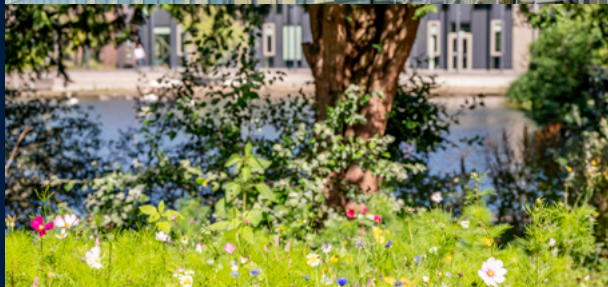
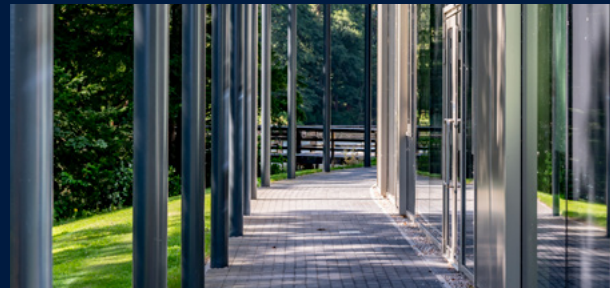


# Edinburgh Campus Built environment development framework 2024-28





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# Vision



Professor  
Richard Williams  
*Principal and  
Vice-Chancellor*

*Our Strategy 2025 is based on our heritage, our expertise, our relevance, and our global presence.*

As we look forward to a prosperous future, it clearly shows our commitment to working together with our University community and partners to empower current and future generations with the knowledge and skills to each take responsibility for reducing our own impact on the environment around us.

That includes striving for excellence – not just in teaching, learning and research but also in the progressive environment we provide and maintain for our exceptional staff and students. This framework, developed in 2023 and annually reviewed and updated, sets out the context in which our Edinburgh campus may change in the coming years, both in the short and long term. Drawing in experience from across our whole global operations will further evolve as the framework develops.

As a global institution, we aim to be net zero across our core operational emissions by 2035 as well as dealing with Scope 3 emissions head-on. In line with **our sustainability commitments**, we plan to fully utilise the green spaces in and around the Edinburgh campus and consider opportunities to help promote learning, wellbeing and healthy lifestyles. Central to the agenda is an energy optimisation plan that takes a major step towards a zero-carbon future, while providing high-quality spaces for residential, teaching, research and commercial uses that are cost-optimised in both capital investment, lifecycle and operation.

Lynda Johnstone  
*Global Director of  
Estates and Facilities*

*A Development Framework guides the physical development needed to support the strategic vision for the institution.*

It sets the planning framework for optimum capital investment in the built environment to facilitate structured growth in research, learning and teaching, staff and student experience. It responds to recent paradigm changes in work and learning models, staff and student experience, industry partnership requirements and Climate Action Frameworking. It will also recognise University global strategic development and the place of the Edinburgh Campus within that context.

Previous Higher Education Masterplans have focussed on aspirational strategic development within a 10-year time period and often are overtaken by events. The current pace of societal change has resulted in the HE Sector restricting capital planning to a shorter period in order to effectively respond to unforeseen sector changes and opportunities.

The 24-28 Masterplan is a 5-year Development Framework with a further 5-year look-a-head. It will be regularly reviewed within capital planning parameters. This approach ensures flexibility and responsiveness. The Development Framework needs to be agile, capable of adapting to the changing needs of the University and able to respond effectively to the challenges and opportunities ahead. However, foremost it needs to provide a range of options of realistically deliverable infrastructure within capex constraints.



# Introduction

*The Draft 21-25 Masterplan was developed pre-Covid 19 pandemic. A review with University senior management and key stakeholders identified aspects of the draft masterplan which required to be revised to reflect new emerging campus business and community needs. It also effects the need for shorter term capital planning flexibility. The concept of a Masterplan is now presented as A Built Environment Development Framework aligned with the 24-28 Capital Plan.*



## Opportunities are now focussed on:

- Integration with University Global Environmental Sustainability Strategy
- Optimisation of Workspace and Learning and Teaching space to reflect changed on-campus working patterns and pedagogical delivery formats
- Campus wellbeing design integration
- Digital First Strategy

## The 24-28 Development Framework content comprises:

- Net Zero and Sustainability
- New Places and Spaces
- Existing Places and Spaces Revitalisation
- Travel and Movement
- ORIAM and Sports Phase 3
- Research and Innovation Park
- Utilities Infrastructure
- West Edinburgh Plan Alignment
- Capital Plan

## This document has direct interfaces with:

- University Strategy 20-25
- Climate Action Framework 2023
- Sustainable Technology Plan 2023
- Edinburgh Campus Travel Plan 2023
- Research and Innovation Park Strategy 2023

# 1. Context

## Direction

The University Edinburgh Campus Development Framework 24-28 provides a 5-year future framework for built infrastructure development from 2023 together with elements of future visioning over a 10 year period.

It is focussed on economic, human, social and environmental sustainability and aims to assist strategic direction to the University Net Zero target.

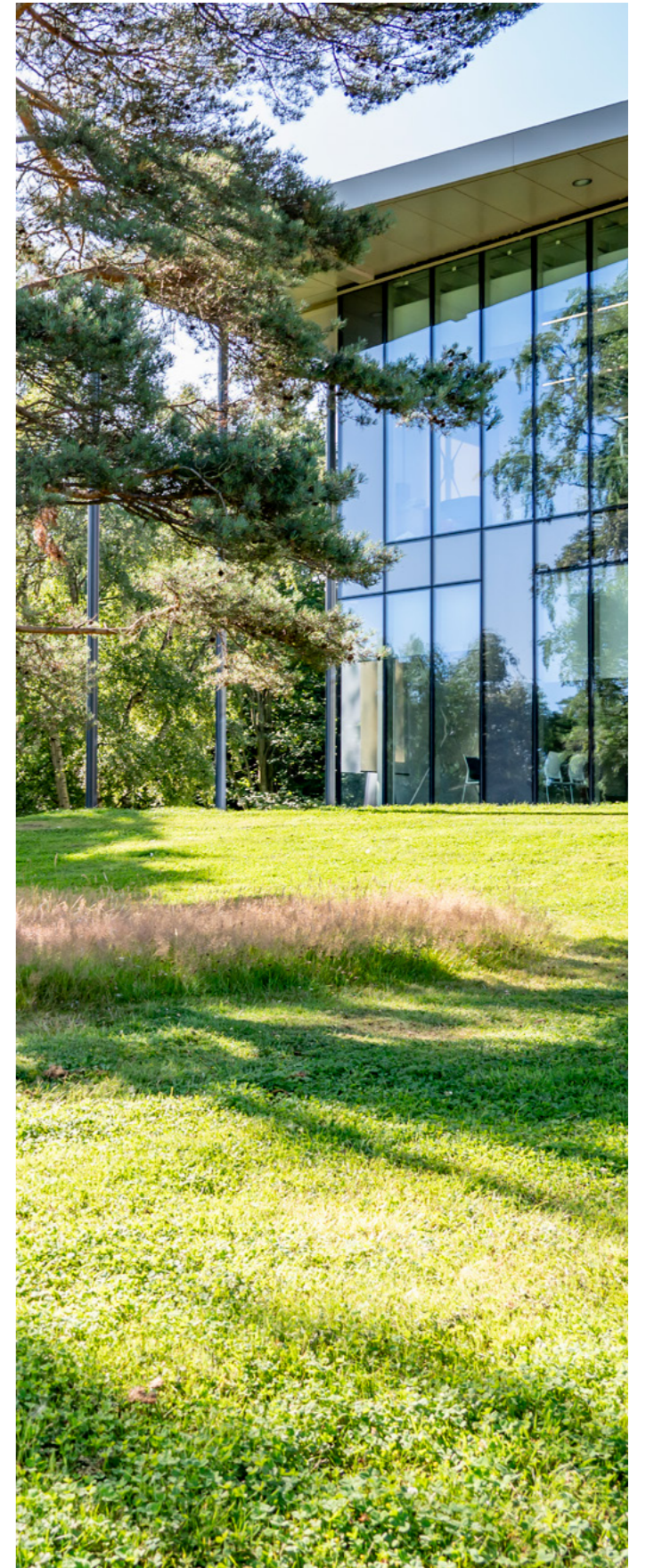
Infrastructure development will demonstrate inspiration and innovation promoting a sustainable and operational net zero future in a single generation. It will help facilitate transition to a net zero global community through inspiration, showcasing showcasing Net Zero and Sustainable innovations from University research and network of other global thought leaders.

## Rationales and Motivations

The planning period is restricted to 5 years to recognise the pace of paradigm change in the sector and to avoid constraining the prospects of flexible investment. It also facilitates a practical future capital planning period.

It is framed within the envelope of University Strategic Plan 24-28 and encompasses the University strategic themes and values.

- Align and energise strategic sustainability and net zero imperatives
- Initiate new norms and formats for work and study
- Engage new developing technologies to support changing paradigms
- Meet the needs of projected University growth in student numbers and research
- Capitalise on significant investment and efficiency opportunities
- Enhance learning and research environments, reputational benefits and enhanced student and staff experience
- Facilitate optimisation of space, energy and operational cost efficiency
- The University is seeking Strategic Property Partner for the University to drive further development and innovation on the Research Park and deliver future Global Research Institutes. This process is completing at time of writing.





## Our Global Connectivity

The University is a globally connected university with campuses in Scotland, Dubai and Malaysia and as an international university is placing students and staff at the heart of change.

The University has a distinctive international people character with five campuses in the UK, Middle East and South-East Asia with diverse communities of learners, scholars, professionals and partners from over 160 countries around the world.

## Inspirational Environments

The University campuses are based in some of the world's most inspiring locations. Each offers superb facilities, safe environments and an international welcome. The University has built connected and integrated learning environments close to the vibrant cities of Edinburgh, Dubai and Kuala Lumpur.

The two more rural campus locations in the Scottish Borders and the Orkney Islands have become leading centres for creativity and global enterprise.

## Developing Global Connectivity

The Edinburgh campus has a pivotal role in creating environments and infrastructure, including digital, which not only reflect the global network but actively enhance it.

This can be achieved by:

- Commonality of physical and digital work, study, learning and teaching and social space where local heritage is also easily identifiable
- Creating spaces for global connection such as collaborative studios
- Designing proposed new environments such as the Student Life Centre and The Welcome Building to reflect and facilitate global connectivity and atmosphere.

## Digital First Strategy

The Built Environment Development Framework sits within the context of the University Digital Strategy. It embraces the digital first vision and definition with an expectation that digital and technology will heavily influence how we implement the framework.

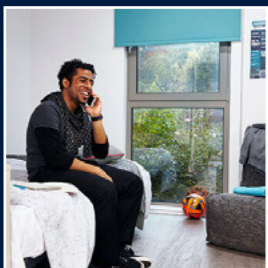
Data will be central to this. The University will actively seek out data to inform human decision making as well as allow leverage of developments in AI to respond and even pre-empt changes in our physical environments.

All 5 campuses will be appropriately intelligent, using data from sensors and other datasets to dynamically control the environment for greatest energy efficiency. Driven by AI, buildings will be able to predict usage and adapt dynamically. Use of data on usage will be embedded in our decision-making and buildings will be at maximum utilisation. This will require the estate to sensorise buildings and spaces to complement the data which buildings already generate.



A campus focussed on wellbeing, set in 380 acres of mature parkland with accessible and convenient air, rail, bus, car, cycle and walking transport links

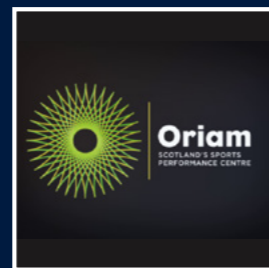
- 1 Student Village Expansion Phase 3**  
**Student Village Expansion Phase 4**
- 2 Net Zero Community Hub**
- 3 ORIAM Phase 3**  
Tennis Scotland  
Padel  
Cricket Scotland  
Athletics  
Gymnastics
- 4 Student Life Building**
- 5 New Spin Out/Spin In village**  
Incubators and Accelerators
- 6 Global Research Institute Zone**  
National Robotarium  
Sustainable Brewing and Distilling  
Net Zero Research and Technologies  
Biomed and Healthcare  
Data Modelling
- 7 Industry Innovation Zone**  
Industry Partnership Research and Development
- 8 Ring Road/Transport Hub/ Streetscape**  
New bus terminus  
Completion on one-way ring road  
Pedestrian and Cycle Prioritised Streetscape
- 9 New link to Curriehill Station**  
Pedestrian and Cycle Paths  
New Bus Route
- 10 Solar PV and Battery Array**  
Solar PV and Battery Array Installation  
Programme of Rooftop PV installations



**A place to call home**  
Expanding and upgrading our student village to meet the needs of a changing community. Set in natural landscape and aspiring to 20-minute neighbourhood principles.



**Our sustainable heart**  
A new University Square and Avenue with pedestrian and cycle prioritisation, encouraging healthy environments and outdoor social wellbeing. Plans for sustainable energy generation.



**Scotland's National Sports Performance Centre**  
Inspirational and motivational high performance community sports facilities open to all levels of ability. New National Tennis, Padel and Cricket Facilities.



**Nurturing community and wellbeing**  
A new student life centre for holistic wellbeing, welfare and student support. Social learning spaces, group spaces, study cafe and multifunctional event venues.



**Research innovation, incubation and acceleration**  
A village for research innovation. Spin-outs, spin-ins, start-ups and industry partnerships in science and technology.



**Playing to our strengths**  
Research addressing global challenges. Partnerships focused on innovation in net-zero, AI, robotics, brewing and distilling, sports science. Climate and Health Technologies.



**Partnering with Industry**  
Industry Innovation Zone to facilitate industry research and development opportunities via Strategic Property Partnerships.

# 2. Background

## Statutory Policy

The Development Framework adopts the principles laid out by the Scottish Government, which state that any masterplan will:

- Provide the appropriate physical environments to support strong communities
- Support a rich and pleasurable quality of life for inhabitants and visitors
- Connect people and places by providing ease of movement within, and through, developments
- Create places of distinction and enduring quality

## Statutory Planning

A core aim of the National Planning Framework is to contribute to a smarter Scotland through the support and development of a knowledge economy. The Edinburgh Campus Masterplan is aligned with this aspiration.

The University Development Framework informs the City of Edinburgh Local Development Plan, EMP 3 developed by City of Edinburgh District Council as Statutory Planning Authority. Consequently, the Local Development Plan (LDP) will support the future development of the Edinburgh Campus, including the Research Park.

The West Edinburgh LDP and City Plan 2030 Choices recognise the strategic importance of the Edinburgh campus within the wider economic context of the city. The significance of West Edinburgh development proposals and the impact on the campus will continue to be monitored and assessed by the University.

## Wellbeing

The importance of practical and implementable wellbeing impacts is emphasised throughout the Development Framework which will provide both internal and external people-centred spaces. The National Robotarium has achieved Fitwel certification. Fitwel or other equivalent certifications will be sought for all appropriate projects.

The structured engagement with campus users, both pre-project and post-project, will be an essential part of wellbeing strategy implementation.

## Climate Action Framework

Coordinated integration and transformation of the University global operations will be required to achieve a sustainable business and community model and to reach Net Zero operational targets.

The Development Framework will provide a facilitating structure for these transformations, integrating and embedding them within infrastructure behavioural change activities. The transformation tools developed within the Development Framework and parallel strategies are:

- Digital Strategy and Sustainable Technology Action Plan
- Sustainable Construction Brief
- Net Zero and Construction and Retrofit Standards
- The Net Zero Community Hub
- Research Outcome Integration, for example, innovation in energy systems and sustainable built environment.

### Estate Optimisation

Lifecycle carbon accounting for buildings will compliment space optimisation and allow to evaluate and compare estate scenarios including retrofit and new build.

### New Development

University strategy will require all new development to comply with the most practically achievable sustainable criteria and target Net Zero operation from handover to ensure estate growth is consistent with Net Zero objectives.

Project Design Briefs will set challenging but achievable carbon and energy performance objectives. Options Appraisals will favour building retrofit in recognition of significant sustainability impacts (including embodied carbon) associated with new build.

Heriot-Watt University has a diverse community of both staff and students, with an objective to provide a supportive and equal opportunity environment for all. Infrastructure planning will ensure that all members of our University community are adequately supported to fulfil their potential, particularly those with a disability.

### Retrofit of the Existing Assets

Retrofit will provide the most immediate opportunities to create substantial improvements in energy performance, meet forthcoming mandatory energy performance standards and drive progress towards eliminating Scope 1 emissions and achieving Net Zero targets.

### Energy Retrofit

The Edinburgh Campus has challenges in implementation of new energy sources in older building stock with existing systems tailored to gas-fired or CHP heating.

Digital twins for environmental and experiential visualisation

### Space Optimisation

Planning for capacity to facilitate growth in teaching, study, student support and student accommodation will provide a baseline for infrastructure development. Space Optimisation will determine what space exists, its suitability capacity, capability for future use.

The analysis impact of global HE sector wide changed work patterns and work space formats will influence design and delivery. The application of occupational usage strategies to suit building performance i.e. high energy cost/low usage or optimised energy/high usage.

New workspace practices will be considered for all campus users including open plan, shared desk and hot desk formats.

### Energy Optimisation

Accelerated action to achieve short-term reductions in energy related emissions via:

- Systems integration
- IOT led Digital Solutions
- Living lab and research / teaching links
- Operational energy performance optimisation

Transition Engineering will facilitate a short-term focus on improving the energy efficiency of existing buildings and energy assets to achieve short-term emission reductions. Project design will include live data collection and smart control systems and capitalise on opportunities from system integration and broader digital solutions.

### Energy Transition

Infrastructure projects will consider and engage with research opportunities regarding:

- Surface renewables and energy storage (daily to inter-seasonal)
- Ground source heat and geothermal
- Hydrogen
- Smart energy grids (links with digitalisation)

### Travel and Movement

Full consideration is given to movement through streetscape and landscape and its impact on emissions optimisation and people wellbeing. The optimised movement of vehicular and pedestrian traffic, both internal and external to the campus, has been integrated into the development framework.

The impact of carbon fuelled vehicles, together with the optimisation of all vehicle movements, to and around the campus, is subject to strategic planning consideration.

The creation of a one-way flow within the central campus area, proposes significant changes to the movement of

vehicles, pedestrians and cyclists. Bus and taxi access and drop off / pick-up will continue to be allowed. These changes will help to improve air quality and prioritise the free open-air movement of people.

The completion of a ring road around the campus will divert non-essential vehicular traffic away from the central campus area. Creating an environment which prioritises people movement, whilst maintaining access for servicing.

The Development Framework addresses active travel connections proposed in the Campus Travel Plan 2024/3 to reduce dependence on private vehicles.

Proposals include improved links to Curriehill, Wester Hailes and Sighthill. Improvements to these routes will help increase active travel, which helps to reduce the carbon emissions associated with travel to, from and within the campus.

## Landscape and Streetscape

The landscape is a unique asset making significant contribution to student & staff wellbeing. The plan seeks to optimise existing assets and improve the connectivity and visibility of landscape spaces. The main focus of proposed landscape projects is around the proposed new University Square subsequent to the development of the Net Zero Innovation Hub and associated streetscape design.

The plan also proposes substantial streetscape and groundscape improvements to support environmental wellbeing and active travel connections, as well as improved cycle facilities. These projects will be focussed on cycle and walking routes to and around the campus.

## Retail and Hospitality

The campus retail and hospitality project, supported by external consultant review, is the subject of a separate document. Opportunities under consideration are – University branded products, international food provision and mobile/pop-up outlets.

## Student Residences

The development of Phases 1 and 2 of the Student Village were delivered between 2014-2018 to a high specification. A Phase 3 development site of circa 600 rooms has been outlined to the north of the Student Village and will be under active planning in 2023/24. A further new development site, Phase 4 of circa 500 rooms has been outlined to the north of the Student Village.

Student residence provision is currently under supplied in the Edinburgh HE community with price point impacting student recruitment. New development will consider this impact and also create a larger, more integrated village community with additional community and student support facilities.

# 3. Sustainability and Net Zero

*The Edinburgh Campus continues a journey towards achievable environmental sustainability. The campus provides a showcase for many of the positive transformations that society will adopt - including resource use, climate change and biodiversity.*

## Context

Heriot-Watt University's Global Environmental Sustainability strategy supports a shift to a sustainable business and community model via its focus on the UN Sustainable Development Goals and an ambitious approach to Net Zero. The scale of the Edinburgh Campus corresponds to the significance of its role in this transition, with the Campus offering opportunities for transformational change to the sustainability of our operations and enhanced sustainability impacts across our education, research, outreach and enterprise.

The University's Climate Action Framework will describe in detail our approach to achieving our emissions reduction and Net Zero targets and is closely harmonised with this Masterplan Campus Development Framework through common principles and objectives. The Climate Action Framework spans a range of areas closely aligned

to the infrastructure development strategy under the Development Framework::

- Estate optimisation
- Energy efficiency optimisation and
- Energy transition
- Procurement and supply chain
- Circular economy and waste
- Construction and refurbishment
- Food and drink
- Business travel
- Staff and student commuting
- Hybrid working
- Climate change adaptation



# University Commitments

The Global Environmental Sustainability Climate Action Framework outlines key themes, targets and actions for sustainable activities. Related core estates sustainability activities under this Framework are summarised as:

## Estate and Energy

Achieving sustainability and Net Zero objectives in construction and refurbishment will play a central role in supporting the University's net zero transition and will allow the practical demonstration of the University's global research strengths across relevant sectors. The University's Sustainable Construction Brief will formalise associated requirements and will be applied to all subsequent new build and major refurbishment projects.

### Sustainable Construction Brief

The University will develop and maintain a regularly reviewed Sustainable Construction Brief to communicate Net Zero objectives and requirements surrounding sustainable design, energy performance and climate change adaptation associated with our construction and retrofit/refurbishment projects. The Brief will ensure that relevant design requirements are considered from the outset and throughout our project processes, helping the University to achieve the most sustainable project outcomes. During development of the Brief, the University will investigate (and adopt where appropriate) certifications associated with achieving the highest energy performance standards and achieving Net Zero project outcomes.

### Embodied Carbon

The University will progressively embed practices and principles allowing the embodied carbon of projects to be measured and optimised, for example considering opportunities for carbon sequestration by maximised use of biogenic construction materials.

### Research Outcome Integration

The University will ensure major projects integrate and showcase University and industry partner sustainability research outcomes. Areas of focus include:

- Renewables and energy storage (timescales from daily to inter-seasonal)
- Surface and sub-surface technologies including geothermal energy and carbon capture, utilisation and storage (CCUS)
- Blue and green hydrogen
- Smart energy grids (linking with Digital Strategy)
- Transition engineering
- Sustainable construction materials (low/zero carbon and circular economy exemplars)

### The Net Zero Community Hub

The University will develop a net zero exemplar and showcase for associated innovation to support the University's operational transition. The facility will provide:

- An inspiring physical and digital space to facilitate net zero and broader sustainability engagement with staff, students and the wider public.
- A visible demonstration of our Global Environmental Sustainability strategic aims and a space in which to share challenges and progress towards key goals.
- A space for conversations about sustainability, climate change and the need to make purposeful progress towards net zero.
- Validation of HWU research innovations through their demonstration on campus.

### Sustainable Estate Planning for People – 20 Minute Neighbourhood

A strategy to enable the campus and immediate community campus residents and users to meet daily needs within 20 minutes of their work, study or living location by walking, wheeling and/or cycling.

In principle, a twenty-minute neighbourhood can improve access to daily services where and when required. It can empower the campus community, fostering stronger social interaction, improving quality of life and wellbeing. In reducing the need for travel, the approach can be more sustainable by reducing carbon emissions associated with access to services and activities.

The campus generates a diverse community of social groupings including variation in activity, ability, age, and ethnicity.

The Student Village has a resident population of c2000 in student residences. Future planning indicates a further 1100 on-campus beds will be required for 2026. The focus of resident population will require development of integrated amenity facilities. The campus has a peak on-campus user, student and staff population of c15,000.

### Local Community

The campus has a potential external twenty-minute neighbourhood encompassing communities in Currie, Juniper Green, Balerno, Hermiston Village and Wester Hailes. The campus is used by these communities for multiple purposes including recreation and access to services and amenities.

### Supporting our Neighbourhood

The campus currently provides and enables:

- Health and Dental Care Centre.
- Sports activities and physiotherapy services.
- Children's Nursery.
- Recreational walking and cycling.
- Cultural events, lectures and exhibitions.
- Access to food outlets and visitor accommodation.
- Allotment plots.
- Cycle Hire and Service.

The potential future facilities development could support a 20 min neighbourhood community including::

- Metro Retail Outlet
- Further sport and exercise facilities
- Community Car Club
- Pharmacy
- Clothes and personal items re-use and recycle facilities (charity shop).
- Sustainable /Eco Products Retail Display with online order feature

### Energy Transition and Optimisation

Operational energy-related emissions will reduce due to the implementation of efficient low/zero carbon building services, the adoption of renewable and smart energy systems and external factors including the ongoing decarbonisation of grid electricity. Short term priorities include optimisation of the energy and carbon performance of existing assets and infrastructure, via renewed focus on control systems, matching building services to occupancy and enhancing the efficient operation of existing plant.

### Digital Strategy

Following the University's Sustainable Technology Roadmap, we will progressively investigate and implement smart buildings and intelligent campus technologies, allowing us to benefit from the systems integration and analytics related efficiencies that these approaches can bring.

A Smart Campus connects devices, applications, and people to enable new services, improve efficiencies and enhance the experience of students and staff on campus. It offers entirely new opportunities to the organisation.

### Space Optimisation

New patterns of work, teaching and study will provide opportunity for innovative re-purposing and efficient configuration of the campus estate. Efficient space design and operation can reduce building-related emissions, including those from energy and wider building-related supplies and services.

### Existing Building Retrofits

Retrofit projects will optimise improvements in operational and fabric energy performance, and will enhance compatibility with decarbonised heat scenarios critical to Net Zero transition. The University's Sustainable Construction Brief will detail relevant energy performance standards where applicable.

### Fabric First

In alignment with the "Energy Hierarchy," which recognises that the energy we don't use is the most sustainable energy of all, the University will adopt Fabric First approaches to building design and optimisation. This will allow us to maximise intrinsic efficiency and performance via careful design and selection of components and materials and to prioritise passive design over the provision of mechanical or electrical building services systems.

Fabric First can reduce capital and operational costs, improve energy efficiency, reduce carbon emissions and also reduce the need for maintenance during the building life cycle.

### New Build Requirements

The University's Sustainable Construction Brief will ensure that new build projects fully support our Net Zero transition, considering operational energy as a core element of our Climate Action Framework commitments but also optimising embodied carbon outcomes. The Brief will detail requirements under relevant certification standards.

The University will prioritise retrofit of existing buildings over new build where evaluation indicates it represents the optimal solution.

### Modern Methods of Construction (MMC)

The University will pro-actively consider MMC approaches (including offsite construction methods) where these can offer enhanced process and resource efficiency and are compatible with our Net Zero objectives. In addition to potential sustainability benefits, MMC can improve operational logistics, risk and timescales due to reduced build times and enhanced quality control.

### Carbon accounting

The University will embed quantitative carbon accounting processes into project decision making to allow comparison of the impacts of alternative approaches, for example the retrofit and refurbishment of existing buildings versus demolition followed by new build construction. These methodologies will support whole life carbon assessment for projects – as operational energy requirements are reduced the embodied carbon associated with buildings becomes ever more significant in whole life assessment of climate impacts.

### Wellbeing

The University will continue its commitment to wellbeing certifications such as Fitwel and WELL on larger projects. A methodology for integration of Net Zero objectives with wellness criteria will be developed.

### Energy Transition and+ Renewables

The University has opportunity for self-generation of electrical power at scale which could contribute to campus electrical loads, including those associated with future decarbonisation of heat.

A solar PV array to produce in region of 6MW of power could be located in both ground locations, flat roof and potentially future carports. The opportunities for battery storage associated with on-site generation will be reviewed in the context of the economic and energy resilience at the time of development. A potential location to the South-West of the campus has been preliminarily identified.

Opportunities for geothermal will require to be reviewed in the context of the return on investment criteria applicable at time of development.

Opportunities for wind generation will require to be reviewed in the context of Edinburgh Airport planning restrictions on height.

### Integration of Data Outcomes and Technologies

Estates development strategy will support:

- Integrated outcomes of space optimisation studies with estate condition and energy performance retrofit studies during the development of future estate strategy.
  - Implementation of mandatory energy performance standards for existing buildings and sensory monitoring of outcomes.
  - Partnerships and collaborations to develop research-linked campus energy and environmental systems.
  - Digitalisation and data analysis of on campus energy use.
  - Reporting and communication of energy and sustainability performance.
- Development and utilisation of digital twins to optimise performance and inform strategy.

Infrastructure projects will further seek to integrate externally developed technologies at product testing or early product roll-out stage where appropriate to facilitate innovation, collaboration and learning opportunities for University staff, students and users.

## Estates Impact Pathway

### Energy Optimisation

- Accelerating on-going action to conserve energy by optimising building services across our estates, leading to immediate reductions in Scope 1 and Scope 2 energy emissions.

### Targeted Scope 3 Emissions

- Scope 3 action will target not only emissions in our core commitment (ie. business travel, water and waste) but emissions across our whole value chain.
- Managing demand for goods and services is essential to sustainable operations.

### Energy Transition: renewables

- Sustainably boosting our generation of renewable electricity:
  - reduces our dependence on imported grid electricity
  - cuts our Scope 2 and Scope 3 emissions
  - improves the economics of electrifying heat and transport.

### Estate Optimisation

- Use our space to its fullest potential
- Life cycle carbon modelling to compare estate development scenarios including retrofit and new build
- Digital twins to plan retrofit of existing buildings and develop pilot heat decarbonisation projects.

### Energy Transition: heat decarbonisation

- Tackling our Scope 1 direct emissions means transitioning away from natural gas.
- Detailed heat decarbonisation planning will build on existing studies investigating alternative heat sources.

### Residual Emissions

- Offsetting/insetting under an ethical approach that focuses on maximising co-benefits.



# 4. New Places and Spaces



## Phase 3 and 4 Residences Development

Recent developments (Phases 1+2) of the Student Village were delivered between 2014-2018 to a high specification. A further new development site for Phase 3 envisages ~600 rooms to the north of Phase 2 and a future development site for Phase 4 envisages ~550 rooms to the west of Phase 1



Phase 3



Phase 4

## Other Opportunities for Residential Life

The development of further residences in the current Edinburgh Campus Student Village will create a larger, more integrated community. There will be a student led demand for additional community facilities within the Student Village. Examples include- eSport Facilities / Gaming Rooms / Sports and Leisure Lite Facilities / Vending Hubs



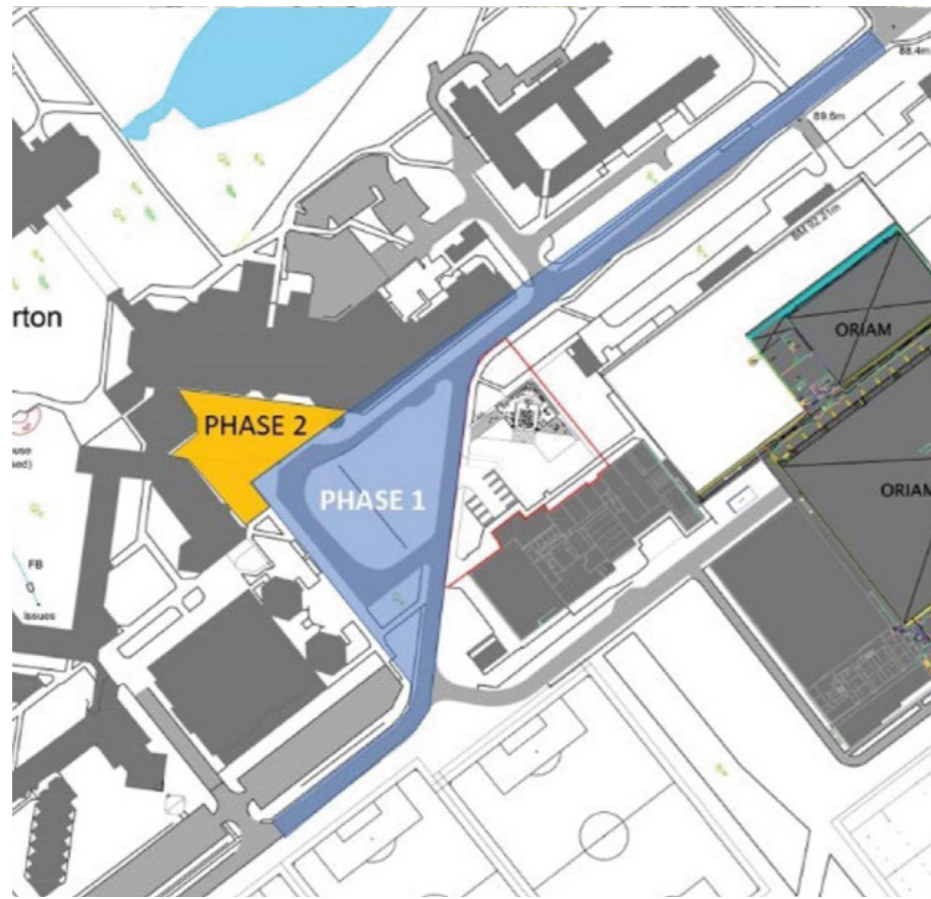
# Ring Road, Streetscape and University Arrival Experience

A priority of the Edinburgh Campus streetscape strategy is to create better active people movement connections to reduce dependence on vehicles within the campus. The key proposals include the creation of a one-way flow within the central campus area prioritising pedestrians and cyclists. Bus and taxi access and drop off/ pick will continue to be allowed. These changes will help to improve air quality and prioritise the free movement of people.

## New Ring Road/ New Bus Terminus

The completion of a ring road around the campus will divert non-essential vehicular traffic away from the central campus area, creating an environment which is prioritises people movement, whilst maintaining access for servicing.

A campus ring-road will unlock the vehicle and pedestrian optimisation strategy which will allow the proposed pedestrian and cycle prioritisation to be delivered in the central campus area. This project will enable a people-focussed streetscape and landscape journey experience, particularly for access to the Net Zero Community Hub.



Existing bus-layover at Reception



Proposed bus layover at Lord Thomson Hall.



## Net Zero Community Hub

The Net Zero Community Hub will provide an inspiration and innovation hub for promoting a net zero future in a single generation by providing a range of exhibition, collaboration and event settings for local communities and University global networks. It will accelerate transition to a net zero global community through inspiration,

showcasing new zero innovations from Heriot Watt's research and network of other global thought leaders.

Certified to the Net Zero Public Sector Building Standard, the project will help to build the University's capacity to deliver net zero compatible outcomes in all future major projects.



## Student Life Centre

A key priority for the University, is the enhancement of student services and support of student wellbeing. The masterplan will help establish an integrated approach to the provision of student support services, including those provided by the Student Union. The proposed Student Life building aims to create a space designed for students at the heart of the campus. It will provide social learning

spaces, a cafe and multifunctional event venue, alongside wellbeing, welfare and student support facilities. The building will be visible and have a well-connected location, mid-point of The Avenue on a location facilitated by the demolition of Leonard Horner Hall. A metro type retail store could be included.



## Welcome Building

The University arrival experience no longer reflects the University's international significance. The demolition of the existing reception area of the James Watt Centre,

is proposed. To create a contemporary corporate point of arrival and reception. The new building will provide modern digital functionality.



## Elements Outdoor Forum

As a focussed enhancement of outdoor spaces at the centre of campus, a mini forum is proposed to promote outside cultural & social activity and improve social exchange. This project is viewed as a key component of wellbeing prioritisation.



## GRID > Robotarium Connection

Improved connectivity between the GRID and Robotarium will support enterprise incubation and acceleration. To enhance this physical connection, GAIT 1 will be improved with shared surfaces, tree planting and external social spaces.

The opportunity exists with Research and Innovation Park development to create a spin-out community in short-term lease new-build units.



# 5. Existing Spaces and Places Revitalisation



## Residences

A total of c1985 rooms are currently provided on campus. The University has programmed annual phased upgrade of existing halls of residence as part of a Capital Plan programme of works from F/Y 2022/27. The upgrade works comprise essential replacements of components finishes and where appropriate, upgrade of fabric and energy source. The 5-year Residences Upgrade Program includes:

- Jean Muir Student Village
- Leonard Horner Hall
- Robin Smith Halls
- George Burnet Halls
- Lord Thompson Hall
- Anna McLeod Hall
- Muriel Spark Hall
- Mary Ferguson Hall

## Leonard Horner Hall

Leonard Horner Hall was constructed as student residences in 1985 and provides 231 rooms with predominately shared kitchen and bathroom facilities. It is the oldest of the campus residences blocks. The current HMO compliance certification is due to expire 31st December 2023. In order to meet HMO requirements and student demand, the residence block will require significant remodelling work to meet minimum standards, fire regulations and energy certification.

The University has carried out full refurbishment feasibility, to review feasibility of retention of the existing building asset. However, the building has significant structural design constraints which prohibit cost optimal effective internal remodelling. However the University Nstrategy will require a full Sustainability Audit and Options Appraisal to assess the optimum carbon outcome of repurposing vs demolition.



## Strategic Net Zero Retrofits and Space Enhancements

The University estate dating around the 1980` and 1990`s provides a significant opportunity to impact scope 1 emissions. It also provides the best opportunity to achieve recognised certification in this respect.

Retrofit projects will optimise improvements in operational and fabric energy performance. Projects will comply with mandatory energy performance standards and drive progress towards eliminating Scope 1 emissions / achieving Net Zero

### Feasibilities recommended to be developed are:

The Enterprise Oil Building



Lord Balerno Building



Lord Holme Hall



## Pilot Project Retrofits

The University will adopt the transition engineering paradigm of maximum performance of existing assets by facilitating feasibility on potential EnerPHit compliant retrofit projects.

Achieving sustainable and net zero objectives in refurbishment will play a central role in supporting net zero transition and will allow the practical demonstration of the University's global research strengths across relevant sectors.

Operational energy-related emissions will reduce due to the implementation of efficient building fabric upgrades, low/zero carbon building services (replacement of existing gas heating) and decarbonisation of electricity. Operational transitions will include lowering of ambient environment temperature, hours of occupancy and heat plant activity.

## Workspace, Study, Learning and Teaching Spaces

Workspace for staff and students will require to be technology enabled with smart systems, flexible, agile and of innovative quality to meet future realigned working patterns.

A programme of prospect driven workspace redesign projects will be undertaken. The opportunity will be undertaken to upgrade external fabric energy thermal performance and energy systems.



## Space Optimisation

New patterns of work, teaching and study will provide opportunity for innovative re-purposing and efficiency configuring of the campus estate. Efficient space design and operation can reduce building-related emissions, including those from energy and wider building-related supplies and services.

The University will facilitate a space utilisation and optimisation programme to achieve both space and energy management objectives.



# Asset Optimisation

Managing efficient utilisation of space is a critical aspect of the efficient estate operation that underpins the University's strategic objectives specifically Net Zero targets. This Development Framework aligns with the University's Climate Action Framework and the systematic and hierarchical approach to place-based transformation as supported by the Scottish Funding Council Strategies .

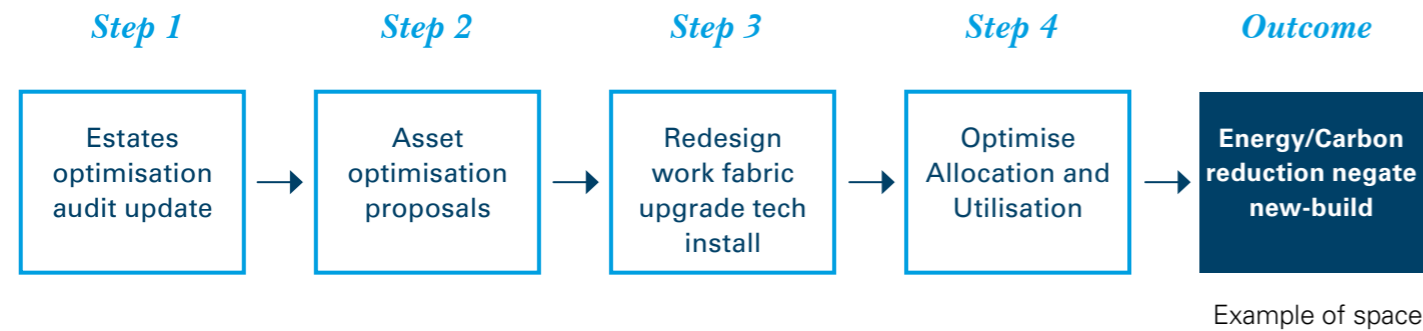
The forward approach will feature:

## Asset Optimisation -

Minimise overall demands on the environment by using our land, estate, spaces and assets to their fullest potential. Continually challenge usage of land, spaces and assets to optimise the balance of carbon vs space efficiency. Identify underused spaces, improve utilisation and cut energy use

## Asset Monitoring and Data Collection -

Maximise how our land, estate, spaces and other assets perform by optimising utilisation and efficiency, and by seeking carbon reduction through application of appropriate technologies. Use local and remote monitoring technology to confirm space use outcomes.

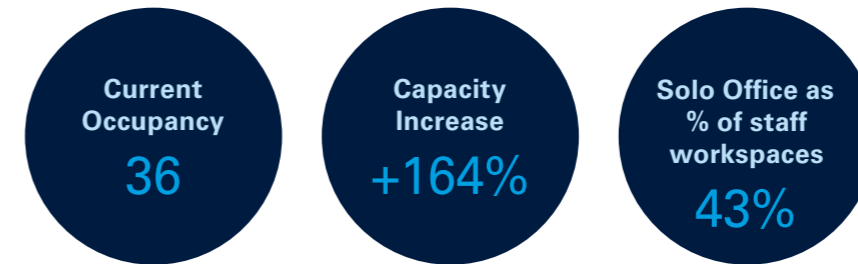


Reconfiguration to improve utilisation and efficiency (Arrol Building)

## Energy Optimisation

Low-carbon energy generation and securing low-carbon utility sources, interfacing these with our building systems, and developing the appropriate estate energy distribution and storage networks. Replace existing local energy infrastructure with low carbon, locally optimised systems.

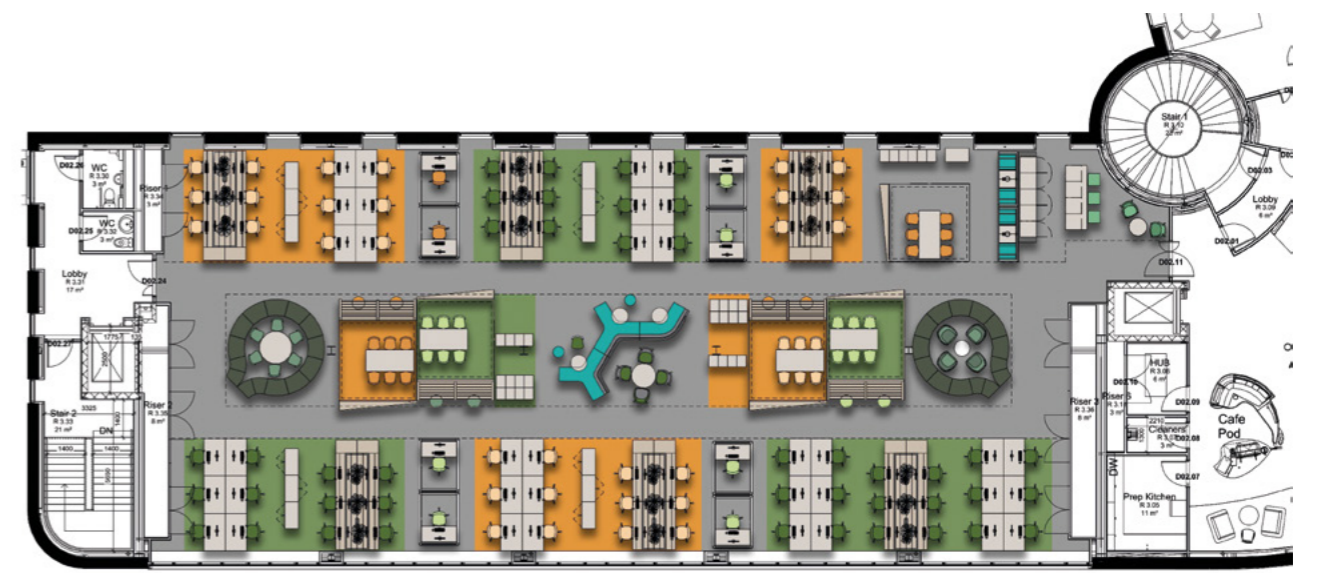
The space utilisation efficiency of existing work, study and research space at the Edinburgh Campus, has significant capacity for improvement. Facilitating improvement of space utilisation efficiency will reduce the need for new build space, and contribute towards a right-sized, efficient estate that supports our Net Zero objectives.



**Initial Proposed Space Allocation**  
 Professors and T&R academics solo offices  
 T&S academics and RAs in group neighbourhood offices  
 Casual staff / visiting group offices / open plan  
 PhDs in open plan hub

Workshop discussion identified that a hierarchical approach to space allocation would be problematic and that more parity in space allocation was required.

Instead each group will be provided with a number of allocated or bookable rooms.



# 6. Oriam and Sport Phase 3



*The University has world class sports facilities, which is a unique asset. The masterplan seeks to create a framework which enables additional world class facilities to be established - without compromising future opportunity development.*

Further opportunity exists for expansion to suit both campus and national community requirements. Future potential developments include the sports of padel, gymnastics, athletics, cricket as well as further developments with Hearts, Scottish Rugby and SportScotland.

### **Cricket**

A proposal for a 6 lane indoor facility for Cricket Scotland is under development for 2024. The facility will include an administration centre. Cricket has the potential to be a major recruitment tool to Heriot-Watt University given its profile in the sub-continent. Future expansion would include outdoor nets.

### **Padel**

In partnership with the LTA and Tennis Scotland, ORIAM will provide 3 outdoor padel courts serviced from the ORIAM reception and street.

### **Gymnastics**

facilities as part of a fresh new approach to arrival to Oriam. Both sports are heavily focussed on participation and would connect well to the new Oriam Café.

### **ORIAM Hub**

The majority of governing bodies in Scotland use SportScotland for office accommodation. The concept of the 'Oriam City' would bring the majority of national governing bodies in Scotland together as part of Oriam, combined with extended partnerships with Scottish Rugby and Hearts.



# 7. Research and Innovation Park



*The University is committed to increase income levels by relaunching Research Park commercial activities to enable the securing of inward investment on the Research Park. The proposals focus on two themes.*

## Theme 1

The development of a revised 2023/28 Infrastructure Development Framework with a suite of detailed sub-plans which identify achievable capital infrastructure deliverables within the timeframe.

## Theme 2

Specific focus on Research and Innovation Park promotion and development by engagement with a Strategic Development Partner. The Partnership will re-vision the Research Park and relaunch to market, targeting specific market sectors which can create Research and business partnership opportunities in part by facilitating assistance packages for development site prospects.

### Research Park Vision

The University vision is to build a vibrant urban research and innovation district. The ambition is to deliver an inspiring location where industry and business can innovate, accelerate and develop in a globally connected environment.

When developed, the park will catalyse the range of existing and proposed mixed use developments in West Edinburgh

The University aims to work in partnership to develop high quality environments suitable for the research and development needs of a range of sectors and business types, from start-ups to SMEs to established businesses.

The University will enter into a Strategic Property Partnership (SPP) with a private sector developer. The SPP will provide the platform for the University to expand an established research park and create one of the most incentivised research and development opportunities in the UK.

The Research and Innovation Park will be relaunched to the market with the a new development partner. The partner will be selected for shared vision and demonstrated capacity and capability for collaboration, innovation, environmental awareness and ability to actively support the University's net zero targets.

### Development Opportunity

Heriot Watt Research Park is located at the Edinburgh Campus to the west of Edinburgh City Centre, near to Edinburgh Airport, Edinburgh Gateway Rail Interchange and M8/M9/City Bypass major road transport routes. The Research Park extends to 165 acres in total, of which 95 acres has been built or is due to be developed.

There are currently 28 businesses situated on the 165-acre site, 70 acres are available for future development. The University is looking to build an innovation district of business and academia to create as many as 10,000 new jobs and offer varied and extensive training opportunities for Edinburgh, the Lothians, and the Central Belt of Scotland.

In a planning context, development within the University campus will be supported for business or research uses.

### Strategic Property Partnership

To accelerate development of the Research Park and create one of the largest research & development opportunities in the UK, the University is procuring a Strategic Property Partner. The selected partner will be a suitably experienced and funded organisation or consortium who we will work with to develop and operate a high value R&D ecosystem/community. The selected partner will share a vision and passion for collaboration, innovation environmental awareness and actively support the University's net zero targets.

## New Developments

### National Robotarium

A £23M investment in The National Robotarium completed in 2022. The National Robotarium will have unrivalled facilities in ocean systems, human robotic interaction and assisted living. Exploring collaborative interaction between humans, robots and their environments, cutting-edge Research translates into technologies to create disruptive Research in an expanding global market.

The National Robotarium is supported from the UK Government and Scottish Government as part of the Edinburgh and Southeast Scotland City Region Deal- a 15 year investment programme jointly funded by both governments and regional partners.



### The International Centre for Brewing and Distilling

The International Centre for Brewing and Distilling is proposed as a partnership between Heriot Watt, Heriot Watt and a National Brewing and Distilling company. Students will benefit from the proposed brewery through opportunities gaining hand-on experience across all aspects of brewing operations in a large-scale production brewery



## Net Zero Global Research Institute

The Net Zero Centre will be an exemplar of net zero construction in practice, which will act as a global hub for research, teaching, innovation, and industry collaboration across all net zero themes.

The provision of this project will be subject to a sustainability assessment to determine if repurposing of an existing building ( eg The Enterprise Oil Building ) may present an outcome more aligned with the University sustainability policies.

## The scope of the project is summarised as:

- Innovation and Enterprise Zone: Multi-flex spaces (collaboration / interaction / event and seminar spaces) for engagement with the net zero academic and industry community and potentially to include dedicated rental spaces or colonisable workspace areas.
- LandT Zone: Learning activities related to the 'net zero' agenda with generic LandT spaces to meet expansion needs at the Edinburgh Campus.
- Digital Technology Zone: Digital technology spaces and facilities which overlap with other zones including LandT, Innovation and Enterprise.
- Lab Zone: A super-sized 'Imagineering Zone' will cut across the 5-6 key themes and includes imagineering labs, simulation spaces and / or digital war rooms plus an associated staff hub.
- Specialist Support Spaces: various imaging suite formats



## Global Health Innovation Centre

Heriot-Watt University's ambition is to establish a Centre of Excellence for Health and Care Engineering that within 3 years is renowned for translating cutting edge research into practical health and care engineering solutions deployed worldwide. The project will help deliver this ambition via our UK, Dubai and Malaysia campuses.

In Scotland, the Institute will have a strong affiliation with key stakeholders in the Health and Care Sectors, which include NHS Scotland, Scottish Healthcare Innovation Ltd (SHIL), ScotGov and support Scottish Enterprise in its aspiration to accelerate innovation in medical health and care technology.

## Cell and Gene Therapy Cluster

The potential for cellular therapies to be transformative to the treatment of degenerative and neoplastic diseases is undoubted. They are, however, complex products with a high degree of variability in starting materials, manufacturing processes and clinical effects.

Great emphasis has been placed (rightly) on the challenges in manufacturing such products, but equally weight needs to be given to understanding the nature and management of the supply chain.

Product development must take an integrated end-to-end supply chain perspective if this new generation of therapies is to realize widespread adoption by healthcare systems. The proposal requires a 60k sqm facility on the site adjacent to the Blood Transfusion Service with a mix of lab-production space and office accommodation.

## Being Pro-Active

The University will assist companies to move innovative products and services rapidly from laboratory to market, to develop new prototypes and support early-stage product development within an incubator environment that drives productivity. Uniquely flexible facilities allow companies to develop technologies and carry out challenge-based Research in a safe environment. Its accelerator programme supports and develops innovative start-ups, building relationships with relevant business sectors and connections to international markets.

## Development Strategy

### Strengths and Weaknesses

Heriot Watt University demonstrates strength in research in the Blue Economy, Quantum Technology, Construction, Robotics and AI sectors with future aspiration to develop further in Life Sciences.

Blue Economy: leading in aquaculture and marine biotechnology with key strengths in energy and marine renewables.

Quantum Technology: over 10,000 sq ft of labs with advanced equipment ranging from laser-based holographic mask fabrication, flip-chip integration of quantum components, to cryogenically cooled, high efficiency superconducting detector arrays.

Construction: Sustainability and Net Zero technologies

Robotics and AI: world-leading Research centred at National Robotarium.

### Opportunity

The Research Park presents an opportunity to create a strong regional Research and science park on a UK scale.

The Research Park requires to promote and develop specific international industry and business partnerships. Any real estate marketing strategy must focus on promoting RandD opportunities in parallel to estate opportunities.

The University also has a focus on supporting commercial development throughout the growth cycle by providing early stage and late-stage incubation and accelerator facilities. Comparator examples in this regional sector would include Edinburgh Bio-Quarter, Edinburgh Technopole and Pentlands Science Park. Other examples of similar Research parks across the UK to be aware of are Manchester Science Partnerships, Cambridge Science Park, Leeds Research District and Birmingham Health Research Campus.

### Commercial Alignment

The University requires to plan its Research Park development to enable an optimised strategy between shorter-term commercial return and longer-term research partnership opportunities. The development planning of The Research Park land will remain flexible to facilitate maximum opportunity to respond effectively to aligned prospects. The general zoning categories include-

- University funded Research/LandT facilities (National Robotarium/International Centre for Brewing and Distilling) requiring proximity to campus academic hub.
- SME Strategic and/or Research partner non-industrial laboratory and workspace facilities.
- SME industrial product development laboratory, workshop and workspace facilities for prototype development and fabrication.



# Planning Zones - the opportunity to design future development zoning to encourage an enterprise community.

## 1. Incubation, Acceleration and Spin-out Zone

Connected to the existing GRID Research hub which supports creative advances in global Research, Research and discovery. It is designed to facilitate interactivity between academic disciplines and industry partners and provides an ideal start-up environment for new entrepreneurs.

## 2. Research and Development Partner Zone

Connected to in key University Research areas.

- Robotics and AI centred at The National Robotarium
- De-carbonisation, Carbon Capture and Net Zero Technologies
- Earth and Marine Science centred at the Lyell Centre
- Medical Technologies
- Brewing and Distilling

## 3. New Innovators Zone

A globally connected Innovation Zone bringing together diverse minds to solve the challenges of the future. Bespoke development packages facilitated by retained sector investor/developer partners to be available on a flexible lease basis to upscaling businesses.

## 4. Maker and Manufacturing Zone

Industrial type development and prototyping of larger scale technologies such as renewable energy devices.



## Design Guidelines

The Research Park has simple design guidelines intended to promote a positive working environment which people wellbeing is considered vital. The flexible design guidelines for new development are restricted to –

- Build of 33% of site
- Hardstanding 33% of site
- Soft Landscaping and External Spaces 33% of site.

The University encourages quality and innovative architectural and engineering design

## Marketing Strategy

The Research Park has lost its profile in the market in recent years. An assertive re-launch of the park is programmed to move opportunities forward and meet 24-28 objectives.

## Key Objectives

- Intensify the Research and business community on site.
- Strengthen the academic offer in terms of RandD, talent and business support activity.
- Raise the profile and reputation of the Research Park in line with the global branding of the University.
- Meet Heriot Watt 2025 objectives in terms of doubling the economic impact of the Research Park, whilst having awareness of the Edinburgh 2030 Sustainability Plan.



The University will commence a UK wide and the international marketing campaign seeking developers for new-build or occupiers for existing vacant premises with a variety of deal formats and incentives on offer. These will include land lease or developer turnkey solutions.

### Marketing Collateral

A marketing campaign will include the following elements-

- The name, Heriot Watt Research Park will be retained.
- A review of the University sub-brand for the Research Park
- New marketing boards erected at hi-visibility locations to A71.
- Website redesign
- Video/VR 360s, walkthroughs and drone footage for web
- PDF download pitch decks
- Hard copy pitch deck
- Social media campaigns  
CGIs as required
- Commercial incentives and development package options.

### Direct Sector Targeting

- Agents to pro-actively Research and monitor sector prospects.
- Research partnership opportunities to be prioritised.
- A direct marketing plan to be developed.

### Developer/Investor Agreements

- Agents to schedule and shortlist potential develop/ investor organisations to facilitate turnkey solutions
- Agents to Research funding sources for inward investment, develop knowledge bank and update regularly.
- University to draft HoT for pre-emptive agreements with specialist academic/Research sector developers and investors.

### Existing Users CRM

B+E to develop CRM strategy for existing park users, monitor future requirements and opportunities.

### Inward Investment Response

The University will develop a response template to attract and assist potential inward investment in the Research Park. The template will comprise 3 parts of which one or all may be instructed according to investor requirements.

#### Part 1 -Standard Pitch Pack

A standard information pack outlining the Research Park attributes and attractions.

#### Part 2 – Bespoke Detail Pack

A bespoke information pack including site options, contract options and formats, cost options, incentives, statutory assessments, infrastructure provision, RandD partnership opportunities, on site networking opportunities, development advice and support.

#### Part 3 - RIBA Stage 1 + Concept

The University will instruct retained consultants to develop an RIBA Stage 1+ Report on behalf of the investor in order to enable a fast-track route to new facility development. The information scope of this report will generally support an Outline Business Case for investment funding. The scope includes:

- Workshop with client to define brief
- Agreed Property contract/format
- Define proposed site and utilities infrastructure
- RIBA Stage 1 Outline architectural design and concept
- Estimated elemental project cost m2
- Statutory approvals assessment



# 8. Travel and Movement

*The University will improve connections to wider infrastructure including links to Curriehill, Wester Hailes and Sighthill. Increasing active travel will promote wellbeing and reduce the carbon emissions.*

## Active Travel Benefits

The increased use of active travel links and creating connections to two key railway stations, would enable the campus to have reduced bus and vehicle traffic through the central campus. This would allow students and staff to access the campus from further afield easily through active travel. This will have a positive impact on the health and wellbeing of campus users.

## Cycle Routes within the Campus

The proposed connections aim to increase the use of active travel methods within the campus. Improvements to current routes, in addition to new routes, will better connect the central campus the Robotarium and research park. The new west avenue route aims to encourage better connectivity to the student village- with improved lighting and surfaces to enable safe commutes.

## Link to Curriehill Station

The University is progressing an enhanced travel link in partnership with City of Edinburgh Council, Sustrans and Lothian Buses. The route improvements will feature improved pedestrian & cycle pathways and addition bus connectivity.

## Link to Union Canal

The existing North East Link to the Union Canal links the campus to the national cycle network NC75 and NC745. This route connects the campus to central Edinburgh and Falkirk, to the west. This links also connects the campus to other sites of sporting excellence. Including, Edinburgh's International Climbing Arena, the future Wavegarden and Bridge 8 Hub Watersports. Improvements include wayfinding, surfacing and lighting.

## South East Link to West Edinburgh Link

This route connects the campus to Wester Hailes Station and Edinburgh Park Station. It also connects the campus to the West Edinburgh Link (WEL) and Wester Hailes neighbourhoods.

## A71 Cycle Route

The A71 route which runs along the northern edge of the Heriot Watt campus is currently not suitable for cyclists or pedestrians. This is due to the lack of off road cycle track and the high speed which cars travel at. Although there is an off road footpath, the width of this would not currently qualify as accessible.



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### Routes Within Campus

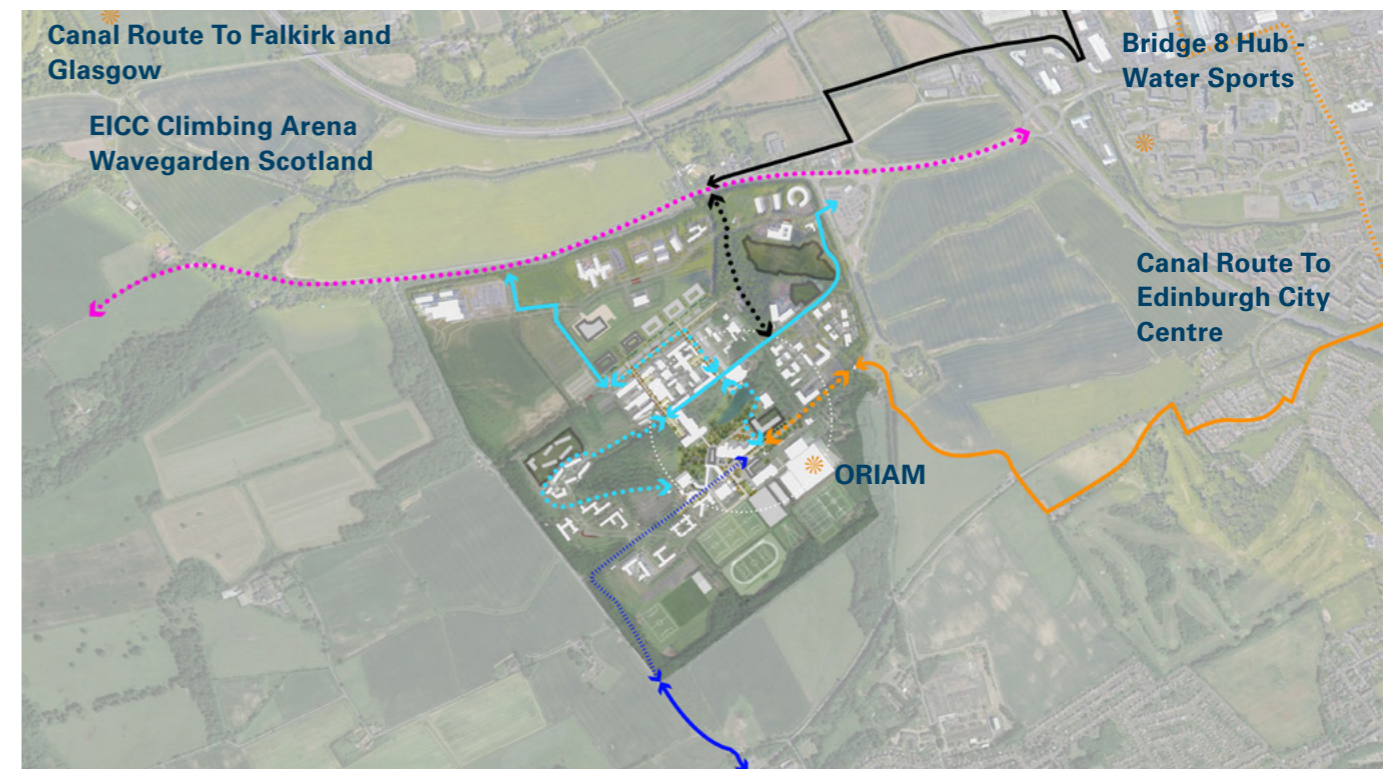
- ⋯⋯⋯ **Desired New Route** - Feasibility study, surfacing, wayfinding, and lighting.
- **Existing Route** - Confirm up to standard and improved signage.
- ⋯⋯⋯ **South West Link to Currie Hill Station - within Campus** - Improved surfacing, wayfinding, and lighting as appropriate.
- **Outwith Campus** - Alignment of works currently in discussion with Sustrans.

### Links to Union Canal

- **Union Canal**
- ⋯⋯⋯ **Union Canal National Cycle Route**
- ⋯⋯⋯ **Within Campus** - Ensure that the existing route is sufficient width and lighting appropriate.
- **Outwith Campus** - Improved surfacing and wayfinding.
- ⋯⋯⋯ **A71 Cycle Route**  
City of Edinburgh Improvement project to be confirmed.

### Links to West Edinburgh

- ⋯⋯⋯ **Within Campus** - Improved surfacing, connecting to East Avenue and Central Campus.
- **Outwith Campus** - Feasibility study of route signing and on/off road surfacing. Possible Sustrans link to West Edinburgh Link.
- ⋯⋯⋯ **West Edinburgh Link**



# Existing

*Movement through the campus streetscape and landscape impacts on people wellbeing. Consequently the optimised movement of vehicular and pedestrian traffic, has been integrated into projects planning.*

## Vehicle Movement

Vehicles enter the campus from three locations; The Avenue, Research Park Avenue North and West Gate. There are significant pressure points on vehicle movement primarily at The Avenue entrance at peak times. This pressure point is exacerbated by the proximity of car parks AandB and subsequent vehicular queuing within the campus. Much of the campus is served by single route options only.

Vehicular movement frequency and congestion within the campus also has an impact on air quality, pedestrian and cycle safety and therefore human wellbeing.

## Bus Movement

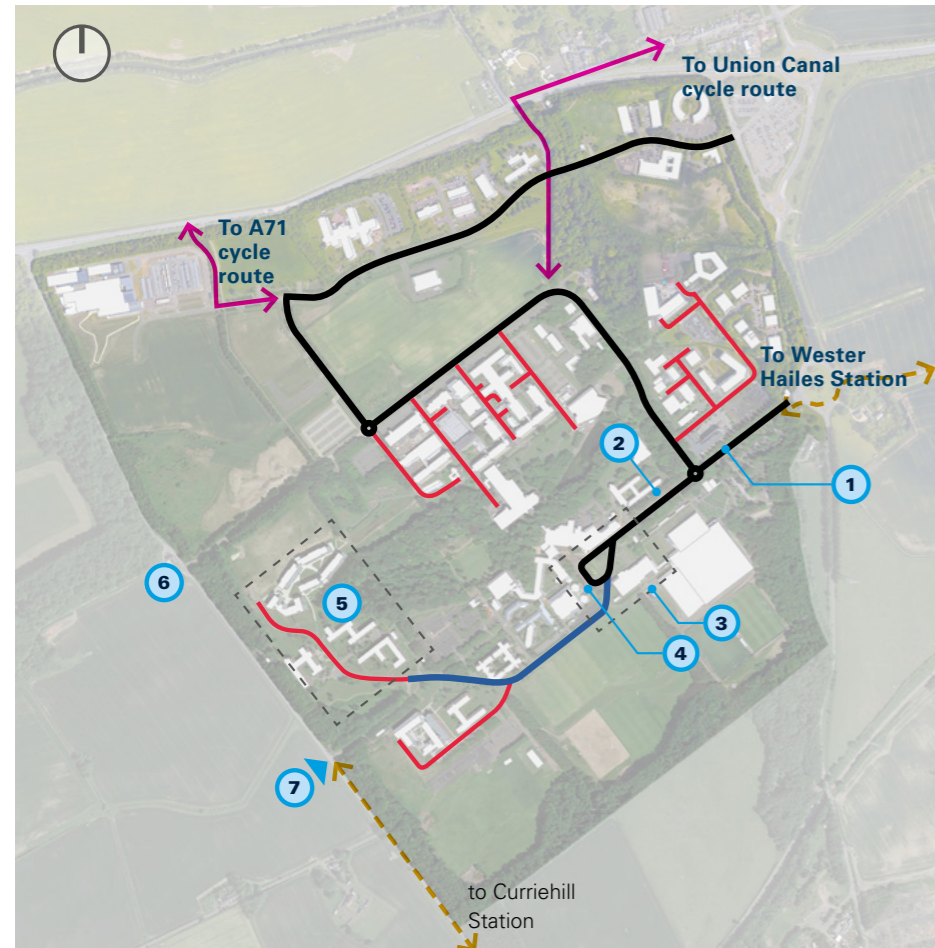
The campus is well-served by city centre buses, and is the terminus point for most routes. Buses need to 'layover' between the end time of one route, and the start of the next. Currently, buses drop all of their incoming passengers and then either layover in the bus bays on the south side of The Avenue, or on the stances directly outside the James Watt Building Reception. Therefore the streetscape is often characterised by stationary buses. Buses must enter and leave the central area using The Avenue, which results in a high number of vehicle movements in a small area causing poor air quality.

## External Connections

The main pedestrian or cycle destinations are:

- The Riccarton Park and Ride site
- Curriehill Station
- The Union Canal
- Wester Hailes Station

There are limited facilities to encourage visitors to walk or cycle from Curriehill Station or Wester Hailes Station.



- 1 Frequent bus and traffic congestion
  - 2 Frequent stationary buses in layover area
  - 3 Area unattractive to pedestrians and cyclists
  - 4 Buses frequently stationary outside Business School
  - 5 Area cut off from public transport
  - 6 No entry from Boundary North Road
  - 7 Existing West Gate entry only
  - 8 One-way system reduces traffic flow
  - 9 Vehicle access to Health Centre and James Watt car park retained
  - 10 Relocated bus stances pick-up only
  - 11 University Square- emphasis on pedestrian / cycle movements
  - 12 New loop road section
  - 13 Access possible from Boundary Road East
- Main vehicle routes
  - Secondary vehicle routes
  - Minor vehicle routes
  - - - Issue areas
  - - - Areas of improvement
  - - - No defined walking / cycle route
  - - - Improved walking / cycle route or infrastructure
  - - - Existing walking / cycle route connections

# Proposed

*A priority of the streetscape strategy has been to create better, active travel connections to reduce dependence on vehicles within the campus.*

## Traffic Restrictions to the Avenue

The introduction of a restricted one-way section of shared surface from The Avenue mini-roundabout will reduce car and bus journeys, and allow the prioritisation of surface to pedestrians, cyclists and authorised vehicles.

The proposal maintains one-way bus traffic and drop-off essential vehicle access to the central area including Health Centre, James Watt Service Access, George Heriot Wing Carpark, disabled access, taxi and delivery drop-off.

## Completion of the Ring Road

The proposed construction of a new section of road linking The Student Village and Boundary Road North will create a continuous road loop through the south and west of the campus.

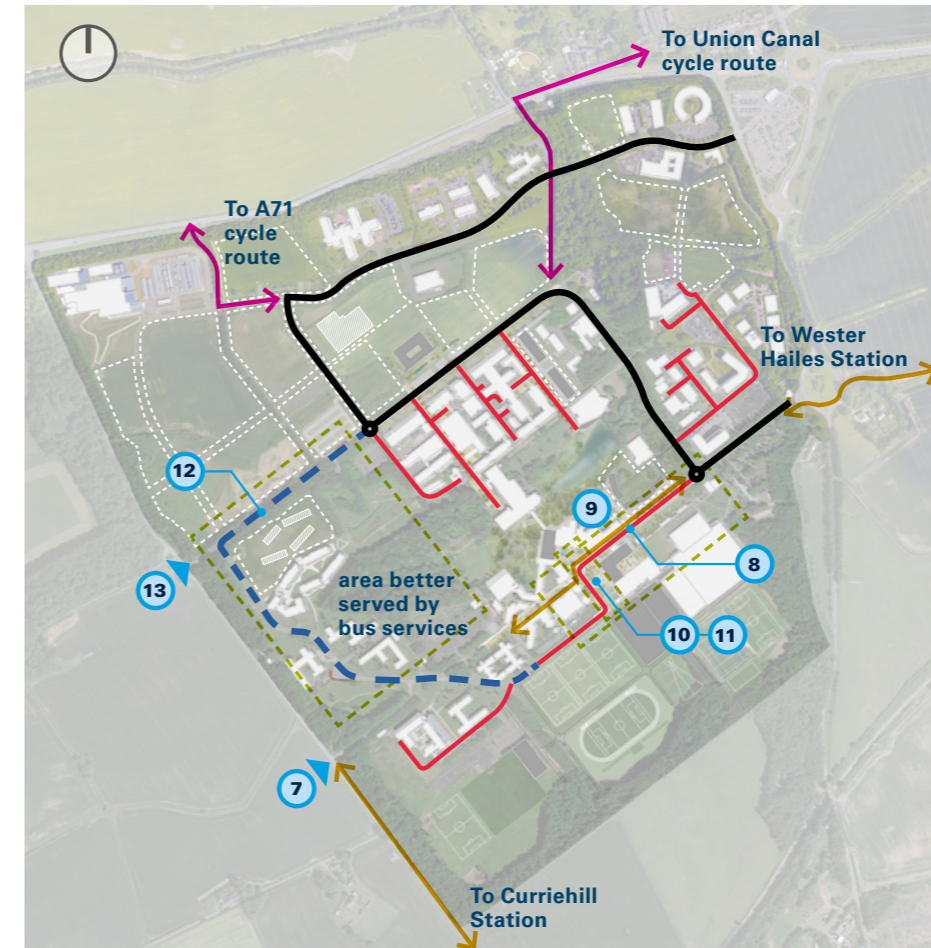
It will allow vehicles to exit from The Avenue to Boundary Road North, relieving traffic pressure on The Avenue and the Riccarton Road entrance. It will also allow vehicles to access the Student Village, and car parks to the west of central area from Research Avenue North, without needing to travel along The Avenue. This will also help to reduce pressure on the Riccarton Road entrances.

## Relocation of Bus Terminus

It is proposed to relocate the bus terminus and layover facilities to the student village. This will eliminate the two-way bus journeys though central campus and improve air and noise quality.

## Parking

The University will not increase its parking provision and will promote sustainable and active travel to work by students, staff and visitors.



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  - - - No defined walking / cycle route
  - - - Improved walking / cycle route or infrastructure
  - - - Existing walking / cycle route connections

# 9. Utilities Infrastructure



## Background

The strategic need to undertake master-planning for enabling utility infrastructure investment (power, water, gas and digital) was identified in 2021. This was required to facilitate and de-risk the future successful development of the Edinburgh Campus including the Research Park. Development of the National Robotarium project and future Global Research Institute highlighted critical utilities infrastructure issues which are needed to be addressed to enable future risk-optimised development.

## Investment Pipeline

The University requires a pipeline of infrastructure development over a 5-year period. Investment in the campus utilities requires to be planned and coordinated to optimise future project delivery, facilitate operational productivity, and maximise income generation through expedient site leasing/disposal. The aspirational 22-27 Draft Masterplan proposals comprise a mixture of university funded projects and industry funded /occupied projects developed based on long ground leases.

## Electricity Networks

Research Park – The existing load on the Currie network is ~3.5MVA, the prospective load is estimated at ~7.74MVA. Potential options to facilitate additional generation to cover the delta (4.2MVA) have been discussed with Scottish Power Energy Networks (SPEN).

Three options were considered by the University. The 'Organic Growth Option' allowing incoming tenants to

submit their own power supply applications and deal with SPEN directly will be prioritised. Scottish Power Energy Networks (SPEN) will upgrade the network with additional cables and associated infrastructure to create additional capacity to the maximum 6MVA within the existing network limit. This option carries no cost and no responsibility for HWU.

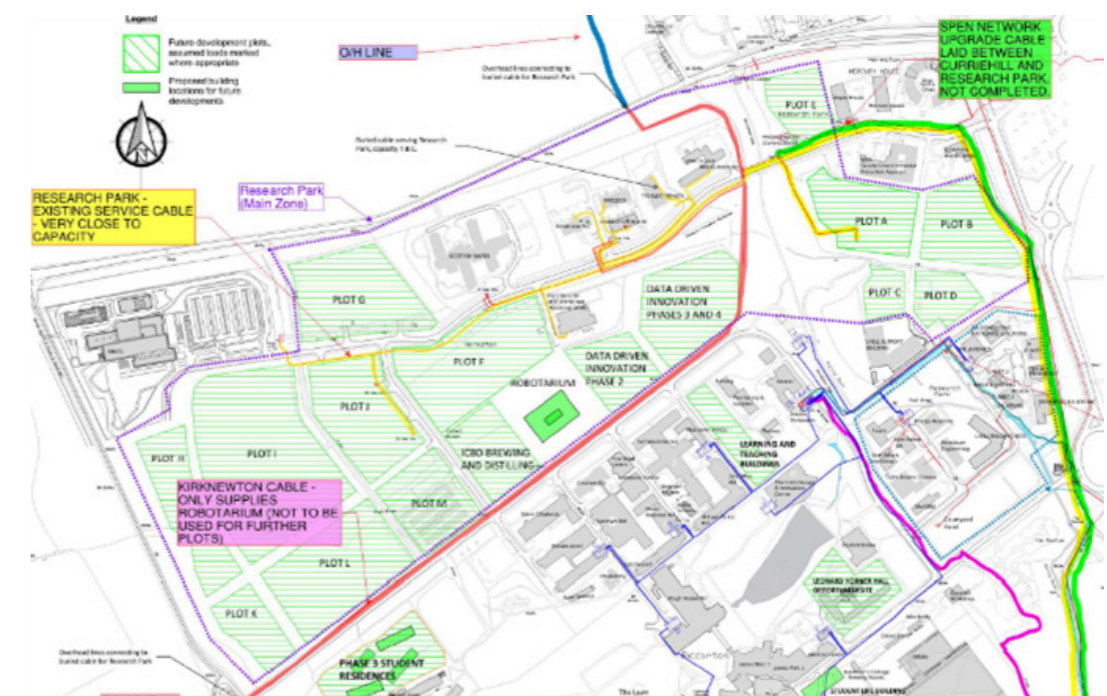
Main Campus – The existing supply circuits accommodate 7MVA, existing load is ~4.2MVA, accounting for net zero carbon electrification of the campus increases the load to ~6.5MVA. There is therefore no immediate issue with supply to the main campus. However, upgrading of ageing HV switchboard and distribution transformers operating beyond economically serviceable lifespan is required within the next 5-10 years.

The HV replacement could be combined with the proposed PV solar farm project providing economies of scale and efficiencies in installation and disruption.

## Telecommunications

The Avenue Cable Duct Extension of the IT cable ducting network to the west side of the campus would provide resilience and future proof campus and Research Park development.

5G Requirements – There is a possible requirement for 5G network enhancement. The National Robotarium will require 5G capability and the University are currently investigating options for this provision.



## Gas Networks

The gas network is not necessary to support future development. It is likely that gas usage will be reduced over time in accord with de-carbonisation and the transition to net zero targets. The Low Carbon Heat Masterplan (LCHMP) work recommends retrofit of campus buildings to reduce heat demand including the use of air source heat pumps on a centralised or de-centralised basis. Gas will likely be employed to meet peak loads for some time but there is potential for the use of hydrogen in future either through part injection or complete retro-fit.

## Water Networks

A number of development plots within the Research Park are not properly serviced with a connection point to HWUs private water network. Development plots, 12, 17, 18 and 19 on Boundary Road North can be serviced through extension of the existing network and plots A, B, C and D require new infrastructure provision. Consideration should be given to the timing of any infrastructure provision in relation to ensuring co-ordination with roads and other utilities development.

## Drainage Networks

The University commissioned Scottish Water to undertake a Strategic Drainage Impact Assessment (DIA) to understand the capacity of existing drainage infrastructure to accommodate new development within the campus. The DIA concluded that the proposed development pipeline would have an adverse impact upon the existing infrastructure.

The DIA recommends that additional storage at the Western Boundary storm tank (Crammond) is required to accommodate the additional flows. The University will continue to review the likely scale and timing of development of the campus and liaise with Scottish Water further regards the nature of required investment in storage.

## Interface with Wider Climate Action Framework and Energy Optimisation Strategy

The wider strategic interface of utilities infrastructure and the University's Climate Action Framework and Energy Strategy, specifically, the Edinburgh Campus Heat Decarbonisation Study, will be planned and coordinated. An integrated approach to planning and investment provides strategic positioning, communications and marketing collateral around Net Zero policy and de-carbonisation credentials.

## Smart Energy Campus

Opportunity exists for a different approach to the generation and use of energy on site which would assist delivery of net-zero aspirations, reduce costs and maximise efficiencies.

A 'smart energy' approach including on-site electrical generation and storage through multiple vectors including solar PV, battery storage, electrical vehicles, lighting, smart buildings technology and use of integrated data analytics technologies. Similarly, there may be other ways to conceive and deliver integrated solutions with other utilities which can complement and contribute to the drive to Net Zero.

Immediate issue with supply to the main campus. However, upgrading of ageing HV switchboard and distribution transformers operating beyond economically serviceable lifespan is required within the next 5-10 years. The HV replacement could be combined with the proposed PV solar farm project providing economies of scale and efficiencies in installation and disruption.



# 10. Look ahead

*What the campus will look like in 2035 if we deliver the Climate Action Framework*

<b>Movement, Travel and Transport</b>	Complete program of energy source conversion from gas to renewable electricity will be complete.	<b>Solar - HP - Hydrogen - Wind</b>
<b>Existing assets</b>	Existing building envelope upgraded to improve thermal performance and air quality.	<b>Energy - Revenue optimised</b>
<b>Optimised space</b>	Existing space redesigned to optimise utilisation, increase efficiency and reduce energy usage.	<b>Energy - Carbon - Wellbeing</b>
<b>Agile design</b>	Spaces globally connected and wellbeing centred design. Work / study / L&T / research to fit flexible work models.	<b>Energy - Carbon - Wellbeing</b>
<b>Movement</b>	Electric vehicles only walking/cycle norm vehicles relegated to margin-drone delivery.	<b>Carbon - Wellbeing</b>
<b>Clean environment</b>	No h/carbon vehicles. Landscape planting enriched biodiversity/ecology strategies	<b>Carbon - Wellbeing</b>
<b>Digital integration</b>	Integrated digital controlled. Smart campus technology enabling efficient user activity and best experience.	<b>Carbon - Experience</b>
<b>Supply chain</b>	Government led supply chain strategy compliance incl. circular waste management	<b>Carbon - Compliance</b>



# Estates and Facilities

- + *Places and spaces of inspiration, collaboration, creativity, opportunity*
- + *Students, staff, research, business partners across our campuses*
- + *Positive impact on student experience, people wellbeing sustainability*
- + *Global commonality, local identity*
- + *Major new buildings, existing asset upgrades, capital planning*
- + *People focused design, quality, optimised value*
- + *Constant review of sector exemplars, integrate best practice models*

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