsory social security (4.5%). These all feature at below the national average levels (12.4%, 7.7%, 5.6%, 5.9% respectively). 42.6% of people within Milton Keynes are employed in higher level occupations (managers, directors and senior officials, professional occupations, associate professional and technical occupations). This is above the national level of 41.2%.

4.17. The location of Milton Keynes ensures that it is strategically placed for successful economic development with it being an almost equal distance from London, Birmingham, Oxford, Cambridge and Leicester. Gross Value Added (GVA) (the economic measure of the value of goods and services produced in an area) in Milton Keynes between 1995 and 2008 was 6.9% compared to 5.8% within South East England and 5.4% nationally. The area experienced a decline of 0.8% between 2008 and 2009 and the national economic recession. Between 2010 and 2011 GVA had increased again by 6.4% to 6.1% higher than it was prior to the recession.

4.18. The future of economic development in Milton Keynes sees a continued targeted investment in the development of a knowledge-based economy (including research and development, design and software development). In turn this will see a concentrated move away from investment in mechanical and vehicular related economic development.

4.19. The key issues related to the achievement of economic growth in a sustainable manner are:

- Enabling economic development that includes diversification of employment types ensuring quality employment opportunities for all.
- Ensuring that economic activity is retained and increased enabling of communities and individuals to benefit.
- Ensuring that an equilibrium is reached where growth, local communities and the environment can positively exist and not to the detriment of each other.
- Ensuring that any lack of innovation and enterprise is tackled, especially through targeting disadvantaged communities.
- Attracting new businesses whilst encouraging existing businesses to grow along with ensuring that any subsequent growth and expenditure remains within the area.

Box 1: Predicted effect of implementation of the Minerals Local Plan on the economy and growth

Although the mineral industry is generally not directly associated with economic growth the economic performance of individual extraction sites often reflects the general economy locally, nationally and even internationally. Minerals industries contribute towards the local economy through the supply of products (e.g. aggregates for construction) which are integral to a range of industry and business operations, supporting the growth of communities, as well as the creation of jobs.

Information regarding employment rates, economic value and uptake of innovative technology within the minerals industry is not available at a local scale.

The policies seek to promote investment in the delivery of a high quality built and natural environment in order to support the development of sustainable communities including the provision of infrastructure and services.

The general intent of the Minerals Local Plan is supportive of growth and employment generation and diversification of the minerals (and related) industry.

Environment and land-use

4.20. Natural England have identified the Milton Keynes area as being part of the Bedfordshire and Cambridgeshire Claylands character area, characterised by gently undulating topography and plateau areas divided by broad shallow valleys. Further environmental designations within the Borough include two Sites of Special Scientific

Interest (SSSI), one Local Nature Reserve, 16 locally designated wildlife sites, around 200 Local Wildlife Sites (LWS) as well as Biological Notification Sites (BNSs)[1]. MKWS (including Local Geological Sites, LGS) are equivalent to County Wildlife Sites and are designated on account of their special features or habitat, plant or animal communities, species or geology. They do not receive statutory protection but are protected through planning policy. LWSs are designated for their importance for wildlife, geology, education and public enjoyment but have a limited planning policy status. Milton Keynes also has established Wildlife Corridors forming linear habitat pathways that encourage movement of plants and animals between important wildlife sites. These Wildlife Corridors are given the same status as MKWS. In addition Biodiversity Opportunity Areas (BOAs) have been identified within Milton Keynes. BOAs are broad areas (landscape scale) that have been identified as containing concentrations of BAP priority habitats or where there is the opportunity for strategic biodiversity gain. Along with these areas, Milton Keynes has been planned and developed to include a large amount of accessible greenspace and linking residential areas, which benefits both wildlife and local residents.

4.21. The urban area of Milton Keynes accounts for approximately 40% of the Boroughs land-use. The remaining area is predominantly rural with a number of scattered villages and smaller towns such as Olney and Woburn Sands. The rural area underwent a landscape character assessment in 2007. The majority of landscape is designated as part of the Ouse Valley, which follows the River Ouse from the Northamptonshire boundary at Passenham northeast-wards where it crosses the Bedfordshire boundary at Turvey. This is the principal water catchment within the area.

4.22. Archaeological evidential finds in Milton Keynes date back to the Palaeolithic period (500,000 – 10,000 BC). The area is first thought to have been settled during the Mesolithic period (10,000 – 4,000 BC) at areas within the river valleys of the Great Ouse, Loughton Brook and Ouzel. Gradual further settlement has been documented throughout the Neolithic (4,000 – 2,200 BC), Bronze Age (2,500 – 700 BC) and Iron Age (800 BC – 43 AD). Larger scale development began during the Roman period (43 – 410 AD) after which the area continued to grow at a relatively steady rate on a town by town / village-by-village basis. The urban area as it is today is the result of a planned and thought out vision that became a reality with rapid urban development taking place from 1967 onwards.

4.23. The living-past is recorded through the 8,000 historic records that are included in the Archaeological Data Service (ADS) Catalogue (2009). As at December 2014 there were 50 Scheduled Monuments, three Registered Parks and Gardens and 27 Conservation Areas within Milton Keynes. There are six Scheduled Monuments and one Historic Building included on the Historic England 'At Risk' Register.

4.24. The need to ensure environmental protection must coincide with further growth and development as this continues to increase in importance. As a new town development, the creation of green space has featured in the plans and projects leading to residential, employment and industrial development. Although such development has still come at the detriment to the environment (for example a decline in biodiversity and the quality of water resources due to increasing demands).

4.25. The increased promotion of sustainable design and improvements to the natural and built environment should lead to the use of renewable energies assisting industry and the wider communities, enabling them to better adapt to the changing climatic effects whist targeting their reduction (as well as tackling other issues such as those relating to biodiversity and water resources).

[1] BNSs are in the process of being reviewed and assessed against the LWS criteria and may be re-designated to an LWS. Until the programme of review has been completed, BNSs should be treated in the same way as LWSs.).

4.26. The current biggest source of carbon dioxide (CO2) is industrial and commercial activity (3.4 tonnes per person in 2008), which is below the average for the South East as a whole. CO2 emissions per person are higher than the average for the South East (which can be put down to emissions from industrial and commercial activity being high in relation to population). Domestic / residential CO2 emissions are relatively low which is attributed to the more efficient and modern design of housing which has been constructed to meet the ever increasing energy efficiency standards. Between 2005 and 2010 emission levels reduced by 15%.

4.27. Key issues influencing the effective protection of the environment include:

- Ensuring the integration of sustainable development and carbon reduction into the planning and delivery of further growth.
- Ensure that future development is balanced with the need to protect the environment.
- Targeting the reduction of CO2 emissions.
- Ending the trend of biodiversity decline and ensuring that this trend is then reversed.
- Ensuring the prudent use of natural resources (including minerals, water and fossil fuels).
- Reducing the contribution to and the effects of climate change by increasing the use of renewable energies and limiting the effects of climate change
- Protection of and improvement to the natural and built environment.

Box 2: Predicted effect of implementation of the Minerals Local Plan on the environment and land-use

The form and scale of potential environmental impacts resulting from mineral development is largely determined by site location and the nature of the surrounding environment. Assessment of potential environmental impacts is conducted on a site-by-site basis with planning conditions and mitigation measures applied as necessary to avoid and/or minimise adverse impacts. The policies seek to promote minerals development in the most appropriate locations whilst conserving Milton Keynes' built and natural environment.

Restoration of minerals development can present opportunities for environmental enhancement. Natural England estimates that approximately 17.5% of SSSI's in the UK are related to the minerals industry, through restoration plans to enhance habitat and biodiversity (e.g. the Upper Nene Valley Gravel Pits SPA located in Northamptonshire). The policies seek to promote responsible land stewardship and beneficial after-use.

Milton Keynes has long been identified as a key growth area, and as such it is particularly important to reduce potential resource impacts associated with residential, industrial and commercial development. The policies seek to promote the prudent use of natural resources and sustainable development in all forms of new development.

The general intent of the Minerals Local Plan is supportive of environmental protection and enhancement, and the prudent use of natural resources.

Minerals requirement and development

4.28. The majority of minerals extraction and related development within Milton Keynes relates to sand and gravel. These resources were deposited during the glacial periods (plateau deposits) and due to river action widening and deepening of the valley floor (valley or terrace gravel) during the inter-glacial and post-glacial periods. The main sand and gravel deposits are located in the Great Ouse river valley, north of the M1 motorway (to the north/north-east of the city), however these are still considered to be relatively shallow. Since 1947 there has been approximately 650ha of sand and gravel extraction however only 154ha of this has been taken since 1974.

4.29. There has previously been a limited amount of limestone extraction in the area including small-scale workings located at Clifton Reynes and Lathbury, neither of

which is still active. The area is also historically related the production of Fletton Bricks, a brick clay extraction site for which was located at Newton Longville, although the company ceased operations in 1990.

4.30. There has been limited building stone / limestone workings, for example, at Weston Underwood. Further deposits have been identified in this area, located to the west of Olney. This stone is used for building and conservation, the need for which supports restoration and maintenance as well as fulfilling a local identity requirement, and therefore is often geologically tied to specific locations. This can lead to extraction taking place in areas which would not normally be considered suitable and may be visually intrusive, both factors are considered against the overall need for extraction. Quarries for this purpose however, are generally small with low overall outputs.

4.31. The Local Aggregate Assessment (LAA) identified potential annual provision rates based on various different approaches. The figures for Milton Keynes range from 0.10 Mt per year to 0.28 Mt per year. Further consultation and development of the MLP will assist with finalising the annual provision requirements.

4.32. The use of recycled aggregates in Milton Keynes is difficult to assess. The majority of this comes from construction and demolition waste, and asphalt road planings.

4.33. The identification of further extraction sites for sand and gravel has previously clashed with the Ouse Valley Area of Attractive Landscape (AAL) designation. Sites not within this area were allocated in preference to those within the AAL in order to preserve the local designation as it was possible for target extraction levels to be met elsewhere. Current sand and gravel extraction sites include Caldecote Farm, Passenham and Manor Farm.

4.34. Key issues influencing the prudent use of natural resources include:

- Ensuring a steady and adequate supply of minerals.
- Ensuring the prudent use of natural resources whilst also supporting current and future growth.
- Ensuring the protection of the environment and the local communities.
- Ensuring that development takes place on previously developed land where possible.
- Ensuring appropriate and high level schemes for restoration and after-use of sites.

Box 3: Predicted effect of implementation of the Minerals Local Plan on minerals requirement and development

Minerals extraction is required in order to support growth and development within the Milton Keynes area. Mineral extraction however can be controversial and due to the often limited reserves and precise location of deposits, can sometimes be required to take place within areas which could be described as unfavourable in relation to residential amenity and the local environment.

The Minerals Local Plan presents the opportunity for stakeholders to have a say on the development of the Plan and the spatial planning for minerals development within Milton Keynes. The Plan enables the best locations for mineral extraction to be allocated and to ensure that future targets can be met, which in turn assist in the development and growth of the local area.

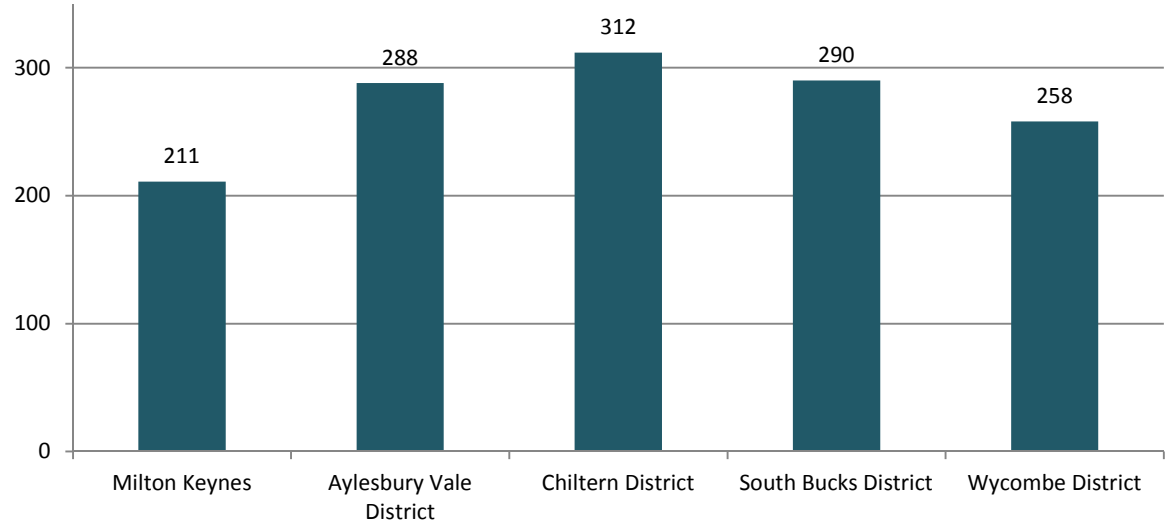
Milton Keynes has long been identified as a key growth area, and as such it is particularly important to ensure that extraction in planned for and targets are set. The Plan sets out the broad strategy for minerals development within Milton Keynes and the amount of provision required. The spatial objectives within the Plan support the spatial vision and build upon national planning objectives in relation to minerals development.

Society and community

4.35. The population of Milton Keynes is at almost 250,000 and is the seventh fastest growing in the country. Overall the population profile for Milton Keynes is younger than that for the whole of England with 22.3% of the population being under 16 years compared with 18.9% throughout England. Along with this just 11.1% of the population is aged over 65 compared with 16.3% in England over all. However the population of Milton Keynes is an ageing one with the average age having increased from 34 to 35 between 2001 and 2011. This is due to higher growth rates in the 0-4 and 55+ age groups since 2001 (highest in the 60-64 age group (+73.7% 2001-2011)). Growth in the 55+ age group would be accounted for as a result of residents aging rather than an increase in people aged 55+ moving in to the area. The area does however have more than double the number of young couples in their thirties with a young family than the average for the South East region. The population of under 16 year olds is the ninth highest in England.

4.36. The population of Milton Keynes is becoming increasing ethnically diverse with black and minority ethnic groups having increased from 13.2% in 2001 to 26.1% in 2011. This compares to 20.2% for England overall. Between 2001 and 2011 the number of residents in Milton Keynes who were born outside of the UK increased by over 100% to 46,100 (18.5% of the population compared with 13.8% nationally).

4.37. Overall social deprivation levels within Milton Keynes could be classed as above average. The 2010 Index of Multiple Deprivation (IMD) (measured using economic, social and housing related indicators) enables each area to be ranked in order of their level of deprivation. The Index ranks Milton Keynes at 211 out of 326 (1 being the most deprived). In comparison to the Buckinghamshire Districts (see Graph 1), Milton Keynes score is relatively low. This however is comparing an urban area with what is generally a more rural and affluent area and would therefore be the expected outcome.



Graph 1: Milton Keynes and Buckinghamshire Districts– Indicies of Multiple Deprivation, IMD (IMD ranking by local authority) (2010)

4.38. The IMD ranking of areas has also led to the identification of Super Output Areas. The lower scoring of these areas are then classed as Lower Super Output Areas (LSOAs). The IMD map (Figure 2) shows that Milton Keynes has 139 LSOAs (2010) (out of 32,482 across England), of which seven of them are included within the top 10% of the most deprived areas in England and 18 within the top 20%. The map shows that the more deprived areas are located within the more urbanised area of the borough, and that (generally) the more rural the area is the more likely it is to have a lower level of deprivation. The map shows that there are 18 areas that are in the top 10% least

deprived areas within the UK. These are in the Bletchley to Wolverton Crescent which comprise these towns and the early phases of the New Town.

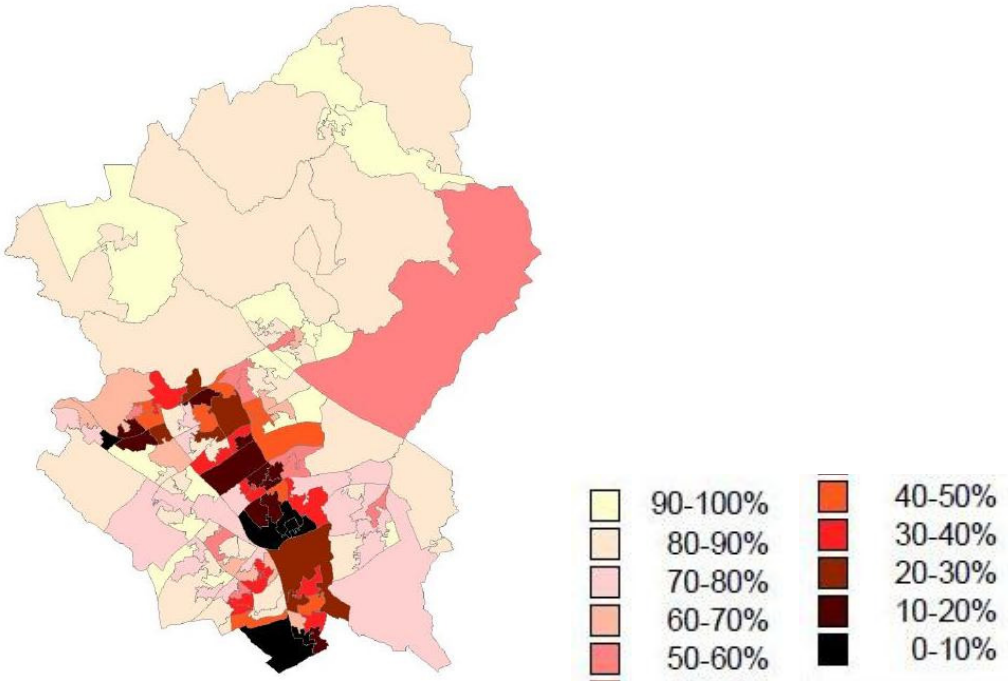


Figure 2: Index of Multiple Deprivation in Milton Keynes (0% - least deprived areas in UK)

4.39. Social exclusion (measured by a combination and levels of unemployment, poor skills, low incomes, poor housing, high crime environments, bad health and family breakdown) in Milton Keynes is high in comparison to the rest of the South East. The average life expectancy from birth for Milton Keynes is 80.2 years, compared to 81.6 across the South East and 80.3 for England and Wales (2008-2010). The range between wards however is almost 11 years with the Middleton ward having an average of 86.3 years and Woughton[2] having 75.4 years. In comparison to the rest of the South East, the number of people living in council owned accommodation is approximately double, as is the number of single parents on income support.

4.40. Key issues influencing the development of sustainable communities include:

- Ensuring that the areas growing population is provided for in terms of housing, employment, infrastructure, services and facilities.
- Ensuring that growth related provisions reflect the demographics of the area and promote social inclusion through reducing deprivation, inequalities, discrimination and disadvantage.
- Increasing and improving access to recreational opportunities.
- Increasing awareness and engagement in relation to environmental issues.

Box 4: Predicted effect of implementation of the Local Plan on society and community

Minerals development is a key supporting component for population and economic growth (i.e. provision of materials for housing and infrastructure etc.).

The policies support the practical implementation of materials resource efficiency and sustainable development practices, thereby increasing community exposure and awareness.

Operational impacts resulting from minerals development may cause environmental nuisance and reduce general amenity. In addition such development also has the potential to impact on recreational opportunities as a result of the nature of operations. However,

[2] These wards were subsequently abolished and replaced by new wards.

restoration of mineral extraction sites can enhance amenity and recreational opportunities as well as providing opportunities for nature conservation and environmental education.

The policies seek to develop safe and healthy communities by reducing adverse impacts on human health and safety and promoting opportunities for recreation.

The general intent of the Minerals Local Plan is supportive of the development of a healthy society and sustainable communities.

Spatial planning and development

4.41. Centrally located within England, Milton Keynes is a fast growing unitary authority area. It is within the ceremonial county of Buckinghamshire and therefore within the South East standard region but adjacent to the East of England and East Midlands regions. Milton Keynes is bordered by the neighbouring mineral planning authorities of Northamptonshire, Bedford, Central Bedfordshire and Buckinghamshire.

4.42. Strategically Milton Keynes is well located adjacent to the M1 motorway and with the A5 forming one of the main arterial routes through the city. The M1 enables relatively quick and easy access to London and the south and Birmingham and the north, with the A421 providing a high quality route to the east. There are good rail connections to London, Birmingham and Manchester. The nearest international airport to Milton Keynes is located approximately half an hour away at Luton, but Gatwick, Heathrow and Birmingham are easily accessible by road or train travel.

4.43. Just under half of the Borough's area is urban with this being predominantly its southern half. Within the northern area of the Borough there are a number of smaller towns and villages, all of which look to the urban area and particularly to Central Milton Keynes as the key commercial and retail centre.

4.44. The development of the new town, uncharacteristically for the UK, was based on a grid system. There are a number of roads running east-west and north-south (horizontally and vertically) across the city with roundabouts at the intersections enabling maximum efficiency for car travel. The roads are heavily landscaped, often dual carriageway and run at national speed limit enabling relatively quick access to and from the central area and between locations. The grid squares between the roads are known as districts and contain the lower hierarchal streets.

4.45. The segregated development of Milton Keynes and the hierarchical road system has lead to higher reliance of private vehicle use for travel and therefore increased traffic levels. 61% of those in employment drive to work compared with just 54.2% nationally and only 9.8% of people in employment use public transport for their commute significantly lower than the 15.9% across England. Walking to work and bicycle use (9.9%) in Milton Keynes is again lower than the national rate (12.5%).

4.46. The more rural areas to the north of the Borough are connected to the urban area by the A509 heading north towards Wellingborough and the A508 towards Northampton. The River Ouse crosses the Milton Keynes / Northamptonshire border at Old Wolverton flowing east across the northern part of the city. The river then heads north-east through the more rural section of the authority crossing the Milton Keynes / Bedfordshire border to the east of Cold Brayfield. The majority of the river valley is generally undeveloped, except for a few settlements including Olney and Emberton. The more developed area of the river valley within the Borough is located to the south of the M1.

4.47. Key issues influencing development and spatial planning include:
- Supporting the required development and that growth takes place.
- Protecting and enhancing the urban and rural communities.
- Supporting the existing road network.

- Ensuring that further growth and development supports the reduction of private car use and increases the use of public transport and pedestrian travel.

Box 5: Predicted effect of implementation of the Local Plan on spatial planning and development

Due to the nature of operations, minerals developments have specific requirements dependant on the type of extraction, design and scale. Whilst Government guidance states that the majority of development is to be encouraged on brownfield, or previously developed land, in contrast, minerals can only be worked where they occur.

Site location, layout and development design largely determine land-use and spatial impacts. The policies do not conflict with guidance relating to the encouragement of development on brownfield land, and promoting strategic site layout and sensitive design, however they do reflect that minerals can only be extracted from specific locations. In addition, the Minerals Local Plan also actively seeks to direct development to the most appropriate locations through locational criteria and identification of strategic distribution patterns which give consideration to infrastructure networks, integration of facilities and integrated transport networks.

The general intent of the Minerals Local Plan is supportive of sustainable land-use practices and spatial planning.

Minerals Local Plan performance baseline information

4.48. When adopted the MLP will provide the planning policy supporting all minerals related development throughout the authority's administrative area by contributing towards the decision making process related to determining planning applications. Annual monitoring is to be carried out and based upon the associated Monitoring Framework (Appendix 2). This process allows the performance of the MLP to be measured and for trends to be identified along with highlighting any issues and constraints. This enables the informed updating of documents and policies as and when required and will ensure that these updates and modifications reflect the current state of Milton Keynes, in relation to minerals development.

Difficulties in collection data and data limitations

4.49. Obtaining baseline data specifically relating to the minerals industry may be difficult as it relies heavily on industry co-operation in releasing data that may be considered commercially sensitive. This may have knock-on effects for minerals planning authorities as their evidence base, upon which decisions are based, may not be up-to-date and may not be as accurate or complete as we would prefer or may have specific limitations (e.g. scale and accuracy). Gathering data to inform the planning process is a continual process. Data gaps are identified in the Baseline Information dataset; this will be reviewed as necessary.

The Sustainability Appraisal Framework – objectives, indicators and targets

4.50. The SA framework is fundamental to the SA process and will be used as the basis for appraising the Minerals Local Plan policies. The SA Framework sets objectives, sub-objectives and indicators that are used to appraise the MLP objectives and policy options in order to identify specific sustainability issues and ascertain whether and how these issues are being addressed (refer to Table 1). Movement towards, or away from, SA objectives will be monitored through the identified indicators. The SA Framework also highlights the potential social, environmental and economic implications of the proposals set out in the Plan.

4.51. The development of the SA Framework is detailed in the SA Scoping Report. Targets and comparators relating to the SA Framework are outlined in the Baseline Information dataset.

4.52. The compatibility of the SA objectives can be tested using a compatibility matrix (refer to Table 2). This assists in highlighting potential conflicts that may emerge between objectives. The compatibility relationship between the two objectives is indicated as follows: ✓ Positive, × Potential Conflict, ? Uncertain, Neutral.

4.53. The compatibility of the Local Plan components and the SA objectives can be tested using a compatibility matrix (refer to Table 3). This assists in highlighting potential conflicts that may emerge between objectives. Where the compatibility relationship between the two objectives is indicated as follows: ✓ Positive, × Potential conflict, ? Uncertain, Neutral.

4.54. Potential conflicts are outlined in Table 4. The level of potential conflict between objectives is considered to be acceptable. Hence overall the Local Plan policies and its components are consistent with the SA objectives.

The Sustainability Appraisal objectives

SA1. Maintain and improve air quality (including noise and dust)

SA2. Maintain and improve water resources and reduce flood risk

SA3. Conserve and enhance biodiversity and geodiversity

SA4. Conserve and enhance the historic environment, heritage assets and their setting

SA5. Promote the distinctiveness and character of landscapes and townscapes

SA6. Conserve natural resources (including soil resources) and encourage the use of secondary and recycled aggregates

SA7. Promote progressive restoration that maximises beneficial outcomes and after-use

SA8. Address climate change and reduce the potential for greenhouse gases (including by promoting opportunities for sustainable development and sustainable / alternative transport options)

SA9. Protect human health and minimise potentially adverse impacts on residential amenity

SA10. Improve access to green infrastructure, recreation facilities and opportunities

SA11. Ensure a steady and adequate supply of minerals to support sustainable economic growth

SA12. Support employment opportunities in urban and rural areas

SA13. Safeguard mineral resources of local and national importance for future generations

SA14. Safeguard committed minerals-related development and associated infrastructure from incompatible forms of development

SA15. Maximise efficient use of existing infrastructure and transport networks

Table 1: Sustainability Appraisal Objectives and Indicators

Objective	Sub-objective	Indicator
Environment		
Maintain and improve air quality (including noise and dust)	Do the policies protect and enhance where possible, air quality?	Operational impact on surrounding environment – air quality
Maintain and improve water resources and reduce flood risk	Do the policies protect water resources and enhance water quality (where possible)? Do the policies help to mitigate	Operational impact on surrounding environment – water quality Flood risk

	the potential effects of flood and reduce the overall flood risk?	
Conserve and enhance biodiversity and geodiversity	Do the policies conserve and enhance the environment where possible? Do the policies allow for the effective restoration and appropriate after-use of sites to enable contribution towards habitat and landscape enhancement?	General overview of the environmental state and land use within Milton Keynes Minerals industry land use coverage within Milton Keynes Restoration and after-use of sites that contribute towards habitat and landscape enhancement Protection of designated conservation land
Conserve and enhance the historic environment, heritage assets and their setting	Do the policies protect and enhance cultural heritage where possible?	Protection of cultural heritage assets
Promote the distinctiveness and character of landscapes and townscapes	Do the policies help improve the distinctiveness of the landscape and townscape character within Milton Keynes and help to minimise adverse impacts to local amenity and overall landscape character?	Restoration that contributes towards the protection and enhancement of landscapes and townscapes
Conserve natural resources (including soil resources) and encourage the use of secondary and recycled aggregates	Do the policies seek to conserve and protect natural resources? (e.g. consumption of secondary / recycled aggregates and sustainable management) Do the policies help to protect agricultural resources including soils and best and most versatile agricultural land? Do the policies help to reduce land contamination?	Minerals resource consumption Waste arisings and management Protection of best and most versatile agricultural lands Soil contamination
Promote progressive restoration that maximises beneficial outcomes and after-use	Do the policies help promote progressive and effective restoration/after use of sites for social, environmental or economic benefit?	Restoration and after use of minerals development sites
Address climate change and reduce the potential for greenhouse gases (including by promoting opportunities for sustainable development and sustainable / alternative transport options)	Do the policies help to reduce greenhouse gas emissions and enhance energy efficiency?	Greenhouse gas emissions Emission reduction techniques
Social		
Protect human health and minimise potentially adverse impacts on residential amenity	Protect human health and minimise potentially adverse impacts on residential amenity	Protect human health and minimise potentially adverse impacts on residential amenity
Improve access to green infrastructure, recreation facilities and opportunities	Improve access to green infrastructure, recreation facilities and opportunities	Improve access to green infrastructure, recreation facilities and opportunities
Economic		
Ensure a steady and adequate supply of minerals to support sustainable economic growth	Do the policies allow for a steady and adequate supply of minerals to support sustainable economic growth in accordance	Supply of minerals

	with national and regional guidelines?	
Support employment opportunities in urban and rural areas	Do the policies support the development and growth of the local economy and generate employment opportunities in urban and rural areas? (e.g. within the mineral development or management industry)	Do the policies encourage innovation, enterprise and competitiveness within the minerals development industry? (e.g. cost effective mineral extraction)
Spatial		
Safeguard mineral resources of local and national importance for future generations	Do the policies provide appropriate land-use planning mechanisms to avoid sterilisation of local and national important mineral resources?	Mineral resources within Milton Keynes and extent of sterilisation Planning mechanisms
Safeguard committed minerals-related development and associated infrastructure from incompatible forms of development	Do the policies provide appropriate land-use planning mechanisms to ensure protection from incompatible forms of development?	Development adjacent to identified mineral resources Planning mechanisms
Maximise efficient use of existing infrastructure and transport networks	Do the policies promote maximised use of the required infrastructure development to meet current and future needs? (e.g. minerals development to support development)	Requirement for, and provision of infrastructure

Table 2: Sustainability Appraisal objectives combatability matrix

SA Objectives	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1															
2	✓														
3	✓	✓													
4	✓	✓	✓												
5	✓		✓	✓											
6	✓	✓	✓	✓	✓										
7	✓	✓	✓	✓	✓	✓									
8	✓	✓	✓	✓	✓	✓	✓								
9	✓	✓			✓		✓	✓							
10		✓	✓	✓	✓	✓	✓	✓	✓						
11			?	?	✓	✓			✓						
12			?	?	?	✓	✓	?		✓	✓				
13			?	✓		✓					✓	✓			
14						✓					✓	✓	✓		
15					✓			✓	✓		✓			✓	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SA Objectives															

Table 3: Compatibility matrix – Sustainability Appraisal Objectives

Local Plan objectives	SA objectives														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	?	?	?	?	?	✓			?		✓	✓	✓	✓	
2				✓	✓	✓					✓	✓	✓	✓	✓
3				✓	✓	✓					✓	✓	✓	✓	
4	✓		✓	✓		✓		✓			✓	✓	✓	✓	
5						✓					✓		✓	✓	✓
6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
7	✓		✓	✓		✓		✓	✓	✓					✓
8	✓	✓	✓	✓	✓		✓	✓	✓	✓	?				
9	✓	✓	✓	✓	✓		✓	✓	✓	✓					
10	✓	✓	✓	✓		✓	✓	✓	✓		?				

Table 4: Summary of matrix results

Matrix code	Comments	Overall consistency
LP1 : SA1-5, 9,10 LP6,7,8,10: SA11	Growth and development will inevitably result in some adverse effects, however extraction processes will be temporary and any adverse effects from this must be mitigated for. Potential for enhancing connectivity of habitats, biodiversity gains, enhancing historic environment / assets, recreational	Overall the Local Plan objectives are consistent with the SA objectives.

	opportunities, improving water catchment and flood management as beneficial outcomes of restoration (long-term). Supply of building stone to support local character / distinctiveness is also a beneficial outcome	

5. The main strategic options

5.1. In conducting SA and SEA, the likely significant effects of implementing the plan and any reasonable alternatives must be appraised. It is normal practice when developing a plan to propose different ways of fulfilling the objectives.

5.2. Options should be reasonable, realistic and relevant. Options need to be significantly distinct to highlight the different sustainability implications of each, in order that meaningful comparisons can be made. The development and appraisal of options is an iterative process, with options revised to account for appraisal of findings and consultation responses. In addition, some alternatives may be dropped from further consideration due to SA findings, compliance with national or regional planning policy, or for operational reasons. This process has been recorded as per Government guidance throughout the SA Environmental Report.

5.3. It is not the purpose of the SA to decide the strategic options to be chosen for the Plan. This is the role of the decision-makers who have to make choices on the Plan to be adopted. The SA simply provides information on the relative sustainability performance of the strategic options considered, and assists in increasing transparency of the decision-making process.

5.4. The identification and development of strategic options is detailed in Table 5.

Table 5: Identification and development of strategic options

Issue	Description	Strategic options developed
Developing the plan's vision and objectives		
1	The draft vision and objectives for the Minerals Local Plan	The MLP requires its own vision and objectives which should reflect local circumstance and set out the desired outcomes for the plan. The vision and objectives will act to inform the development of the plans emerging policies. Consultees were asked whether the draft vision and strategic objectives are appropriate and reflect Milton Keynes' local circumstance or whether there was an alternative option.
Developing a Spatial Strategy		
2a	Identifying a spatial strategy for sand and gravel extraction	Sand and gravel are economically the most important mineral resource in Milton Keynes. The MLP needs to identify how the extraction of such resources should relate to other plans and land uses. Strategic options developed: i. Identifying all sand and gravel resources as per the approach taken in the MLP 2006. ii. Focus on resource areas that are well-related to the main built-up areas of Milton Keynes. iii. Focus on the largest available resources north of the M1.
2b	Identifying a spatial strategy for limestone extraction	Although extraction of limestone takes place on a much smaller scale in Milton Keynes than sand and gravel it may still be beneficial to identify a spatial strategy or policy approach for such development. Strategic options developed: i. Not identifying a specific strategy for the extraction of limestone as per the approach taken in the MLP 2006. ii. Identify all Blisworth Limestone Formation resource areas within Milton Keynes. iii. Develop a strategic policy on where such development should occur rather than a spatial strategy.

Issue	Description	Strategic options developed
Determining the plan period		
3	The plan period	The plan period is the time over which the plan will remain in force upon its adoption. Strategic options developed: i. 15 years from its anticipated adoption (i.e. 2030), or ii. a longer period, for example 20 years (i.e. 2035) to give greater direction to the minerals industry.
Identifying the minerals provision		
4a	Provision of sand and gravel	An annual provision figure for sand and gravel needs to be identified in the plan. The Council has identified a number of potential apportionment / provision figures that could be taken forward as well as local circumstance influencing the provision of sand and gravel in Milton Keynes. Strategic options developed: i. 0.28 Mtpa – the current regionally derived apportionment rate. ii. 0.11 Mtpa – the provision rate based on an average of ten years sales. iii. 0.12 Mtpa – the apportionment rate from the MLP 2006. iv. 0.17 Mtpa – the provision rate based on an average of three years sales.
4b	Provision of limestone, brick clay and secondary and recycled aggregates	There is general support for the provision of building stone and secondary and recycled aggregates as well as brick clay and limestone for aggregate purposes, however it is not considered necessary to identify a specific provision for the supply of these minerals (a continuation of the approach in the MLP 2006). Consultees were asked whether this is an appropriate way forward for Milton Keynes or whether they were aware of an alternative approach that they believed to be more appropriate.
Safeguarding minerals resources		
5a	Resource areas to be safeguarded	Whilst sand and gravel is recognised as being of national importance, limestone could be considered to be of local importance and as such it may be prudent to also safeguard these resources. Strategic options: i. MSAs should include both sand and gravel and limestone from the Blisworth Limestone Formation only. ii. MSAs should include both sand and gravel and limestone from the Blisworth and White Limestone Formations. Consultees were asked which was the preferred strategic option. Consultees were also asked whether they were aware of an alternative approach that they believed to be more appropriate.
5b	Identifying the Mineral Safeguarding and Consultation Areas	National guidance requires the identification of MSAs and MCAs. A methodology was prepared based on the BGS 2011 Mineral Safeguarding in England: A Good Practice Guide. Consultees were asked whether this is considered to be the most appropriate methodology for defining MSA / MCAs within Milton Keynes or whether they were aware of an alternative approach that they believed to be more appropriate.
5c	Safeguarding permitted sites, ancillary development and supporting infrastructure	MCAs can provide an additional measure of safeguarding to permitted sites and associated infrastructure. Consultees were asked whether Milton Keynes MCAs should include associated infrastructure.
5d	Implementing the Mineral Safeguarding and Consultation	In order to ensure effective implementation of MSAs it is proposed to include a criteria based safeguarding policy setting out developer requirements so that it is clear what an application in a MSA should include, how it will be determined and how prior extraction will be encouraged.

Issue	Description	Strategic options developed
	Areas and promoting prior extraction	It should not be necessary for every planning application within a MSA to be subject to consultation. The use of development thresholds and exemption criteria is proposed to ensure that only those applications that may result in sterilisation are subject to consultation. Consultees were asked if they considered the proposed policy direction and thresholds for implementing MSA / MCAs and promoting prior extraction to be the appropriate way forward. Consultees were also asked whether they were aware of an alternative approach that they believed to be more appropriate.
Local planning considerations		
6a	Development criteria for minerals extraction	Development criteria provide a clear indication of what development is considered acceptable and how applications will be decided. A range of factors to be addressed through the development criteria have been identified. Proposed development criteria: • General compliance with the spatial strategy, • Support for the provision of a sufficient supply of minerals and the maintenance of landbanks, • Support for the supply of locally sourced building materials (e.g. building / roofing stone), • Maximising the recovery of particular reserves, • Promoting an appropriate end use of primary aggregate, and • Avoiding sterilisation of resources. Consultees were asked if they considered the factors to be included in the development criterion to be appropriate. Consultees were also asked whether they were aware of an alternative approach that they believed to be more appropriate.
6b	Secondary and recycled aggregates	The use of secondary and recycled aggregates should be encouraged to reduce the need to extract primary resources, as such development criteria should be identified to guide development and inform the decision-making process. A range of factors to be addressed through the development criteria have been identified. Proposed development criteria: • Support the supply of secondary and recycled aggregates, • Maximising recovery of materials, • Promoting on-site recycling and re-use where possible, and • Compliance with the adopted waste policies (where possible) Consultees were asked if they considered the factors to be included in the development criterion to be appropriate. Consultees were also asked whether they were aware of an alternative approach that they believed to be more appropriate.
7	Policies to manage and control development	In order to reduce potentially adverse impacts resulting from minerals-related development it is necessary to include policies to manage and control development. A range of factors to be addressed through the emerging policies have been identified: • Site specific assessments to determine the nature and extent of impacts as well as the presence or importance of assets/resources, • Identification of measures to avoid and /or reduce potential impacts to an acceptable level, • Identification of measures to enhance important assets/feature, and, • Site specific management plans Consultees were asked if they considered the above factors to be addressed through policy to be appropriate. Consultees were also asked whether they were aware of an alternative approach that they believed to be more appropriate.
8	Land use	Buffer distances from mineral development are currently applied

Issue	Description	Strategic options developed
	compatibility	through the MLP 2006. Consultees were asked if buffers should also be applied to non-mineral development applications to avoid encroachment of incompatible development and reduce the potential land use conflict. Consultees were also asked whether they were aware of an alternative approach that they believed to be more appropriate.
9	Amenity	In preparing the MLP there is an opportunity to include more detailed dust and noise guidance than that included within the NPPF. Strategic options: i. will be adequate when applied at a local level to prevent environmental nuisance effects, or ii. should be expanded on by including more detailed guidance in the MLP. Consultees were asked which is the preferred strategic option.
10	Restoration and after-use	The current policy approach is quite detailed and structured; this may restrict innovation by not allowing for other forms of after-use not set out in the policy. Strategic options: i. Include a broader policy relating to restoration and after-care, or ii. Continue with the approach taken in the MLP 2006. Consultees were asked which is the preferred strategic option.
11	Tackling climate change	It is proposed that the plan should address climate change by promoting sustainable transport movements and methods, encouraging the use of secondary and recycled aggregates and ensuring that where possible restoration of sites aims to address factors such as flood risk (through alleviation schemes) and enhancing biodiversity and landscape where appropriate. Strategic options: i. Include a specific policy addressing climate change and the transition to a low carbon future. Are there other elements that should be included within such a policy? Please provide details. ii. Address these elements elsewhere in the plan (i.e. with other related issues such as reducing the impact of development, restoration, etc as appropriate). Consultees were asked which was the preferred strategic option.
Other local planning matters		
12	Other matters to be addressed	A range of other local planning matters to be addressed through the plan have been identified including implementation, monitoring and borrow pits. Consultees were asked if they agreed with the proposed policy direction to be taken forward trough the emerging MLP for these matters.
Allocations for minerals-related development		
13a	Potential sites for minerals-related development	Five sites were identified as potential sites for minerals-related development. Strategic options: *Sand and gravel extraction* i. Site 1: Northampton Road, Lathbury ii. Site 2: Haversham Road, New Bradwell iii. Site 3: Calverton Road, Calverton *Limestone (building stone) extraction* iv. Site 4: Rectory Farm, Lavendon v. Site 5: Woodlands Farm, Weston Underwood Consultees we asked if they considered any of these sites to be appropriate for minerals-related development.
13b	Other potential sites for minerals-related development	Consultees were asked if they considered there to be any further sites other than those which have been put forward that would be suitable for inclusion in the plan for minerals-related development.

Issue	Description	Strategic options developed
13c	Identifying broad areas of search	Where not enough sites are identified to deliver the total provision for the plan period, it is possible that broad areas of search could be identified in the plan that would be designated as preferred areas for mineral extraction. Strategic options: i. Identify a broad area of search, or ii. Rely on the spatial strategy(ies) for mineral extraction and development criteria to provide sufficient guidance and flexibility. If broad areas of search were to be identified should these areas focus on: iii. All sand and gravel and limestone resources within Milton Keynes as per the preferred spatial strategy(ies) (refer Issue 2 a and b). iv. Mineral resources considered to be of current economic viability using a minimum yield threshold (e.g. for sand and gravel this could be 0.50 Mt). v. Mineral resources within previously worked areas in order to maximise recovery of these areas. vi. Mineral resources that are well-related to urban expansion areas (as identified in the adopted Milton Keynes Core Strategy). Consultees were asked which option they consider to be the appropriate way forward.
14	The approach to be taken in site selection	In order to inform the decision-making process a Site Assessment Methodology has been prepared. The assessment framework which plugs into both the SA and plan-making process as it uses base elements from both of these processes. Stage 1 assessments have been completed. Stage 2 assessments will assist in determining the sites to take forward into the draft plan and will involve assessment of the sites against environmental, social and economic criterion. Consultees were asked if they considered the Stage 2 criterion to be appropriate in relation to the site selection process. Consultees were also asked whether they were aware of an alternative approach that they believed to be more appropriate.

Note: No alternative approaches were put forward through the consultation process

Effects of options and consideration of issues in selection of the preferred options

5.5. Sustainability issues (including social, environmental and economic issues) were taken into consideration in choosing the preferred options through the application of the SA Framework in assessing the potential effects of the strategic options. In addition the options were compared with each other and with the current social, environmental and economic characteristics of the area in order to inform the choice of preferred options for the Local Plan.

5.6. The appraisal of strategic options regarding comparison of the social, environmental and economic effects is detailed in Table 6. The potential effect is indicated as follows: ✓ Positive, × Negative, ? Uncertain, Neutral. Potential sustainability effects of the strategic options are expanded on in Table 7.

Table 6: Comparison of the social, environment and economic effects of the strategic options

Issue	Strategic option	SA Objective														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2a	i	?	?	?	?	?				✓		✓	✓			?
	ii	?	?	?	?	?				?		✓	✓			✓
	iii	?	?	?	?	?				✓		✓	✓			×
2b	i	?	?	?	?	?				✓		✓	✓			?
	ii	?	?	?	?	?				✓		✓	✓			?
	iii	?	?	?	?	?				✓		✓	✓			?
3	i											✓				
	ii											✓				
4a	i											?				
	ii											?				
	iii											✓				
	iv											✓				
4b		?	?	?	?	?	✓			?		✓				
5a	i											✓		✓		
	ii											✓		✓		
	iii											✓		✓		
5b												✓		✓		
5c										✓		✓	✓	✓	✓	✓
5d												✓		✓		
6a					✓		✓					✓	✓	✓	✓	✓
6b							✓					✓	✓			✓
7		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	*					✓				✓		✓				✓
9	i	✓								✓						
	ii	✓								✓						
10	i	✓	✓	✓	✓	✓		✓	✓	✓	✓					
	ii	✓	✓	✓		✓		✓		✓						
11	i	✓	✓	✓				✓	✓	✓	✓	?				✓
	ii	✓	✓	✓				✓	✓	✓	✓	?				✓
12		✓	✓	✓	✓		✓	✓	✓	✓		✓		✓	✓	✓
13a	i-v	Refer to Stage 2 Site Assessments														
13b		NA														
13c	i											✓	✓			?
	ii											✓	✓			✓
	iii - v	NA														
14	i	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓

Table 7: Potential sustainability effects of the strategic options

Issue	Strategic option	Comments	Overall contribution towards SA Objectives and sustainable development
1		This option is consistent with the SA objectives. The draft vision targets sustainable development alongside promoting growth within Milton Keynes.	The draft vision establishes the long-term strategic objectives that will assist in establishing a sustainable minerals development plan for Milton Keynes.
2a	i	This option is generally consistent with the SA objectives however it is unclear what effect this will have on air quality, water resources and flood risk, biodiversity and geodiversity, the historic environment and landscapes and townscapes. This option provides	A spatial strategy for development enables development to be targeted to areas where it is most required and will have the least adverse affects. However the approach taken in the 2006 MLP does not provide a clear focus for industry investment.

		the opportunity to utilise existing infrastructure.	
	ii	Potentially reduced impacts on air quality where sites located close to areas of growth and development. This option is generally consistent with the SA objectives however it is unclear what effect this will have on air quality, water resources and flood risk, biodiversity and geodiversity, the historic environment and landscapes and townscapes. This option also drives development towards more populated/developed areas and existing infrastructure networks.	Focussing on areas that are well-related to the built up area of Milton Keynes would enable focus on areas which include previous extraction sites. Approach has sustainability benefits however drives development towards more populated and developed areas and does not include the most economically viable reserves to the north of the M1.
	iii	This option is generally consistent with the SA objectives however it is unclear what effect this will have on air quality, water resources and flood risk, biodiversity and geodiversity, the historic environment and landscapes and townscapes.	Option focuses on most economically viable reserves (north of the M1). Area has not previously been worked. Sustainability benefits include generally focussing development away from urban areas however this would result in implications related to transport and access to the wider market.
2b	i	This option is generally consistent with the SA objectives however it is unclear what effect this will have on air quality, water resources and flood risk, biodiversity and geodiversity, the historic environment and landscapes and townscapes.	A spatial strategy for development enables development to be targeted to areas where it is most required and will have the least adverse affects. The 2006 MLP does not provide a spatial strategy for limestone. This provides flexibility for development but is not the most sustainable option in terms of economic focus.
	ii	This option is generally consistent with the SA objectives however it is unclear what effect this will have on air quality, water resources and flood risk, biodiversity and geodiversity, the historic environment and landscapes and townscapes.	Identifying areas of focus for Blisworth Limestone extraction would provide flexibility and ensure sustainability objectives can be met. However this is not the best option in terms of acquiring the most sustainable focus of investment.
	iii	This option is generally consistent with the SA objectives however it is unclear what effect this will have on air quality, water resources and flood risk, biodiversity and geodiversity, the historic environment and landscapes and townscapes.	Including a strategic policy would assist in providing strategic guidance for sustainable development. This would also allow for development to take place in sustainable locations where and when required. This policy would also support sustainable conservation objectives.
3	i	This option is consistent with the sustainability objectives and supports the sustainable development of and planning for mineral extraction.	This option is consistent with the NPPF and is the minimal possible plan period.
	ii	This option is consistent with the sustainability objectives and supports the sustainable development of and planning for mineral extraction.	This option provides potential for longer-term planning and investment potential enabling more sustainable development.
4a	i	This option is not consistent with the sustainability objectives as it is	0.28Mtpa apportionment figure (the previous draft SE plan proposed

		based on out of date information and is significantly higher than is considered necessary to support future growth.	apportionment) is high in relation to historical extraction rates and current demand levels. This could lead to (a) over-concentration of sites for extraction in the Borough and (b) exporting of minerals outside of the Borough and is therefore an unsustainable option.
	ii	This option is not consistent with the sustainability objectives. An apportionment this low could lead to issues relating to the availability of a continual supply. The data supporting this apportionment is considered not to represent current demand due to very low level sales figure for a number of years.	A 0.11Mtpa apportionment based on the ten year annual sales data would not be in line with NPPF guidance because the three-year average is higher. An apportionment at this level could lead to issues relating to supply and lead to exports from further afield. This is therefore not the most sustainable option.
	iii	This option is generally consistent with the sustainability objectives; however it is considered to be low and so may hinder future supply.	The 0.12Mtpa apportionment (the same as that adopted through the 2006 MLP) would not be in line with NPPF guidance because the three-year average is higher. An apportionment at this level could lead to issues relating to supply and lead to exports from further afield. This is therefore not the most sustainable option.
	iv	This option is generally consistent with the sustainability objectives.	Sales based on a three-year sales rate (the mid point of options) is fully in line with the NPPF. This option offers flexibility whist representing a realistic and sustainable requirement level.
4b		This option is generally consistent with the sustainability objectives. It is however uncertain how the plan-period will affect biodiversity, geodiversity, the historic environment and the landscape and townscape. As with all development there is the potential for affects, although policy requirements should ensure these are short-term.	To ensure that the plan is sustainable it requires an element of flexibility. This option enables the plan to be responsive to proposals that come forward rather than allocating where sites should be.
5a	i	This option is generally consistent with the SA objectives in that it supports sustainability principles and mineral extraction.	Limited to sand and gravel reserves and presents opportunity for reserves of other types to be sterilised.
	ii	This option is generally consistent with the SA objectives in that it supports sustainability principles and mineral extraction.	Limited to sand and gravel and Blisworth reserves and presents opportunity for reserves of other types to be sterilised.
	iii	This option is generally consistent with the SA objectives in that it supports sustainability principles and mineral extraction.	Option is the most sustainable in terms of safeguarding areas identified as it supports the potential for mineral extraction as it recognises the needs of future generations may be different to current needs.
5b		This option is generally consistent with the SA objectives however there is the potential for safeguarding areas could conflict with the increased provision of green infrastructure, recreation facilities and opportunities.	This option provides the opportunity for mineral development to be protected from conflicting land-uses and sterilisation ensuring continued sustainable development.

5c		This option is generally consistent with the SA objectives however there is the potential for safeguarding areas could conflict with the increased provision of green infrastructure, recreation facilities and opportunities.	This option provides the opportunity for mineral development and associated infrastructure to be increasingly protected from conflicting land-uses and sterilisation ensuring continued sustainable development.
5d		This option is generally consistent with the SA objectives however there is the potential for safeguarding areas could conflict with the increased provision of green infrastructure, recreation facilities and opportunities.	This option provides the opportunity for mineral development and associated infrastructure to be increasingly protected from conflicting land-uses and sterilisation ensuring continued sustainable development.
6a		This option is generally consistent with the SA objectives however there is the potential for conflict in relation to biodiversity, geodiversity and the historic environment. As with all development there is the potential for affects, although policy requirements should ensure these are short-term.	The option to include development criteria within policy provides the opportunity to ensure that development moves forward and mineral extraction is not solely confined to the allocated sites. Should this be the case, there is the potential for the plan to fail to deliver the provision rate and contribute towards the SA objectives.
6b		This option is generally consistent with the SA objectives however there is the potential for conflict in relation to biodiversity, geodiversity and the historic environment. As with all development there is the potential for affects, although policy requirements should ensure these are short-term.	This option promotes the use of secondary and recycled aggregates. This option promotes sustainable development and the SA objectives through the reducing the need for aggregate extraction.
7		This option is consistent with the SA objectives.	Development control polices will ensure that the risk of any adverse affects are reduced and that the design of development is sustainable.
8		This option is generally consistent with the SA objectives.	This option provides the opportunity for mineral development to be protected from conflicting land-uses and sterilisation ensuring continued sustainable development.
9	i	This option is generally consistent with the SA objectives	This option will ensure that unavoidable noise, dust and particle emissions and vibrations are controlled mitigated or removed at source, and that appropriate noise limits are enforced where extraction will take place within proximity to noise sensitive properties.
	ii	This option is generally consistent with the SA objectives	This option will enable more detailed guidance in relation to the potential issues indicated above ensuring greater protection from any adverse effects and provide further information to industry. This has a higher level of contribution towards the SA objectives overall.
10	i	This option is generally consistent with the SA objectives	This option provides detailed requirements for restoration schemes and after-uses. Potential for targeting SA objectives is reduced.
	ii	This option is generally consistent with the SA objectives	This option provides less prescriptive requirements and offers a broader

			approach to restoration and after-use. Potential for higher sustainability outcomes.
11	i	This option is generally consistent with the SA objectives	This option provides the opportunity to provide detail specific requirements in relation to climate change including a transition to a low carbon future and opportunities to mitigate the effects. A specific policy would provide detailed requirements and assist industry. This has the potential for a higher sustainability outcome.
	ii	This option is generally consistent with the SA objectives	This option would provide the required detail but would not be clearly set out within one policy. Potential for targeting SA objectives is reduced.
12		This option is generally consistent with the SA objectives	This option provides further opportunity for achieving a higher sustainability outcome through detailed implementation and monitoring requirements and providing potential for a reduction of mineral transportation by siting extraction closer to development where possible.
13a	i-iv	Site assessments were undertaken using criteria based on SA objectives, see 13a v.	
	v	Site-specific impacts have been assessed through the site assessment methodology, criteria which are based on the SA framework. The identification of site specific allocations is generally consistent with the SA objectives however as with all development potential conflict has been indicated in relation to biodiversity, geodiversity, the historic environment, the character of landscapes and townscapes and human health and residential amenity. Any adverse effects should however be temporary and presents opportunity for improvements overall in the long-term. Individually the sites would have a varying degree of impact dependent on nature and scale of operations and that of the receiving / surrounding environment.	The identification of appropriate site-specific allocations would contribute to SA objectives and offer sustainable development opportunities.
13b		Site-specific impacts for any site brought forward through the issues and options stage have been assessed through the site assessment methodology and criteria, which are based on the SA framework. The identification of site-specific allocations is generally consistent with the SA objectives.	The identification of appropriate site-specific allocations would contribute to SA objectives and offer sustainable development opportunities.
13c	i	Generally consistent with the SA objectives and would support the	Identifying all mineral resources within Milton Keynes provides for the greatest

		provision of aggregates.	flexibility but does not provide guidance for investment or linkages to other forms of development / growth patterns.
	ii	Generally consistent with the SA objectives and would support the provision of aggregates and is likely to align more closely with growth areas and infrastructure networks.	Offers the most sustainable option in relation to mineral extraction and economic viability.
14	i	The site assessment methodology, criteria is based on the SA framework hence it is consistent with the SA objectives.	Stage 2 assessment criterion includes social, economic and environmental factors ensuring SA objectives are met.

5.7. In considering the range of options, the capacity for contribution towards the SA objectives and sustainable development, locally specific requirements and the feasibility of the option were taken into consideration. In some instances where consultation responses or emerging local issues have identified alternatives which value-add, options have been amended or 'blended' with other options to ensure the plan addresses sustainability issues at an appropriate level and maximises positive effects.

5.8. Table 8 indicates which options overall were considered to have a satisfactory capacity for contribution towards the SA objectives and sustainable development, and as such would form the most preferred option.

Table 8: Preferred policy approach

Strategic option	Preferred policy approach
1	The vision and objectives outlined in the issues and options consultation paper have largely been carried through to the Draft Plan unaltered with the exception of objectives 6 and 7 which were amended to more closely align with the NPPF.
2a	The preferred approach is a blend of the outlined options. It includes all of the resource areas identified in the latest BGS study for sand and gravel resources (BGS 2010 Sand and gravel resources of Milton Keynes Borough) but applies a hierarchy of preferred areas with (roughly) those areas in option ii forming the primary focus areas and those within option iii forming the secondary focus areas. In this manner the plan seeks to provide for flexibility and a focus for industry investment. *Draft plan policy* Policy 2: The spatial strategy for sand and gravel extraction
2b	The preferred approach is a blend of the outlined options. The plan does not identify a specific spatial strategy, however it sets out a preference for the extraction of limestone from the White Limestone formation and secondly from the Blisworth Limestone formation and identifies development principles for mineral extraction in order to provide guidance for industry. *Draft plan policy* Policy 5: Development principles for mineral extraction
3	The preferred approach is for a plan period up to the end of 2032. This will be 20 years from the commencement of the plan period. This approach meets national requirements and is a mid-point between the two options.
4a	The preferred approach is for an annual provision rate of 0.17Mtpa (the provision rate based on an average of three years sales), option iv. This option is in line with the NPPF, reflects recent sales trends and provides a mid-point between the highest and lowest of the rates identified. This is an average provision figure and no ceiling limit is placed on extraction where it can be demonstrated to be required to meet MK (and wider) needs. *Draft plan policy* Policy 1: Providing for sand and gravel
4b	The preferred approach is as stated in the issues and options consultation paper. The plan identifies development principles for mineral extraction in order to provide guidance for industry.

	Draft plan policy Policy 5: Development principles for mineral extraction
5a	The preferred approach is to include both sand and gravel and limestone from the Blisworth and White Limestone Formations within the MSAs (option iii) as this ensures that minerals of current and potentially future value are safeguarded for future generations. This approach is in line with the NPPF. *Draft plan policy* Policy 18: Mineral Safeguarding and Consultation Areas
5b	The preferred approach is as stated in the issues and options consultation paper (i.e. MSAs have been created based on BGS guidance). Policy regarding prior extraction has been developed in line with the NPPF. *Draft plan policy* Policy 18: Mineral Safeguarding and Consultation Areas
5c	The preferred approach is to safeguard permitted sites and associated infrastructure through a stand-alone policy and apply consultation buffers to these separately to the MCAs as this will allow for more efficient administration (i.e. data maintenance) in comparison to amending the MCAs. *Draft plan policy* Policy 19: Safeguarding of minerals-related development and associated infrastructure
5d	The preferred approach is as stated in the issues and options consultation paper. Policy regarding prior extraction has been developed in line with the NPPF and includes development thresholds and exemption criteria. *Draft plan policy* Policy 18: Mineral Safeguarding and Consultation Areas
6a	The preferred approach is as stated in the issues and options consultation paper. Development criterion is identified throughout the draft plan. *Draft plan policy* Policy 5: Development principles for mineral extraction
6b	The preferred approach is as stated in the issues and options consultation paper. Development relating to secondary and recycled aggregates is encouraged and preferred locations to accommodate such development are identified. *Draft plan policy* Policy 7: Development principles for facilities for secondary and recycled aggregates
7	The preferred approach is to address the development control factors that were identified through the issues and options consultation paper through a range of policies. *Draft plan policy* Policy 5: Development principles for mineral extraction Policy 9: Natural assets and resources Policy 10: Historic environment and heritage assets Policy 11: Landscape and townscape character Policy 12: General amenity Policy 13: Sustainable transport Policy 14: Site design and layout Policy 19: Safeguarding of minerals-related development and associated infrastructure
8	The preferred approach is to apply separation areas to minerals development to trigger consultation on proposals for non-minerals development in order to give consideration to mineral interests early in the decision-making process and avoid encroachment of incompatible development and reduce the potential land use conflict. *Draft plan policy* Policy 19: Safeguarding of minerals-related development and associated infrastructure
9	The preferred approach is to not expand on guidance set through the NPPF regarding dust and noise; however the plan includes a general policy addressing amenity impacts. *Draft plan policy* Policy 12: General amenity
10	The preferred approach is to broaden the local policy relating to restoration and after-care in order to maximise the potential opportunities and outcomes. *Draft plan policy* Policy 16: Restoration and after-use
11	The preferred approach is to include a specific policy addressing climate change (option i).

	Draft plan policy Policy 15: Addressing climate change
12	*Implementation* The preferred approach is to include a specific policy relating to general administration and implementation requirements in the MLP setting out what the overall requirements are for a planning application and what planning conditions are likely to entail; this will increase clarity of the decision-making process for industry and other stakeholders (such as the community) alike. *Draft plan policy* Policy 17: Implementation *Monitoring* The preferred approach relating to monitoring is as per the issues and options consultation paper. The approach is also to include requirements for monitoring in the implementation policy and to outline the monitoring requirements of the plan through a separate section including a monitoring framework, with results reported on an annual basis in a monitoring report. *Draft plan policy / relevant section* Policy 17: Implementation Section 7: Monitoring Minerals Local Plan monitoring framework *Borrow pits* The preferred approach relating to borrow pits is to continue the approach taken in the MLP 2006, proposals for other windfall sites such as agricultural reservoirs will be determined against development principles for mineral extraction. *Draft plan policy* Policy 6: Borrow pits
13a	The following sites have been taken forward as proposed allocations in the Draft Plan: Sand and gravel - Calverton/Passenham Extension, Quarry Hall Farm, Northampton Road Lathbury and Manor Farm and Lavendon Mill; and Limestone (building stone purposes) - Weston Underwood. *Draft plan policy* Policy 3: Site-specific allocations for the extraction of sand and gravel Policy 4: Site-specific allocations for the extraction of building stone
13b	See 13a
13c	The preferred approach is to not include broad areas of search, this would not add value to the plan as the spatial strategy for sand and gravel and development strategy for limestone, coupled with development criteria, is considered to provide adequate focus and guidance.
14	The preferred approach in relation to site selection is as set out in the issues and options consultation document, however the methodology has been amended to move the detailed assessments (where required) to be undertaken alongside preparation of the final plan as this was considered to be more reflective of the plan-preparation process/stages. Refer to the Site Assessment Methodology for further detail.

5.9. All other options identified as having a lower capacity for contribution towards the SA objectives and sustainable development were dropped from further consideration and assessment.

5.10. Options 1, 3, 13b, 13c, and 14, whilst informed the development of the Local Plan, did not result in the development of specifically related policy and therefore do not require further assessment.

Proposed mitigation measures

5.11. Overall, the objectives of the Local Plan are in compliance with the SA Framework and contribute towards sustainable development. However, in order to ensure consistent implementation and effective county-wide application of the Local Plan, practical implementation measures were developed to ensure integration with the planning application process and existing administrative processes. Planning measures and

tools developed to assist in the implementation of the Local Plan objectives are outlined in Table 9.

5.12. The effects of implementation of the Local Plan will be monitored through the Development Plan Monitoring Report, and a review will be undertaken where necessary. Additionally, the Local Plan will be reviewed and updated on a regular basis alongside a review of the policies to which it relates.

Table 9: Proposed mitigation measures

Implementation Measures	Planning tool (reporting requirements and guidance)
Developing the plan's vision and objectives	
The draft vision and objectives for the Minerals Local Plan	
• The Plan includes long-term strategic objectives which will assist in establishing a sustainable minerals development plan for Milton Keynes	• The vision and objectives are taken forward through the policies (which are monitored and reported on), development must be in accordance with the vision and objectives.
Developing a Spatial Strategy	
Identifying a spatial strategy for sand and gravel extraction	
• Set out a broad strategy for mineral extraction and provides guidance on how development should other plans, strategies, land-use patterns, geographical constraints and infrastructure networks.	• Development must be in accordance with the Spatial Strategy
Identifying a spatial strategy for limestone extraction	
• Establish a broad strategy for mineral extraction and provide guidance on how development should other plans, strategies, land-use patterns, geographical constraints and infrastructure networks.	• Development must be in accordance with the Spatial Strategy
Identifying the minerals provision	
Provision of sand and gravel	
• Identification of the annual provision requirements in the Plan.	• Annual sales and landbanks will be used to monitor aggregate apportionments; this will be reported through the Local Aggregates Assessment and Development Plan Monitoring Report. • Identification of allocated sites to facilitate delivery of the annual provision. • Proposals are to demonstrate compliance with the Local Plan.
Provision of limestone, brick clay and secondary and recycled aggregates	
• Identification of the annual provision requirements in the Plan.	• Annual sales and landbanks will be used to monitor aggregate apportionments; this will be reported through the Local Aggregates Assessment and Development Plan Monitoring Report. • Proposals are to demonstrate compliance with the Local Plan.
Safeguarding mineral resources	
Resource areas to be safeguarded and Mineral Safeguarding and Consultation Areas	
• Development of a locally specific methodology to identify mineral safeguarding areas within Milton Keynes and development of a policy to ensure that development does not cause significant sterilisation of mineral resources and encourage prior extraction where possible. • Proposals for development of a specific type	• Identification of mineral resource areas to be safeguarded • Reporting requirements (to accompany the planning application) regarding potential for sterilisation of mineral resources • Proposals are to demonstrate compliance with other elements of the Milton Keynes Development Plan

Implementation Measures	Planning tool (reporting requirements and guidance)
and scale will be required to consult with Milton Keynes Council to determine the potential for sterilisation. • Planning application requirements.	• Monitoring provisions
Safeguarding permitted sites, ancillary development and supporting infrastructure	
• Proposals for development of a specific type and scale will be required to consult with Milton Keynes Council to determine the potential for adverse effects from conflicting landuse.	• Reporting requirements (to accompany the planning application) regarding potential for sterilisation of mineral resources • Monitoring provisions
Local planning considerations	
Development criteria for minerals extraction	
• Development of general minerals development criteria policy to assist in identifying the needs for development and inform the decision making process. •	• Proposals are to demonstrate compliance with the development criteria. • Monitoring and enforcement provisions.
Secondary and recycled aggregates	
• Planning application requirements	• Reporting requirements (to accompany the planning application) regarding practical measures taken to increase the use of recycled aggregates. • Monitoring and enforcement provisions • Industry guidance is available from Waste Recycling Action Program
Policies to manage and control development	
• Development of general minerals development criteria to assist in identifying the need for development and inform the decision making process.	• Proposals are to demonstrate compliance with the development criteria • Monitoring and enforcement provisions.
Land use compatibility	
• Proposals for development of a specific type and scale will be required to consult with Milton Keynes Council to determine the potential for adverse effects from conflicting landuse.	• Identification of buffer zones to ensure land-use compatability • Reporting requirements (to accompany the planning application) regarding potential for landuse conflict • Monitoring and enforcement provisions
Amenity	
• Development of policy addressing general amenity to assist in identifying requirements of development and inform the decision making process.	• Proposals are to demonstrate compliance with the development criteria
Restoration and after-use	
• Development of a policy which supports a wider scope of potential restoration outcomes including after-use being determined by local circumstance where appropriate in order to maximise opportunities and ensure a beneficial outcome.	• Identification of potential restoration outcomes and after-uses considered appropriate within Milton Keynes • Proposals are to demonstrate compliance with other elements of the Milton Keynes Development Plan • Restoration Scheme (additional reporting requirements) • Planning application requirements • Monitoring and enforcement provisions
Tackling climate change	
• Development of a policy that addresses climate change and the way that minerals development can reduce or mitigate effects	• Proposals are to demonstrate compliance with the development criteria

Implementation Measures	Planning tool (reporting requirements and guidance)
Other Local planning matters	
Other matters to be addressed	
• Detailed policies relating to implementation and montioring	• Planning application requirements • Monitoring and enforcement provisions • Proposals are to demonstrate compliance with the development criteria
Allocations for minerals-related development	
Potential sites for minerals-related development	
• The identification of preferred sites is to include consideration of balancing the need for sites with the capacity of the area to accommodate the development. • The overall contribution towards SA objectives and sustainable development for potential sites has been assessed using the Site Assessment Methodology developed using the SA Framework.	• Identification of allocated sites in line with balancing need with capacity. • Site Assessment Methodology.
The approach to be taken in site selection	
• Process related to site assessment must follow methodolodgy and be carried out along side preparation of final plan to reflect the plan preparation process/stages.	• Sites must meet assessment requirements as set out in site assessment methodology

6. The Local Plan policies

Developing the policy direction

6.1. Consultation responses, local sustainability issues and the assessment of strategic options were taken into consideration in the development of the preferred options and the resultant policy direction. The relationship between the emerging policy direction and preferred options is summarised in Table 10 with the proposed policies outlined below (issues 1, 3, 13c and 14 have not been included as they did not result in the development of a specific policy.

Table 10: Identifying the preferred option and resultant policy direction

Issue and preferred option	Policy direction
2a. Identifying a spatial strategy for sand and gravel extraction *Preferred option* A blend of the outlined options including all of the resource areas identified in the latest BGS study for sand and gravel but applies a hierarchy of preferred areas with those areas in option ii forming the primary focus areas and those within option iii forming the secondary focus areas	*Draft plan policy* Policy 2: The spatial strategy for sand and gravel extraction
2b. Identifying a spatial strategy for limestone extraction *Preferred option* A blend of the outlined options. The plan does not identify a specific spatial strategy, however it sets out a preference for the extraction of limestone from the White Limestone formation and secondly from the Blisworth Limestone formation and identifies development principles for mineral extraction in order to provide guidance for industry.	*Draft plan policy* Policy 5: Development principles for mineral extraction
4a. Provision of sand and gravel *Preferred option* Option iv - An annual provision rate of 0.17Mtpa (based on an average of three years sales).	*Draft plan policy* Policy 1: Providing for sand and gravel
4b. Provision of limestone, brick clay and secondary and	*Draft plan policy*

recycled aggregates *Preferred option* As stated in the issues and options consultation paper, the plan identifies development principles for mineral extraction in order to provide guidance for industry.	Policy 5: Development principles for mineral extraction
5a. Resource areas to be safeguarded *Preferred option* Option iii - Inclusion of both sand and gravel and limestone from the Blisworth and White Limestone Formations within the MSAs	*Draft plan policy* Policy 18: Mineral Safeguarding and Consultation Areas
5b. Identifying the Mineral Safeguarding and Consultation Areas *Preferred option* As stated in the issues and options consultation paper i.e. MSAs have been created based on BGS guidance.	*Draft plan policy* Policy 18: Mineral Safeguarding and Consultation Areas
5c. Safeguarding permitted sites, ancillary development and supporting infrastructure *Preferred option* To safeguard permitted sites and associated infrastructure through a stand-alone policy and apply consultation buffers to these separately to the MCAs.	*Draft plan policy* Policy 19: Safeguarding of minerals-related development and associated infrastructure
5d. Implementing the Mineral Safeguarding and Consultation Areas and promoting prior extraction *Preferred option* As stated in the issues and options consultation paper i.e. policy regarding prior extraction that includes development thresholds and exemption criteria.	*Draft plan policy* Policy 18: Mineral Safeguarding and Consultation Areas
6a. Development criteria for minerals extraction *Preferred option* As stated in the issues and options consultation paper i.e. development criterion as identified throughout the draft plan.	*Draft plan policy* Policy 5: Development principles for mineral extraction
6b. Secondary and recycled aggregates *Preferred option* As stated in the issues and options consultation paper i.e. development relating to secondary and recycled aggregates is encouraged and preferred locations to accommodate such development are identified.	*Draft plan policy* Policy 7: Development principles for facilities for secondary and recycled aggregates
7. Policies to manage and control development *Preferred option* Address development control factors identified through the issues and options consultation paper through a range of policies.	*Draft plan policy* Policy 5: Development principles for mineral extraction Policy 9: Natural assets and resources Policy 10: Historic environment and heritage assets Policy 11: Landscape and townscape character Policy 12: General amenity Policy 13: Sustainable transport Policy 14: Site design and layout Policy 19: Safeguarding of minerals-related development and associated infrastructure
8. Land use compatibility *Preferred option* Application of separation areas to minerals development to trigger consultation on proposals for non-minerals development	*Draft plan policy* Policy 19: Safeguarding of minerals-related development and associated infrastructure
9. Amenity *Preferred option* Not expand on guidance set through the NPPF regarding dust and noise, however the plan includes a general policy addressing amenity impacts.	*Draft plan policy* Policy 12: General amenity
10. Restoration and after-use	*Draft plan policy*

Preferred option Broaden the local policy relating to restoration and after-care in order to maximise the potential opportunities and outcomes.	Policy 16: Restoration and after-use
11. Tackling climate change *Preferred option* Option i – Include a specific policy addressing climate change.	*Draft plan policy* Policy 15: Addressing climate change
12. Other matters to be addressed *Preferred option* *Implementation* - Inclusion of a specific policy relating to general administration and implementation requirements in the MLP setting out what the overall requirements are for a planning application and what planning conditions are likely to entail. *Monitoring* - as per the issues and options consultation paper. The approach is also to include requirements for monitoring in the implementation policy and to outline the monitoring requirements of the plan through a separate section including a monitoring framework, with results reported on an annual basis in a monitoring report. *Borrow pits* - continue the approach taken in the MLP 2006, proposals for other windfall sites such as agricultural reservoirs will be determined against development principles for mineral extraction.	*Draft plan policy* Policy 17: Implementation *Draft plan policy / relevant section* Policy 17: Implementation Section 7: Monitoring Minerals Local Plan monitoring framework *Draft plan policy* Policy 6: Borrow pits
13a. Potential sites for minerals-related development *Preferred option* The following sites have been taken forward as proposed allocations in the Draft Plan: Sand and gravel - Calverton/Passenham Extension, Quarry Hall Farm, Northampton Road Lathbury and Manor Farm and Lavendon Mill; and Limestone (building stone purposes) - Weston Underwood.	*Draft plan policy* Policy 3: Site-specific allocations for the extraction of sand and gravel Policy 4: Site-specific allocations for the extraction of building stone
13b. Other potential sites for minerals-related development *Preferred option* See 13a	See 13a

The proposed policies

Policy 1: Providing for sand and gravel

Sand and gravel resources are recognised as being of national importance. In order to ensure a steady and adequate supply of sand and gravel the plan will seek to secure provision of 0.17 million tonnes per annum. This will be delivered through existing commitments and new sites (including allocated and unallocated sites where in compliance with relevant local plan policies). The plan will seek to maintain a landbank of at least seven years for sand and gravel.

Policy 2: The spatial strategy for sand and gravel extraction

Primary focus

The preferred areas for extraction of sand and gravel resources within Milton Keynes are the river deposits located:

within the River Great Ouse south of Manor Farm Wolverton,

River Great Ouse between Manor Farm Wolverton and the M1,

River Ouzel south of Newport Pagnell, and

River Great Ouse south of Tyringham / Sherington.

Secondary focus

Extraction from the river deposits of the River Great Ouse north of Tyringham / Sherington and the River Tove would also be supported if it can be demonstrated that the site would have reduced impacts (compared to sites in the primary focus areas) and prevent cumulative impacts elsewhere.

Policy 3: Site-specific allocations for the extraction of sand and gravel

Proposals for the extraction of sand and gravel at the following sites will be permitted in accordance with other relevant local plan policies:

Primary - River Great Ouse south of Manor Farm Wolverton

A1: Calverton/Passenham Extension (approx. yield 0.25Mt)

Primary - River Great Ouse south of Tyringham / Sherington

A2: Quarry Hall Farm (approx. yield 0.72Mt)*

A3: Northampton Road, Lathbury (approx. yield 0.65Mt)*

Secondary - River Great Ouse north of Tyringham / Sherington

A4: Manor Farm and Lavendon Mill (approx. yield 0.46Mt)

** Extraction of mineral from Quarry Hall Farm and Northampton Road, Lathbury must be phased to ensure that the two are not operational at the same time.*

Policy 4: Site-specific allocations for the extraction of building stone

Proposals for the extraction of building stone at the following site will be permitted in accordance with other relevant local plan policies:

A5: Weston Underwood (yield unknown)

Policy 5: Development principles for mineral extraction

Proposals for the extraction of minerals will be permitted where it can be demonstrated that the development complies with relevant local plan policies, maximises recovery of the reserve, minimises waste, promotes the best end- use of materials, ensures land stability, avoids and/or mitigates potentially adverse impacts (including cumulative impacts) to acceptable levels and is environmentally feasible.

Proposals for the extraction of building or roofing stone should also demonstrate how the proposal supports conservation of historic building and structures, conservation areas or local distinctiveness and that this is the main purpose of the proposal.

Preference will be given to proposals for the extraction of minerals at the site- specific allocations identified in Policy 3 and 4.

Proposals for the extraction of minerals at unallocated sites will need to demonstrate that the need cannot be met from existing commitments or allocations, unless: (i) the proposal is for the prior extraction of mineral resources within a Mineral Safeguarding Area in order to avoid needlessly sterilising mineral resources of local and national importance; (ii) extraction of the mineral can be clearly demonstrated to be ancillary to the proposed development (e.g. agricultural reservoirs); or (iii) allocated sites are not coming forward and being implemented or that average sales figures indicate an increase in need for extraction that cannot be met from allocated sites.

Policy 6: Borrow pits

Proposals for borrow pits will be permitted where it can be demonstrated that:

- Extraction of mineral from the borrow pit constitutes the most appropriate supply option with reference to the type and quality of the mineral and proximity to other mineral extraction sites.
- The estimated size of the resource, and proposed extractive operations, is commensurate to the estimated needs of the project.
- It is within close proximity to the associated construction or engineering works that it is intended to supply, and minimises the use of public highways in transporting the mineral.
- The proposal promotes the best end-use of materials, minimises waste, avoids and/or mitigates potentially adverse impacts to acceptable levels and is environmentally feasible.
- The site will be progressively restoration to an acceptable condition and completed as soon as possible following cessation of the associated construction or engineering works.
- Where possible inert waste arising from the associated construction or engineering works should be used in restoration of the borrow pit.

Policy 7: Development principles for facilities for secondary and recycled aggregates

Proposals for facilities for secondary and recycled aggregates will be permitted where it can be demonstrated that the development complies with relevant local plan policies and avoids and/or mitigates potentially adverse impacts to acceptable levels.

- Preference will be given towards sites at the following locations:
- mineral processing plants,
- onsite as an ancillary activity to construction or demolition projects, waste management facilities and at existing industrial sites or
- on land that is permitted or allocated for general industrial development.

Policy 8: Development principles for other forms of minerals-related development

Proposals for the storage, handling, processing and transport of minerals will be permitted where it can be demonstrated that the development complies with relevant local plan policies and avoids and/or mitigates potentially adverse impacts to acceptable levels.

Policy 9: Natural assets and resources

Minerals related development should contribute to and enhance natural assets and resources, including a net gain in biodiversity. This is achievable through:

- Protecting environmental designated sites of national and international importance,
- Enhancing the natural environment and recognise wider ecological networks, particularly regarding local environmental designations, and
- Contributing towards the Buckinghamshire and Milton Keynes Biodiversity Action Plan targets.

Proposals for minerals-related development must include an assessment of natural assets and resources, the purpose of which is to:

- Identify natural assets and resources that may be affected by the proposed development,
- Determine the nature, extent and level of their importance,

- Assess the level of any potential impacts, and
- Identify measures to be implemented to avoid, reduce and manage any potentially adverse impacts.

Policy 10: Historic environment and heritage assets

Minerals-related development should conserve and enhance the historic environment and heritage assets of Milton Keynes in a manner appropriate to their significance. This should be achieved through:

- Careful management of the historic environment and heritage assets, including their setting,
- Enhancement of special and unique features within the historic environment through appropriate restoration,
- Undertaking of necessary desktop assessment and / or field investigations where the proposed minerals-related development involves heritage assets or the setting of an asset (including archaeological interests),
- Identifying the nature of the relevant heritage asset(s), the extent and level of their significance, any contribution made by their setting and the level of any potential impacts on assets or their setting,
- Avoiding and / or mitigating potentially adverse impacts, and
- Identifying a programme of works to be carried out once permission has been granted, including the outlining of any mitigation measures and long- term monitoring.

Policy 11: Landscape and townscape character

Minerals-related development should aim to retain and enhance the landscape and townscape character of Milton Keynes. Any potential adverse impacts on landscape or townscape character should be avoided and / or mitigated throughout the operational life of the facility, including restoration, aftercare and after-use.

Proposals for minerals-related development should undertake a landscape character assessment. This must:

- Assess the condition and value of the immediate and wider landscapes,
- Assess the nature, extent and level of importance of the landscape and determine the extent of any potential impacts,
- Include any necessary measures to avoid and / or mitigate potential adverse impacts,
- Identify opportunities to protect and enhance particular features present within the immediate or wider area that create a specific aspect of the character and contribute towards the distinctiveness of the location, and
- Address any townscape impacts as appropriate.

Policy 12: General amenity

Proposals for minerals-related development must ensure that potentially adverse impacts on quality of life and amenity (compatibility of land use, dust, noise, vibration, light pollution etc) are avoided and / or reduced to acceptable levels.

Site-specific assessments may be required to determine existing / ambient levels, identify potential impacts and appropriate avoidance and / or mitigation measures to be implemented. Where applicable a site management plan should be developed to ensure implementation and maintenance of mitigation measures throughout operations.

Policy 13: Sustainable transport

Minerals-related development should, where possible, be well placed to serve their intended market and seek to reduce transport distances and minimise movements. The use of alternative transport modes such as rail, water, pipeline or conveyor is encouraged where possible.

A sustainable transport statement must accompany any planning application for new minerals-related development or that which will result in a significant increase in transport movements. The purpose of which is to demonstrate that consideration has been given to alternative methods of transport, identify safe and suitable access to the site and identify potential impacts resulting from transport and appropriate management and / or mitigation measures to address these including any necessary improvements.

Policy 14: Site design and layout

The layout and design of minerals-related developments need to demonstrate that the development:

- Makes a positive contribution to the character of the area and local identity,
- Increases safety and security of the site,
- Includes elements of visual interest, and
- Assist in avoiding and / or mitigating potentially adverse impacts on the surrounding area.

Policy 15: Addressing climate change

In order to address climate change and contribute towards the transition to a low carbon future, proposals for minerals-related development must consider the following measures (as appropriate):

- Sustainable transport movements,
- Restoration schemes incorporating flood management measures particularly where these also provide priority habitats,
- Environmental / landscape enhancement including specialist planting such as drought resistant species, and
- Use of efficient and well maintained operational plant.

Policy 16: Restoration and after-use

All temporary minerals-related development must include a restoration scheme which will result in the site being progressively restored to an acceptable condition and stable landform as soon as is practicable.

The after-use of a site will be determined in relation to the land-use context, surrounding environmental character and the requirements of the local community. Schemes must include objectives that will result in:

- biodiversity gains,
- enhancement of the local environment and amenity, and
- benefits for the local community and/or economy.

Where relevant the restoration of the site must meet the following requirements:

- Sites that are to be restored to the previous land-use must include a secondary after-use that includes environmental enhancement.

- Where specific and favourable conditions occur and when adjacent to identified habitat, precedence must be given to environmental enhancement objectives, the creation of BAP habitat, ecological networks, promotion of geodiversity and enhancement of the historic environment.
- Sites located within river corridors should address flood management and support River Basin Management Plan actions.
- The restoration of sites for economic development purposes will be supported where fully in accordance with relevant planning policy and a secondary after-use is included within the restored function.

Policy 17: Implementation

Mechanisms that may be enacted (as appropriate) to facilitate the control and implementation of minerals-related development include:

- Planning conditions.
- Planning obligations.
- Establishment of Local Liaison Groups.
- Monitoring of permitted sites by the Minerals Planning Authority to make ensure that conditions and obligations are being met.
- Monitoring of the permitted development including a requirement for the site operator to record the extracted minerals and sales figures and provide details to the Minerals Planning Authority when required.
- Serving of prohibition orders when the site has not been worked for a two-year period or where working is unlikely to resume.

Policy 18: Mineral Safeguarding and Consultation Areas

Mineral resources of local and national importance within Milton Keynes include sand and gravel and the White and Blisworth Limestone formations. These resources will be safeguarded from unnecessary sterilisation by other development through the designation of Mineral Safeguarding Areas.

Planning permission will not be granted for non-mineral development that would lead to the unnecessary sterilisation of mineral resources within a Minerals Safeguarding Area unless it can be demonstrated that:

- the mineral concerned is not of economic value or evidence confirms the absence of mineral resources, the proposed development is temporary or of a nature that would not sterilise the mineral resource or hinder future extraction,
- the proposed development is temporary and would not sterilise the mineral resource or hinder future extraction,
- prior extraction can occur where practicable and environmentally feasible and within a reasonable timescale,
- there is an over-riding need for the development, or
- the development is exempt.

In determining whether prior extraction is feasible an assessment of the mineral resource including detailed site investigations should be undertaken to identify the quality, quantity and extent of the resource, the economic viability of prior extraction and the proportion of the mineral to be used on-site and saleable aggregate. The assessment should also take account of the size, nature and need for the (non-minerals) development as well as the proposed phasing of operations and construction of the non-mineral development.

In the event that the non-mineral development is delayed or not implemented the site must be restored to a stable landform and appropriate after-use.

Policy 19: Safeguarding of minerals-related development and associated infrastructure

Proposals for non-minerals development adjacent or in close proximity to committed or allocated minerals sites, associated infrastructure and other forms of minerals-related development, should only be permitted where it can be shown that the proposed development will not impact on the current or future operations of the minerals-related development and will not result in unacceptable adverse impacts affecting the proposed development.

Proposals for development that are considered to be incompatible with minerals-related development will be required to undertake a site-specific assessment to determined if there are any potentially adverse impacts and identify mitigation measures that will need to be put in place to avoid and / or reduce impacts to an acceptable level.

Separation areas will be used to help prevent the encroachment of incompatible development on minerals-related development.

Significant sustainability effects of the Minerals Local Plan

6.2. It is important to predict the social, environmental and economic effects of the preferred options as they have been translated into emerging Local Plan policies. Potential effects need to be quantified where appropriate, or judgement made, with reference to the baseline situation. Prediction involves the identification of changes to the sustainability baseline resulting from implementation of the Local Plan.

6.3. Significant effects resulting from implementation of the Local Plan policies were assessed against the SA objectives in order to determine the overall effect of each component of the LPD in relation to sustainability issues. Many of the SA objectives (and hence issues or problems) are interrelated and are able to be captured through consideration under their broader titles and as such it was seen as unnecessary to undertake assessment against individual SA objectives. Specific sustainability issues and problems were identified and investigated through the appraisal.

6.4. Predicted significant effects of the relevant Local Plan policies are detailed in Tables 12a-s, where the potential effect is indicated as follows: ++ very positive, + positive, ? uncertain, neutral, - negative, -- very negative.*

6.5. The table provides an indicative statement as to whether or not the policy option is contributing towards sustainability or potentially detracting from it.

Table 11: Proposed mitigation measures

		Impact magnitude				
		High	**Medium**	**Low**	**Negligible**	**Neutral**
Geographic significance	**International**	Severe	Severe	Major	Moderate	Neutral
	National	Severe	Major	Moderate	Minor	Neutral
	Regional	Major	Moderate	Minor	Negligible	Neutral
	Local	Moderate	Minor	Negligible	Negligible	Neutral

Cumulative effects of the Minerals Local Plan

6.6. The assessment of cumulative effects assists in the identification of the total direct and indirect effect on receptors. Often, effects may result from the accumulation of multiple small and often indirect effects rather than few large obvious ones.

6.7. Assessment should consider effects resulting from the implementation of the Minerals Local Plan as well as those that may result from interaction with the effects of other

plans and programmes. In addition, the impact on the receptors capacity or threshold to remain productive or sustainable should also be considered, where the cumulative effect is negative. The level of uncertainty should also be taken into account.

6.8. The SEA Directive requires the assessment of effects including secondary, cumulative and synergistic effects. Secondary or indirect effects are those that are not a direct result (of the Minerals Local Plan), but occur away from the original effect or as a result of a complex pathway. Cumulative effects arise where several individual insignificant effects have a combined significant effect. Synergistic effects interact to produce a total effect greater than the sum of the individual effects.

6.9. Cumulative effects resulting from implementation of the relevant Minerals Local Plan policies were assessed against the individual SA objectives (Table 13).

Table 12a: Predicted significant effects – Policy 1: Providing for sand and gravel

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Throughout the plan period Assumptions: Interest and investment in relation to Milton Keynes' mineral industry will increase and continue throughout the plan period
Environmental impacts				
Minor	?	?	+	Likelihood: Medium Scale: Local Duration: Environmental impacts will largely result from individual site operations however mitigation measures will act to avoid and or reduce potential effects, Long term affects relate to potential beneficial restoration. Assumptions: The level of impact will depend on the nature of operations and receiving environment.
Use of natural resources				
Moderate	+	+	+	Likelihood: High Scale: Local Duration: Throughout the plan period Assumptions: Interest and investment from the minerals industry will remain active and increase within Milton Keynes. The policy hierarchy (including Local Plan policies) provide for the prudent use of nature resources including restoration.
Social impacts				
Minor	?	?	+	Likelihood: Medium Scale: Local Duration: Social and human health effects will be largely resultant from individual site operations however mitigation measures will act to avoid and or reduce potential impacts to an acceptable level. Long term effects relate to potential for beneficial restoration and the provision of aggregates to support growth. Assumptions: The level of effect will depend on the nature of operations and proximity to sensitive receptors.
Spatial				
Minor	?	?	+	Likelihood: Medium Scale: Local Duration: Throughout the plan period Assumptions: Aggregates extracted from within Milton Keynes will largely be used for local construction industry, however some will contribute towards meeting wider needs.

Table 12b: Predicted significant effects – Policy 2: The spatial strategy for sand and gravel extraction

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to the desired spatial distribution of minerals development throughout the plan period. Long term effects relates to the level of confidence provided by the sequential approach to the minerals industry. Assumptions: Mineral resources in the identified areas are of adequate quality to attract industry investment.
Environmental impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to the desired spatial distribution of minerals development throughout the plan period. Assumptions: Minerals extraction operations river valley areas will have an impact on the receiving environment. The level of effects is dependent on the nature of operations and receiving environment.
Use of natural resources				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to the desired spatial distribution of minerals development throughout the plan period. Long term effects relate to avoiding sterilisation of minerals and ensuring maximum recovery of resources where possible. Assumptions: Mineral resources in the identified areas are of adequate quality to attract industry investment.
Social impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to the desired spatial distribution of minerals development throughout the plan period. Long term effects relate to the level of confidence provided by the sequential approach to the community regarding Milton Keynes' ability to ensure a supply of aggregates for current and future generations. Assumptions: The level of effect is dependent on the nature of operations and proximity of sensitive receptors.
Spatial				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Throughout the plan period. Assumptions: Mineral resources in the identified areas are of adequate quality to attract industry investment.

Table 12c: Predicted significant effects – Policy 3: Site-specific allocations for the extraction of sand and gravel

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate - High	+	+	++	Likelihood: High Scale: Local to sub-regional Duration: Throughout the plan period and individual site operational lives. The allocation of sites for the provision of sand and gravel will help to ensure the provision of aggregates to the local (and potentially wider) construction industry. Assumptions: Wider movements of minerals will occur to supply market bases.
Environmental impacts				
Minor – Moderate	?	?	+	Likelihood: Medium to high Scale: Local Duration: Throughout the plan period and individual site operational lives. Due to the nature of operations mineral extraction is likely to have an impact on the environment however the scale is dependent on the nature of operations and receiving environment. Potential impact has been assessed in detail through the Site Assessment Methodology. The identified spatial distribution for minerals development should also facilitate restoration that supports landscape and habitat connectivity. Assumptions: Mitigation measures will be applied on a site-specific basis to avoid and/or reduce the potential impact to an acceptable level.
Use of natural resources				
Minor	?	?	?+	Likelihood: Medium Scale: Local to sub regional Duration: Throughout the plan period and individual site operational lives. Assumptions: Wider movements of minerals will occur to supply market bases. Development criteria and increased requirements will facilitate the prudent use of natural resources.
Social impacts				
Minor	?+	?+	+	Likelihood: Medium Scale: Local to sub regional Duration: Throughout the plan period and individual site operational lives. Due to the nature of operations mineral extraction may have an impact on sensitive receptors however the scale is dependent on the nature of operations and proximity of sensitive receptors. Potential impact has been assessed in detail through the Site Assessment Methodology. The identification of site allocations will assist in ensuring a supply of aggregates to support growth for current and future generations. Assumptions: Mitigation measures will be applied on a site specific basis to avoid and/or reduce the potential environmental nuisance impact to an acceptable level
Spatial				
Moderate				Likelihood: Medium Scale: Local to sub regional Duration: Throughout the plan period and individual site operational lives. The allocation of sites for the provision of sand

				and gravel will help to ensure the provision of aggregates to the local (and wider) construction industry. Restoration practices allow for landscape enhancement. Assumptions: Development criteria and increased requirements in the Local Plan will facilitate an increase in sustainable development practices and improve the design of operations to reduce landscape effects

Table 12d: Predicted significant effects – Policy 4: Site-specific allocations for the extraction of building stone

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate	+	+	++	Likelihood: Medium Scale: Local to sub-regional Duration: Throughout the plan period and individual site operational lives. The allocation of sites for the provision of building stone will help to ensure the provision of aggregates to the local (and potentially wider) construction industry. Assumptions: Movements of minerals will occur to supply the market base.
Environmental impacts				
Minor – Moderate	?	?	+	Likelihood: Medium to high Scale: Local Duration: Throughout the plan period and individual site operational lives. Due to the nature of operations mineral extraction is likely to have an impact on the environment however the scale is dependant on the nature of operations and receiving environment. Use of building stone to support restoration of heritage assets may create beneficial impacts over the plan period. Potential impact has been assessed in detail through the Site Assessment Methodology. Assumptions: Mitigation measures will be applied on a site-specific basis to avoid and/or reduce the potential impact to an acceptable level.
Use of natural resources				
Minor	?	?	?+	Likelihood: Medium Scale: Local to sub regional Duration: Throughout the plan period and individual site operational lives. Assumptions: Movements of minerals will occur to supply the market base of growth areas. Development criteria and increased requirements will facilitate the prudent use of natural resources and ensure that high quality building stone are intended for appropriate end-uses.
Social impacts				
Minor	?+	?+	+	Likelihood: Medium Scale: Local Duration: Throughout the plan period and individual site operational lives. Due to the nature of operations mineral extraction may have an impact on sensitive receptors however the scale is dependent on the nature of operations and proximity of sensitive receptors. Potential impact has been assessed in detail through the Site Assessment Methodology. The identification of

				site allocations will assist in ensuring a supply of aggregates to support growth for current and future generations. Assumptions: Mitigation measures will be applied on a site-specific basis to avoid and/or reduce the potential environmental nuisance impact to an acceptable level.
Spatial				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Throughout the plan period and individual site operational lives. The allocation of sites for the provision of building and roofing stone is particularly important in relation to the promotion of local identity. Assumptions: Development criteria and increased requirements will facilitate an increase in sustainable development practices and improve the design of operations to reduce landscape effects.

Table 12e: Predicted significant effects – Policy 5: Development principles for mineral extraction

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to the minerals development throughout the plan period and identifies the need to demonstrate economic viability and contribute towards economic development. Assumptions: That the policy criteria and other relevant policies are addressed in informing the development management process.
Environmental impacts				
Moderate	?	+	+	Likelihood: High Scale: Local Duration: Minerals development will inevitably have some adverse impacts on the environment due to its extractive nature (e.g. land take), however over the long term there are opportunities for enhancement of such assets through restoration. The MLP also sets out policies for identifying and reducing (e.g. mitigating for) significant impacts. Assumptions: The scale of effects would be largely determined by measures implemented. That the policy criteria and other relevant policies are addressed.
Use of natural resources				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Minerals development is required to ensure an adequate supply of minerals to support growth, however there is also a need to ensure maximum resource recovery and that materials are put to an appropriate end use. Assumptions: That the policy criteria and other relevant policies are addressed.
Social impacts				
Moderate	++	++	+	Likelihood: High Scale: Local

				Duration: Provides for strategic guidance in relation to minerals development throughout the plan period. The MLP also sets out policies for identifying and reducing (e.g. mitigating for) significant impacts. Assumptions: That the policy criteria and other relevant policies are addressed.
Spatial				
Minor	+	+	+	Likelihood: Medium Scale: Local Duration: Minerals development will inevitably have some adverse impacts on the environment due to its extractive nature (e.g. land take), however over the long term there are opportunities for enhancement of such assets through restoration. The MLP also sets out policies for identifying and reducing (e.g. mitigating for) significant impacts. Assumptions: The scale of effects would be largely determined by measures implemented. That the policy criteria and other relevant policies are addressed.

Table 12f: Predicted significant effects – Policy Policy 6: Borrow pits

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to the development of borrow pits and identifies the opportunities for borrow pits to serve major construction projects where appropriate. Assumptions: The criteria and policy hierarchy address all relevant aspects of minerals development in order to assist in informing the planning decision making process.
Environmental impacts				
Neutral				The criteria specifically addresses the development of borrow pits, the general minerals development criteria (which addresses environmental protection) must also be satisfied.
Use of natural resources				
Minor	+	+	+	Likelihood: Medium Scale: Local Duration: Provides for strategic guidance in relation to the development of borrow pits and identifies opportunities to avoid sterilisation, as well as supporting the appropriate use of high quality minerals. Assumptions: The criteria and policy hierarchy address all relevant aspects of minerals development in order to assist in informing the planning decision making process.
Social impacts				
Neutral				The criteria specifically addresses the development of borrow pits, the general minerals development criteria (which addresses environmental protection) must also be satisfied.
Spatial				
Minor	+	+	+	Likelihood: Medium Scale: Local Duration: Provides for strategic guidance in relation to the development of borrow pits and identifies opportunities to utilise

				borrow pits where strategically located and reduce transport. Assumptions: The criteria and policy hierarchy address all relevant aspects of minerals development in order to assist in informing the planning decision making process.

Table 12g: Predicted significant effects – Policy 7: Development principles for facilities for secondary and recycled aggregates

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to the development of secondary and recycled aggregate facilities throughout the plan period and locations where this should be focused. Assumptions: That the policy criteria and other relevant policies are addressed.
Environmental impacts				
Moderate	+	++	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to secondary and recycled aggregate facilities throughout the plan period and locations where this should be focused. Identifies preference mineral processing sites and land allocated for general industrial development. Increase consumption of secondary and recycled aggregates will help to reduce need for primary aggregates and thus environmental impacts associated with extraction. Assumptions: That the policy criteria and other relevant policies are addressed.
Use of natural resources				
Moderate	+	+	+	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to secondary and recycled aggregate facilities that are key to ensuring re-use and recycling of inert materials. The policy also identifies a preference for locating such facilities at mineral processing sites and land allocated for general industrial development. Assumptions: That the policy criteria and other relevant policies are addressed.
Social impacts				
Moderate	+	+	+	Likelihood: High Scale: Local Duration: Increase consumption of secondary and recycled aggregates will help to reduce need for primary aggregates and thus environmental impacts associated with extraction (e.g. amenity). The re-use and recycling of inert waste increases diversion from landfill and supports sustainable waste management. Assumptions: That the policy criteria and other relevant policies are addressed.
Spatial				
Moderate	+	+	+	Likelihood: Medium Scale: Local

				Duration: Provides for strategic guidance in relation to secondary and recycled aggregate facilities throughout the plan period and locations where this should be focused. Identifies preference for mineral processing sites and land allocated for general industrial development (it is likely that directing development towards such locations will reduce potential impacts on supporting infrastructure e.g. transport). Also emphasises need to be in line with spatial strategy. Assumptions: That the policy criteria and other relevant policies are addressed.

Table 12h: Predicted significant effects – Policy 8: Development principles for other forms of minerals-related development

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to other forms of minerals-related development throughout the plan period and locations where this should be focused. Assumptions: That the policy criteria and other relevant policies are addressed.
Environmental impacts				
Moderate	+	++	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation other forms of minerals-related development throughout the plan period. Also emphasises requirement for development to avoid and/or mitigates potentially adverse impacts to acceptable levels. Assumptions: That the policy criteria and other relevant policies are addressed.
Use of natural resources				
Moderate	+	+	+	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to other forms of minerals-related development that are key to enabling extraction. Assumptions: That the policy criteria and other relevant policies are addressed.
Social impacts				
Moderate	+	+	+	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to other forms of minerals-related development that are key to enabling extraction. The policy also identifies a preference for locating such development where adverse impacts can be kept to acceptable levels. Also emphasises requirement for development to avoid and/or mitigates potentially adverse impacts to acceptable levels. Assumptions: That the policy criteria and other relevant policies are addressed.
Spatial				
Moderate	+	+	+	Likelihood: Medium Scale: Local

				Duration: Provides for strategic guidance in relation to other forms of minerals-related development throughout the plan period and locations where this should be focused. Assumptions: That the policy criteria and other relevant policies are addressed.

Table 12i: Predicted significant effects – Policy 9: Natural assets and resources

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: May result in financial and resource implications for developers, but this will become accepted practice over the plan period and could promote innovation. Assumptions: The scale of effects would be largely determined by measures implemented.
Environmental impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects regarding protection and enhancement of natural assets and resources. Assumptions: The scale of effects would be largely determined by measures implemented.
Use of natural resources				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects regarding protection and enhancement of natural assets and resources. Assumptions: The scale of effects would be largely determined by measures implemented.
Social impacts				
Moderate	?	+	+	Likelihood: High Scale: Local Duration: Potential for beneficial effects through enhancement measures. Assumptions: The scale of effects would be largely determined by measures implemented.
Spatial				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Potential for permanent beneficial effects through enhancement measures. Assumptions: That the policy criteria and other relevant MLP policies, particularly the spatial strategy, are addressed.

Table 12j: Predicted significant effects – Policy 10: Historic environment and heritage assets

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: May result in financial and resource implications for developers, but this will become accepted practice over the plan period. Assumptions: The scale of effects would be largely determined by measures implemented.
Environmental impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects regarding protection and enhancement of cultural heritage assets and their setting. Assumptions: The scale of effects would be largely determined by measures implemented.
Use of natural resources				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects regarding protection and enhancement of cultural heritage assets and their setting. Assumptions: The scale of effects would be largely determined by measures implemented
Social impacts				
Moderate	?	+	+	Likelihood: High Scale: Local Duration: Potential for some beneficial effects regarding the promotion of the historic environment and heritage assets. Assumptions: The scale of effects would be largely determined by measures implemented.
Spatial				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Potential for permanent beneficial effects regarding the promotion of the historic environment. Assumptions: That the policy criteria and other relevant MLP policies, particularly are addressed.

Table 12k: Predicted significant effects – Policy 11: Landscape and townscape character

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: May result in financial and resource implications for developers, but this will become accepted practice over the plan period and could promote innovation. Assumptions: The scale of effects would be largely determined by measures implemented.
Environmental impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects regarding protection and enhancement of landscape and townscape character. Assumptions: The scale of effects would be largely determined by measures implemented.
Use of natural resources				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects regarding protection and enhancement of landscape and townscape character. Assumptions: The scale of effects would be largely determined by measures implemented
Social impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for beneficial effects regarding reflection of sense of place. Assumptions: The scale of effects would be largely determined by measures implemented.
Spatial				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Potential for permanent beneficial effects regarding reflection of sense of place. Assumptions: That the policy criteria and other relevant MLP policies are addressed.

Table 12l: Predicted significant effects – Policy 12: General amenity

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Moderate	+	+	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to development throughout the plan period and identifies the need to have high standards of design. Assumptions: The policy addresses key issues related to minerals development in order to assist in informing the planning decision making process.
Environmental impacts				
Moderate	+	++	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to development throughout the plan period. Long term impacts relate to recognition of the need to protect the environment and for significant issues (including land-use compatibility, dust, noise, vibration and light pollution) to be identified and avoided and/or reduced. Assumptions: The policy addresses key aspects of minerals development in order to assist in informing the planning decision making process.
Use of natural resources				
Moderate	+	++	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to the reduction/mitigation of general amenity impacts (including land-use compatibility, dust, noise, vibration and light pollution) as a result of minerals development throughout the plan period. Assumptions: The policy addresses key aspects of minerals development in order to assist in informing the planning decision making process
Social impacts				
Moderate	+	++	++	Likelihood: High Scale: Local Duration: Provides for strategic guidance in relation to minerals development throughout the plan period. Long term impacts relate to recognition of the need to safeguard local amenity through the addressing of potential impacts (including land-use compatibility, dust, noise, vibration and light pollution). Assumptions: The policy addresses key aspects of minerals development in order to assist in informing the planning decision making process.
Spatial				
Minor	+	+	+	Likelihood: Medium Scale: Local Duration: Provides for strategic guidance in relation to the reduction/mitigation of general amenity impacts (including land-use compatibility, dust, noise, vibration and light pollution) as a result of minerals development throughout the plan period. Assumptions: The policy addresses key aspects of minerals development in order to assist in informing the planning decision making process.

Table 12m: Predicted significant effects – Policy 13: Sustainable transport

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economy				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Initial impact may result in minor financial and resource implications for developers however over the longer term this should stabilise and increase opportunities for industry competitiveness and innovation. Assumptions: Increasing external pressure regarding climate change mitigation will act to compliment sustainable transport movements.
Environmental Impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects regarding protection and enhancement of environment resulting from reduction in greenhouse gas emissions. Assumptions: The scale of effects would be largely determined by measures implemented.
Use of natural resources				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for beneficial effects regarding increased use of sustainable transport options and reduce transport requirements. Assumptions: The scale of effects would be largely determined by measures implemented.
Social impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Initial effects are uncertain however a reduction in road based transport or transport distances will have significant benefits for human health and safety. Assumptions: The scale of effects would be largely determined by measures implemented.
Spatial				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Over the medium to long term a reduction in transport requirements / increase in alternative transport methods would reduce pressure on road infrastructure networks. Assumptions: The scale of effects would be largely determined by measures implemented.

Table 12n: Predicted significant effects – Policy 14: Site design and layout

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: May result in financial and resource implications for developers, but this will become accepted practice over the plan period and could promote innovation. Assumptions: The scale of effects would be largely determined by measures implemented.
Environmental impacts				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Improvements to the site design and layout of minerals development may assist in reducing adverse impacts (such as dust and noise), supporting local identity and in the long term may increase public perception of such sites. Assumptions: The scale of effects would be largely determined by measures implemented.
Use of natural resources				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Careful planning and phasing of works over the operational life for individual sites, site design and layout can assist in maximising extraction of the mineral reserve. Assumptions: The scale of effects would be largely determined by measures implemented.
Social impacts				
Moderate	?	+	+	Likelihood: High Scale: Local Duration: Improvements to the site design and layout of minerals development may increase public perception of such sites over the long term. Phasing of extraction over the operational life of individual sites may also assist in reducing potentially adverse impacts and environmental nuisance. In addition the policy specifically requires the building-in of safety and security measures. Assumptions: The scale of effects would be largely determined by measures implemented.
Spatial				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Potential for permanent beneficial effects regarding the promotion of local identity. Assumptions: That the policy criteria and other relevant MLP policy, particularly the spatial strategy, is addressed in informing the development management process

Table 12o: Predicted significant effects – Policy 15: Addressing climate change

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Initial minor local adverse financial and resource implications for developers however implementation on a medium to long term basis will stabilise in line with standard practices and assist in moving towards a low carbon economy. Presents opportunities for market innovation. Assumptions: That the policy criteria and other relevant MLP policy is addressed and that external pressure for CO_2 emissions reduction continues.
Environmental impacts				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Initial effects will be reduced and are anticipated to increase over the medium to long term as implementation and industry practice becomes standardised. Assumptions: That the policy criteria and other relevant MLP policy is addressed and that external pressure for CO_2 emissions reduction continues.
Use of natural resources				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Initial effects will be reduced and are anticipated to increase over the medium to long term as implementation and industry practice becomes standardised. Assumptions: That the policy criteria and other relevant MLP policy is addressed and that external pressure for CO_2 emissions reduction continues.
Social impacts				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: It is uncertain what the short term effect will be however it is anticipated that positive effects will be delayed as industry behaviour and practices adjust. Assumptions: That the policy criteria and other relevant MLP policy is addressed and that external pressure for CO_2 emissions reduction continues.
Spatial				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: It is uncertain what the short term effect will be however it is anticipated that there will be minor indirect effects relating to increased requirements and market capacity for resource efficient technologies. Increased consideration of flood risk associated with climate change and resulting attenuation measures will have a long term positive impact at a broader landscape level. Assumptions: That the policy criteria and other relevant MLP policy is addressed and that external pressure for CO_2 emissions reduction continues.

Table 12p: Predicted significant effects – Policy 16: Restoration and after-use

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Potential for significant long term beneficial effects regarding increased opportunity for economic development as a result of restoration practices. The requirement for high quality innovative practices also presents opportunities for market innovation, enterprise and competitiveness. Assumptions: The scale of effects would be largely determined by restoration after-use (e.g. service infrastructure, brownfield land) and nature of surrounding environment.
Environmental impacts				
Major	?	+	++	Likelihood: High Scale: Sub-regional Duration: Potential for significant permanent long term beneficial effects regarding protection and enhancement of environment resulting from incorporation of BAP objectives and targets. Also potential for increasing linkages between important habitat areas and wildlife corridor (River Great Ouse) Assumptions: The scale of effects would be largely determined by restoration after-use and nature of surrounding environment. After- use has the potential to have significant effects on a wider scale, for example extension of wildlife corridors, catchment conservation.
Use of natural resources				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for beneficial effects regarding provision of brownfield land and return to agricultural land. Integration of primary and secondary restoration objectives may assist in maximising opportunities, as well as increasing magnitude of positive effects and environmental outcome. Assumptions: The scale of effects would be largely determined by restoration after-use and nature of surrounding environment.
Social impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant long term beneficial effects regarding access to recreational (and other) facilities as well as engagement in environmental issues. Integration of primary and secondary restoration objectives may assist in maximising opportunities, as well as increasing magnitude of positive effects and desired outcomes. Assumptions: The scale of effects would be largely determined by restoration after-use and nature of surrounding environment.
Spatial				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: The long term effects of after-use being determined as a result of local requirements and the spatial planning context should result in a more cohesive landscape. Assumptions: The scale of effects would be largely determined by restoration after-use and nature of surrounding environment.

Table 12q: Predicted significant effects – Policy 17: Implementation

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	?	+	Likelihood: Medium Scale: Local Duration: May result in financial and resource implications for developers and operators, but this will become accepted practice over the plan period. Increase in transparency of planning requirements. Assumptions: The scale of effects would be largely determined by measures implemented.
Environmental impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects through planning conditions, obligations, and monitoring & enforcement. Such measures can also lead to early identification of problems hence preventing significant impacts. Assumptions: The scale of effects would be largely determined by measures implemented.
Use of natural resources				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects through planning conditions, obligations, and monitoring & enforcement. Assumptions: The scale of effects would be largely determined by measures implemented.
Social impacts				
Moderate	?	+	++	Likelihood: High Scale: Local Duration: Potential for significant permanent long term beneficial effects through planning conditions, obligations, and monitoring & enforcement. In addition the use of local liaison groups may foster positive working relationships between the community, council and the operator. Such measures can also lead to early identification of problems hence preventing significant impacts. Assumptions: The scale of effects would be largely determined by measures implemented.
Spatial				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Potential for beneficial effects regarding the use of conditions/agreements and the prevention of unauthorised development. Assumptions: That the policy criteria and other relevant MLP policy is addressed.

Table 12r: Predicted significant effects – Policy 18: Mineral Safeguarding and Consultation Areas

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Initial minor local adverse financial and resource implications for developers, however implementation on a medium to long term basis will stabilise in line with standard practices. Identifies the importance of economic resources. Presents opportunities for market innovation and in addition previous major development undertaking prior extraction have found the process to be economically advantageous. Assumptions: BGS linework is taken to identify mineral resources.
Environmental impacts				
Neutral				The identification of Mineral Safeguarding Areas does not imply future extraction operations.
Use of natural resources				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: It is uncertain what the short term effect will be however it is anticipated that significant positive effects will be delayed in the short- term as industry practices adjusts to external pressures and planning requirements in the medium to long-term. Potential for ongoing significant effects in relation to prudent use of resources and avoiding the sterilisation of minerals through prior extraction. Assumptions: Minerals resources requirements in the future will reflect that which is currently considered to be of future economic importance.
Social impacts				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: It is uncertain what the short term effect will be however it is anticipated that positive effects will be delayed as industry behaviour and practices adjust. The identification of resources of future economic importance will benefit future generations. Where prior extraction is utilised it will reduce the transportation of resources. Assumptions: Minerals extracted will primarily be utilised for the specified original development.
Spatial				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: It is uncertain what the short term effect will be however in the medium to long term the identification of mineral resources of economic importance and promotion of prior extraction is likely to assist in the development of infrastructure and reduce reliance on road transport where utilised for major developments. Assumptions: Minerals extracted will primarily be utilised for the specified original development.

Table 12s: Predicted significant effects – Policy 19: Safeguarding of minerals-related development and associated infrastructure

Predicted effects				Justification for assessment
Nature of effect	Assessment of effect & likely term			
	Short	Medium	Long	
Economic development				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Initial minor local adverse financial and resource implications for developers however implementation on a medium to long term basis will stabilise in line with standard practices. Assumptions: Implemented separation areas are adequate to reduce potential environmental nuisance impacts.
Environmental impacts				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Initial effects are uncertain however in the medium to long term the safeguarding of minerals extraction and processing activities may help to reduce environmental effects elsewhere as infrastructure may be utilised to process minerals from surrounding extraction operations. Assumptions: Potential exists to utilise existing processing plant
Use of natural resources				
Minor	?	+	++	Likelihood: Medium Scale: Local Duration: Initial effects are uncertain however in the medium to long term the safeguarding of minerals extraction and processing activities may help to ensure maximum recovery of resources. Assumptions: Viable mineral resources are located within the area identified for extraction. Where viable resources of good quality are located outside the area they will be picked up through the Minerals Safeguarding Areas.
Social impacts				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Initial effects are uncertain however in the medium to long term the safeguarding of minerals extraction and processing activities may help to reduce environmental nuisance effects elsewhere as infrastructure may be utilised to process minerals from surrounding extraction operations. Assumptions: A buffer area of 250m is adequate to reduce potential land-use conflict impacts. Potential exists to utilise existing processing plant.
Spatial				
Minor	?	+	+	Likelihood: Medium Scale: Local Duration: Initial effects are uncertain however in the medium to long term the safeguarding of minerals extraction and processing activities may help to reduce infrastructure requirements as existing plant may be utilised to process minerals from surrounding extraction operations. In addition safeguarding existing land-uses for other forms of development may help to reduce the potential for land-use conflict. Assumptions: Implemented separation areas are adequate to reduce potential environmental nuisance impacts. Potential exists to utilise existing processing plant.

Table 13: Cumulative effects of the Minerals Local Plan Policies

SA Obj	Local Plan policy																			Cumulative effects	Comments on significant effects
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
1	?	?	?	?	+	+	+	+	+	+	+	++	+	++	++	+				+	There is likely to be a positive cumulative effect on air quality through the addressing of climate change and potential adverse effects. Reduced transport movements will have positive effects on air quality.
2	?	?	?	?	+	+	+	+	+	+	+	+		+	++	++				+	There is likely to be positive cumulative effects on water resources through addressing the effects of climate change, flood risk, restoration (flood risk and attenuation measures) and potential adverse effects of development.
3	?	?	?	?	+	+	+	+	++	+	+	+		+	+	++				++	There is likely to be positive cumulative effects on biodiversity and geodiversity through addressing the effects of development and mitigating any potentially adverse impacts of development and implementing appropriate restoration schemes. Assessing the effects of climate change and flood risk will also have positive effects.
4	?	?	?	?	+	+	+	+	+	++	++	+		+	+	++	+			++	There is likely to be positive cumulative effects on the historic environment through the addressing of climate change and management and enhancement of historic assets and their setting as well as mitigating any potentially adverse effects.
5	?	?	+	?	+				+	++	++	+	+	+	+	+				+	Protecting and enhancing the

SA Obj	Local Plan policy																			Cumulative effects	Comments on significant effects
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
																					distinctiveness and character of Milton Keynes' landscapes and townscapes is crucial to sustainable development. There is likely to be indirect positive effects resulting from identifying and addressing potentially adverse impacts of development. It is possible that indirect negative effects result from site specific operational processes however development control policies and those aimed at avoiding and/reducing potential adverse effects will counter-act this.
6		+			+		++		+			+			++			+		+	Direct positive effects through minerals safeguarding and MSAs. There is likely to be positive cumulative effects in relation to conserving natural resources through addressing of energy efficiency and a reduction in greenhouse gas emissions. Reduced transport movements will reduce energy requirements and greenhouse gas emissions.
7						+			++	++	++	+			+	++				++	There are likely to be positive cumulative effects as a result of restoration due to the promotion of beneficial outcomes. Schemes will also have positive effects for air quality, water resources, biodiversity and geodiversity and the historic environment and natural assist.
8					+		+		+	+	+	+	++	+	++	++	+			+	There is likely to be positive cumulative effects in relation climate change through the addressing of energy

SA Obj	Local Plan policy																			Cumulative effects	Comments on significant effects
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
																					efficiency and a reduction in greenhouse gas emissions. Reduced transport movements will reduce energy requirements and greenhouse gas emissions.
9	?	?	?	?	++	+	+	+	+	+	+	++	+	+	+	++	+			+	Direct positive results are likely in relation to protecting human health and residential amenity through the assessment of general amenity and the potential adverse effects. The promotion of sustainable transport movements, site design and layout and beneficial after-uses will also have cumulative positive effects.
10									++	+	++	+				++				++	There is likely to be positive cumulative effects in relation to increasing access to green infrastructure and recreation facilities and opportunities as a result of beneficial restoration and after-use schemes.
11	++	++	++	++	+	++	++	+	?	?	?	?	?	?	?	?	?	+	+	++	There are likely to be cumulative positive effects on sustainable economic growth resulting from the provision of minerals for local construction and related industries. Carbon reduction measures can be included within new development schemes that will result in positive effects on the addressing of climate change. Initial adverse effects are possible due to the increased requirements placed on developers in relation to sustainable development.

SA Obj	Local Plan policy																			Cumulative effects	Comments on significant effects
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
12	+	+	+	+	+	+	+	+												+	There is likely to be positive cumulative effects on employment rates through the creation of mineral extraction related employment in both urban and rural areas.
13					+													++	++	++	Positive cumulative effects are likely in relation to the safeguarding of local and national importance through the identification of MSAs and associated consultation requirements.
14					+							+	+	+				++	++	++	Positive cumulative effects are likely in relation to the safeguarding of local and national importance through the identification of MSAs and associated consultation requirements.
15	+	+	+	+	+	+	+						++		+				++	++	Positive cumulative effects are likely in relation to maximising use of existing infrastructure through the spatial strategy and development principles. The allocation of sites and their proximity to the existing road network will also contribute to this.

Consideration of identified problems during development of the Minerals Local Plan

6.10. Consideration of sustainability issues and identified problems throughout the development of the Local Plan was facilitated through the analysis of potential effects of the strategic options, as well as analysis of significant and cumulative effects of the Local Plan policies.

6.11. The SA Framework forms the basis for appraising sustainability effects, and represents relevant sustainability issues including economic, environmental, social and spatial issues. Analysis against the SA objectives assists in identifying the contribution towards sustainable development and any relevant problems.

6.12. Consideration of sustainability issues and identified problems throughout the development of the Local Plan is summarised below. Conclusions drawn from the appraisal have influenced the development of the Local Plan, in this manner it is believed that the preferred options offers the most significant (positive) contribution towards sustainable development and provides a healthy balance of potential sustainability effects.

Economic

6.13. Economic effects can be predicted based on available evidence however the level of confidence in predictions, and magnitude of effects, is reliant on industry and market response to the policy context surrounding minerals and environmental management.

6.14. The assessment of cumulative effects indicates that the sustainability appraisal addresses all of the SA objectives to varying levels. The economic effects associated with the implementation of the Local Plan are likely to be cumulative with no direct positive impacts, however the provision of mineral development is likely to result in positive effects overall through the implementation of policy and the contribution that mineral extraction will have on the local economy. Whilst it is possible that the sustainability requirements associated with policy may initially have adverse affects as a result of increased financial cost, it is expected that this will stabilise relatively quickly and be succeeded by the increased potential for innovation and competitiveness of industry.

6.15. Table 14 outlines specific sustainability issues or problems identified through the SA Framework, and the results of their consideration throughout the development of the Local Plan.

Table 14: Consideration of economic issues and problems throughout the development of the Minerals Local Plan

Key sustainability issue	Consideration through development of the Local Plan
Enabling economic development that includes diversification of employment types and ensuring quality employment opportunities for all	Increased research and development of extraction processes should encourage increased learning and skills development along with employment diversification and increased quality of jobs.
Ensuring that economic activity is retained and increased enabling of communities and individuals to benefit	Increased research and development of extraction processes along with development of employment opportunities within the minerals industry markets.
Ensuring that a balance is reached where growth, local communities and the environment can positively exist and not to the detriment of each other.	Identification of significant issues through the general development criteria and spatial strategy for minerals development.
Ensuring that any lack of innovation and enterprise is tackled, especially through targeting disadvantaged	Requirement for increased materials resource efficiency and sustainable design should encourage innovation and enterprise.

Key sustainability issue	Consideration through development of the Local Plan
communities.	
Attracting new businesses whilst encouraging existing businesses to grow along with ensuring that any subsequent growth and expenditure remains within the area	Emphasis on identification of local market base, strategic location in relation to market, promoting use of locally sourced minerals should assist in retention of wealth within the area.

Environmental

6.16. Environmental effects, although complex, can be predicted based on available evidence however the level of confidence in predictions, and magnitude of effects, is dependent on the nature of development and surrounding environment.

6.17. The assessment of cumulative effects indicates that the sustainability appraisal addresses all of the SA objectives in relation to environmental effects to varying levels. The assessment reveals that effects will be direct, cumulative and synergistic and both positive and negative in result. Positive effects will result from the overall implementation of the plan, however it is evident that there may initially be some local adverse effects from the operation at individual sites. The level of these effects is dependent on the receiving environment and the nature of operations and is balanced by the requirements for implementing mitigation measures, protection of the natural and built environment and appropriate restoration and after-use.

6.18. Specific sustainability issues or problems identified through the SA Framework, and the results of their consideration throughout the development of the Local Plan, are outlined in Table 15.

Table 15: Consideration of environmental issues and problems throughout the development of the Minerals Local Plan

Key sustainability issue	Consideration through development of the Local Plan
Ensuring the integration of sustainable development and carbon reduction into the planning and delivery of further growth	Identification and requirement for consideration of sustainable growth and development through development criteria.
Ensure that future development is balanced with the need to protect the environment	Identification and requirement for consideration of environmental protection through development criteria.
Targeting the reduction of CO2 emissions	Increased requirement for sustainable design and sustainable / alternative transport modes.
Ending the trend of biodiversity decline and ensuring that this trend is then reversed	Identification of potentially adverse impacts and mitigation measures.
Ensuring the prudent use of natural resources (including minerals, water and fossil fuels)	Identification and requirement for consideration of natural resources protection through development criteria and promotion of sustainable design.
Reducing the contribution to and the effects of climate change by increasing the use of renewable energies and limiting the effects of climate change	Identification and requirement for consideration of CO_2 emission levels through development criteria.
Protection of and improvement to the natural and built environment	Increased requirements for sustainable design, enhancement and protection of the built and natural environment through development criteria (and leading objectives).

Social

6.19. Social effects are often quite difficult to predict as they are most likely to be qualitative and occur through secondary effects rather than direct or manifest. The assessment of cumulative effects indicates that the sustainability appraisal addresses all of the SA

objectives in relation to social effects to varying levels and does not indicate that implementation will result in negative impacts.

6.20. The more positive effects are likely to be gained from restoration schemes through the provision of recreational facilities and increased access to green infrastructure, the enhancement of the natural and built environment and through an increase in employment.

6.21. Specific sustainability issues or problems identified through the SA Framework, and the results of their considered throughout the development of the Local Plan policies, are outlined in Table 16.

Table 16: Consideration of social issues and problems throughout the development of the Minerals Local Plan

Key sustainability issue	Consideration through development of the Local Plan
Ensuring that the areas growing population is provided for in terms of housing, employment, infrastructure, services and facilities	Identification of the provision of minerals (for the local construction industry) to support Milton Keynes' growth.
Ensuring that growth related provisions reflect the demographics of the area and promote	This is addressed through the adopted policy approach.
Increasing and improving access to recreational opportunities	The identification of potential impacts will ensure access to recreational opportunities.
Increasing awareness and engagement in relation to environmental issues	Encourage ongoing learning and behavioural change within the community and industry through innovative materials and resource efficiency.

Spatial

6.22. Spatial effects can be predicted based on available evidence however the level of confidence in predictions, and magnitude of effects, is dependent on the nature of development and the broad landscape context.

6.23. The assessment of cumulative effects indicates that the sustainability appraisal addresses all of the SA objectives in relation to environmental effects to varying levels. The appraisal indicated that the more sustainable effects will come through the implementation of the spatial strategy and the safeguarding of minerals.

6.24. Specific sustainability issues or problems identified through the SA Framework, and the results of their considered throughout the development of the Local Plan, are outlined in Table 17.

Table 17: Consideration of spatial issues and problems throughout the development of the Minerals Local Plan

Key sustainability issue	Consideration through development of the Local Plan
Supporting the required development and that growth takes place.	Focus on the need for and provision of aggregates to support Milton Keynes' growth.
Protecting and enhancing the urban and rural communities.	Development of the spatial strategy and development control and management policies
Supporting the existing road network	Consideration of sustainable transport options and market catchment areas.
Ensuring that further growth and development supports the reduction of private car use and increases the use of public transport and pedestrian travel.	Development of the spatial strategy along with consideration of sustainable transport options and market catchment areas.

Mitigation measures

6.25. Measures to prevent, reduce or offset significant adverse effects, or 'mitigation measures' of implementing the Local Plan must be identified through the SA Environmental Report. Mitigation measures can include proactive avoidance of adverse effects, actions taken after effects are noticed, and recommendations for improving beneficial effects.

Mitigation measures – potential adverse effects

6.26. There are limited potential adverse effects resulting from the implementation of the Local Plan. Those identified through the SA and proposed mitigation measures are outlined below.

6.27. Initial minor financial and/or resource implications for developers have been identified as a potential adverse effect particularly with respect to incorporating sustainable transport movements and addressing the impacts of climate change along with the implementation of safeguarding minerals sites and potential prior extraction in order to avoid sterilisation. The protection of natural assets and resources, the historic environment and the townscape and landscape is also expected to include financial implications. It is believed that this effect will be localised and temporary, with implementation over the medium to long-term stabilising or reversing this effect in line with evolving industry practice and market capacity.

6.28. Operational effects resulting from individual minerals development on the receiving environment were also identified as a potential adverse effect. The level of impact is dependent on the nature of operations and receiving environment. Proposals for development are required to identify potential effects and provide for adequate mitigation measures to avoid and/or reduce the potential impact to an acceptable level.

Mitigation measures – beneficial effects

6.29. The Local Plan seeks to set out the long-term vision for minerals development in Milton Keynes and identifies measures to ensure that the required provision of minerals is available to support growth and economic development. The most substantial benefits resulting from the Local Plan are likely to occur as a result of the cumulative effect of all the policies being implemented together. In order to ensure consistent implementation and increase potential benefits a range of measures pertaining to practical implementation and awareness have been developed, these include:

- reporting requirements to address locally specific development criteria and sustainability issues,
- monitoring requirements and enforcement measures (annual reporting, standard conditions and planning agreements), and
- integration with the existing planning application process.

Uncertainties and risks

6.30. Uncertainties and risks identified through the SA process include limitations in terms of availability of quantitative information and subsequently confidence of assessment (where based on qualitative judgement). The process of undertaking SA inevitably relies on an element of subjective judgement. Resources utilised to assist in predicting and assessing the sustainability effects of the Local Plan include analysis of the baseline situation (evidence base), characteristics of Milton Keynes and relevant sustainability issues, relevant case studies, as well as professional experience and judgement (including formation of rational assumptions).

6.31. These resources have been applied where possible to determine potential effects of implementation of the Local Plan. It is important to recognise that there exists an

inherent risk in all prediction techniques, and as such the worst case scenario has been assumed throughout the SA process where uncertainty exists.

7. Implementation and monitoring

Links to other tiers of plans and programmes at the project level

7.1. The broad context in which the Local Plan will operate has been identified through the SA process as part of the policy context. In order to ensure consistent implementation of the Local Plan, linkages to other tiers of plans and programmes have been maximised, this includes:

- integration with the existing planning application process including potential to incorporate Local Plan reporting requirements as a component of existing requirements,
- the reflection of national planning policy and the relevant specific sustainability issues but on a local level
- adoption of existing planning mechanisms, and
- consistency with existing plans, policies and programmes where appropriate (e.g. Milton Keynes Core Strategy).

Monitoring framework

7.2. The purpose of monitoring is twofold as it needs to consider both beneficial and adverse effects. Firstly, it should measure the actual significant sustainability effects of implementing the Local plan against those predicted in the SA and measure contribution towards achievement of desired objectives**.** Secondly**,** it assists in identification of unforeseen adverse effects and the need to undertake appropriate remedial action. Monitoring should aim to answer questions such as:

- Were the assessments predications of sustainability effects accurate?
- Is the LPD contributing to the SA objectives and targets?
- Are mitigation measures performing as well as expected?
- Are there any adverse effects? If so, are these within acceptable limits, or is remedial action desirable?

7.3. The approach taken to monitoring should be objective and target led. Given that sufficient information about environmental effects is provided for individual plans (and SEA Directive requirements are satisfied), it may be beneficial for the Local Plan monitoring requirements to build on existing monitoring systems or monitored as an overall. For Milton Keynes monitoring is reported through the Development Plan Monitoring Report, which incorporates the monitoring of the Development Plan (e.g. the Milton Keynes Core Strategy).

7.4. It is not necessary to monitor everything, or monitor an effect indefinitely. Instead monitoring should be focussed on significant sustainability effects. SA monitoring involves measuring indicators that may establish a causal link between implementation of the plan and the likely significant effects being monitored. Contextual monitoring of social, environmental or economic change may assist in measuring effects of sustainability and identifying changes in the broader context.

7.5. The SEA Directive does not require the Local Plan to be modified if monitoring reveals adverse effects; however it should enable mitigation activities to be taken. Gaps in existing information will be identified so that consideration can be given to how these could be addressed in the longer term. The monitoring framework for the Local Plan is outlined in Table 18.

Monitoring the Sustainability Appraisal and the Minerals Local Plan

7.6. Implementing standardised monitoring of the SA and Local Plan policies enables possible trends and issues to be highlighted which can then be used to identify any existing or potential issues. A combined monitoring approach for the SA and the Local Plan also enables all potential significant (negative and positive) effects and various indicators to be monitored and compared simultaneously. The results can be used to develop a baseline with potential effects being measured over time.

7.7. The baseline information forms a 'snapshot' of the relevant sustainability issues influencing minerals planning. This snapshot can be used to compare the effects of implementing the plan (on sustainability issues) to the current situation.

7.8. Combining the monitoring framework for the SA and the Local Plan allows for the use of the same indicators, strengthening the linkage between the two documents. This enables the plans effects to be monitored effectively and for any effects to be identified quickly, this is especially important when considering potential negative effects.

7.9. The minerals element of the Development Plan Monitoring Report for Milton Keynes will report on key indicators and identify trends and constraints in relation to minerals development. These indicators are set out in both the SA and the Local Plan, with most being shared or related. The indicators for each monitoring topic (potential significant sustainability effect) form the measuring tools. The Local Plan monitoring framework also includes remediation triggers and measures necessary to respond to adverse impacts identified through the monitoring process.

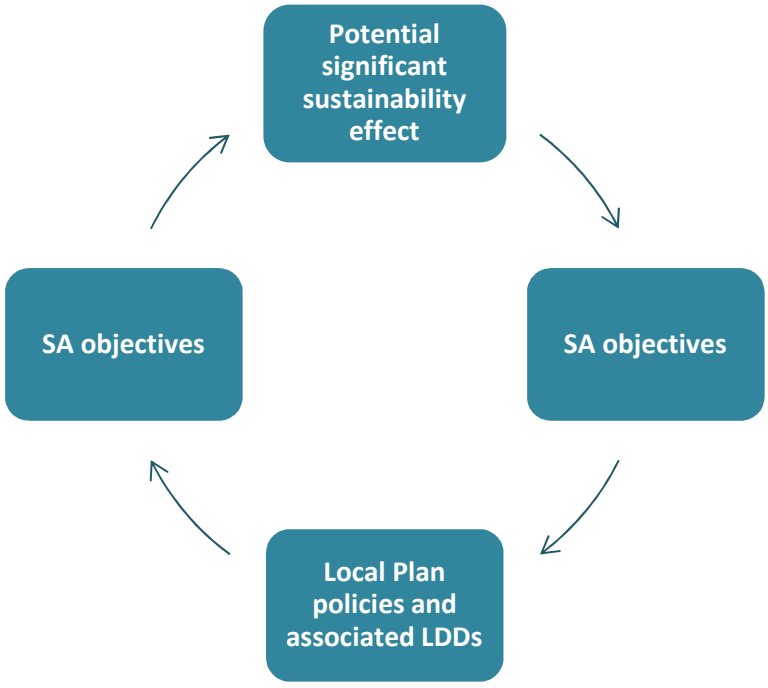


Figure 3: Linking of the monitoring framework

Appendix 1: Policy context –Policies, plans and programmes influencing the plan and Sustainability Appraisal

The table below includes the policy context in relation to the Sustainability Appraisal which will be updated as new material becomes available. Documents marked with an asterisk (*) are recognised as being of relevance however have not been formally reviewed as it is believed that they have been adequately captured due to the hierarchical nature of the policy context.

Table 18: Policy context of the plan and SA

Policy context of the plan and SA
International policy context
Aalborg Charter*
Aarhus Convention*
European Union Spatial Development Perspective
The Strategic Environmental Assessment Directive 2001/42/EC
EC Integrated Pollution Prevention and Control Directive 2008/1/EC
EC Mining Waste Directive 2006/21/EC
EC Directive on the Conservation of Wild Birds 79/409/EEC
EC Directive on the Conservation of Habitats and Wild Fauna and Flora 92/43/EEC
EC Water Framework Directive 2000/60/EC
EC Noise Directive 2000/14/EC
EC Air Quality Framework Directive 96/62/EC
EC Directive on ambient air quality and cleaner air for Europe 2008/50/EC
European Landscape Convention
Kyoto Climate Change Protocol & UK Climate Change Programme
EC White Paper: Adapting to Climate Change
EU Sixth Environmental Action Plan*
European Programmes, Objective 1 and 2*
Johannesburg Declaration on Sustainable Development*
National policy context
Securing the Future – Delivering UK Sustainable Development Strategy
Air Quality Strategy for England, Scotland, Wales and Northern Ireland
National and Regional Guidelines for Aggregates Provision in England 2005 – 2020
English Nature Policy Position Statement: Aggregate extraction and nature conservation
English Nature Policy Position Statement: Non-aggregate mineral extraction
English Heritage Mineral Extraction and the Historic Environment 2008
Working with the Grain of Nature – A Biodiversity Strategy for England
Water for People and the Environment – Water Resources Strategy for England and Wales
Safeguarding our Soils – A Strategy for England
Sustainable Communities: Building for the Future
Urban White Paper- Your Region, Your Choice
Rural White Paper- Our Countryside, the Future
National Planning Policy Framework
National Planning Policy Guidance
National Planning Policy for Waste
Regional policy context
Sub-regional Guidelines for Aggregates Provision in England 2005 – 2020
South East Biodiversity Strategy
Water Resources Strategy Regional Strategy Actions for South East Region
Local policy context
A Transport Vision and Strategy for Milton Keynes
Milton Keynes Sustainable Community Strategy, Our Handbook for Change
Milton Keynes Adopted Statement of Community Involvement (March 2014)
Milton Keynes Minerals Local Plan (2006)
Milton Keynes Core Strategy (adopted July 2013)
Milton Keynes Waste Development Plan Document 2007-2026
Relevant saved Milton Keynes Local Plan (2005) policies

Policy context of the plan and SA
Buckinghamshire and Milton Keynes Biodiversity Action Plan 2000 – 2010
Milton Keynes Local Landscape Designations Study
Milton Keynes Draft Landscape Character Assessment
Buckinghamshire and Milton Keynes Rural Strategy 2008-2012*
Buckinghamshire Green Infrastructure Strategy*
Milton Keynes Green Infrastructure Plan
Milton Keynes Strategic Flood Risk Assessment*
Milton Keynes Water Cycle Study Outline Strategy *
Surface Water Management Plans*
Milton Keynes Drainage Strategy – Development and Flood Risk Supplementary Planning Guidance*
Catchment Flood Management Plans – The Great Ouse

Appendix 2: Monitoring framework and baseline data

Table 19: Monitoring framework and baseline data

Potential significant sustainability effect and link to SA objective	Indicator	Comparators and target	Likely significant effects	Baseline Data (monitoring period 1 Jan 2012 – 31 Dec 2012)	Links to Minerals Local Plan
Minerals					
Aggregate extraction Steady and adequate supply of aggregates SA objectives: 7, 12, 14, 15	Level of aggregates extracted	To meet annual aggregate provision rate Building and roofing stone will be provided for restoration, conservation, and enhancement	Aggregate extraction levels meet the provision rate Sufficient aggregates are made available to support growth and development of sustainable communities	The extraction data for 2012 is confidential. This is due to a confidential figure or a figure which cannot be recorded without revealing a confidential figure A sustainable amount of building and roofing stone was extracted for restoration, conservation and enhancement	Local Plan objectives: 1, 2, 3, 4
Landbanks Maintain landbanks SA objectives: 7, 12, 14, 15	Aggregate landbanks	S&G: 7 years	Maintenance of landbanks	Landbank figures for 2012: S&G: 3 years (10 year average sales provision rate) S&G: 2 years (3 year average sales provision rate)	Local Plan objectives: 1, 2, 3
Sterilisation Protect economically important resources from sterilisation SA objectives: 7, 12, 14, 15	Number of applications in MSAs satisfying Local Plan requirements	100% of all new development	Mineral reserves of local and national importance do not become unnecessarily sterilised	All development applications identifying sites within MSAs meet the requirements set out in the Local Plan that relate to sterilisation of mineral resources. As a result no development took place which caused sterilisation to identified resources.	Local Plan objective: 5
Development adversely affecting minerals development Development does not adversely affect	Number of applications satisfying Local Plan requirements	100% of all new development	Minerals (committed or allocated) development and associated use are not adversely affected by other	No development permitted within the monitoring period would adversely affect committed or allocated locations for mineral development	Local Plan objectives: 1, 5

committed or allocated minerals development, including the safeguarding of minerals-related uses (such as storage / processing, rail head / links and wharfage facilities) from other forms of development SA objectives: 7, 12, 14, 15			development	Mineral sites have been safeguarded from other forms of development	
Sustainable minerals transport movements Promote the use of sustainable transportation movements / methods SA objectives: 16	Number of applications including a sustainable transport assessment or incorporating alternative transport methods	100% of all new minerals development	Increase in developments incorporating sustainable transportation movements and methods	No minerals permissions were granted during the monitoring period	Local Plan objectives: 7, 10
Waste and recycling Encourage the use of secondary and recycled aggregates along with the appropriate management of waste, including minimisation, recovery and recycling SA Objectives: 14	Level of secondary and recycled aggregates use along with waste management and minimisation	Increase in secondary and recycled aggregates processing capacity Development applications include a waste minimisation strategy	Reduction in CD&E disposed of to landfill	No permissions for secondary and recycled aggregates processing facilities were granted during the monitoring period	Local Plan objectives: 1, 4
Environment and land-use					
Natural Protect and enhance the natural environment Avoid and / or minimise	The number of incidents of enforcement action taken against the	Reduction in the number of incidents where enforcement action is taken against	Reduction in substantiated complaints and pollution incidents	No enforcement action or reports of any issues during the monitoring period	Local Plan objectives: 6, 8, 9, 10

environmental impacts where necessary (including the protection of water and soil resources) SA objectives: 1, 2, 3, 4, 6, 8, 9, 10, 11	minerals industry relating to environmental impact	the minerals industry in relation to environmental impact	requiring enforcement action for developments satisfying Local Plan requirements		
Historic Conserve and enhance the historic environment, heritage assets and their setting SA objectives: 5, 6	Number of minerals developments that have an approved scheme addressing the historic environment or include a scheme which secures a supply of building and roofing stone (where relevant)	100% of all new development (where relevant)	Increase in the proactive management of historic environment	No minerals permissions were granted during the monitoring period	Local Plan objectives: 3, 6, 9, 10
Built Minerals development which is complementary to the surrounding landscape and townscape SA objectives: 5, 6	Number of minerals applications that include a landscape character assessment and support landscape enhancement (e.g. through restoration)	100% of all applications (where relevant)	Increase in creative design and innovation of minerals developments	No minerals permissions were granted during the monitoring period	Local Plan objectives: 3, 9
Flood risk Avoid adverse impact on flood risk from minerals development SA objectives: 2	Number of minerals applications receiving permission contrary to Environment Agency advice on flooding along with restoration supporting flood attenuation	All applications / permissions meet flood management requirements	No increase in flood risk level Increase in restoration supporting flood attenuation	No minerals permissions were granted during the monitoring period	Local Plan objectives: 6, 9, 10
Restoration and after-use	Number of minerals permissions that	100% of all new development (where	Increase in the enhancement of	No minerals permissions were granted during the monitoring period	Local Plan objectives: 6, 9

After-use should include progressive restoration that enhances biodiversity, the historic & natural environment and amenity whilst benefitting the local community and / or economy SA objectives: 1, 2, 3, 4, 5, 6, 8, 10, 11	include an approved restoration scheme that seeks to maximise beneficial outcomes	relevant) Increase in creation of BAP priority habitats (BAP targets)	biodiversity (BAP targets), geodiversity, the historic & natural environment, landscape and amenity with increased benefits to the local community and / or economy		
Climate change reduction measures Carbon emission reduction within the minerals industry SA objectives: 9, 10, 16	Number of applications satisfying the Local Plan requirements relating to reduction of greenhouse gas emissions and enhancing energy efficiency i.e. the regular servicing of vehicles and machinery	100% of all development	County carbon emissions continue to decrease	No minerals permissions were granted during the monitoring period	Local Plan objectives: 10
Economic and community benefits					
Employment Increase in investment and employment in the minerals industry (urban and rural locations) SA objectives: 13	Continued investment in minerals development (e.g. new mineral workings)	Net increase	Economic growth due to further investment and increased skills / knowledge	No minerals permissions were granted during the monitoring period	Local Plan objective: 1
Health and safety Ensure that minerals development does not adversely affect the	Number of applications that satisfy the Local Plan requirements relating	100% of all development	Decrease in potentially adverse impacts on health and safety	No minerals permissions were granted during the monitoring period	Local Plan objectives: 7, 8, 9, 10

health and safety of our communities. SA objectives: 9, 10	to sustainable transport, avoiding and / or reducing potentially adverse impacts, prevent land-use conflict, reducing carbon emissions and residential amenity				