4 Forces for Change

Introduction

4.1 The landscape and seascape of the Arnside and Silverdale AONB is dynamic; it has evolved over time and continues to change. An understanding of future trends and the choices that need to be made will help manage change in a way that conserves and enhances the distinctive character and qualities of the AONB. The AONB LSCA has an important role to play in guiding management of these changes and in so doing protecting, managing and planning the landscape and seascape character and quality.

4.2 The key forces for change i.e. activities which are likely to have a significant impact on the landscape, are as follows:

- Natural processes
- Climate change
- Development pressures, particularly:
  - Renewable energy
  - Non-conventional oil and gas extraction (including 'fracking')
  - Housing and industry
  - Leisure and tourism
  - Traffic and transportation
- Agricultural change
- Land management, particularly changes affecting:
  - Trees and woodlands
  - Water bodies
  - Habitats and species
  - Settings to historic sites

Natural Processes

4.3 The foreshore west of Silverdale has changed dramatically over the past ten years, having been eroded away by the rapid tidal stream which runs alongside it. Conversely, the intertidal flats and saltmarsh are currently accreting at Grange-over-Sands on the west side of the estuary. Natural cyclical processes such as the shifting channels in Morecambe Bay will give rise to future changes.

Climate Change

4.4 Predicted changes are explored in detail as part of the North West Climate Change Project and the Natural England study Responding to the impacts of climate change in the Morecambe Bay Limestones National Character Area[28], but the key changes resulting from direct impacts are likely to be:

- increase in the frequency of 'wet' winters with more rainfall than average. This has implications in relation to increased flood risk, and the possibility of rising water tables;
- increase in the frequency of 'dry' summers with less than average rainfall, and when water tables may fall;
- increase in the length of the growing season due to the climate being warmer;
- reductions in soil moisture availability, and possible soil erosion as a result of reduced summer precipitation, higher temperatures and increased windiness;
- changes in coastal regimes including erosion of flats and saltmarshes as a result of increased storminess and increased scour of river and estuarine channels, changing sediment dynamics and loci of erosion/accretion (potential for additional availability of material, resulting from increased erosion within the catchment, but higher energy from increased peak flows transporting fine material longer distances – possibly changing the composition of flats from mud to sand);
- potential inundation of fresh water mosses with saline water as sea level rises and percolates into limestone aquifers or breaches existing sea defences;

[28] LUC (on behalf of Natural England), 2010. *Responding to the impacts of climate change on the Morecambe Bay Limestones NCA* [pdf]. Available at: https://climateandus.com/index.php/download/00061MorecombeBay_NCA_CC_Impacts [Accessed 15 July 2014].

- increased storminess giving rise to tree loss and damage, particularly individual parkland and field trees which are vulnerable to gales;
- changes in species' distribution, with some species potentially dying out and being replaced by others which are better suited to new climates;
- changes to key sensitive habitats including limestone grassland due to temperature changes and changes in the availability of water; and,
- potential changes in the physical size and appearance of the area, as the area of exposed coastal habitats (flats, sands, saltmarsh) may be reduced as a consequence of sea level rise. The general approach to sea level rise, as advocated in the Shoreline Management Plan[29], will be to manage realignment of the coast.

Development Pressures

Renewable Energy

4.5 A need to meet the requirement for 20% of UK electricity to be sourced from renewable energy by 2020 will have a significant effect on development in the region. Key pressures are:

- offshore wind turbines: over 100 offshore wind turbines are already visible from the AONB, seen to the far west of Morecambe Bay;
- onshore and offshore wind turbine development cumulatively affecting skylines and the setting of the AONB: two groups of onshore wind turbines are visible at Caton Moor and Lambrigg and single turbines are visible to the north at Armistead and at Holme Quarry on the M6. It is likely that further sites will be consented, with more in planning;
- tidal energy schemes: a tidal barrage scheme in Morecambe Bay was explored in the past and the harnessing of tidal energy may be considered again in the future;
- electricity grid requirements as a consequence of the construction of energy projects, where overhead power lines could adversely impact on the character and views of landscapes both within the AONB and those which form the setting to it; and,
- small and domestic scale renewable energy projects such as wind turbines and solar panels.

Non-conventional oil and gas extraction

4.6 The winning of natural gas from shale deposits by hydraulic fracturing (fracking) is currently under consideration for potential development in the northwest of England. Any development would require planning permission from the relevant County Council as Minerals and Waste authority, and would be subject to stringent checks and regulation through the Health and Safety Executive, the Environment Agency and the Department of Energy and Climate Change.

4.7 In line with paragraph 116 of the National Planning Policy Framework, applications for major developments in National Parks and AONBs should be refused, except in exceptional circumstances and where it can be demonstrated that they are in the public interest.

New Housing and Development

4.8 There is a recognised need for affordable housing within the AONB and in order to meet this need, a certain amount of new housing and development will be required. There is also pressure for market housing and other forms of development. It is very important for any development to take place in a way that minimises detrimental impacts upon the character of individual settlements and the landscape character of the AONB. Key pressures are:

- development of infill plots and greenfield sites for residential housing which can lead to loss of important semi-natural habitat and green space and which can adversely affect local landscape character and visual amenity;
- coalescence of settlements resulting in development of the countryside between towns and surrounding villages which can lead to the loss of important greenspace, the open character of the area and local distinctiveness;
- development outside the AONB, such as large scale holiday complexes and further commercial development, along the A6/M6 corridor has the potential to adversely affect the setting and views out from the AONB, particularly on the eastern margins;

[29] Halcrow, 2010. *North West England and North Wales Shoreline Management Plan SMP2.* Report prepared by Halcrow Group Ltd for the North West and North Wales Coastal Group [pdf]. Available at: https://www.gov.uk/government/publications/shoreline-management-plans-smps/shoreline-management-plans-smps [Accessed 09 July 2014].

- inappropriate repair or insensitive conversion or modification of vernacular buildings, or garden/drive/boundary treatments, which can result in original features being lost and the proliferation of features that detract from their setting, all of which can contribute to a gradual erosion of settlement character;
- urbanisation of villages and rural roads, for example through increased road signage, road markings and inappropriate street furniture, can have detrimental effects on rural character and tranquillity;
- inappropriate design which detracts from rural character;
- 'domestication' of the agricultural landscape as farm buildings are sold off and converted to residential properties or for use as holiday accommodation;
- increased lighting may change the character of night skies and introduce clutter into the villages and impact on an area's tranquillity. Examples include new poorly designed street lighting; increasing ribbons of road lights cutting through the countryside along existing or new roads; and, badly designed lighting in car parks, new housing developments, etc.;
- possible demands for larger scale or utilitarian buildings for industry.

Leisure and Tourism

4.9 The AONB offers a wealth of visitor attractions and wildlife sites. Whilst it is recognised that sustainable forms of tourism can make valuable contributions to the local economy and sustainable rural development, increasing visitor pressure also has the potential to affect the character of the area's natural and historical assets, and particularly the area's tranquillity. This is particularly relevant to associated traffic, demand for infrastructure (including parking and the upgrading of roads) and accommodation. Key pressures are:

- the development and expansion of campsites and caravan parks, including associated planting, decking, lighting, hard standing and parking, and increased traffic can impact on landscape character and tranquillity;
- increasing visitor numbers to the AONB can potentially have adverse impacts on the tranquillity of the area through physical and noise disturbance of wildlife by people and dogs, erosion and trampling, damage to roadside verges due to car parking, litter and dog fouling;
- associated pressures on the road network through the movement of caravans and increased car use;
- management of paths, erosion and possible associated disturbance: the area is crossed by a dense network of Public Rights of Ways (PRoWs), including the Lancashire Coastal Way, and is very popular for walking. A new coastal access route will be arranged, largely utilising existing paths, as a consequence of the Marine and Coastal Access Act[30];
- changes in forms of land and water/based recreational activity (such as motorbikes and jet-skiing) which may affect tranquillity;
- demand for additional village car parks in Arnside and Silverdale in addition to roadside parking, and the presence of cars at busy times which can detract from the character of the area; and,
- possible need for removal of level crossings over the railway, due to safety concerns, which may lead to the need to construct bridges, or severance of access across the railway line.

Traffic and Transportation

4.10 There is a reliance on travel by car by local people and visitors alike, although the train and public buses are also used to access the AONB. Key pressures are:

- the impact of traffic and parked cars within the AONB which is likely to continue to be an issue, particularly in relation to tourist activities;
- increasing pressures on the existing road network, particularly use by lorries and other large vehicles, which can affect tranquil character and damage narrow lanes, and give rise to demands to 'upgrade' sections of road which may be out of character with the area;
- the suburbanising effects of road improvements incrementally changing the rural character of the area, particularly within villages, responding to a need for road markings, signs and parking controls;
- potential pressure to widen narrow winding lanes, as vehicle size increases and in response to the need for vehicles to pass one another;
- the need for safe cycle and pedestrian routes introducing pressures for additional land alongside roads, or across farmland, including in response to the erosion of the Silverdale saltmarshes which may necessitate the movement of the coastal path further inland; and
- demand for a high speed rail link which may follow the M6 corridor.

[30] Marine and Coastal Access Act 2009.

Agricultural Change

4.11 EU Common Agricultural Policy has shifted support away from production subsidies towards agri-environment and wider rural development measures, providing opportunities for sustainable farming and rural diversification. Rural diversification is likely to have significant environmental effects and changes in agricultural production are likely to shape the future character of the landscape. Key pressures are:

- changing demand for, and potential competition between, food and energy crops, and climate change altering the need for agricultural production, patterns of crops grown, and the appearance of the landscape;
- declines in farming incomes and increased financial pressures leading land owners to seek alternative land uses, such as the use of agricultural land for caravan parks, tourism, flood alleviation, diversification into traditional wood crafts (charcoal and furniture-making) and creation of wildlife habitats in appropriate locations, the latter having positive landscape benefits;
- degradation to field boundaries through lack of management, or removal and amalgamation of fields;
- drystone walls in the area require on-going maintenance;
- hedges managed by strimming as opposed to more traditional laying may result in them becoming gappy and losing their species diversity;
- the replacement of traditional boundaries with wire fences which can give the landscape a more degraded character;
- ditches require management if they are to be retained;
- reduced grazing leading to the development of scrub, reduction in the diversity of landscapes and habitats and ultimately succession to woodland, including:
  - open limestone heath on the limestone hills and pavements (e.g. Jack Scout);
  - wet meadows, developing into wet woodland if no longer grazed;
  - wood pasture, where if small fields are no longer farmed they may return to woodland;
- amalgamation of farm units leading to a reduced number of working farm buildings in the landscape, and their conversion to housing or other uses;
- the creation of small areas of horse paddocks, with associated division of fields, and infrastructure (e.g. stables, shelters, jumps, electric tape fences) affecting land which was formerly used for cattle or sheep grazing, for example around Silverdale;
- stocking pressures and poor grazing management can also create issues with poaching of ground and over/under-grazing of pasture; and,
- promotion of management agreements and uptake of agri-environment schemes provides an opportunity to secure positive management, including through encouraging conservation grazing of small or difficult to manage sites, and providing funding for the management of walls, hedges, woodlands and historic buildings.

Land Management

Trees and Woodlands

4.12 Trees and woodlands cover between 25 and 30 per cent of the AONB and make a valuable contribution to the character of the landscape. Much of the hazel, oak and ash woodland in the area has traditionally been coppiced, with recent renewal of this tradition being evident in localised areas as a result of various initiatives.

4.13 Key pressures relating to trees and woodland are:

- changes and decline in traditional woodland management, including coppicing: cutting every 10 years or so would be required to maintain the character of these woodlands;
- the tendency for woodlands to become dominated by invasive species such as sycamore and beech, which require ongoing management to remove them;
- increase in rowan and birch in areas affected by wind blow (likely to experience increased storminess and wind damage as a result of predicted climate change impacts);
- increased woodland density and shading affecting the diversity of the ground flora;
- illegal bulb harvesting in wild daffodil and bluebell woods;

- tree pathogens including *Chalara fraxinea* (ash die-back), *Phytophthora* species and Dutch elm disease affecting significant areas of woodlands, field, hedgerow and parkland trees. These diseases cause leaf loss and crown dieback in affected trees, which usually leads to tree death. Ash woodlands are the dominant woodland type within the AONB and the impact of the spread of *Chalara fraxinea* on the landscape could be significant;
- fungus-like pathogens such as *Phytophthora austrocedrae* have been discovered locally, which causes dieback and mortality of juniper;
- effects of climate change on tree health, including:

  - longer growing season (earlier bud burst, later bud set; improved growth rate and yield) fewer frost days (reduced hardening, later dormancy, increased risk of autumn frost damage to sensitive species with longer growing season);
  - likely to expand the range of pests and diseases which may affect the health and composition of woodlands in the future;
  - changes in soil moisture availability or increased storminess;
  - increased levels of general stress (caused by moisture deficit, pathogens etc.) on less climate-resilient species, shortening lifespans and potentially reducing dimensions of mature specimens;
  - increased secondary pest/disease outbreaks in weakened stands / specimens;
  - changes in epiphytic lichen and bryophyte communities as a result of warmer, drier summers;
  - increasing prevalence of wildfires;
  - changing resilience and composition of ground flora and understorey layers; and,
  - non-renewal of individual field trees, parkland and avenue trees and their gradual decline or loss, highlighting the need to plan for species succession, where like-for-like replacement of standards may lower future climate resilience; and,
- promotion of management agreements and uptake of agri-environment schemes provides an opportunity to secure positive management of forests and woodlands helping to maintain and improve their landscape and biodiversity value.

Waterbodies

4.14 Key pressures relating to waterbodies are:

- vulnerability of waterbodies and wetlands to agricultural diffuse pollution and septic tank outflows, particularly in the Hawes Water and Leighton Moss catchments;
- risk of saline incursion into freshwater wetland mosses as a result of storms and sea level rise (both direct incursion and through percolation into limestone aquifers); and
- siltation of waterbodies, or loss of areas of open water and ponds due to encroachment of vegetation; without on-going management natural succession could affect landscape and habitat diversity.

Habitats and Species

4.15 Key pressures are:

- beneficial changes as a consequence of increasing management of land by conservation bodies, and restoration of wetlands;
- climate change affecting habitats and species;
- changes or declines in management affecting the balance and mosaic of different habitats throughout the area;
- development pressures or changes in agriculture and farm machinery;
- alterations and changes to wetlands, moss and mire habitats;
- scrub invasion and changes in the management of species-rich limestone grasslands and other unimproved grazing land;
- absence of or changes in management of all woodland, including ancient semi-natural and ancient replanted woodlands;
- disturbance by people, pets and traffic;
- the presence of invasive non-native species such as Giant hogweed, Himalayan balsam, and Japanese knotweed; and,
- mammalian pests such as deer and rabbits. Also of note are the populations of grey squirrels in the AONB.

Fabric and Settings of Historic Sites

4.16 Historic sites, such as the Arnside Tower and other atmospheric tower defended farms, and the hill fort at Warton Crag attract visitors and require maintenance, having implications for the condition and quality of sites. A number of non-scheduled features such as ponds, wells and features linked back to past industrial activity are also important historic elements which reveal time-depth within the landscape. In addition, there are many historic designed landscapes (as well as associated structures and features) which are not currently designated and which could be at risk of deterioration or loss through a lack of management, recognition and information relating to them.

4.17 Key pressures are:

- the effects of the provision of visitor facilities such as car parks, paths and signage on the fabric and/or setting of historic features;
- new development, such as expansion and development of caravan parks, altering landscape settings to sites or resulting in the loss of features;
- woodland growth which can lead to sites being hidden or damaged by roots;
- the need for ongoing maintenance: e.g. drystone walls, lime kilns (restored as part of a Heritage Lottery funded project) and a number of non-scheduled features which are characteristic throughout the area. Without ongoing maintenance such features may fall back into disrepair;
- lack of appropriate management or succession planning to replace mature, veteran and notable trees which form important components of the AONB landscape; and
- historic gardens and designed landscapes coming into new ownership, undergoing a change in land use or effects on them as a result of climate change, management issues and lack of funding which may result in their deterioration or loss of significant features.