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Shared Learning Event
LEIP Phase 1

Summary of Workshop 01
9th December 2020

List of Attendees

Mark Mitchell	Aberdeenshire Council
Maxine Booth	Aberdeenshire Council
Peter Kerr	Atelier Ten
Iain Mackinnon	Comhairle Nan Eilean Siar
Alexander Melichar	City of Edinburgh Council
Crawford McGhie	City of Edinburgh Council
John Jackson	City of Edinburgh Council
Michaela Lyons	City of Edinburgh Council
Edward Reid	East Lothian Council
Graham MacKenzie	East Lothian Council
Michael Cernicchiaro	East Lothian Council
Neil Craik-Collins	East Lothian Council
Samantha Williams	East Lothian Council
Steve Marshall	East Lothian Council
Fiona Morrison	East Renfrewshire Council
Alastair J Drummond	Fife Council
Iain Hughes	Fife Council
John Peden	Fife Council
Louise Playford	Fife Council
Raymond Johnston	Fife Council
Finlay MacDonald	Highland Council
Philip Shannon	Highland Council
Robert Campbell	Highland Council
Sharon Barrie	Highland Council
Sandra Banks	Midlothian Council
Maurice McCann	Midlothian Council
Lynn Taylor	North Ayrshire Council
Robin Knox	North Ayrshire Council
Derek Yuille	South Ayrshire Council
Jennifer	SG Learning
Staermose-Johnson	Directorate
Neil McIntyre	West Lothian Council

Facilitators

David Fletcher	Architecture & Design Scotland
Danny Hunter	Architecture & Design Scotland
Lesley R Robertson	Architecture & Design Scotland
Sarah Burnett	Scottish Futures Trust
Seonaid Crosby	Scottish Futures Trust
Stephen Long	Scottish Futures Trust

Introduction

Context

A year after the launch of Phase 1 of the Learning Estate Investment Programme (LEIP) it was considered a beneficial time to bring together all the local authorities with a Phase 1 project, to discuss initial lessons that have been learned.

The purpose of the shared learning event was for the Phase 1 authorities to share some of their experiences to date and any issues, challenges and things that have worked well to help inform the Phase 1 and future education estate projects.

Workshop

The workshop was held online on Wednesday 9th December 2020. It brought together 32 delegates from across the 11 Local Authorities who are all included in the first phase of a nationwide £1 billion investment programme (£2 billion including Local Authority contributions), as well as the head of School Funding, Infrastructure and Organisation Unit at SG Learning Directorate.

The session was structured with four topic discussions:

- North Ayrshire Council presented its approach to setting measurable outcomes for the proposed Ardrossan Community Campus
- City of Edinburgh Council presented its approach to achieving the energy target with Passivhaus for the proposed Currie Community High School
- West Lothian Council presented its approach to achieving the energy target (without Passivhaus) for the proposed Beatlie ASN Campus
- Fife Council presented its approach to collaboration with other partners for the proposed Dunfermline Learning Campus.

Following each presentation there was a discussion session in which delegates were invited to bring forward any comments or questions they had. After the topic discussions there was then a facilitated conversation around the impacts of COVID-19.

Topic 01

Approach to setting measurable outcomes

Ardrossan Community Campus

North Ayrshire Council

Lynn Taylor & Robin Knox

Ardrossan Community Campus will support lifelong learning. In addition to the key educational provisions, the campus will have additional facilities such as the community library, leisure facilities, conference rooms, full-sized 3G and grass pitches and links to the International Marine Science Centre.

There are plans for a Health and Social Care Partnership and Children and Families team who would work alongside staff in the school in shared spaces. The International Marine Science Education Centre (IMSE) brought about by the success of the Ayrshire Growth Deal, will have educational links with the campus.

A development framework was created in partnership with SFT and the Consultation Institute to look at the site and Ardrossan as a whole town. By considering it as a destination and evaluating its context within the whole town, the project was then introduced to the wider community, providing the opportunity to discuss developing projects and opportunities.

The project is largely connected with the Ayrshire Growth deal and the associated investment proposals. The site itself will see investment not only in the campus itself, but also in housing, the marina, ferry terminal, improvements in transport, a new coastal path and the IMSE.

Through this framework, development characteristics (refer to diagram opposite) were established which have evolved to become the primary outcomes. The process allowed for reflective questions which

considered the impact the campus would make to both the town and community of Ardrossan.

These terms became part of a collaborative vocabulary and formed the basis of how the authority wanted to measure the changes and investments that the campus would bring to the area. In the evaluation, they became the underpinning principles for the development of the strategic brief and outcomes.

North Ayrshire Council wanted the strategic outcomes for the project to have visibility throughout the project life and beyond, and not just be used for evaluation at the end. Working with Ryder Architecture through SFT, these strategic outcomes were developed by;

- Identified scopes of influences
- Identified and mapped internal and external stakeholders
- Established the vision
- Agreed strategic outcomes
- Agreed spatial requirements
- Distilled these into measurable (SMART) Objectives

North Ayrshire Council have considered how these apply to the project specifically and developed sub measures for each of them. A rationale/explanation was provided for each one, with the council looking at how they are going to engage in respect of a particular aspect and also how they propose to evaluate the success or otherwise.

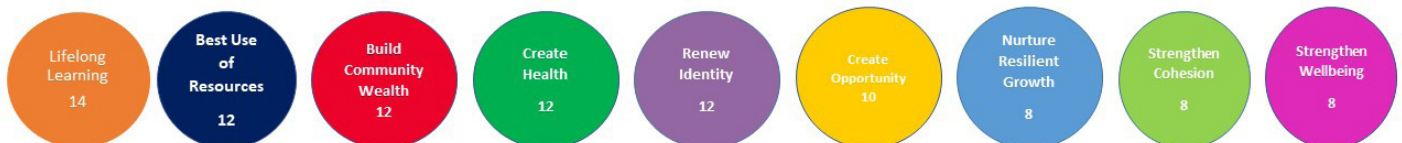
Robust systems of control and governance will be put in place in order to ensure the outcomes are properly policed. Many people are members of more than one particular group relating to the governance structure of the project. Internal reports are provided between all teams every month which ensures there is visibility and that all of these groups are sighted on all of the strategic outcomes.

Development Characteristics

Renew identity	Strengthen cohesion	Create health
Strengthen wellbeing	Create opportunity	Build community wealth
Nurture resilient growth	Best use of resources	Lifelong Learning

Development Characteristics – Key Principles

- Evaluation Criteria to assess layout options for North Shore Development
- Underpinning Principles for Strategic Brief
- Strategic Outcomes



Topic 02 : Part 1

Approach to achieving the energy target - Passivhaus

Currie Community High School

City of Edinburgh Council (CEC)

Crawford McGhie, Michaela Lyons,
John Jackson & Alex Melichar

The ambition for the new Currie Campus is that it will be an intergenerational hub. It will welcome the whole community and will include a library, digital hub, café, a flexible 'skill space' and a Wellness Centre.

CEC has an 'intelligent client' for the project and part of that role is to bring a technical view in projects at an early stage when cost and programme are primary concerns. This includes looking at how best to achieve the kWh per m² per year occupied metric.

In response to its 2030 commitment on climate change, CEC has adopted Passivhaus as the standard for every learning estate project. Accordingly, it has reviewed its Capital Programme and put budget uplifts to account for this. Passivhaus was chosen as the standard as CEC felt it offered a robust solution and that it was guaranteed based on the results of previous schools visited.

Energy Use - In Scotland, newer buildings are not deriving an improvement in performance which would be expected in new 'energy efficient' buildings. In fact, some of newer Scottish schools use more energy than the older Victorian schools. As a result, Passivhaus tied in well with CEC's view that it needed to approach things from a fabric first point of view. Other considerations included making sure that the building is well-orientated and to reduce the number of systems that are in the building so they are as simple as possible and work well. CEC noted that new school buildings don't perform as designed and demonstrate an 'energy performance gap'. This is an issue the

design and construction sector should be taking more seriously.

Orientation - Early stage modelling and optimizing the form were undertaken at the very beginning of the project so that any changes required have limited impact on the emerging design proposals. This included looking at optimizing external surface area and useful internal floor area.

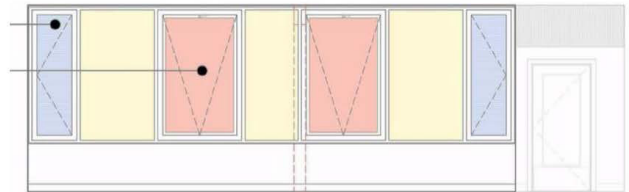
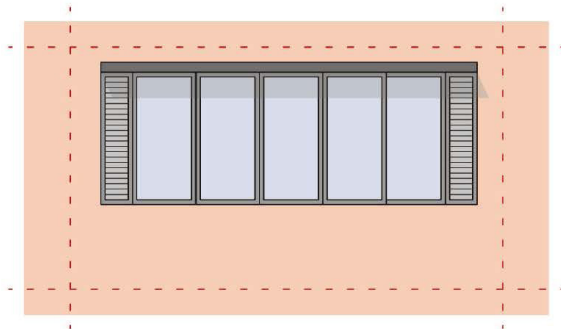
Part of the project's Authority Construction Requirements (ACRs) included a detailed look at daylighting metrics in combination with overheating, which is always going to be a challenge as the Earth gets hotter and we try and get towards zero carbon and reduce temperatures overall. At RIBA Stage Two particularly, there was a balance between making sure the day lighting was good enough to meet the LEIP (Learning Estate Investment Programme) metrics, whilst ensuring that overheating would not be a problem. This was checked using Passivhaus but also through standard CIBSE (Chartered Institution of Building Services Engineers) methods.

The Passivhaus process involves both increased detailing at design stage and regular checks during the construction process to make sure that the very low air tightness and significantly improved insulation is met.

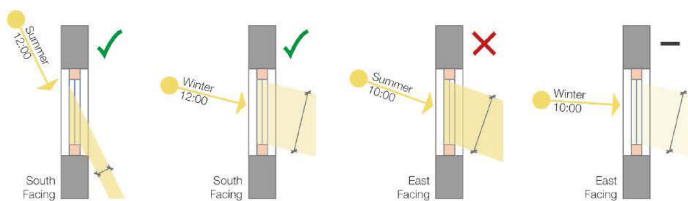
CEC stated that using current regulations, the operational carbon emissions on a standard build would be quite high, but with Passivhaus they have been reduced significantly. Whilst it is still not a zero carbon solution, it does guarantee a certain energy metric and therefore carbon emissions outcome.

Rationalise the glazing

- to optimise daylighting and ventilation whilst minimising cost



Daylight = ■ + ■ = 10.97 sqm
 Day vent = ■ + ■ = 2.88 sqm
 Night vent = ■ = 0.84 sqm



What does **25** years of operational carbon emissions look like?

Currie Community Campus – standard build **2656**



Currie Community Campus – Passivhaus **564**

Topic 02 : Part 2

Approach to achieving the energy target

Beatlie ASN Campus

West Lothian Council

Neil McIntyre & Peter Kerr (Atelier Ten)

Beatlie School is an Additional Support Needs (ASN) facility for children with severe and complex needs, and profound medical needs with a capacity of 44 Pupils.

Under the 1140 Early Years programme, West Lothian Council has built two footprint identical buildings; one Passivhaus and one non-Passivhaus.

West Lothian Council intend to deploy the principles and learnings of Passivhaus for Beatlie, but aim to deliver these in a way they believe might be more cost effective and will allow them to "be a bit more creative" in looking to meet the energy targets of 67 kWh.

Zero carbon future - There's a big drive towards all electric buildings, and as electricity costs a lot more than gas there is real need to drive the energy use down.

The engineers created a 'cheat sheet' for the project – this included things like the thermal bridging content; the orientation of the building; the glazing ratios and the air tightness criteria.

The proposed site for Beatlie allows for a predominant south elevation where they can make best use of the passive solar gain. The design team have spent time looking at the 'form factor' which is looking at the heights of the spaces and making sure they're delivering heat in an efficient manner. Glazing can be very challenging to deal with and difficult to control. For example, 1sq metre of glazing is the equivalent to 4 pupils heat gain, 2 computers and the lighting in a classroom. Therefore, the location and

size of glazing is a key consideration. Effectively the deeper a space the more glazing is required to achieve adequate daylight levels and views.

Different power consumption technologies have been looked at which included ground source and air to water pumps; all electric delivery solutions but the challenge is that they take up plant space.

Smart technology - the engineers are looking at solutions that they have tried and tested on other project types where they can understand the individual energy use of rooms and spaces. They will be using a smart technology solution called an IBMS – Intelligent Building Management System – which in essence connects all other systems together and integrates them. This allows data to be extracted and help with maintenance as it will allow for better predictive maintenance. There is a need to ensure that plant is working efficiently on an ongoing basis in order to keep that energy reduction as low as possible.

Smart energy delivery - the engineers are also looking at different mechanisms of delivering electricity to the building focusing on payback energy systems. The plan is to create space on the site to allow for an energy storage solution. The batteries can then run the building during the day and recharge at night, using less expensive energy tariffs.

Achieving the SFT Metrics – Passivhaus without the badge!



Window Area Guide



Low Energy Building Design Criteria

Building heating demand	≤ 15 kWh/m ²
Building heating load	≤ 10 W/m
SFT operational energy demand	≤ 67 kWh/m ²
Building air tightness	≤ 1.0 m ³ /(h.m ²)@50Pa
BB101 Overheating and air quality benchmark	



Fabric Thermal Performance

Element	Target U-Value Range (W/m ² K)
Walls	≤ 0.15
Ground contact floor	≤ 0.15
Roofs (sloped/flat)	≤ 0.15
Windows including frame	≤ 0.80



Mech Vent with Heat Recovery (MVHR)

Heat recovery efficiency	≥ 75%
Electrical demand	≤ 0.45 Wh/m ³
Noise criteria	
Room for MVHR units	35dB(A)
Occupied rooms (classrooms etc.)	25 dB(A)
Non occupied rooms	30dB(A)



Energy Efficiency Measures

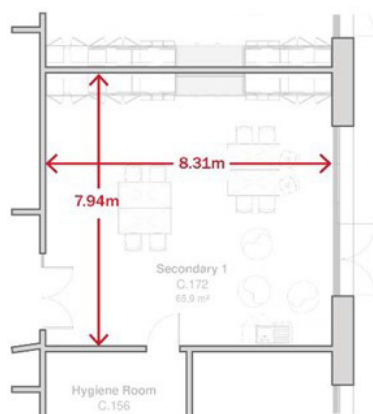
Air tightness	≤ 1.0 m ³ /(h.m ²)@50Pa
Thermal bridging free	ψ < 0.01W/(mK)
Glass G-value	0.5



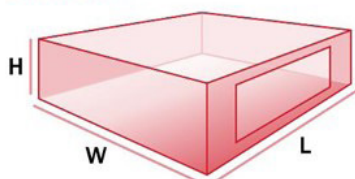
Design Requirements & Considerations

- Balance between daylight, passive solar gain and overheating risk
- Include external shading
- Include operable windows and cross ventilation where possible
- Form factor between 0.8 and 1.5
- Maximise roof area available for PV
- Ideally the main orientation of the building to be within 30° of south
- Concrete and/or Timber Frame as a preferred type construction
- Avoid cantilevered structures such as balconies (avoid excessive thermal bridging)
- Rigorous On Construction QA process

Achieving the Balance – Narrow Plan is Better 6m avoids Rooflights



Current Layout

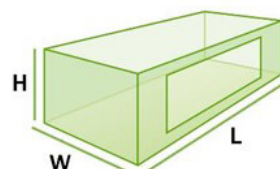


Optimum Geometrical Relation for single sided glazed room

$$L \leq \frac{2}{(1 - R_b)} \left(\frac{1}{W} + \frac{1}{H} \right)$$

- L = Room depth
- W = Room width
- H = Room height
- R_b = reflectance at the back of the room

Optimum Layout



Topic 03

Approach to collaboration with other partners

Dunfermline Learning Campus

Fife Council

Louise Playford

Dunfermline Learning Campus will create a new learning hub that sees the replacement of Woodmill High School (1,700 pupils), St Columba's RC High School (1,000 pupils) and the Halbeath campus of Fife College (2,700 students).

The concept for how the project would work on the site was a learning village with stepping-stones, a creation of different learning environments designed to support and assist the learner at each stage of their journey. The south side of the campus will hold the junior phase of the journey, continuing into the senior phase which includes college integration. Finally, the north side of campus will see college activity develop towards partnerships and engagements with industry, universities and business innovation. Although it presents a somewhat chronological journey, collaboration remains at the core of the campus and can take place in different zones.

The aim has been to have an integrated and collaborative approach with the college from the outset. A shared governance board was set up at the beginning of the project which is co-chaired by the Executive Director of Education from the Council and the Principal of the College. The board includes representatives of SFT and the Scottish Funding Council and together they set out a number of joint workstreams which have senior representation from both the council and the college which is really important from an ownership perspective. An agreed joint masterplan was developed between the college and the council, and was based on a joint learning vision and outcomes which were agreed very early on.

The council and college elements within the next stage of design and delivery will be undertaken separately. The joint vision and outcomes will be maintained throughout this by ensuring that all work adheres to the agreed design principles that were set out. To assist with this, Rose Jenkins, Director of Estates from Dundee University was appointed as the 'design guardian'. Her role is to ensure that all elements of the project tie back to the agreed design principles, vision and outcomes.

To maximise the accommodation and opportunities for collaboration within the campus they are looking at where they can potentially share space within the respective schedules of accommodation. They are 'right sizing' accommodation on the understanding that both organisations can use that space which will allow spaces to be shared and remove any unnecessary duplication.

Lesson's learned

Identity and brand

One Campus working together collaboratively but with different identities that need to be maintained

Scale

Massive project. Empower people and break it down into manageable parts.

Communication

Key aspect. Regular and consistent - same message going out at the same time.

Use of language

Clear language & terminology, direct. Be explicit about what you mean.

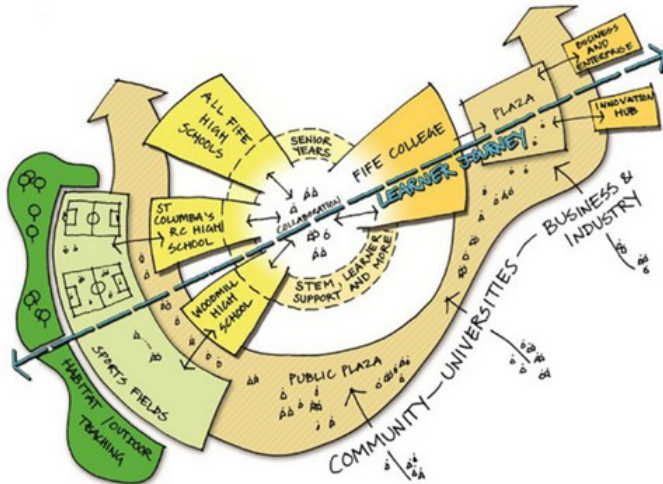
Taking people on a journey

Shift in mind set. Give people time to find their way and reflect at their pace.

Sometimes it's tough - don't lose sight of the vision!

Stay focused. When facing hurdles, think of the reason for your journey and where it will lead.

The Campus

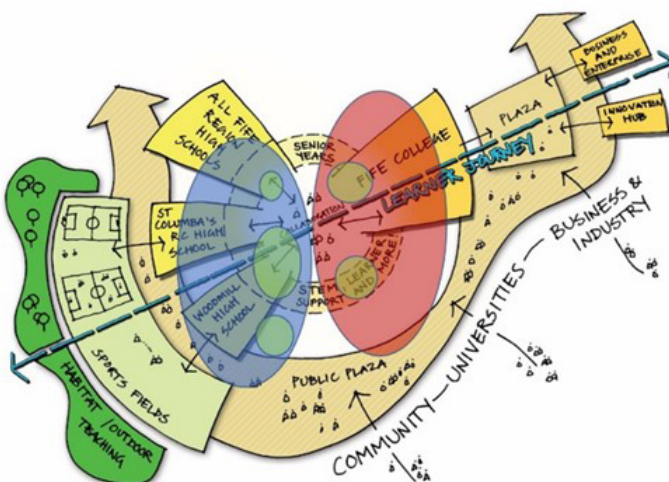


The Dunfermline Learning Campus does not stand in isolation. It is part of the overall learning offer in Fife. It will link to:

- the other 16 secondary schools
- the 4 other College campuses
- partners, including universities and business
- wider community



An Integrated Model



- Shared Governance through DLC Board
- Joint workstreams
 - Integration Workstream
 - Learning Workstream
 - Comms & Stakeholder Management
- Agreed joint masterplan
- Separate but integrated schedules of accommodation with joint input
- Schedules will identify areas where space can be effectively shared and remove duplication



Facilitated Conversation: Development through COVID-19

A discussion was held around COVID-19 and how lessons from 2020 could and should influence future design regarding the learning estate. Several topics were discussed under this heading.

Outdoor Learning

COVID-19 has highlighted the importance of good outdoor space in a learning environment. This can limit the number of people indoors at any one time but also has real benefits in terms of learning and wellbeing.

Maxine Booth (Aberdeenshire Council) noted that at a recent ADES (Association of Directors of Education in Scotland) resources meeting, the use of outdoor space and whether this should be included as part of the overall capacity was discussed.

"It would be helpful for outdoor spaces to be included in the overall vision and plan so they don't fall off in value engineering and then you hit the challenges of the budget. They have to fit in with the overall vision for the school. There is not a long queue of excellent examples that were planned in as the project went along. The design of the outdoor spaces should be considered in parallel to the design of the building."
Neil Craik-Collins – East Lothian Council

Employability – a lot of professions spend all of their time outside and yet this isn't reflected in what young people do at School. There should be "a golden thread (from school) through to careers".

North Ayrshire Council has engaged an Outdoor Learning Consultant to look at what opportunities there are on the Ardrossan Campus to maximise outdoor learning. This will form part of their final brief and will be integrated into the overall design of the Campus.

"At Currie we are trying to build in infrastructure into

the design of the building which makes it easier for staff to take pupils outdoors – access from a classroom or a break-out space. We're also putting in an outdoor learning equipment store within the building. We have tried to encourage schools to timetable outdoor learning but this hasn't yet happened"
Michaela Lyons – City of Edinburgh Council

"It would be interesting to see Local Authorities and schools start to timetable outdoor learning more meaningfully - they don't need to wait for legislation"
Stephen Long - SFT

Learning Environments

SFT have had interesting feedback that some staff and learners have found lockdown a positive experience and benefitted from the quiet and calm their homes allowed them to have. The lack of social pressure and distraction was freeing. If that individual lead learning is good for some people some of the time, how is that built into learning environments going forward, without them necessarily having to stay at home?

Intergenerational Interaction

Louise Playford (Fife Council) noted that in Fife they have an intergenerational nursery and care home, commenting that "You have to manage the risks but the benefits that are coming through from the intergenerational interaction was seen to be far outweighing anything else. If it's an important part of your vision try and find a way to do it"

Closing Remark

Stephen Long, SFT, said in conclusion that a "Thread that was clear from today's presentations; set your vision, make sure you keep checking against it, and you then have a much better chance of getting what you wanted"

Next Steps...

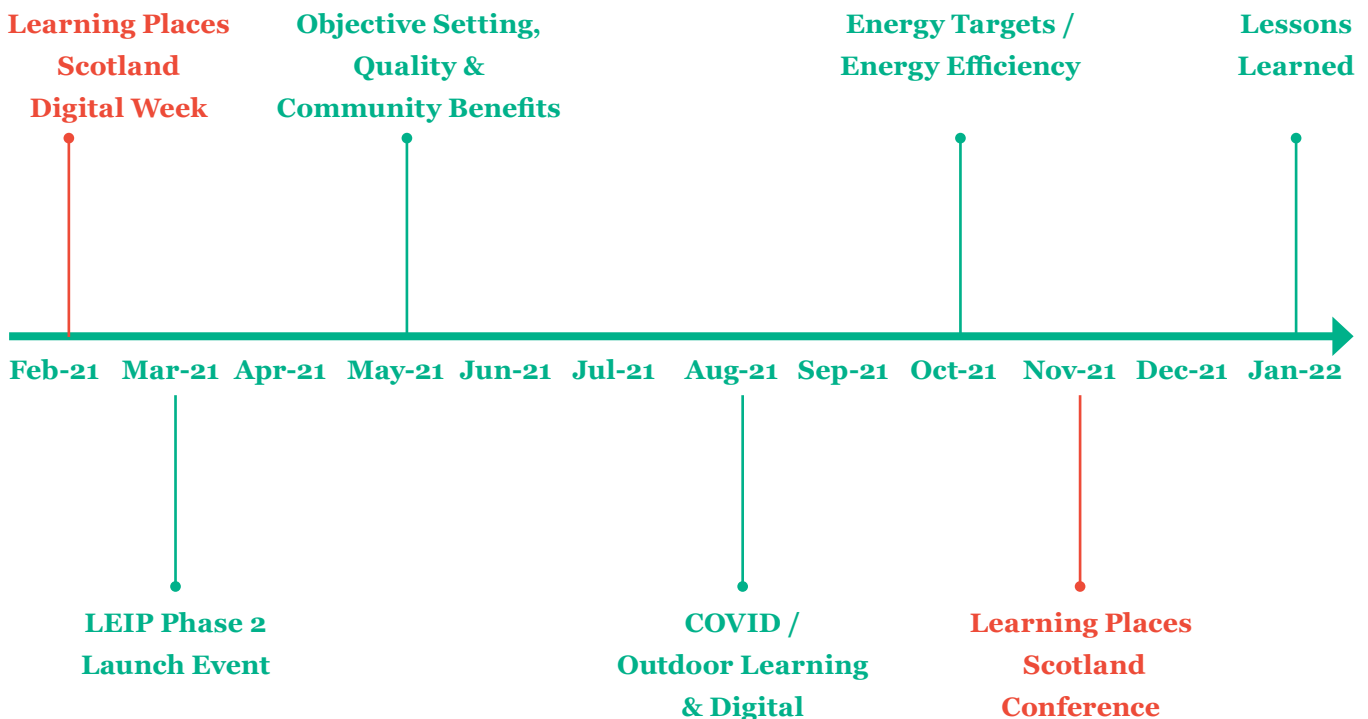
Summary

The lessons learned must all be taken in the context of the extraordinary year that was 2020, with authorities having to navigate the COVID-19 pandemic, as well as managing to continue the development of the projects. It is great that so much learning could be taken and shared through the development that occurred on the Phase 1 projects throughout 2020.

A survey was sent to all attendees following the event, which generated positive feedback and a desire to hold further sessions. Future topics of discussion were provided and the thought that it would be beneficial for these to be open to all local authorities, not just those with projects in the programme.

A list of suggested topics for future events and potential timelines is noted below:

- The setting and measurement of project objectives and outcomes
- Quality approaches throughout the project lifecycle;
- What effect could COVID have on the design of the future learning estate;
- Outdoor Learning;
- Digital learning and Infrastructure
- More focussed sessions on the differing approaches to achieving energy targets;
- Key themes for successful collaboration



Indicative timescale for future events

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