PROPERTIES IN THE CARE OF SCOTTISH MINISTERS

ANNUAL REPORT 2016-17

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

CONTENTS

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Please note, this report does not detail activities at our ancillary properties, unless this activity has a direct impact on the properties in care and/or associated collections.

INTRODUCTION

This annual report is presented to Scottish Ministers as part of our obligations under the Schemes of Delegation provision of the Historic Environment Scotland Act 2014.

We fulfil a stewardship role for some of Scotland's most important places, a role commenced by our predecessors some 700 years ago. The challenges and opportunities we face today are markedly different to those even 30 years ago, but our activity continues to be centred around having the appropriate knowledge, skills and materials to care for these important assets

The creation of HES in 2015 provided both a driver and an opportunity to examine the management and operations of the 336 properties in care and their associated collections. We have reviewed our approach to condition survey, monitoring and reporting for our properties and their associated collections, and developed new techniques based on a review of best practice, all of which is detailed within the main body of this report. The report also sets out the work we have undertaken across the PiCs in 2016-17, setting this in the context of our long-term plans to increase operational efficiency, capitalise on the use of innovative technologies, harness our expertise and maximise the added value to be gained through delivering our functions.

This report provides evidence of our delivery of the Schemes of Delegation, set against the five strategic themes in our Corporate Plan (Figure 1): Lead, Understand, Protect, Value and Perform, and illustrates the wider impacts of our investment in the properties in care and associated collections. Many of our activities cut across one or more of these strategic themes, but for the purpose of this report, they have been aligned to the theme where it makes the strongest contribution.

The location of Historic Environment Scotland's Properties in Care

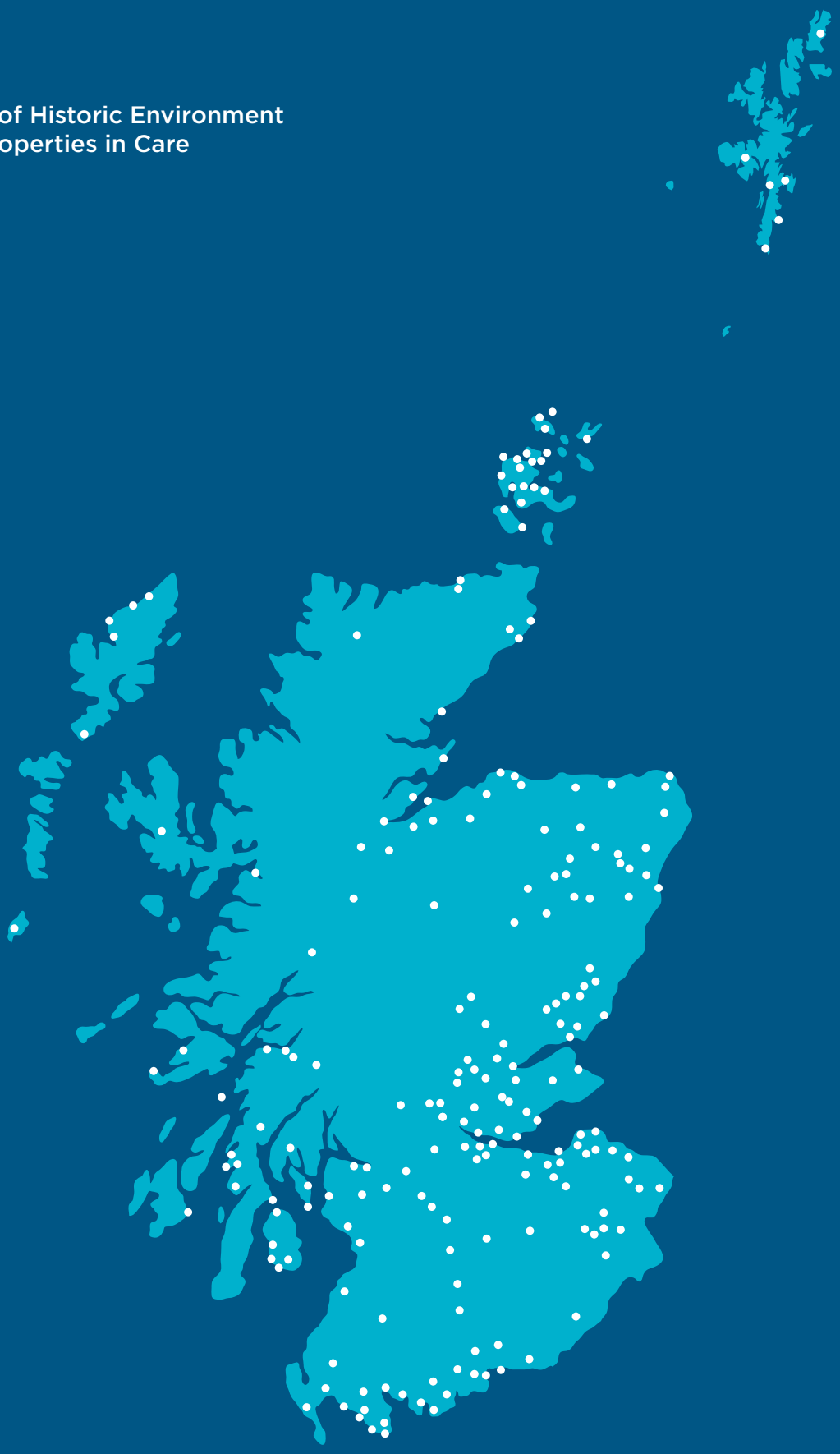


FIGURE 1: HES strategic themes

2. LEAD

We work to fulfil a leading and enabling role in the historic environment sector to ensure that Scotland's historic environment makes a strong contribution to the cultural, social, environmental and economic wellbeing of the nation and its people.

Evidence of our leading role in this is threaded throughout this report and includes details of our work with partners across the sector, widening public access to the properties and their associated collections and our engagement with communities, which empowers and enables others to care for their historic environment.

This section provides details of some of our large 'leading' projects including development of the Engine Shed, our work to address the impact of climate change, and our commitment to promoting traditional skills and providing opportunities for people to develop new skills, knowledge and expertise in relation to the historic environment.

2.1 The Engine Shed

In 2016-17 we have continued to focus on delivery of the Engine Shed, which will serve as Scotland's building conservation centre, a central hub for building and conservation professionals and the general public. This new learning and visitor resource will help us to encourage a greater understanding of traditional building materials and skills – and using this, we will inspire future generations to continue to care for Scotland's built heritage. Open to the general public, the Engine Shed will provide an inspiring learning environment for everyone from building professionals to school children.

The Engine Shed importantly creates a conduit between the conservation work undertaken on our estate, and the knowledge, skills and materials required for both HES and the broader sector in caring for traditional buildings and structures.

The Engine Shed will be an asset for the sector and HES in raising standards and encouraging greater understanding via the delivery of formal qualifications in Technical Building Conservation (in conjunction with the University of Stirling, Forth Valley College and SQA) and will provide a training delivery vehicle for our own staff.

Annual reports in subsequent years will provide details on how the Engine Shed has supported our role in managing the PiCs and their associated collections.

2.2. Climate change and sustainability

As a large public sector body, HES has a significant role in supporting the Scottish Government's climate change targets (Figure 2). This includes not only managing our own carbon emissions, but taking the lead in researching and developing energy efficiency solutions for traditional buildings and disseminating findings to improve the provision of advice, skills and qualifications for public and professionals. Similarly, we are mandated through the public sector climate change duties and *Climate Ready Scotland: Scotland's Climate Change Adaptation Plan* not only to assess impacts and risk to our own Estate, but also to lead the way in ensuring that the contribution the historic environment can make in climate change adaptation is maximised.

Our latest reports on our performance in relation to climate change duties and sustainability can be accessed via our website: https://www.historicenvironment.scot/about-us/what-we-do/climate-change/

2.3. Innovation in conservation

We have a broad range of in-house technical, scientific and technological expertise, enhanced by a strong and dynamic partnership network.

Our work over the past decade in the field of digital documentation and visualisation remains a core area of research and development for us. In developing approaches to condition survey and reporting, we have used our expertise to evaluate the approaches currently used to manage assets in the heritage sector and beyond.

The absence of any commercially available survey and reporting system suited to, or indeed adaptable to, our needs meant that a bespoke solution was required. This would require a degree of functional flexibility to accept the intricacies of our monuments, and the technological capabilities to align with our horizon scanning on 3D spatial systems such as Building Information Modelling (BIM).

A research partnership with our colleagues at the British Geological Survey (BGS) has led us to develop a bespoke survey system known as HES-SIGMA – an integrated digital site assessment system that provides a refined survey process for historic sites.

In 2016-17, we have invested in our conservation science function that undertakes research activity in support of the broader sector and also provides analytical services for our PiCs and associated collections. We have continued to develop our expertise in thermography and have been particularly focused on understanding moisture movement through walls. We are planning to extend our analytical services provision through the Engine Shed in 2017-18.

2.4 A future for traditional skills

We have a number of schemes in place to help promote the development of traditional building skills and improve the availability of relevant skills within the agency and across the wider heritage sector.

We support skills demands through trade and technical apprenticeships, craft fellowships and professional internships. In 2016-17, we supported a total of 54 apprentices, 11 craft fellows and 15 interns to achieve this (Figure 3).

Stonemasonry training is delivered by our staff at Forth Valley College and Elgin Conservation Centre. In addition to the 29 HES apprentices trained at these facilities, 18 apprentice stonemasons from the private sector attended in 2016-17. Both Training Centres achieved a 100 per cent pass rate for apprentices sitting their skills test in July 2016. Across all trades, 14 of the 36 HES apprentices qualified as tradespeople this year.

FIGURE 2: Working towards our Public Body climate change duties

REDUCE ENERGY USE IN OUR BUILDINGS – AND REDUCE CARBON EMISSIONS

REDUCTION IN GREEN HOUSE GAS EMISSIONS 3.9%

which exceeds our target of a 2.2% reduction

IMPROVE ENERGY EFFICIENCY IN TRADITIONAL BUILDINGS – BY PROVIDING USEFUL GUIDANCE FOR OWNERS

WE PUBLISHED 3 REFURBISHMENT CASE STUDIES

WE MANAGED 20 RESEARCH PROJECTS RELATED TO SUSTAINABILITY, ENERGY EFFICIENCY OR CLIMATE CHANGE IMPACTS AND ADAPTATION

INFORM AND INFLUENCE OTHERS – BY REPORTING ON IMPACTS AND PUBLISHING BUILDING REPAIR GUIDANCE

BUILD RESILIENCE – BY HELPING TO PREPARE THE HISTORIC ENVIRONMENT FOR CLIMATE CHANGE

WE PUBLISHED CLIMATE CHANGE ADAPTATION SHORT GUIDE

IMPROVE OUR OPERATIONS – THROUGH GREENER MANAGEMENT PRACTICES

We have **133 GREEN CHAMPIONS** across the agency,

AN INCREASE OF 104% on the previous year.

WE HAVE COMMISSIONED A WASTE STRATEGY REVIEW

We carried out our **THIRD DIGITAL SCAN OF THE COASTLINE AT SKARA BRAE** to monitor coastal erosion

IMPROVE SUSTAINABILITY – AS AN INDIVIDUAL ORGANISATION AND BY ENGAGING WITH OUR PARTNERS AND STAKEHOLDERS

We worked with **29 different organisations** as part of a number of schemes including:

- HES Climate Change Risk Assessment
- Adaptation Learning Exchange Risk Task Group
- National Coastal Change Assessment
- Edinburgh Adapts Steering Group

We have worked particularly closely with the Scottish Government, Scottish Environment Protection Agency, Scottish Natural Heritage, the University of Glasgow, Edinburgh World Heritage, CADW, Historic England and Fit for the Future in achieving our objectives

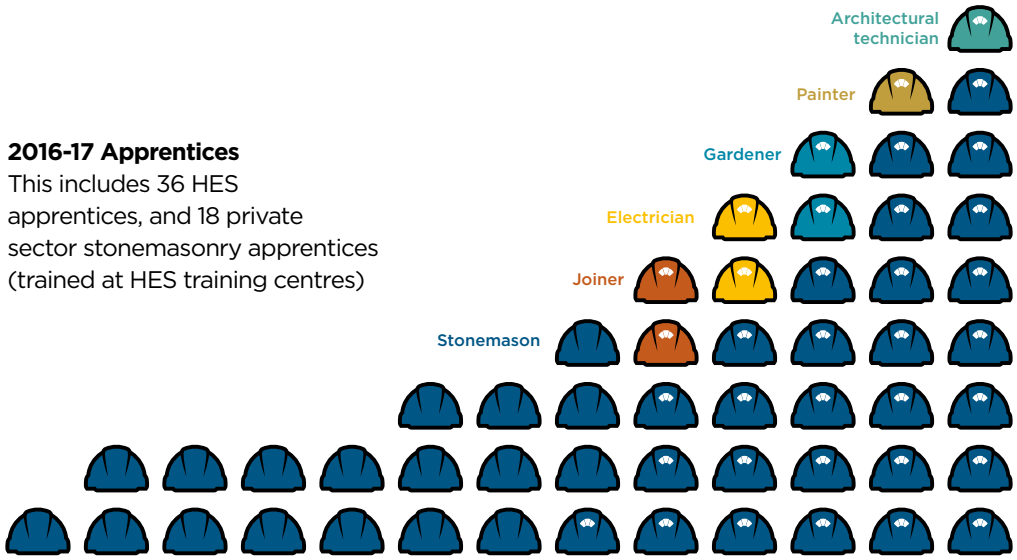
DEVELOP AND PROMOTE SUSTAINABLE TOURISM – BY MEASURING OUR OPERATIONS AGAINST THE GREEN TOURISM SCHEME

WE HOLD GREEN TOURISM AWARDS AT 68 OF OUR PICS

41 GOLD

27 SILVER

FIGURE 3: Providing educational opportunities in the heritage sector



Internships help us work towards achieving our goals
% internships linking to HES Corporate Plan KPIs

HES Corporate Plan KPI		% internships projects
KPI 3	Managed the impact of climate change by improving knowledge and understanding	7
KPI 4	Created an organisation that earns respect as the lead public body for the historic environment	53
KPI 5	Increased knowledge and understanding of the historic environment	47
KPI 6	Improved the condition of Scotland's historic environment	7
KPI 7	Enhanced engagement with the historic environment	47
KPI 8	Provided excellent service to our visitors and service users	27

Our craft fellowships cover a range of skills and specialisms
Provision of craft fellowships in 2016-17

Trade/Specialism	No. of fellowships	Location	Host
Artisan blacksmithing	1	Edinburgh	P Johnson and Co
Digital documentation	2	Edinburgh	HES
Joinery	1	Stirling	Andrew Miller Architectural Joinery
Letter cutting	1	Edinburgh	Colin Braid Workshop
Milling	1	Orkney	Barony Mill
Quarrying	1	Berwick-upon-Tweed	Hutton Stone
Stone carving	1	Berwick-upon-Tweed	Michelle De Bruin
Traditional boatbuilding	1	Orkney	Ian Richardson, Boat Builder
Wool milling	2	Knockando	Knockando Wool Mill

In anticipation of more rigorous reporting requirements associated with SQA's adoption of the skills test into the formal qualification, we are currently developing a framework for assessing our own ability to provide all our apprentices with the training they need to develop industry-relevant skills ahead of employment. In future years, we will report on our performance against our targets via the methodology we are currently developing.

Our craft fellowships vary in discipline – they are typically specialised roles and involve working within industry in a 'host' organisation. In 2016-17, fellowships were funded in the areas of digital documentation, wool milling, blacksmithing, boat building, joinery, letter cutting, stone cutting and quarrying. More than 80 per cent of our fellows were placed with a host organisation outside HES, and five of the six fellows who completed their placement this year have successfully gained employment with their host organisation.

Internships are offered by a number of our teams and are often filled by recent graduates, or students working towards a qualification. That being said, a number of our recent interns are experienced professionals who are new to the heritage sector. Our internships offer them the support and guidance required to establish a career in heritage, and provide exposure to the real challenges and demands of working in this sector.

Internships are typically funded by HES, although for a number of years, our Digital Documentation team has hosted HLF Skills for the Future interns; 2016-17 marked the last intake of these HLF internships.

This year, our internships helped us work towards six of our 11 KPIs; half of our internships supported work in the strategic areas of Lead, Understand and Value.

The skills our interns develop during these placements are truly transferable; of the interns who finished within the 2016-17 year, 71 per cent are now in employment across a range of disciplines, and 14 per cent returned to education or training.

CELEBRATING OUR PEOPLE

Andrew Harvie, Apprentice Stonemason

Andrew joined Historic Scotland in 2013 as a Labourer at Dirleton Castle. Andrew is now a stonemasonry apprentice at Edinburgh Castle and is one of a number of apprentices who benefited from the opportunity to work on a commercial new-build project on the Isle of Jura.

Andrew said the placement "helped [him] greatly in widening [his] skills", allowing him to develop skills in modern masonry techniques. This experience has helped make Andrew a "confident and competent tradesperson".

3. UNDERSTAND

We work to increase knowledge and understanding of the historic environment through investigation, research and recording activities so Scotland's historic environment is better known and understood.

This section provides evidence of the advances we are making to ensure appropriate management of the properties in care and associated collections, which allow us to fulfil our obligations associated with the Schemes of Delegation.

This includes details of how we survey and record our monuments and collections, our use of digital documentation to enhance visitor access and experience, and our often collaborative work to improve the quality and extent of information about the historic environment.

3.1. Digital for conservation

Survey and documentation of our monuments and collections helps us understand their condition, how this changes over time and how best to care for them. In alignment with our asset management policy, we are moving towards digital documentation and management of assets.

We are focusing resources towards establishing a live asset management database – PiCAMS (Properties in Care Asset Management System). Our work in digital survey, documentation and information modelling is the first step in achieving this vision.

3.1.1. HES-SIGMA

2016 marked the launch of the HES-SIGMA (System for Integrated Geoscience Mapping) pilot, and with it a move from analogue condition survey of monuments to a digital system. Based on the BGS System for Integrated Geoscience Mapping (BGS-SIGMA), the system is built on top of GIS software and is underpinned by a relational database.

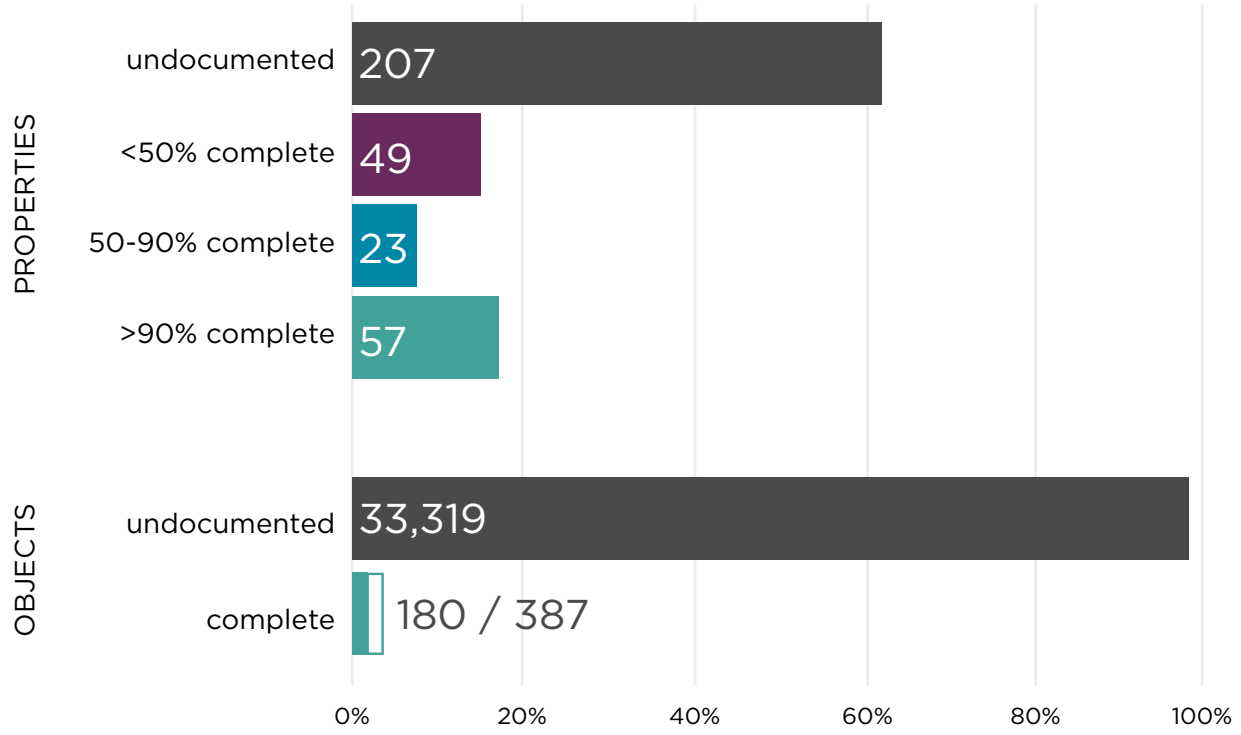
Development of this system is a considerable advance for us and potentially for the broader sector. The system has generated considerable interest from our peers. This is a key part of our longer term digital strategy and vision for the PiCs – a fully integrated 3D asset management system specifically designed for heritage assets. This system is called PiCAMS and will commence development in 2017-18. These systems form the basis of our asset management strategy going forward; our *Asset Management Plan* is currently in development and will be published in early 2018.

The move to HES-SIGMA allows us to measure and record condition digitally. The associated data collected also offers additional opportunities to plan works and make decisions about resource allocation and prioritisation of investment. However, it presents some challenges when we first start to monitor condition and compare values between the legacy analogue and the new digital data.

The original baseline MCI values in the Scheme of Delegation for the PiCs provided at time of handover to HES in October 2015 were based on analogue data. New MCI values are based on digital data collected through HES-SIGMA. The complexity and granularity of the new digital data is far superior to the legacy analogue data. Comparison of values and monitoring of condition data through time for a particular monument must also take cognisance of many factors including rates of decay for the materials of the monument, levels of investment, cycles of maintenance, and the impacts of climate change within the period of review. It is the impact of investment on the overall condition of a monument that we hope to measure through a suite of measures, including MCI.

This year, 20 surveys were conducted across 17 PiCs using the pilot HES-SIGMA, which was at the beta testing stage of the model (multiple surveys

FIGURE 4: Measuring progress of the Rae Project



were completed at Edinburgh Castle, Stirling Castle and Fort George). Assuming a successful pilot, implementation of HES-SIGMA in future years will allow us to add like-for-like digital comparison of monument condition through time to the suite of measures to provide a retrospective assessment of the impact of investment and associated conservation work following each resurvey. A list of sites at which surveys were undertaken in 2016-17 (and corresponding digital MCI values) is provided in Appendix A.

3.1.2. THE RAE PROJECT

We have been working towards digitisation of all 336 PiCs and initially 387 objects within the associated collections to provide a digital baseline that will allow us to better document, manage and care for our assets. Additionally, this work is used to enhance access and visitor experience by providing digital access to properties and collections via online resources and mobile applications.

2016 saw the appointment of a two-year fixed-term staff post to assist with the delivery of the Rae Project. In addition, £550,000 funding was allocated to ensure the infrastructure required for this work was in place, and to commence digital documentation works in collaboration with a number of private sector organisations.

To chart our progress in achieving our goals, we have developed a set of aspirational criteria against which we are assessing our 'compliance' in digital documentation of our assets. We will use this method to report on our progress each year. By the end of March 2017, 17 per cent of the PiCs were ≥90 per cent compliant (Figure 4).

3.1.3. BUILDING INFORMATION MODELLING (BIM)

As part of our drive to integrate digital into our everyday work, we have been piloting the use of Building Information Modelling (BIM). This involves creating 3D models of key properties in our Estate

and populating the models with information including building fabric, structure and services.

This work is helping us better understand the information that we hold and generate, and how we can use this data to inform workflows more efficiently. Our BIM models will act as tools to support routine operational asset management and deliver future capital projects.

The Scottish Government Procurement Review (October 2013) recommended the adoption of BIM across the public sector by April 2017. In compliance with this, we have prepared our *Employers Information Requirements* to enable relevant future projects to be delivered using BIM; this was signed off in March 2017.

We have four BIM pilot studies under way, including the Palace Block at Edinburgh Castle, to inform the development of our organisational BIM Strategy. We will embark on more case studies in the coming year.

3.2. Technical research

In 2016-17, we were directly involved in 40 technical projects spanning a range of themes including climate change, traditional materials, energy efficiency, emerging technologies and techniques, and traditional structures (Figure 5).

Our projects are delivered by a number of mechanisms including in-house research, commissioned research, collaboratively delivered projects, internships and university-based research (MSc, PhD and postdoctoral research).

The knowledge and understanding we gain through this research has a direct impact on the conservation decisions we make in relation to our PiCs and collections and the longer-term strategies we adopt across our Estate, as well as impacting the approaches adopted by the wider heritage sector.

Projects are directly related to the HES strategic themes Lead, Understand, Protect and Value and the delivery of many HES KPIs within these. Many of our projects also link with the Scottish Government strategic objectives ‘Smarter’ and ‘Greener’.

WORKING WITH OTHERS

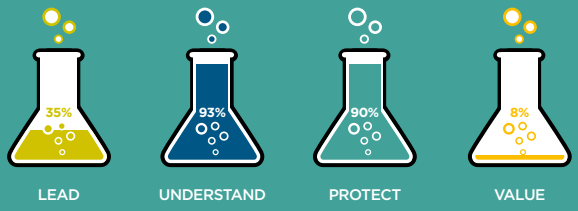
Historic Digital Survey: collaborative project with Heriot-Watt University.

Working with others, and pooling our resources, allows us to realise our aspirations sooner. Ongoing work with CyberBuild at HWU’s Institute for Sustainable Building Design has taken us one step closer to developing improved digital methods for surveying historic assets using laser scanning and mathematical modelling.

Projects like this will help us become more operationally efficient in the future, making our staff resources go further and improving accuracy in costing works. This project also has positive impacts for the wider construction sector.

FIGURE 5: Technical research activity

40 ACTIVE RESEARCH PROJECTS CONTRIBUTING TO OUR CORPORATE OBJECTIVES



OF OUR 40 PROJECTS...

WE WORKED WITH OTHERS ON...

8 COLLABORATIVE RESEARCH PROJECTS

WE PROVIDED EDUCATIONAL OPPORTUNITIES VIA...

14 RESEARCH-BASED PhD, MSc, INTERNSHIPS

WE SUPPORTED OTHERS THROUGH...

15 COMMISSIONED RESEARCH PROJECTS

7 PROJECTS REACHED COMPLETION

OUR RESEARCH ALIGNS WITH SCOTTISH GOVERNMENT STRATEGIC OBJECTIVES...

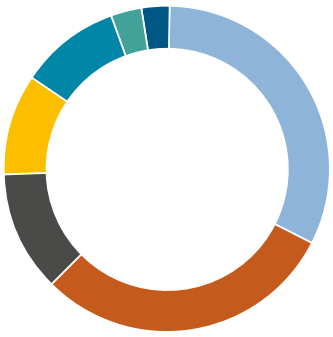
35% of projects contribute to 'Greener'

95% of projects contribute to 'Smarter'

THROUGH OUR RESEARCH, WE HELP OURSELVES AND OTHERS...

- value and enjoy our built heritage and protect it for future generations
- reduce the environmental impact of our consumption
- become better educated, more skilled and renowned for our research and innovation

HES Corporate Plan KPI		# contributing projects
KPI 3	Managed the impact of climate change by improving knowledge and understanding	10
KPI 4	Created an organisation that earns respect as the lead public body for the historic environment	4
KPI 5	Increased knowledge and understanding of the historic environment	37
KPI 6	Improved the condition of Scotland's historic environment	36
KPI 7	Enhanced engagement with the historic environment	3
KPI 8	Provided excellent service to our visitors and service users	2



Proportion of projects per research theme

Evaluation and application of emerging technologies and techniques	32%
Traditional materials	30%
Energy efficiency	12%
Traditional structures and components	10%
Climate change impacts and adaptation	10%
Regulatory control	3%
Facilities management	3%

3.3. Climate change risk assessment

As required under the Scottish Government Climate Change Action Plan, we have developed a methodology for assessing climate change risk to heritage sites, including a climate change risk register for our Estate.

We are currently undertaking a natural hazard assessment of all our sites against a number of environmental criteria such as flooding (fluvial, coastal, pluvial, groundwater), coastal erosion and landslide/ slope instability using datasets from SEPA and BGS.

This climate change risk assessment data is one of the key assessment criteria used to inform the prioritisation of investment across the assets, in particular identifying sites for priority action. This new and ambitious area of work will also contribute towards corporate risk management in terms of wider operational factors such as visitor access to sites and public events at our properties.

Phase 1 of the HES Climate Change Risk Assessment reached completion this year and we are currently preparing a publication detailing the results of this baseline risk assessment. This is the first risk assessment of this kind on the HES Estate and it provides valuable insight into the risks posed to our properties and their associated collections by natural hazards.

This project, which used datasets from a number of agencies, is truly collaborative and allows us to lead by example, providing other bodies in the sector that have similarly vulnerable assets with the information they need to consider a similar assessment.

The project assessed the number of sites as high or very high risk in relation to a number of natural hazards. This evaluation of climate change risk will provide improved evidence-based decision-making in order to better prioritise on-going investment through our conservation and maintenance programmes, thus ensuring the long term survival of the properties in our care.

A Climate Change Risk Assessment of the Properties in Care of Historic Environment Scotland will be published in early 2018.

CELEBRATING OUR PEOPLE

Sarah Hamilton, Conservation Science Intern

Following a 16-year teaching career, Sarah joined HES as a conservation science intern.

Through this placement, she was able to put her Geology Honours Degree and Architectural Conservation Masters to use, conducting scientific analysis across many of our PiCs.

Sarah said the internship provided "the chance to gain practical experience in the field of conservation science while also allowing [her] to apply the various aspects of [her] previous training and experience in a new and challenging environment... working on a vast range of projects".

3.4. Collections documentation and research

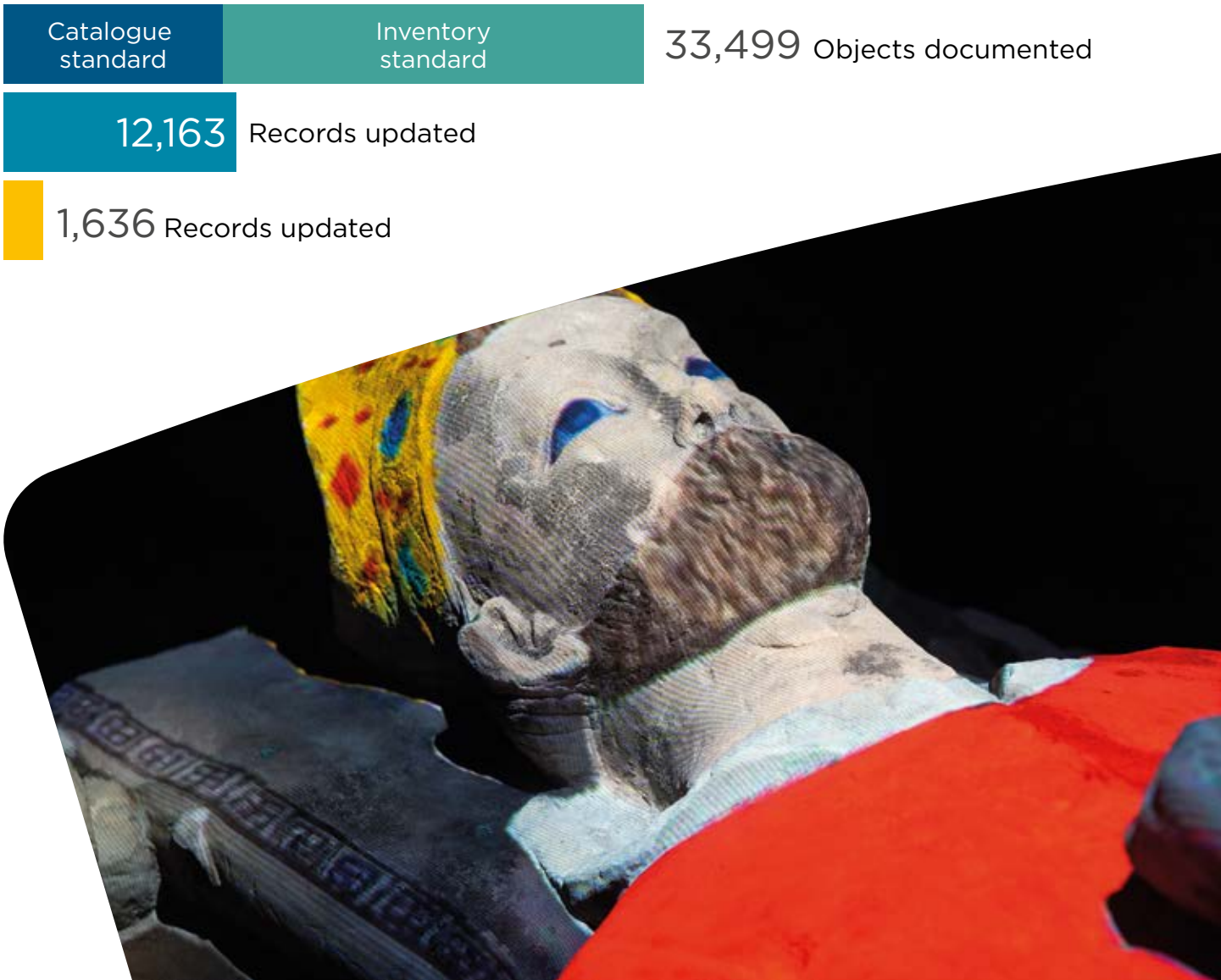
Effective collections management is underpinned by a good knowledge and understanding of the collections in our care and this is achieved through meticulous documentation and robust research.

Our Development Policy was approved by the HES Board in March 2017. It sets out the criteria applied when HES archives and collections acquire (or dispose of) items. Its aim is to ensure that information relating to our archives and collections is accurate, secure, reliable and accessible, and that systems are developed in line with the Accreditation Scheme for Museums and Galleries in the United Kingdom, and the Archives Accreditation Standard.

Vernon CMS, our collections management system, is our ever-growing knowledge base for all our collections-related activities. It is the central repository for all collections digital data including more than 85,000 linked images and in excess of 100,000 associated object documents – conservation assessments and reports, history files, movement records, loan agreements, research reports and bibliographic references.

Of these records, 66 per cent have reached full catalogue standard with 34 per cent still remaining at basic inventory level. Over the past year, 1,636 new object records were added – increasing the size of our collections by 5 per cent – and 12,163 object records (36 per cent of the collection) were updated (Figure 6).

FIGURE 6: Understanding our collections



3.5. Archaeology and history

We continually work to improve our understanding of the PiCs and provide management and advice in relation to their archaeology, history and cultural significance.

In 2016-17, we conducted a number of surveys across the Estate including standing building surveys at three properties, geophysical surveys at five properties and LiDAR surveys at five properties. Forty-eight minor archaeological works were undertaken at PiCs; the majority of this work was monitoring conservation works or the installation of new interpretation where this may have an impact upon archaeological deposits or historic fabric.

In 2016-17, we conducted research on 23 of the PiCs to underpin interpretation projects. In addition to our own research, we commissioned a number of research projects to further our understanding of the PiCs. Work was commissioned to expand our archaeological and historical knowledge of Bothwell Castle, Edinburgh Castle, Glasgow Cathedral, Linlithgow Palace, Stirling Castle, Tantallon Castle and a number of our Orkney sites.

Notable work this year includes projects writing up Charles Thomas's archive excavations at Iona Abbey (partners include Glasgow University, St Andrews University, Stirling University, Bradford University and Cardiff University), rescue excavation works at Links of Noltland and the publication of *Calanais Survey and Excavation, 1979-88*.

The Scheme of Delegation for PiCs requires that each monument has a Statement of Significance; these statements articulate the wide range of values each site possesses. All our sites have statements in place, but good practice recommends regular review of statements to take account of new research/ understanding or to correct errors (Figure 7).

A rolling programme to revise and publish statements is ongoing and we have established a rigorous approach to their production including peer review practices with several academic institutions. This has shed new light on many aspects of the PiCs, which in turn have directly fed into interpretation and learning focused work as well as informing conservation approaches.

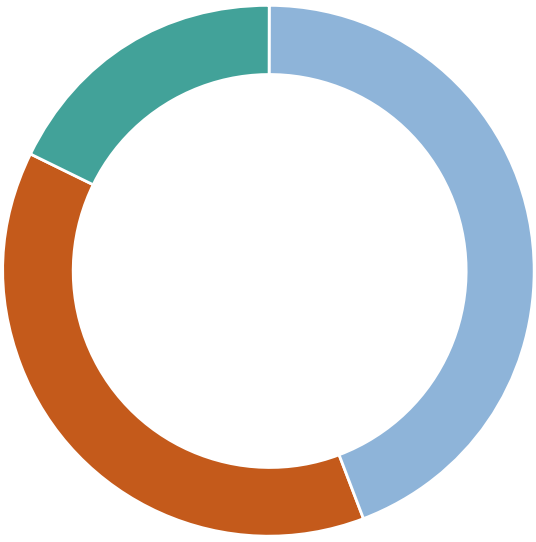


FIGURE 7: Currency of the statements of significance

Baseline statement (more than 10 years old)	**44%**
Statement revised between two and 10 years ago	**38%**
Statement revised since 2015 or currently under active revision	**18%**

4. PROTECT

We work to enhance protection of the historic environment to ensure Scotland's historic environment is cared for and protected for future generations to enjoy; conservation of the properties in care and associated collections is a core function.

This section details the work we have been doing to ensure delivery of the Schemes of Delegation and gives details of the tools we are putting in place to ensure effective management and delivery of our work.

This year, we have been focused on the development of an *Asset Management Plan*, which will be published in early 2018. This outlines our aspirations to develop a bespoke asset management system. Our HES-SIGMA pilot is the first step in realising this ambition; SIGMA forms the foundation of what will be a broader asset management system that will a give us a real-time holistic view of our assets and their requirements.

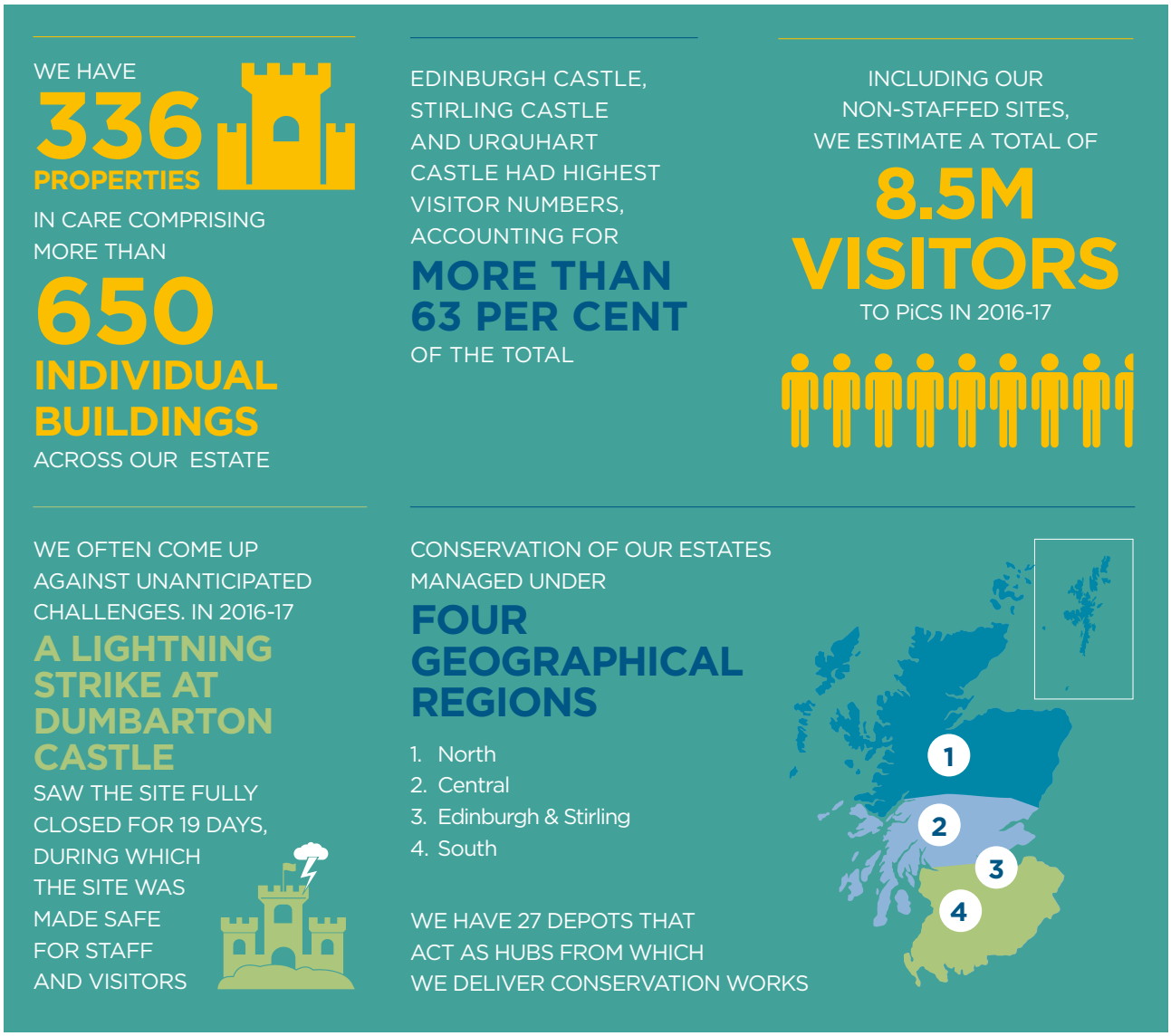


FIGURE 8: Protecting the PiCs

4.1 Conservation and maintenance of the properties in care

January 2017 saw the publication of our progress report on the conservation and management of the properties in care of Scottish Ministers historicenvironment.scot/pic-progress-report-2017, which acted as an interim statement ahead of the HES *Asset Management Plan* that we are currently preparing.

This report set out the ways in which HES would deliver the Scheme of Delegation for the PiCs through digital condition survey, climate change risk assessment and compliance across 13 areas.

Following the completion of a 'resource needs assessment', this report highlighted a need for £65 million over 10 years to deliver sufficient conservation works to bring the PiCs to an acceptable condition. A £6.6 million boost to funding by the Scottish Government announced in January 2017 is the first step in tacking this conservation deficit, which continues to increase in a dynamic system of ongoing deterioration, exacerbated by a changing climate and often unpredictable natural hazards. Future reports will identify the impact of this spending on monument condition.

There were no PiC acquisitions or disposals in 2016-17. There have been a number of changes to designations across the PiCs as a result of a review of dual designation (i.e. status as a listed building and scheduled monument); eight PiCs have been impacted by these changes. Details are provided in Appendix B.

4.1.1 PRIORITISING INVESTMENT

Over the past two years, we have been working to develop a rigorous method of prioritising investment that takes account of the vulnerability and need of our properties in terms of conservation. In addition to this, our prioritisation process also considers the visitor experience, cultural significance and the wider benefits and opportunities of investing in properties, such as the impact on the local economy, the potential to engage with community groups, and the potential to implement sustainability measures (Figure 9).

These areas of interest form the foundations of the multicriteria assessment tool that informs our investment decision-making process; these are aligned with our asset management objectives.

We continue to create, collate and analyse information relating to each of these factors so we can refine our prioritisation processes and make continually more informed decisions as we go. A HES *Investment Plan* will sit alongside the *Asset Management Plan*, to be published in 2017-18, and a *Visitor Strategy* to be published in 2018-19.

4.1.2 MEASURABLE CHANGE

This year has seen some changes to the structure of our Estates team as we set out on our task of delivering the Scheme of Delegation for the properties in care. A trial change in the management of our two largest sites, Edinburgh Castle and Stirling Castle, has allowed us to explore consistency in operations and presentational standards while addressing the unique needs of these individual sites (Figure 8).

Works on conservation, infrastructure, mechanical and electrical (M&E) systems and visitor-facing projects continued across the country as we launched our HES-SIGMA pilot. Given the change from paper to digital survey techniques and the associated differences in data capture, it is presently challenging to quantify the change in monument condition.

We are currently refining our condition measuring methodologies to ensure that as monuments are resurveyed in the future, we will be better placed to quantify the impact of our investment in terms of monument condition.

We also hope to develop ways to articulate the challenges we face in caring for the monuments, particularly the impact on condition of extreme events such as flooding and vandalism and the implications of these on investment needs.

In 2016-17, we spent £7.6 million to conserve and maintain our PiCs. This figure relates to the cost of our baseline maintenance work, as well as to larger projects addressing needs associated with

conservation, compliance, infrastructure and visitor-facing property, and includes the cost of things that make our work at the PiCs possible (e.g. fuel costs associated with getting our MCU staff to sites, rent costs associated with our depots and stores). (Figures 10, 11)

Our Estates team managed a total of 134 active projects in 2016-17 (Figure 12); 115 of these focused on individual PiCs across 58 of the properties; an additional 19 projects were national, multi-site or depot focused. A full list of projects that incurred spend in 2016-17 can be found in Appendix C.

An additional 35 climate change focused projects at the PiCs were managed via our climate change team. Information on these is in Appendix D.

Our Estates team works with colleagues across the agency to ensure we are managing our properties to the best of our ability, and with the best approaches possible. Our in-house technical teams provide valuable support, helping us enhance our understanding of our properties, and in shaping our approach to many of the conservation challenges we face.

We are in the process of implementing new procedures for the prioritisation and recording of support work (e.g. scientific analysis) on the Estate.

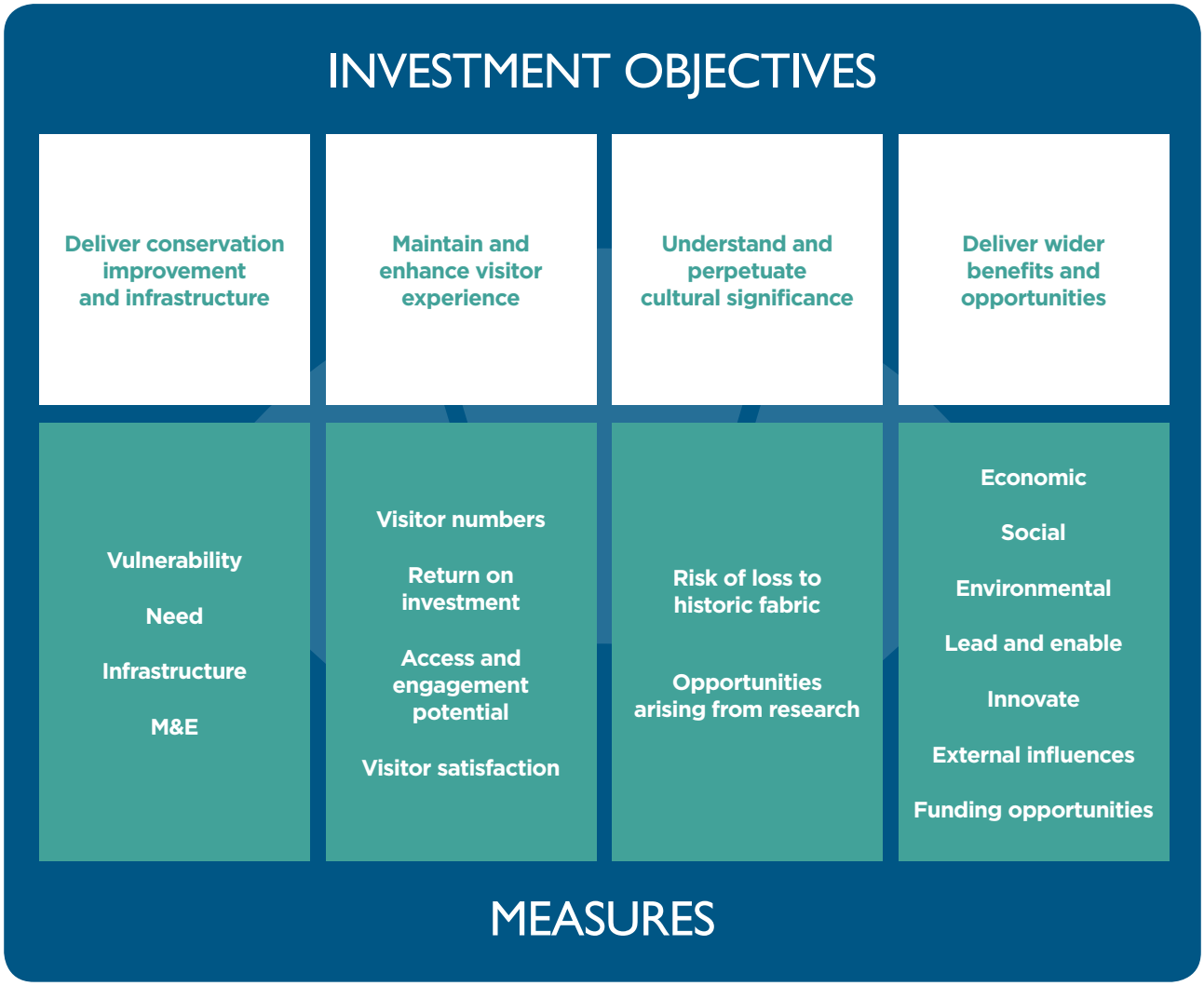
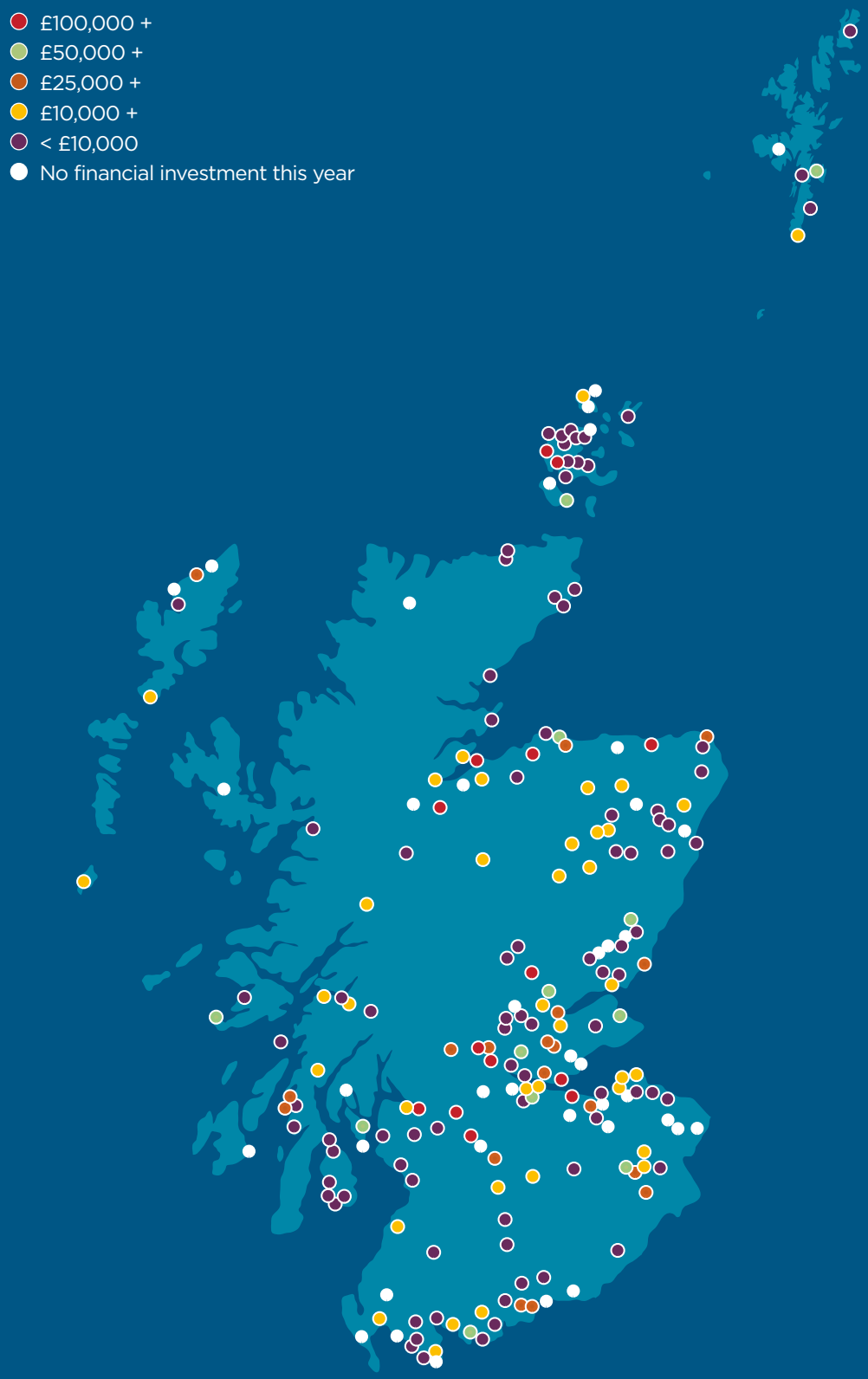


FIGURE 9: HES investment objectives and measures

FIGURE 10: Conservation and maintenance spending at PiCs



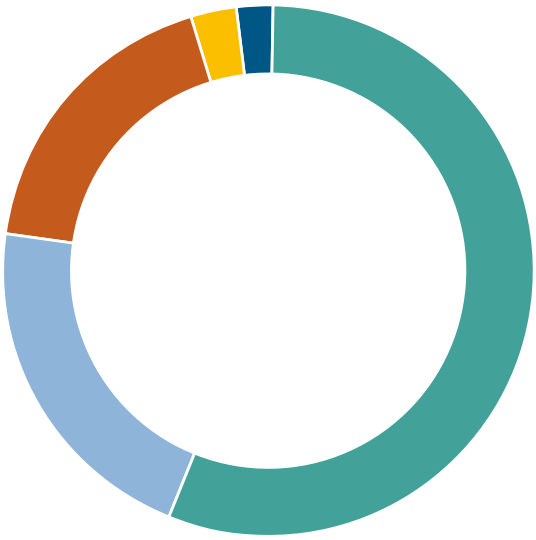
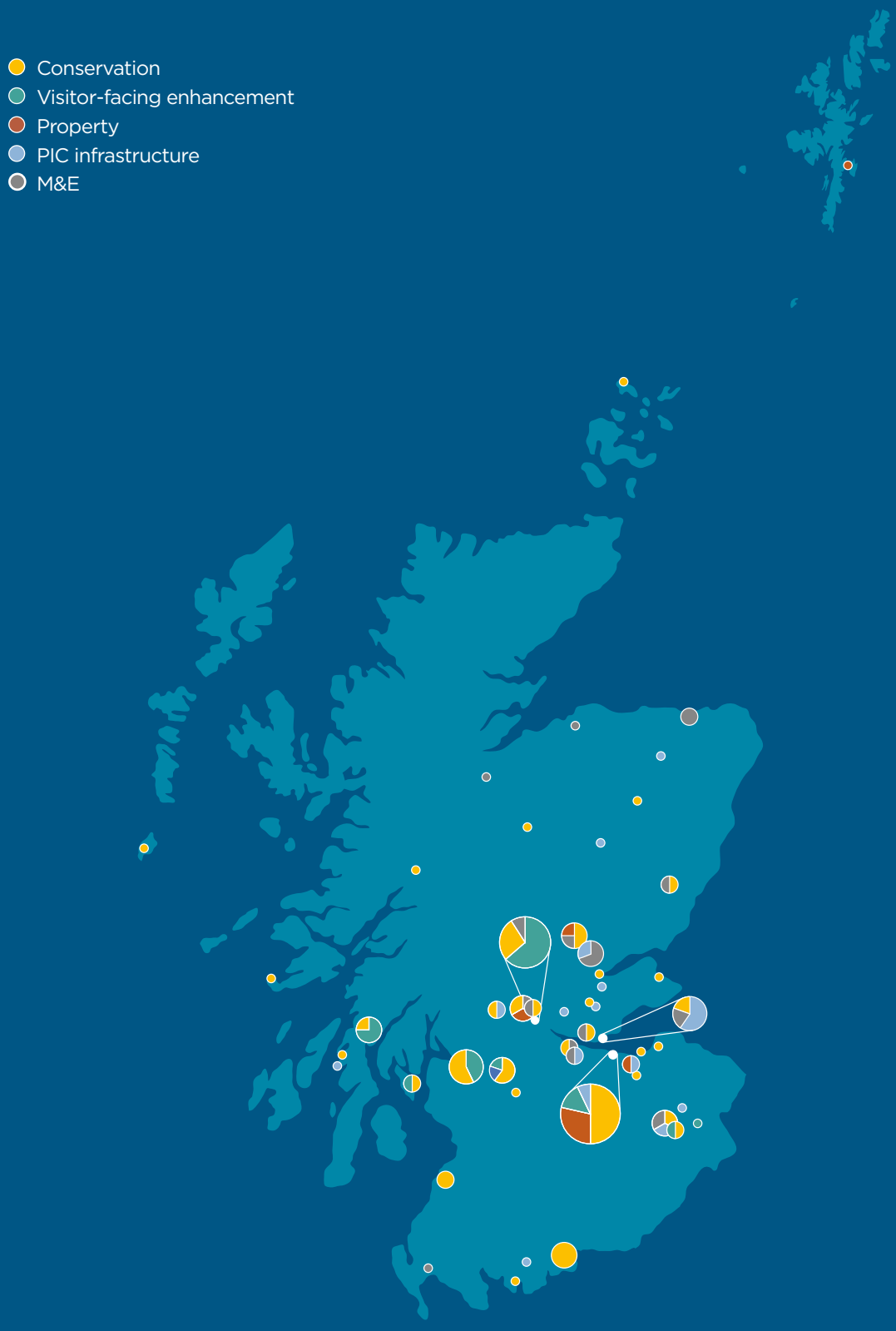


FIGURE 11: Spending related to conservation and maintenance of PiCs

Conservation and maintenance	**56%**
Compliance	**21%**
Rent, rate, utilities	**18%**
Operations	**3%**
Access and communications	**2%**

FIGURE 12: Delivery of projects at PiCs



CONSERVATION PROJECT CASE STUDIES

Replanting the Queen Anne Gardens

The HES gardening staff based at Holyrood Park and Palace completed a project at Stirling Castle to renew the Queen Anne Gardens. The staff used their skills and experience to design a garden in keeping with the Castle, and were considerate in their plant selections to ensure any unknown archaeology would not be disturbed by growing roots.

Many of the plants in the herbaceous beds were selected for their historic significance, and as Stirling Castle is a Stuart castle, colours were chosen to reflect this: yellow 'Top Rose' and red 'Trumpeter' roses were selected for the main beds.

Our gardeners were considerate of biodiversity in selecting plants that would support wildlife, and of sustainability, by using compost produced at the Holyrood Gardens. Care and maintenance of these gardens helps our visitors enjoy the Castle in its full setting.

In addition to gardening work, improvements were made to handrails in Queen Anne and Douglas Gardens. The cost of project works to the gardens in 2016-17 was £71,000.

blog.historicenvironment.scot/royal-bloom-stirling-castle/

HES gardeners replanting the Queen Anne Gardens at Stirling Castle

Staff travel to Eilean Mor to carry out routine maintenance ahead of Rock Anchoring works

Rock anchoring

Challenges associated with the geology at two of our sites in the west of Scotland were addressed through an engineering project in March 2017. Rock anchoring and stabilisation at Castle Sween and Eilean Mor were carried out following assessment of the sites by in-house geologists and specialist engineering consultants.

This work addressed a high risk of loss of significant material, particularly in the case of St Cormac's Cave (Eilean Mor), and also ensured the continued safety of visitors to these sites.

As a result of the work, access restrictions associated with health and safety concerns at Cormac's Cave were lifted. The combined costs of projects at these sites in 2016-17 was £27,000.

https://blog.historicenvironment.scot/2017/08/on-the-rocks/

Conserving Dunkeld Cathedral

A number of projects have been active at Dunkeld Cathedral during 2016-17, largely focused around the inspection and consolidation of high-level masonry.

Works to the North and South Nave walls were carried out this year. Additionally, upgrades were made to the welfare and working facilities at the monument to allow this long-term conservation work to continue. A total of £167,000 was allocated to project works at the monument in 2016-17 and plans to further upgrade stone hewing facilities are under way.

These new facilities will allow us to showcase the skills of our stonemasons, and provide the public with a new means of access while conservation works continue.

https://blog.historicenvironment.scot/2017/06/conserving-a-cathedral/

Inspecting masonry at Dunkeld Cathedral

4.2. Managing our collections

We work to secure, safeguard and preserve all collections in our care for the future (Figure 13). This work is structured and supported around a series of collections-related policies approved by our Board in March 2017.

Our *Collections Development Policy* sets out how HES archives and collections will acquire and dispose of items; our *Care & Conservation Policy* defines the standards to be adopted in the care and conservation of objects in our own collections, those of lenders, and of Scottish Ministers ('associated collections').

The first step in this care is in the appropriate storage, condition checking and monitoring of objects. In 2016-17, we invested close to £150,000 in collections care and conservation. In total, 36 per cent of our collection has been condition checked, 12 per cent of which were checked this year.

We continue to make good progress on our salvage planning and museum accreditation programmes. A total of 19 salvage plans have now been drafted with training sessions completed or planned and a further 10 are in preparation. In March 2017, our Board approved the Collections team's proposal to add a further 20 site-specific Museum Accreditation applications to our existing three accredited sites (Skara Brae, Melrose Abbey and Duff House). The HES corporate application to be accredited as an independent museum authority will be submitted during 2017-18. These efforts run in parallel to our work to achieve Archive Service Accreditation.

The collections directly associated with PiCs are historic assets managed by HES on behalf of Scottish Ministers under the Scheme of Delegation for associated collections.

In 2016-17, we fulfilled several key requirements of the Scheme including updating our *Collections Management Plan*, *Collections Development Policy* and other related policies, as well as progressing towards full Museum Accreditation status for HES and widening access to our collections through the HES website historicenvironment.scot/collections

FIGURE 13: HES collections

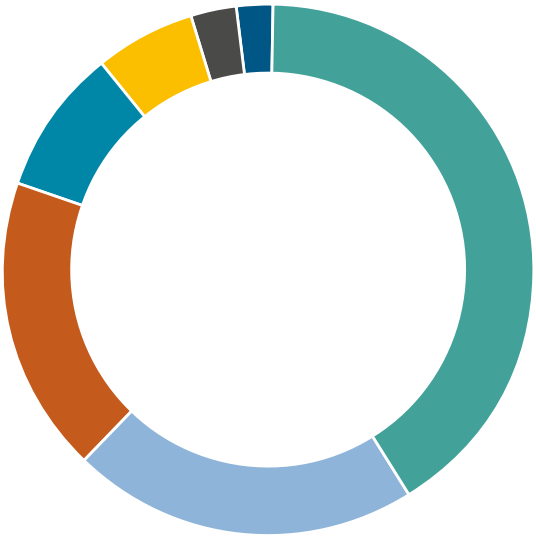
33,499 OBJECTS MANAGED BY HES IN MORE THAN **169** PROPERTIES IN CARE

87%
29,226 OBJECTS ARE ASSOCIATED WITH THE PiCS

9%
3,172 OBJECTS ARE ON INWARD LOAN

3%
1,101 OWNED OR MANAGED DIRECTLY BY HES

THIS YEAR, **333 OBJECTS WERE BORROWED** FROM MUSEUMS, GALLERIES AND PRIVATE LENDERS FOR NEW DISPLAYS AND TEMPORARY EXHIBITIONS, **35 OBJECTS WERE LOANED** OUT TO PARTNER ORGANISATIONS FOR SHORT-TERM EXHIBITIONS



Collections breakdown

Architectural	**41%**
Social, industrial and maritime	**21%**
Archaeology	**18%**
Militaria	**9%**
Books and documents	**6%**
Fine and decorative art	**3%**
Other	**2%**

5.VALUE

We promote the value of the historic environment through education, learning, outreach and skill-sharing activities so people can value, celebrate and enjoy the historic environment.

We are passionate about the work we do. Through our work, we are continually learning, and our knowledge and expertise is something we are keen to share. This section provides details of how we help others to value and enjoy the historic environment by providing access to the properties and associated collections. By providing physical and virtual access to our monuments and collections, we can engage others and share our knowledge.

In doing so, we contribute to the future of the historic environment in Scotland, and deliver obligations under the Schemes of Delegation associated with provision of access for current and future generations.

5.1. Access and engagement

This year, we provided formal and informal learning opportunities for 103,462 participants of all ages through access schemes and a high quality programme of activities and partnership projects across Scotland (Figure 14). We engaged with diverse and inclusive audiences such as young carers, refugee groups and the children's' university.

We supported groups with additional support needs and in doing so, improved physical, social and intellectual access to PiCs. Our programmes deliver across Curriculum for Excellence and Community Learning and Development and support delivery of other key educational policy such as Developing the Young Workforce and Outdoor Learning. Forty-six per cent of our learning opportunities were provided in areas that are considered to be deprived (Scottish Index of Multiple Deprivation ≤ 5); our work in this area contributes to the social capital and charitable aims of HES.

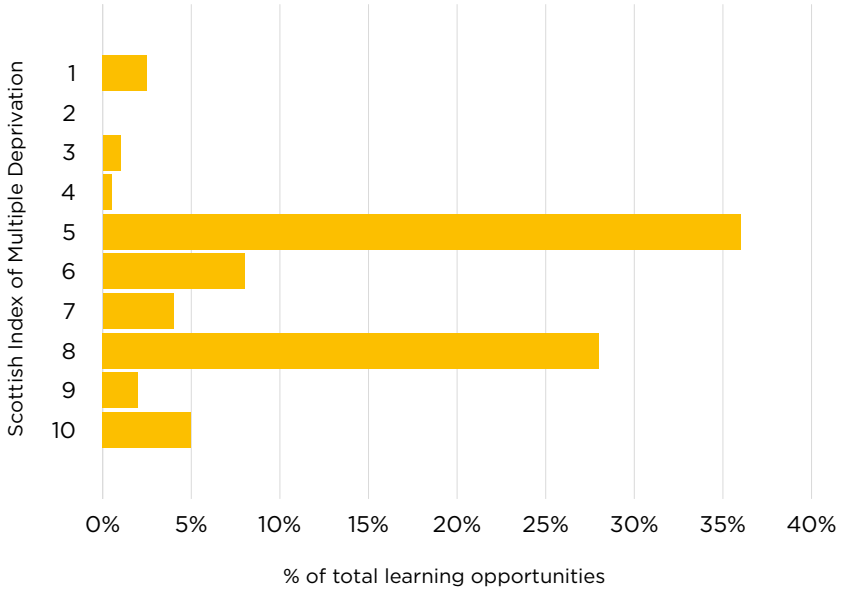


FIGURE 14: Learning opportunities mapped against Scottish Index of Multiple Deprivation

FIGURE 15: Provision of access and engagement opportunities

IN 2016-17 WE PROVIDED LEARNING OPPORTUNITIES TO:

76,995

YOUNG PEOPLE FROM PRIMARY AND SECONDARY SCHOOLS, HOME EDUCATORS AND YOUTH ORGANISATIONS

18,732

LIFELONG LEARNERS THROUGH INFORMAL AND COMMUNITY LEARNING AND DEVELOPMENT

7,735

PEOPLE FROM **FURTHER EDUCATION** INSTITUTIONS

WE WORKED WITH MORE THAN

50 NATIONAL AND LOCAL PARTNERS

INCLUDING NMS, NTS, EDUCATION SCOTLAND, CRAFT SCOTLAND AND DEVELOPING THE YOUNG WORKFORCE, AS WELL AS THOSE FROM LOCAL AUTHORITIES, SCHOOLS, COLLEGES, YOUTH WORK AND COMMUNITY INITIATIVES

OUR TECHNICAL CONSERVATION WORK WAS DISSEMINATED:

AT **SIX** TECHNICAL SCHOOLS EVENTS ATTENDED BY **431 CHILDREN** FROM FIVE PRIMARY SCHOOLS

AT TWO 'DOORS OPEN' DAYS - REACHING **1,800 PEOPLE**

TO **567 FACEBOOK** FOLLOWERS AND **660 TWITTER** FOLLOWERS

13 IN 13 TECHNICAL PUBLICATIONS

VIA **12** TECHNICAL NEWSLETTERS TO **4,777** RECIPIENTS

AT **10** TECHNICAL EVENTS (INCLUDING SEVEN INSIGHT TOURS)

Children learn about the impact of climate change on the historic environment at the Engine Shed Doors Open Day

We also provided technical conservation focused learning and engagement opportunities (Figure 15). Through our technically focused social media channels, our Engine Shed blog and *FOCUS*, our annual technical conservation magazine, we reached an audience in excess of 5,500.

Face-to-face events for technical training, schools outreach and community engagement allow us to share our passion with a wide-ranging audience, increasing awareness of the historic environment, the challenges it faces and providing the technical guidance required to support the care of the wider historic environment, and helping others value our heritage.

5.2. Enhancing the visitor experience

The majority of people access the PiCs through site visits, though we are continually working to enhance the entire visitor journey including the standards of our ticketing systems.

The accessibility of the visitor experience is continually enhanced through estate-wide programmes and projects to increase and enhance our interpretation and learning offers. These include the HES annual events programme headlined by Spectacular Jousting! at Linlithgow Palace that attracted an audience of 11,763.

We worked on improving our visitor-facing interpretive offer at 114 of the PiCs. This included updating and developing content based on new research and delivering through a wide range of interpretive media including exhibitions, interpretation panels, guidebooks, interactives, etc.

We completed the interpretive display of Elgin Cathedral's stone collection with a fully integrated, fully accessible introduction and summary section in the ground floor spaces. This has proved very popular with visitors and has achieved a 4.5-star rating on TripAdvisor.

Through consulting with a range of groups with whom HES has historically engaged less well, we are finding new ways of delivering directly to people who would otherwise not know of, or visit the properties. For example, we are working on our first BSL tours for Edinburgh Castle with advice from Deaf Action.

We produced or updated printed guides for 13 PiCs; this included a number of foreign language guides. Additionally, we upgraded or added to our orientation, behavioural and way-finding signage at 63 PiCs.

We delivered a wide range of inclusive engagement activity through our Learning and Ranger programmes. A breakdown of interpretive and engagement activity delivery across the PiCs is provided in Appendix F. These include multiple partnership activities and the continuing successful management of the Free Education Visits and travel subsidy through Education Scotland.

Through this activity, our aim is to use the historic environment creatively to engage and empower diverse audiences through a fun and innovative approach to learning which enables access, promotes active participation, develops skills for life and work, widens understanding, inspires creativity and enhances wellbeing.

This year we provided opportunities to 317 volunteers, who dedicated 8,565 hours to volunteering with us. These included rangers, conservation volunteers, archive, data and survey volunteers, volunteer tour guides, visitor activity volunteers and event volunteers. The latter three roles were introduced as part of a successful volunteer development pilot which was delivered to expand engagement opportunities available to community members, while providing 'added value' activities for visitors at the PiCs. Just under half of our volunteers were focused on activities at PiCs; this accounts for 20 per cent of the total hours dedicated by volunteers.

We are currently developing a HES *Visitor Strategy*. We will publish this in 2018-19.

5.3. Collections access

Opening up public access to the collections in our care is a key driver behind all our collections-related work. Their value diminishes if we don't share them with others. We actively seek every opportunity to share our collections, encouraging engagement by all and using them as a means to increase appreciation of our historic assets.

At present, approximately 48 per cent of the collections are on public display, with the remainder in storage or undergoing conservation off site. This ratio is very high in comparison with other parts of the museum sector and reflects our desire to make our collections publicly accessible as close as possible to their original context or setting. New technology allows us to provide access in new ways. We currently have 425 of our objects available to explore online via our website (historicenvironment.scot/collections) and to date, 180 of our objects have been digitally scanned as part of the Rae Project.

3D documentation of objects allows us to provide enhanced experiences for visitors who might not otherwise be able to access the collections. We can use this digital data to create 3D printed replicas, which can be handled without fear of damage or loss. We have also used innovative lighting methods to portray objects as they once were without the need for intervention. A list of collections projects active in 2016-17 can be found in Appendix E.

CASE STUDY

Elgin Collections redisplay project

Our project to redisplay the collection of 480 medieval architectural carved stones from Elgin Cathedral was completed in April 2016. This involved an extensive programme of stone conservation, new research and interpretative planning.

Innovative approaches were developed to improve visitor access and understanding of the collection. Mounting and lighting techniques were designed to enhance how carved details were displayed and a portion of the rose window was reconstructed alongside traces of medieval window glass on loan from Elgin Museum, courtesy of Moray Society.

A method of projecting coloured light onto stones was also developed in collaboration with Napier University. This was used to help visitors visualise how a painted effigy would have appeared by superimposing coloured light on it from matching evidence recovered from pigment analysis. Public access to the collection was further extended through an interactive kiosk featuring a full catalogue of the collection and developing a new publicly accessible store in the Bishop's House nearby.

6. PERFORM

At HES, we aim to be a high-performing organisation. We strive to improve the way we work and the quality of services we provide. We continually work to maximise the impact of investment in the properties and collections, not only in relation to condition, but also across a wider field encompassing social, economic and environmental factors.

This section provides evidence of our work in these areas; this work puts us in the best position possible to deliver our duties associated with the Schemes of Delegation.

6.1. The impact of our investment

The money invested in our monuments does more than simply ensure the PiCs and collections are cared for. The added value of our work is much further reaching than the monuments themselves; there are clear social, economic and environmental impacts of our investment at the properties. These benefits can have a local, national and even international impact.

Across the whole of Scotland, HES's work this year contributed an estimated £430 million in tourism spend, and supported more than 7,000 full-time equivalent jobs.

Conservation works are critical to sustaining this tourism impact, ensuring that key sites remain open to visitors and meet statutory standards. If a site faces closure, the total tourism impact to the local area is potentially lost. Failure to invest in conservation projects in 2016-17 would have resulted in the full closure of four of our monuments due to health and safety, security and accessibility issues. As a result, our investment in conservation work at these sites prevented a potential loss of £9 million to the tourism industry in Scotland.

Additionally, conservation work to five of our sites ensured they reopened following a period of closure due to health and safety related factors. Details of projects delivered on the PiCs and associated collections are outlined in Appendix C, A and E.

One quarter of our projects in 2016-17 were in areas considered to be deprived (Scottish Index of Multiple Deprivation ≤ 5). The sites where these projects were completed contributed a cumulative boost of more than £260 million (almost two thirds of the £430 million total) to the economy within the associated local authority areas in terms of tourism impact, and contributed to support of local jobs, in addition to the jobs created by HES for delivery of the conservation work itself.

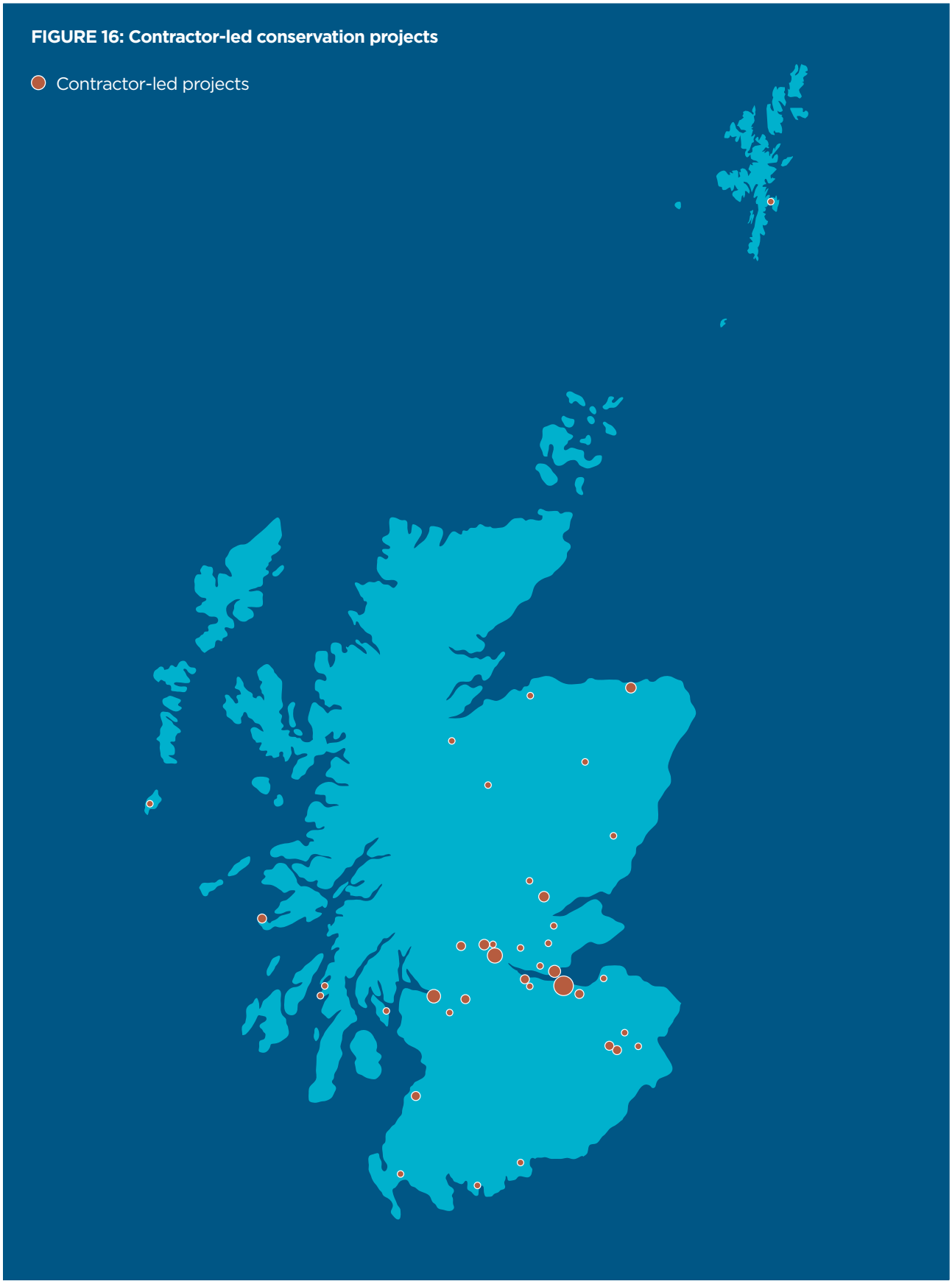
HES spent £14.2 million with contractors and suppliers based in Scotland in 2016-17. This supported an estimated 215 FTE jobs, many of which were concentrated in remote and rural areas or SMEs; 75 per cent of our conservation projects were delivered in rural or very remote areas (Scottish Urban-Rural classification ≥ 5). Sixty-five per cent of our conservation projects were delivered by, or in conjunction with contractors, therefore supporting the local economy across Scotland (Figure 16). Additionally, a number of our national projects were delivered by contractors.

Our climate change team continually works to drive down our emissions and lower our carbon footprint. This year saw a 3 per cent reduction on last year's carbon emissions, due in part to previous investment in energy efficiency projects on our Estate.

The money invested in M&E improvements, such as installation of upgraded lighting at Kinneil House and boiler replacement at Melrose Abbey this year, is expected to have a positive impact on our carbon emissions in the coming years. In 2016-17, £382,000 was spent on climate change projects at the PiCs. A full list of projects can be found in Appendix A.

As well as these large projects, we are continually working to reduce our carbon emissions by making improvements to our systems and procedures as part of our ongoing maintenance regimes, and by raising awareness and promoting positive behavioural change.

FIGURE 16: Contractor-led conservation projects



6.2. Investing in our people

Delivering our obligations under the Schemes of Delegation and our wider objectives is only possible when we have the right people, with the right skills, in the right places.

In our 2015-16 conservation resource needs assessment, health and safety, conservation skills and theory, specialist equipment and survey were identified as the areas we need more training in, often because there is a need to continuously update certification and specialist training. We intend to address this through more focused assessment of our training needs as part of our staff management, and subsequent targeted delivery.

In 2016-17, 386 days of training were provided to our conservation staff (via our centralised training budget) to strengthen their skills; delivery of health and safety training totalled 248 days, job-specific training 79 days, and management training 51 days. We supported more than 30 professional accreditations and provided specialist training in the areas of GIS and digital survey (26 architecture staff) to develop our approaches to asset management.

The projects we delivered across our properties provided a range of opportunities for our staff to implement and further develop their skills (Figure 17). Given the nature of our properties, the majority of projects focused on masonry work. However, a range of other skills were put to use; these skills are also put to use in our routine maintenance work across the Estate.

One of our biggest training-focused investments is in our apprentices. This year, we retained 11 apprentices from our qualifying class, who are now employed full time as stonemasons, working on our Estate.

In the year ahead, we are aiming to provide even more training opportunities to our staff. We will work towards developing a set of assessment criteria against which to measure the benefits of specific training opportunities to our staff and our business, and we will use this to prioritise delivery making sure we have the skills we need, where we need them most.

A key aspect of this will be to deliver an Advanced Technical Diploma in Technical Conservation to be delivered at the Engine Shed. This commences in August 2017.

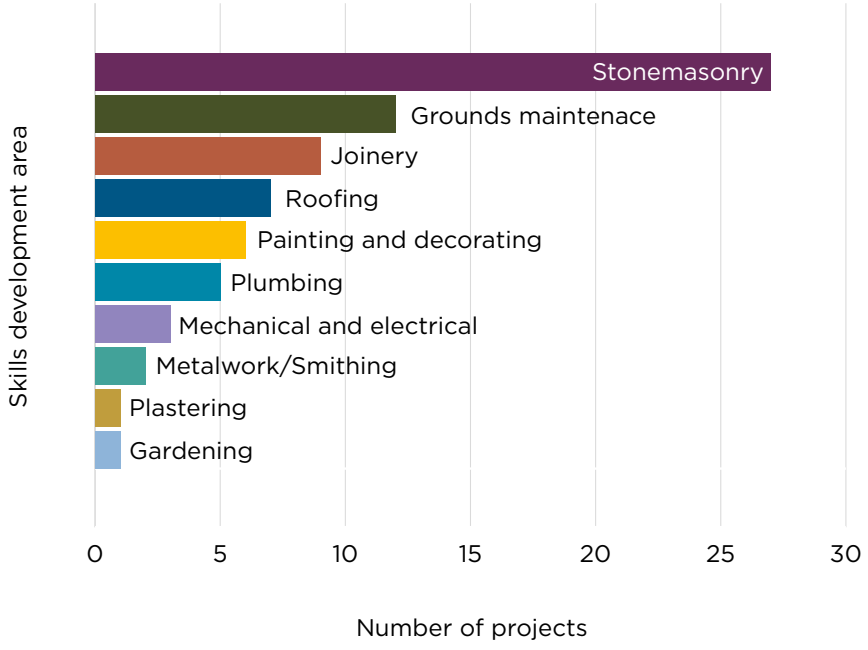


FIGURE 17: Conservation projects provide a range of skills development opportunities for staff

6.3. Driving operational efficiency

The implementation of the Schemes of Delegation has had a positive impact on the way we approach our work. Our obligations to report on our performance against delivery of the Schemes has provided opportunity for reflection on how we measure ourselves against our standards. We expanded in 2016-17 to address these needs, putting in place two new teams within the Conservation Directorate:

- The Analytics, Reporting and Audit (ARA) team was put in place in October 2016 with the remit of improving our understanding of what we need to do to deliver the Schemes of Delegation and improving the efficiency with which we deliver this. The team work to improve national consistency and operational efficiency, and provide the analytical overview to enable more informed decision-making and planning for the future.
- Our Compliance Team consists of three regional facilities managers, and a national compliance manager. The team is working closely with the ARA team in the development of a rigorous system for tracking compliance at PiCs to ensure greater degree of compliance, and quicker responses to identified actions.

The instatement of both of these new teams, and the procedures they are working to implement, will give us a better understanding of our own performance. These teams work to give us the data required to establish baselines, quantify targets and measure ourselves against these.

CELEBRATING OUR PEOPLE

Lindsay Vaughan, Planning & Resource Manager

Lindsay joined Historic Scotland in 2002 as a stonemason, and later took up the role as Works Manager at Blackness Castle. In October 2016 Lindsay took up his current role overseeing contracts across our South region and working with our District Works Managers to ensure successful delivery of projects though our Monument Conservation Unit. Lindsay enjoys the diversity of work his role brings "from office-working...to working at remote sites surrounded by history and nature".

Lindsay's recent involvement in a project to explore potential for installation of 'people counters' was "a great experience...a new challenge [and] a way to visit sites... [and] meet staff members that [he] hadn't met before".

6.4. Providing access to the properties in care and associated collections

We focus on providing public access to PiCs as required under the Ancient Monuments and Archaeological Areas Act 1979, the Historic Environment (Amendment) (Scotland) Act 2011 and the Historic Environment Scotland Act 2014. Access is at times reduced or prevented for reasons of conservation, health and safety or commercial operations to support HES's revenue generating role.

We have produced a HES *Access Policy* to ensure we continue to reduce barriers to access in the broadest sense and we continue to work on our Visitor Safety Risk Assessment to ensure safe physical access to the PiCs.

Our Visitor Safety Risk Assessments are prioritised based on visitor numbers and site characteristics. Sites are classed as category A-C, with category A sites being of highest priority for assessment. At the end

FIGURE 18: Increasing visitor numbers at selected PiCs

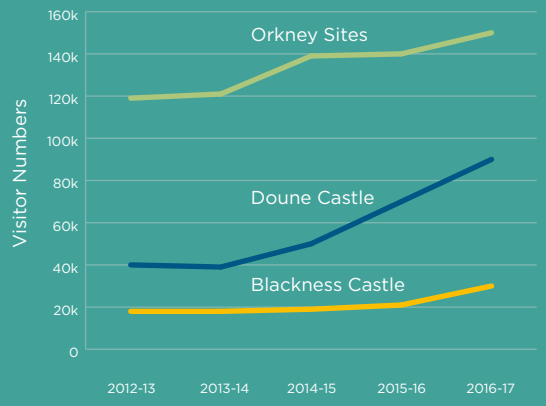
4.3m visitors TO STAFFED SITES IN 2016-17

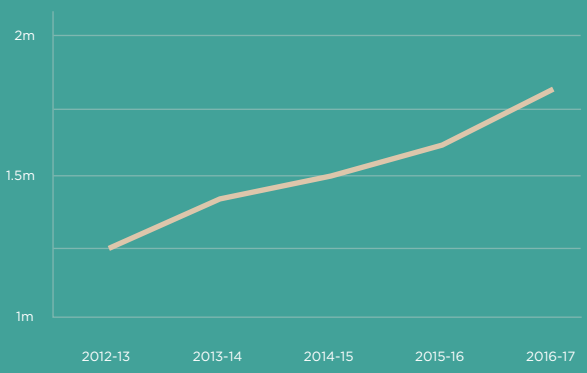
Doune
92,700
VISITORS IN 2016-17

Blackness
30,419
VISITORS IN 2016-17

Orkney
149,062
VISITORS IN 2016-17

Edinburgh Castle
1.8m
VISITORS IN 2016-17





of March 2017, we had risk assessments issued or in preparation for 84 per cent of our category A sites, 67 per cent of category B sites and 24 per cent of category C sites.

Of our 4.3 million visits to staffed PiCs in 2016-17, more than 70 per cent were to four of our sites: Edinburgh Castle, Stirling Castle; Urquhart Castle and Glasgow Cathedral. Many of the PiCs have experienced significant increases in visitor numbers (Figure 18): Glasgow Cathedral saw a 72 per cent increase on 2015-16 numbers, and the St Vigeans Stones a 68 per cent increase. Across all staffed properties on the Estates, we saw a 12 per cent increase on 2015-16 visitor numbers.

Although a positive trend, these increased numbers bring challenges associated with caring for the monuments, and understanding how visitors move around our sites can help us manage them better.

This year, we embarked on a project to develop this understanding at some of our unstaffed sites. As part of the Scottish Government-run CivTech® Accelerator programme, which harnesses entrepreneurial tech innovation to solve identified public sector challenges, we are looking at ways to track visitors in a way that is low-cost, robust and reliable, and that gets us the information in a timely manner, regardless of location and connectivity. We have also contracted a stage 1 visitor flow analysis for the exhibition and related spaces in Edinburgh Castle through a specialist company called Movement Strategies.

CASE STUDY

Edinburgh Castle 'Going Green' Insight Tour

In November 2016, we provided our stakeholders with an exciting opportunity to go behind the scenes at Edinburgh Castle to see first-hand the energy savings measures we have put in place. Our Edinburgh Castle District Architect and our Climate Change team led a group of 20 individuals around the site to learn of the carbon reduction techniques implemented at the Castle that led to a 30 per cent reduction in our energy consumption (relative to our 2008-09 baseline).

Feedback gathered after the events showed that attendees were interested to hear our approach to implementing energy savings measures and our longer-term strategy. This feedback will help us plan for future events of this kind.

In 2016-17, taking into account opening patterns of sites (eg seasonal opening), our sites were open for 98 per cent of their advertised time. Full site closures, where necessary, affected access to 67 of our properties; 43 per cent of full site closures were planned and 57 per cent were reactive. Loose masonry contributed to 38 per cent of planned closure time, and 47 per cent of reactive closure time. Other major contributing factors were staffing issues, planned conservation work and bad weather.

As part of our technical education and outreach programme, we have increased access to properties where conservation works are ongoing. Specialist guided tours known as 'insight tours' are delivered by our staff to see conservation works up close, sometimes behind the scenes to areas where there isn't typically public access. We developed seven of these events in 2016-17, including tours of Clava Cairns, Stories in Stone at Elgin Cathedral and Clackmannan Tower open day.

We recognise that 'access' is the ability of anyone to engage with the properties in care and their associated collections, and that this can be facilitated in many different ways. In addition to increasing physical access, we are continuing to improve intellectual and cultural access to the PiCs and associated collections. Digital delivery can offer solutions. The digital documentation of our assets is a key activity; we have been working with partners to develop mobile applications to enhance the visitor experience. This includes 'Explore Maeshowe', launched by the Centre for Digital Documentation and Visualisation (CDDV) LLP, our partnership with Glasgow School of Art; and 'Antonine Wall', launched by Austrian partners Edufilm with HES support. Our own HES app relating to the staffed PiCs has been downloaded 100,000 times.

6.5. Working with our partners

Through partnership working, we can share our knowledge with others to increase our impacts in the wider heritage sector, and we can learn from others to become better at what we do. We have strong mutually beneficial relationships with a number of groups and organisations.

On a local scale, we engage to varying levels with community groups and interested parties at more than 130 of our properties. We engage with stakeholders across our estate, developing relationships and working with communities.

These relationships help us to provide an enhanced level of care for our monuments, allow us to explore the potential of our monuments and their local settings, and maximise opportunities for locals and visitors alike. We have been building up such relationships at a number of PiCs including Kinneil House, working with Friends of Kinneil; Dumbarton Castle, working with West Dunbartonshire Council; and at Linlithgow Loch.

We work closely with UK organisations such as English Heritage, Historic England, the National Trust for Scotland, Scottish Canals and a range of others, to share experiences and benchmark our activities.

In 2016-17 we signed agreements with the Office of Public Works (Ireland) and the Palace Museum (Forbidden City, China), establishing collaborative training relationships. These partnerships will also allow us to benchmark our activities, conduct collaborative research and compare approaches to conservation and maintenance.

We engage with multiple relevant sectors at an international level. Our conservation staff were involved in 24 different projects and/or activities with international partners in 2016-17.

This includes our involvement with Austrian partners in the ALApp project, which uses digital models and 3D data to create an interactive visitor experience across the Frontiers of the Roman Empire World Heritage Site; 3D digital documentation of the historic Tyssedal Hydro scheme (on the Norwegian World Heritage tentative list), and providing specialist expertise in relation to materials analysis following the Mackintosh School of Art fire. Our partners in these activities are many, and span across Europe, China and Japan.

With regards to our technical research and educational outputs, we work closely with our stakeholders to identify the needs in these areas and use the information gathered to shape our work better.

We provide audience-specific outputs that will maximise the impact of our work, as well as increasing its reach; from technical research reports to our annual *FOCUS* magazine. Of the technical research projects active this year, we worked directly and collaboratively with 32 different universities/organisations/trusts/companies to deliver our technical and scientific research.

Furthermore, through our cultural resources work, we have supported a further seven research projects at universities, and worked with a number of researchers to develop our understanding of the PiCs.

In the year ahead, our engagement with others will increase as we embark on a new programme of activities and events at the Engine Shed. We are currently putting measures in place to collate and analyse data associated with these activities.

We will measure our performance and impact for the purposes of transparent reporting, and so we can continually improve the services we provide to our stakeholders and visitors.

6.6 Compliance and peer review

The Conservation Peer Review Group required under the Scheme of Delegation has been designed and will meet for the first time in the autumn of 2017.

An early report on compliance by the Head of Estates in 2016 prompted a positive response to deal with areas of concern. As a result a compliance team was put in place to deal with compliance-related issues at the PiCs.

CASE STUDY

Partnership working at Linlithgow Loch

Following the Linlithgow Loch Summit in 2015, a strategic management group was set up to address the challenges associated with water toxicity in the Loch.

Through this group, we work with a number of partners including Scottish Natural Heritage, Scottish Environment Protection Agency, Scottish Water, the Scottish Government, Centre for Ecology and Hydrology, West Lothian Council and Linlithgow Heritage Trust.

This long-term project will run for a number of years and aims to identify a suitable action plan and agree a programme of delivery for water quality improvements. In 2016-17, the group secured funding, digital flow monitors were installed and SEPA undertook water sampling.

Over the next year, data collection will continue, followed by analysis and review; it is anticipated that an action plan will be completed in late 2018.

Canoe trips on Linlithgow Loch prior to deterioration of water quality

7. CONSERVATION CHALLENGES – EMERGING THEMES

The national assessment of the condition of properties in care carried out in 2015 was a significant resource investment, and the first such national assessment to be undertaken. This piece of work was a snapshot in time and the systems now in place, and in development, will allow us to present an increasingly accurate picture of condition and investment requirements in a more dynamic way. This, and our ongoing condition survey work have highlighted notable changes in some of the assets we care for.

7.1. A changing climate

In combination with significant interventions by our predecessors coming to the end of their natural life, a changing climate is posing both technical and philosophical challenges.

These challenges are not unique to us; many of the state care monuments formerly cared for by the Ministry of Works in England, Wales and Ireland face similar challenges. The conservation of large roofless ruins with exposed wall heads is challenging for all.

As noted in our *Progress report on the conservation and management of properties in care of Scottish Ministers* published in January 2017, the exposure of monuments to everyday natural and anthropogenic influences (weather, pollution, visitor 'wear and tear' etc.) results in a gradual and continual decline in their physical state.

Climate change is acting as a multiplier to the natural incremental deterioration of traditionally built structures due to changes in several aspects of weather. These altered precipitation patterns, combined with increased frequency of extreme and unpredictable weather events, impose additional stresses on buildings that could not have been foreseen during the construction or subsequent consolidation of historic monuments.

As a result, both original and previously modified architectural detailing can sometimes struggle to deal with the demands of today's climate. Additionally, increasing temperatures mean that issues related to biological growth on masonry are much more significant than previously; the 10 warmest years on record have been since 1998.

Our research shows that the changing climate is leading to changes in the way building fabric weathers, with decay of stone seeing a progression from moderate chemical weathering to strong chemical weathering, necessitating an increased frequency of intervention and shorter time intervals between repairs. The changes to our weather patterns observed over previous decades are set to continue and accelerate, and related issues such as rising sea levels will have a more significant impact on parts of the Estate.

We have focused our attention on two specific properties in 2016-17 that pose both technical and philosophical challenges. Cadzow Castle is a structurally unstable post-excavation monument at an exposed location near Hamilton. Lochmaben Castle in Dumfries and Galloway has a large volume of exposed wall core previously consolidated by the Ministry of Works, which has deteriorated significantly and has become inherently unstable. We have commissioned options appraisals for the future care of both these sites, which will be complete in 2017-18.

Our research in consolidation of exposed wall heads continues with live trials exploring the use of different water-shedding options including modern membranes and more traditional soft capping. We continue to apply the learning from these trials to other sites proactively.

7.2. Managing the consequences of success

The increasing visitation to properties is, of course, desirable in providing access and enjoyment. The continued increase in visitor numbers is marked (see Figure 18). In some circumstances, it can also pose conservation and management challenges.

In 2016-17, we have noted that focused increases in visitor numbers, often in combination with weather conditions to sites that are managed as 'natural' properties, are showing signs of physical stress. Sites that have a higher profile due to film or media attention or changes in tourism behaviour (such as increased visitor numbers), such as in Orkney, require us to reconsider our approach. We have started to consider the management and technical options available to us in order to balance the access and conservation requirements of the properties.

The provision of adequate infrastructure to meet the demands of increasing visitor numbers to key sites has become more focused in 2016-17. For example, increased visitor numbers at Doune Castle due to *Outlander* has required us to reconsider our existing infrastructure and works programmes. While this effect is not new, it is difficult to forecast the resulting impacts of such media exposure.

Going forward, it will be increasingly important to be alive to the impacts of such media exposure in planning terms. A general increase in tourism and changing behaviours of visitors seems likely for the foreseeable future.

7.3. Ensuring we have the skills and materials required

We are one of the largest employers of people with traditional craft skills in the UK. A combination of in-house expertise and procured services provides the optimum balance in ensuring both continuity of care to a high standard, and resource requirements.

Our national role in relation to traditional skills ensures we are well aware of the challenges in accessing high-quality and available traditional skills across Scotland. Need is well understood, but balancing demand and supply is more challenging.

As the major employer in the sector, we face many of the same challenges as the public–private sector in recruitment and retention. We have commenced a significant qualifications review and development in relation to traditional skills with our partners, which will see a range of structured training frameworks delivered.

We remain alive to our role in supplying highly trained individuals to the broader sector through our apprenticeship to support the broader built environment, and in developing new jobs and economic activity. We continue to embrace this and explore new ways to increase the availability of skilled tradespeople generally.

We continue to work to ensure the availability of traditional materials, particularly natural stone. We believe the historic environment has a significant role to play in encouraging economic development and enhancing the circular economy.

In 2016-17, we have completed a State of the Nation on the status of traditional materials in Scotland historicenvironment.scot/scot-trad-building-materials. This will act as the foundation for future traditional materials activity in partnership with the sector.

Conserving historic fabric in a changing climate requires us to have robust technical understanding of the processes involved and a clear process of risk assessment. Our Conservation Principles guide our decision making and we are in a strongly proactive position in terms of understanding forecast climatic changes at our properties across Scotland and the necessary technical and scientific expertise to take sound decisions. While all managers of historic assets face similar challenges, we are confident in our preparedness and approach and will seek to share that experience with others.

8. OUR RESOURCES

Having the right skills in the right places is key to ensuring delivery of the Schemes of Delegation. This section gives details on how we use our staff resources to manage the Properties in Care and associated collections.

The understanding, interpretation and visitor-facing activity at our PiCs is delivered by our Commercial and Tourism Directorate. The conservation and maintenance of the PiCs and associated collections is delivered by our Conservation Directorate.

Our Commercial and Tourism Directorate comprises 361 (FTE) staff across a number of teams including: Visitor Experience, Content and Learning; Business Development and Enterprise; Commercial Performance and Systems; and Visitor Operations and Community Engagement. In 2016-17, the Visitor Operations branch of our Commercial and Tourism Directorate had 289 stewards working full-time, part-time or on a seasonal basis across 77 of our PiCs.

In the 2016-17 period, Conservation Directorate comprised of 410 staff across 98 job roles and 36 apprentices, each training in one of six disciplines. Staff roles span a range of job types: administrative, non-trade, professional, technical, trade and works management. Each of these roles contributes to the care and protection of the PiCs and their associated collections, either in a direct hands-on capacity, through a role that enhances our understanding and value of the monuments, or in a logistical and supporting capacity ensuring the successful delivery of conservation works.

Two-thirds of HES conservation staff work within the Monument Conservation Unit (MCU), a combination of trade, non-trade and works management staff whose role it is to manage and deliver conservation works to the PiCs; given the nature of the properties, stonemasons make up a significant proportion of the MCU at more than 35 per cent.

Our MCU staff work in teams, each based at one of our 27 depots. The majority of teams are focused on masonry work, but at our flagship sites, we have other trades present; mechanical and electrical, and joinery teams are based at Edinburgh Castle and Stirling Castle, where we also have a number of gardeners. We have a dedicated grounds maintenance team who work to maintain the Antonine Wall, and we also employ painters, plumbers and a blacksmith.

Provision of this valuable resource at the PiCs cost us £6.8 million in 2016-17; this includes MCU staff salaries, on-call allowances and overtime (excludes staff based at the Palace of Holyroodhouse and overtime associated with external events).

Through our MCU staff, in 2016-17 we dedicated more than 280,000 hours to hands-on conservation work of the PiCs. Additionally, through our small Collections team, more than 11,000 hours have been dedicated specifically to the development, management, care and improved accessibility of our associated collections in the period.

Our research as part of a conservation resource needs assessment in 2016 highlighted a range of issues in relation to deployment of resources, perpetuating the skills and expertise that is required and location of our teams relative to the future work demands. It has highlighted particular issues in relation to facilities management and compliance, which we have moved to tackle promptly.

Infrastructure requirements (non-historic fabric) have been flagged and needs are currently being assessed as part of the HES *Investment Plan*. This has been a very useful exercise in considering what skills and expertise gaps we have at present and what might be required in the future.

APPENDIX A: 2016-17 HES-SIGMA SURVEYS

Locations of 2016-17 surveys and corresponding Monument Condition Indicators

Monument surveyed	2016-17 Monument condition indicator
Antonine Wall – Bearsden Bath-house	3.50
Castle Campbell	4.74
Corgarff Castle	4.60
Dere Street Roman Road North **Dere Street Roman Road South**	1.00
Dundonald Castle	5.47
Dyce Symbol Stones	1.00
Holyrood Abbey	4.06
Holyrood Park: St Margaret's Well	4.36
Iona Nunnery	4.81
Maes Howe Chambered Cairn	3.13
Merkland Cross	4.07
Ring of Brodgar	7.88
St Martin's Church, Haddington	2.19
Edinburgh Castle: Esplanade Old Ticket Kiosk	 2.92 4.67
Fort George: Bridges Chapel	 7.89 10.26
Stirling Castle: Casemates and Overport Foreworks and French Spur Inner and Outer Moat	 4.99 4.78 4.44

APPENDIX B: 2016-17 DESIGNATION CHANGES TO THE PROPERTIES IN CARE

Property in care	Changes to designation	Current designation	Completion date
Abernethy Round Tower	Delisted	Scheduled Monument	23/09/2016
Bothwell Castle	Delisted Amendment to scheduling	Scheduled Monument	11/10/2016
Clackmannan Tower	Delisted Amendment to scheduling	Scheduled Monument	17/03/2017
Dogton Stone	Amendment to scheduling	Scheduled Monument	13/03/2017
Hermitage Castle and Chapel	Delisted Castle and Chapel Amendment to scheduling	Scheduled Monument	24/03/2017
Meigle Museum, symbol stones, cross slabs	Descheduled	Listed Building	18/01/2017
Cross Kirk, Peebles	Delisted Amendment to scheduling	Scheduled Monument	09/02/2017
The Wren's Egg	Amendment to scheduling	Scheduled Monument	27/02/2017

Details can be found on the HES Heritage Portal:
portal.historicenvironment.scot

APPENDIX C: 2016-17 'ESTATES' PROJECTS

Project spend is indicated within the following categories: <£10,000, £10,000+, £25,000+, £50,000+, £100,000+.

Conservation projects

Site	Project details	Spend bracket
Stirling Castle	Palace chimneys masonry consolidation	£100,000 +
Estate-wide project	Unforeseen events (e.g. extreme weather)	
Dumbarton Castle	Castle and Rock vegetation removal	£50,000 +
Dunkeld Cathedral	North Nave consolidation – ongoing masonry works to reopen site	
Dunkeld Cathedral	South Nave consolidation – ongoing masonry works to reopen site	
Doune Castle & Roman Camp	Scaffolding erection and hire to enable essential conservation works	
Depot Project: Melrose, Dumbarton, Blackness	Mobile Local Exhaust Ventilation systems – commitment to safe working conditions for MCU staff	
MacLellan's Castle	Internal scaffolding for high-level inspection	
Estate-wide project	High-level survey programme	
Holyrood Park	Boundary wall works	£25,000 +
Holyrood Park	Arthur's Seat erosion control	
Estate-wide project	HES-SIGMA, BIM and PiCAMS development to comply with Scheme of Delegation requirements	
Burleigh Castle	Glass capping to chimneys, vegetation removal from parapet and minor plaster repairs	
Elcho Castle	NE tower consolidation	
Castle Sween	Rock stabilisation to exposed bedrock below caste	£10,000 +
Iona Abbey	Marine source heat pump feasibility study	
Aberdour Castle	Masonry consolidation and capping to Dovecot	
Iona Abbey	Selective masonry repairs, window overhaul, lightning protection upgrade	
Dumbarton Castle	Governor's House – completion of consolidation work to rear elevation and East gable	
Glenbuchat Castle	Scaffold to carry out essential works to make site safe	
Dumbarton Castle	Scaffolding to enable essential conservation projects	
Edzell Castle	Replacement glass capping to chimneys (North wall tower), waterproofing to areas of parapet and relaying limecrete floor	
Dryburgh Abbey	Conservation Management Plan for the Designed Landscape	
Chesters Hill Fort	New rabbit-proof fence to protect site archaeology	
Dumbarton Castle	Governor's House – dismantle and removal of scaffold following completion of works	
Depot Project: Melrose, Dumbarton, Blackness, Dirleton, Rothesay	Airstream helmets – commitment to safe working conditions for MCU staff	

Site	Project details	Spend bracket
Inverlochy Castle	Selective masonry consolidation and scaffolding costs	£10,000 +
Stirling Castle	James IV Arch masonry consolidation. Essential health and safety works due to risk of falling masonry at main castle entrance	
Ruthven Barracks	Scaffolding to allow essential conservation works	
Bothwell Castle	Latrine tower masonry repair	
Links of Noltland	Dune stabilisation to slow coastal erosion and protect archaeology	< £10,000
Sweetheart Abbey and Precinct Walls	North Transept buttress stonework repair	
Melrose Abbey	Priory Farm Doocot – consolidation project	
Crossraguel Abbey	Alterations to scaffold – removal of scaffold at choir and erection to allow commencement of work to Bellcote	
Dunfermline Abbey Palace & Nave	Repair Fraters Hall roof and rose window	
Rothesay Castle	Gatehouse West wall and Latrine Tower – consolidation of last section of party wall wallhead. Scaffold raised to access wall and tackle water ingress	
Crossraguel Abbey	Bellcote scaffold for carved stone cross reinstatement	
Holyrood Park	Grassland and woodland management	
Edinburgh Castle	Stained glass repairs	
Depot Project: Fort George Depot	Depot improvements	
Holyrood Park	Street lighting upgrade	
Kisimul Castle	Pier and Water Tower Engineer fees	
Holyrood Park	Arthur's Seat rock inspection and scaling	
Glasgow Cathedral	Blackadder Aisle – parapet masonry consolidation	
Glasgow Cathedral	Blackadder Aisle – roof repair	
Edinburgh Castle	Local masonry repairs. Repointing to the west end of the Red Coat Café and south face of North Museum	
St Andrews Cathedral	Purchase of materials for pend boundary wall buttresses	
Kinneil House	Purchase stone for boundary walls	
Crichton Castle	Provision of stainless steel net to be installed in North West tower	
Glasgow Cathedral	North Aisle boiler chimney – completion of masonry repairs	
Inchmahome Priory	Purchase of alloy towers	
Stirling Castle	Pentice roof materials for apprentice works next financial year	
Carnasserie Castle	High-level access and consolidation	
New Abbey Corn Mill	Mill stones strip-down	
Dunblane Cathedral	Fire escape routes upgrade	
Multiple Sites: Kilmartin Glen Sites	Upgrade of fencing and gates	
Seton Collegiate Church	North window mullion and buttress pinnacle consolidation	
New Abbey Corn Mill	Road edge reinforcement and hedge reinstate	

Mechanical and electrical projects

Site	Project details	Spend bracket
Duff House	Security upgrade	£250,000 +
Stirling Castle	Outer Moat fire plant	£50,000 +
Multiple Sites	Water Risk Assessment remedial works	£25,000 +
Urquhart Castle	Lift upgrade	
Dunkeld Cathedral	Purchase of mobile Local Exhaust Ventilation systems – commitment to safe working conditions for MCU staff	
Duff House	Replace ageing humidifiers	£10,000 +
Dunblane Cathedral	Gas supply improvements	
Stanley Mills	Car park lighting	
Melrose Abbey	Boiler upgrade	
Dunfermline Abbey Palace & Nave	Lighting in Nave and Palace	
Linlithgow Palace, Peel and Park	Replace all heating and controls	
Dallas Dhu	Upgrade heaters	
Doune Castle & Roman Camp	Water mains repair	< £10,000
Estate-wide project	Infrastructure and M&E services audits/surveys for Scheme of Delegation requirements	
Stanley Mills	Lift repairs	
Kinneil House	Lighting upgrade	
Edzell Castle	Heating replacement	
Multiple Sites	M&E condition reports	
Inchcolm Abbey	WC lighting upgrade	
Glenluce Abbey	Heating replacement in Abbey museum	
Estate-wide project	SFG20 website access for FM contract schedules	

Infrastructure projects

Site	Project Details	Spend Bracket
Castle Campbell	Access road repair	£50,000 +
Estate-wide project	Waste management contracts and infrastructure improvements	
Linlithgow Palace, Peel & Park	Loch edge repairs	£25,000 +
Glasgow Cathedral	Reline Boiler House chimney	
Greenknowe Tower	Lay-by improvements	£10,000 +
Stanley Mills	Bridge repairs	
Aberdour Castle	Car park steps replacement	
Edinburgh Castle	Staff radio upgrades	< £10,000
Old Brig O'Dee (was Invercauld Bridge)	Emergency works to repair damage after severe flooding	
St Bridget's Kirk	New gates to Inglis Aisle	
Melrose Abbey	Brewery Yard/depot wallhead consolidation	
Huntly Castle	Huntly Castle Waste Water Treatment Plant	
Threave Castle	Island hut removal	
Eilean Mor	Engineer's survey of jetty piers	
Inchcolm Abbey	Engineer's survey of jetty piers	
Inchmahome Priory	Engineer's survey of jetty piers	
Lochleven Castle	Engineer's survey of jetty piers	
Abernethy Round Tower	Flagpole access hatch	
Mavisbank Policies	Manhole repairs	

Property projects

Site	Project Details	Spend Bracket
Edinburgh Castle	Johnston Terrace rock containment	£50,000 +
Columba Centre	Internal alterations	
Crookston Castle	Key keepers Cottage roof repairs	£25,000 +
Doune Castle and Roman Camp	Welfare upgrades at Doune Cottage	
Mavisbank Policies	Drainage and landslip surveys	
Depot Project: Lochgilphead Depot	Upgrade of existing facilities	
Depot Project: Dirleton Depot	Purchase of welfare units	
Edinburgh Castle	Gatehouse mess room refurbishment	£10,000 +
Dunkeld Cathedral	Upgrade of welfare and stone hewing facilities	
Edinburgh Castle	Rock risk management	
Estate-wide project	Tree surveys	
Holyrood Park	Tree works	< £10,000
Fort Charlotte	Rewiring and fire upgrade	
Depot Project: Perth Depot	Internal alterations to increase messing facilities	

Visitor-facing projects

Site	Project details	Spend bracket
Edinburgh Castle	David's Tower toilet refurbishment	£50,000 +
Stirling Castle	Overport Café roof lights	
Holyrood Park	Arthur's Seat roads repair	
Stirling Castle	Douglas Gardens railings	£25,000 +
Stirling Castle	Nether Bailley and Queen Anne Garden handrails	
Estate-wide project	Visitor Safety Management Project: measures to comply with 'high-risk' risk assessments	
Dumbarton Castle	Spanish Battery – replacement timber railings to steps	£10,000 +
Stirling Castle	Presentation painter work	
Glasgow Cathedral	Choir installation of light fitting upgrade	
Estate-wide project	Headstone surveys, flagpole surveys	
Kelso Abbey	Grave slab consolidation	< £10,000
Rothesay Castle	Gatehouse – installation of new stair in Ante Room to access mural passage of North East curtain	
Dumbarton Castle	White Tower Crag barrier repairs	
Dumbarton Castle	Spanish Battery – erection of new scaffold access to allow for essential conservation works	
Stirling Castle	Café roof and gable wallhead repairs	
Stirling Castle	Re-planting Queen Anne Gardens	
Dryburgh Abbey	Grave slab consolidation	
Stirling Castle	Lower Ward gents WC	
Dunchraigaig Cairn	Gate installation	
Nether Largie Mid Cairn	Gate installation	
Nether Largie North Cairn	Gate installation	
Depot Project: Halston Depot	Depot improvements	

APPENDIX D: CLIMATE CHANGE PROJECTS TO PROPERTIES IN CARE

Project spend is indicated within the following categories: <£5,000, £5,000+, £10,000+, £25,000+, £50,000+.

Project focus	Property in care	Spend
Drainage improvements	Calanais Standing Stones	£10,000 +
Electric automatic meter reading	Dumbarton Castle	< £5,000
	Linlithgow Palace	< £5,000
Glazing	Stirling Castle	£10,000 +
	Edinburgh Castle	£10,000 +
	Edinburgh Castle	£25,000 +
	Fort Charlotte	£5,000 +
Heating upgrade	Inchcolm Abbey	£10,000 +
	Stirling Castle	£10,000 +
	Duff House	£5,000 +
	Linlithgow Palace	£5,000 +
	Glenluce Abbey	< £5,000
Insulation	Craignethan Castle	< £5,000
	Dumbarton Castle	< £5,000
	St Serf's Church, Dunning	< £5,000
	Whithorn Priory	< £5,000
Lighting	Edinburgh Castle	£25,000 +
	Dunfallandy Stone	< £5,000
	Eassie Cross Slab	< £5,000
	Stirling Castle	£50,000 +
	Stirling Castle	£5,000 +
Mechanical ventilation	Craignethan Castle	< £5,000
Photovoltaic systems	St Andrews Cathedral	£10,000 +
	St Andrews Castle	£10,000 +
	Aberdour Castle	£5,000 +
	Inchcolm Abbey	£5,000 +
	Inchmahome Priory	£5,000 +
	Lochleven Castle	£5,000 +
	Huntingtower Castle	< £5,000
Rainwater work	Stirling Castle	£25,000 +
	Fort George	£50,000 +
Temperature control	Argyll's Lodging	< £5,000
Upgrade to toilet facilities	Arbroath Abbey	< £5,000
	Elcho Castle	< £5,000
Water heating	Stirling Castle	£10,000 +

APPENDIX E: ASSOCIATED COLLECTIONS PROJECTS

Project spend is indicated within the following categories:
<£1,000, £1,000+, £5,000+, £10,000+, £15,000+,£25,000+, £50,000+.

Project details	Spend bracket
Remedial or interventive conservation work	£50,000 +
Preventative conservation work – environmental monitoring and control, light monitoring and pest control	£25,000 +
Collections conservation assessments	
Minor equipment purchases	£15,000 +
Documentation work – first-time recording and auditing of existing collections, includes small scale digitisation	
Collections care projects including conservation cleaning, repair to display cases and upgrades to exhibition lighting	
Loans Management projects	£10,000 +
Acquisition and disposal projects – payment of museum storage grants for finds from PiC and non-PiC excavations sponsored by HES and allocated to museums via Treasure Trove	
Salvage training	£5,000 +
Risk management: includes preparation of salvage plans, upgrade of CCTV	
Interpretation and display	£1,000 +
Preventative maintenance and security at collections store	
Minor equipment	
Access projects – upgrade to collections website	< £1,000
Collections research projects	

APPENDIX F: 2016-17 VISITOR EXPERIENCE, CONTENT AND LEARNING ACTIVITIES AT PROPERTIES IN CARE

A range of visitor experience, content and learning offers are provided at the PiCs; our work this year included work at more than 100 PiCs. The table below shows where activities have been undertaken for different audience types at PiCs. Where Tier 1 (complex, multi-group, 3,000+ attendees) and Tier 2 (mid-complexity, multi-group, 2-3,000 attendees) events and/or learning activities were run at PiCs, participant numbers are shown (the figures do not include informal added value activities such as living history performances, which are included within the total visitor numbers). The table also highlights sites where improvements to the visitor interpretation and experience have been made (e.g. exhibitions, guidebooks, on-site digital, etc). Activities relating to instances of commercial third party events and commercial (non-promotional) filming at PiCs are also presented. Most of these activities are part of pre-planned programmes of work prioritized by: safety; damage; accuracy; accessibility, audience engagement and commerciality. Some of the works are reactive, responding to damage, local needs/activities, third-party events, etc.

Monument name	Site improvements	Audience type				Commercial third party events and filming	Total visitor numbers (where available)
		Formal	Informal	Community	Participants (where available)		
Aberdour Castle	X	X	X		1,760		14,909
Aberlemno Sculptured Stones	X						
Antonine Wall - Bantaskin	X						
Antonine Wall - Rough Castle		X			25		
Antonine Wall - Seabegs Wood	X						
Arbroath Abbey	X	X	X	X	845		12,397
Argyll's Lodging		X			50		47,960
Arnol Blackhouse No 42	X	X		X	177		14,910
Auchagallan Stone Circle	X						
Balvaird Castle	X						
Balvenie Castle	X	X			44		5,541
Biggar Gas Works	X			X			
Bishops & Earl's Palace, Kirkwall		X			457		17,450
Blackness Castle	X	X	X		2,965	X	30,419
Bothwell Castle	X	X	X		1,273		8,767
Brandsbutt Stone	X						
Broch of Gurness	X	X			63		
Brough of Birsay	X						4,701
Caerlaverock Castle	X	X	X		1,687		34,549
Cairnpapple Hill	X	X			27		1,920
Cardoness Castle	X	X			23		4,234

Monument name	Site improvements	Audience type				Commercial third party events and filming	Total visitor numbers (where available)
		Formal	Informal	Community	Participants (where available)		
Castle Campbell	X	X			289		14,277
Castle of Old Wick	X						
Castle Sween	X						
Chesters Hill Fort	X						
Clackmannan Tower	X						
Clava Cairns	X						
Claypotts Castle	X	X			61		
Clickimin Broch		X			52		
Corgarff Castle	X	X			24		2,856
Corrimony Chambered Cairn	X						
Craigmillar Castle	X	X	X	X	2,603	X	24,777
Craignethan Castle	X	X			38		3,953
Crichton Castle	X	X			55		3,816
Crookston Castle		X		X	33		
Crossraguel Abbey	X	X			96		2,031
Dallas Dhu Distillery	X	X	X		75		9,478
Dirleton Castle	X	X	X		2,091	X	28,589
Doon Hill	X						
Doune Castle	X	X	X		176	X	92,703
Dryburgh Abbey	X	X	X		83		19,458
Duff House	X	X	X		820		17,384
Duffus Castle	X	X			2		
Dumbarton Castle	X	X	X		3,810		23,069
Dunblane Cathedral	X	X	X		242	X	22,524
Dundonald Castle		X	X		980	X	
Dundrennan Abbey	X						3,215
Dunfallandy Stone	X						
Dunfermline Abbey & Palace	X	X	X		1,554		12,171
Dunstaffnage Castle	X	X			76		19,454
Dyce Symbol Stone	X						
Edinburgh Castle	X	X	X	X	49,601	X	1,808,715
Edin's Hall Broch	X						
Edzell Castle	X	X			33		6,239
Eileach an Naoimh	X						
Eilean Mor	X						
Elcho Castle	X	X			731	X	7,570

Monument name	Site improvements	Audience type				Commercial third party events and filming	Total visitor numbers (where available)
		Formal	Informal	Community	Participants (where available)		
Elgin Cathedral	X	X	X		886		30,930
Fort George	X	X	X		4,032		61,299
Fowlis Wester Cross Slab	X	X			10		
Glasgow Cathedral	X					X	314,664
Grain Earth House	X						
Greenknowe Tower		X			27		
Hackness Battery and Martello Tower	X	X			57		1,638
Hailes Castle	X						
Hermitage Castle & Chapel	X					X	5,284
Holyrood Abbey		X			112		
Holyrood Park	X	X	X	X	5,953	X	
Huntingtower Castle	X	X			1,196		7,490
Huntly Castle		X			629		12,390
Inchcolm Abbey		X			804	X	24,853
Inchmahome Priory	X	X			65		16,753
Iona Abbey	X	X			61		64,552
Jarlshof Prehistoric & Norse Settlement	X	X			66		15,838
Jedburgh Abbey	X	X			237	X	24,167
Kinnaird Head Castle Lighthouse		X			194		
Kinneil House	X		X				
Kisimul Castle		X			11		6,227
Knocknagael Boar Stone	X						
Linlithgow Palace, Peel and Park	X	X	X	X	15,914	X	74,380
Lochleven Castle	X	X			561	X	15,665
Lochmaben Castle	X						
MacLellan's Castle	X						5,401
Maes Howe Chambered Cairn	X	X			233		23,557
Maiden Stone	X						
Meigle Stones (& Museum)		X			10		2,394
Melrose Abbey	X	X			1,227		52,131
New Abbey Corn Mill	X	X			48		4,116
Newark Castle	X	X			447		5,641
Peel Ring of Lumphanan	X						
Ring of Brodgar	X		X	X	51		

Monument name	Site improvements	Audience type				Commercial third party events and filming	Total visitor numbers (where available)
		Formal	Informal	Community	Participants (where available)		
Rothesay Castle	X	X			210		11,502
Ruthven Barracks		X			100		
Ruthwell Cross	X						
Scalloway Castle		X			21		
Seton Collegiate Church	X		X				1,871
Skara Brae	X	X	X		760	X	93,313
Spynie Palace		X			109		5,490
St Andrews Castle	X	X			2,072		77,845
St Andrews Cathedral	X	X			1,798		47,337
St Clements Church, Rodel	X						
St Serfs Church, Dunning	X						2,638
St Vigeans Stones (& Museum)		X			40		454
Stanley Mills	X	X	X	X	1,409	X	6,835
Stirling Castle	X	X	X	X	34,604	X	485,783
Stones of Stenness	X						
Sweetheart Abbey & Precinct Walls	X	X			45		7,310
Tantallon Castle	X	X			823		42,687
Threave Castle	X	X			84		6,782
Tolquhon Castle	X						4,486
Trinity House	X	X	X	X	3,635		2,992
Urquhart Castle	X	X	X		3,705	X	400,480
Whithorn Priory	X						
Various PiCs (Kilmartin Glen Sites)		X			100		
Various PiCs (Orkney World Heritage Site)	X	X		X	5,106		

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

Historic Environment Scotland is the lead public body established to investigate, care for and promote Scotland's historic environment.

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