SUSTAINABILITY

CASE STUDY 01:

FRAMERATE: How we cut our Production Carbon Footprint by up to 95%

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CONTENTS

Case Study Headlines:

SETUP IMPACT

- 30%

DAILY RUN IMPACT

- 95%

ESTIMATED TOTAL CARBON

- 80%

FRAMERATE involved two multi-month periods of on-location timelapse 3D scanning, the first in Norfolk in 2019 and the second in Glasgow in 2021. Before the second scanning period we rigorously reassessed our production processes with the aim of minimising the environmental impact.

These gains are the result of simple changes to the transport we used at various points of the project. Making these changes took a considerable investment in time and planning, and cost more money than the previous production choices.

What is a ScanLAB Sustainability Case Study?

Each year, we commit to conducting at least one in-depth Case Study which interrogates and documents the impact of particular elements of our studio's work. Case Studies exist within the context of our wider studio **Sustainability Policy** and **Sustainability Impact Reports**.

Case Studies focus on a particular event, a part of a production, a technique or decision-making process within a project that feels worthy of deeper notes for ourselves and for the wider community.

Case Studies will sometimes focus on a particular aspect of sustainability. For example the first two are primarily focused on the **Environmental Impacts** of their subject matter.

We aim for these Case Studies to:

- Test and highlight the use of our **Monitoring** and **Decision-making** tools
- Evaluate the impact of individual elements or decisions by reporting in the context of the project success, project limitations and the project finances
- Draw conclusions that inform future decisions
- Share our learnings

We don't define a rigid Case Study format; we tailor each to their context and content with the goal of providing useful insights.

Case Study Activities & Goals:

Project Context:

FRAMERATE is a large body of work that includes the development of new creative processes and tools to observe landscape change over time using 3D scanning technology.

Schedule:

Norfolk: Planning: Jan - April 2019
Production: April - Dec 2019
- - - *Re-evaluation of Processes* - - -

Glasgow: Planning: Jan - May 2021
Production: May - Nov 2021

Activity:

FRAMERATE: On Location Setup and Daily Scanning

This Case Study focuses on the setup and daily completion of the on-location scanning elements of the project and how re-evaluating our production techniques had a huge effect on environmental impact.

On-location scanning involves a small group of ScanLAB employees travelling to locations to plan and ultimately install scanning positions. ScanLAB employees visit these locations every single day for the duration of the project (6-10 months). Decisions made about these activities are repeated for a long time, so adjustments to the design of the activity can have multiplying effects on impact.

We have conducted two major periods of on-location scanning, in Norfolk in 2019 and in Glasgow in 2021. This Case Study reflects decision-making across both, focussing on fundamental improvements made to reduce environmental impact.

Decision Making:

In this section we try to break down the key decisions made in the planning of the on-location scanning element of the project. We interrogate the decisions made across the whole project and highlight the differences between our approach in the early Norfolk practices and later Glasgow workflow.

Key Decisions

Where to scan?

FRAMERATE was initially looking to observe landscape-scale change over the course of a year and our clearest example of this was coastal erosion. With coastal erosion as a key subject our UK locations were limited and Norfolk represented an 'active' area of coastal change within a manageable distance from our studio in London. Our other study subjects (gardens, forests, farms etc.) could all be found in close proximity to our Norfolk coastal sites. Other than our ability to access Norfolk by car from a practical point of view we did not consider the environmental implications of our choice.

In the later phase of FRAMERATE we purposefully chose to turn the focus of the project on human-led landscape-scale change. With the build up to COP26, Glasgow became the perfect urban area to observe. Arguably, we could have found a suitable urban context outside the door of our studio in London. The convergence of Glasgow hosting the 2021 UN Climate Change conference and the opportunity to contribute meaningful research data to Glasgow-based academics made Glasgow a strong choice. We were very conscious of the impact of travelling to Glasgow. We focused our efforts on ensuring our on-location process supported minimal travel between London and Glasgow. The availability of reliable rail connections between London and Glasgow was a factor in our decision to move forward.

Decision Making (cont.):

Working with local photographers

From the project conception we always envisaged partnering with local photographers and training them in our scanning workflows so that they could complete the daily scanning elements of the project. These local partners know the locations and communities we are working in better than ourselves. Their local expertise added a huge amount to the practical and creative success of the project. It was also always hugely important to us that where possible the money spent on this project be spent in the communities where the project was taking place. Paying local salaries was a significant part of this. This decision also had the practical and environmental benefits of dramatically reducing transport and additional accommodation requirements.

Selecting individual locations and a scanning day

Choosing a series of scanning locations in Norfolk and again in Glasgow was a complex process. The subject matter was given priority, and we had to consider a complex matrix of practicalities including:

- Travel distance between locations
- Daily work time / schedule
- Access permissions and costs
- Ability to setup physical installations
- Health and safety of employees and the public

We also gave strong weight to the usefulness of the datasets for research projects, especially in Glasgow.

For the purpose of this case study the crucial operational concern was the daily travel pattern and mode for each of our local photographers. In Norfolk this resulted in a 53-mile round trip for one photographer and a 64-mile round trip for

Decision Making (cont.):

the other, an average of around 2-3 hours of daily driving which they completed in their own vehicles. Keeping this to a reasonable amount of time in the car and achieving this travel within our budget were our main decision making parameters. We did not have financial capacity to look at more sustainable modes of transport nor was our attention acutely attuned to this impact at the time.

In Glasgow we looked to minimise our daily travel and utilise the most energy-efficient means possible. Our final choice of locations resulted in approximately a 40-mile daily travel pattern which included travelling to Cardross and a significant hill climb to a quarry location on unmade roads north of Dumbarton. We invested considerable research and resources to obtain a fully electric SUV capable of covering this terrain across all Glaswegian weather.

Our rules for transport in Glasgow

Setup Travel:

- Journeys from London to Glasgow must always be via train, unless transporting significant equipment which made this unfeasible. In these cases Electric Vehicles should be used.
- Local journeys in and around Glasgow should be on foot or bike where possible, and where distance or equipment prohibited this they should be via Electric Vehicle.

Daily Travel:

- All travel should be via EV. Close proximity travel should be on foot.

Monitoring and Results in Context:

At ScanLAB we have our own Environmental Monitoring System to track the carbon footprint of our studio and our projects. In this section we highlight the results of that monitoring process to interrogate the impact of setting up and performing daily time 3D scanning*.

** PLEASE NOTE: Our EMS is a living document. As we learn about better ways to quantify or monitor our impact we actively improve the accuracy of our previous figures and those going forward. This is a function of our view that our sustainability work is an evolving and continually improving practice. As a result, the most current EMS may show different values than the figures quoted below. The published versions of our EMS are synced to this report.*

How we travelled

Miles travelled on train

Norfolk: 750 Glasgow: 3795

Miles travelled in petrol or diesel vehicles

Norfolk: 18434 Glasgow: 2740

Miles travelled by EV

Norfolk: 0 Glasgow: 9540

Carbon Footprint

- The total Carbon Footprint of FRAMERATE on location setup and daily scanning in Norfolk using our traditional practices was 4651.18 $kgCO_2e$.
- The total Carbon Footprint of FRAMERATE on location setup and daily scanning in Glasgow after improving our processes was 1262.94 $kgCO_2e$.
- These represent 4.39% (Norfolk) and 1.19% (Glasgow) of ScanLAB's total carbon footprint between 2019 and 2022.

Monitoring and Results in Context (cont.):

Carbon Footprint Reductions

	Norfolk 2019	Glasgow 2021	
SETUP IMPACT	0.24 $kgCO_2e/mile$	0.17 $kgCO_2e/mile$	-37%
DAILY RUN IMPACT	0.22 $kgCO_2e/mile$	0.01 $kgCO_2e/mile$	-95%
TOTAL CARBON	4,651 $kgCO_2e$	1,263 $kgCO_2e$	-

Monitoring and Results in Context (cont.):

Carbon Footprint Reductions

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SETUP IMPACT	0.24 $kgCO_2e$/mile	0.17 $kgCO_2e$/mile	-37%
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TOTAL CARBON	4,651 $kgCO_2e$	1,263 $kgCO_2e$	-
ESTIMATED UNDER 2019 PROCESSES		6,190 $kgCO_2e$	-80%

Monitoring and Results in Context (cont.):

Footprint Alternatives and Costs

Our **Sustainability Decision Tracking Tool** always attempts to record the alternatives to the decision we have taken, be they higher or lower impact. The process also attempts to quantify the costs involved in each of the decisions we could have taken.

These alternative scenarios are always somewhat limited in their accuracy. They do not receive the level of completeness of investigation as the chosen decision as we follow these decided actions through to completion. We find these alternative options valuable for future decision-making, and interesting to explore once a project is complete.

IMPROVEMENTS COST

£6,961.20

We estimate the cost of making the improvements to our production techniques for Glasgow to be an additional £6,961.20 compared with having run the project exactly as it was run in Norfolk.

By the estimates included in our Tracking Tool there were other alternatives that could have been taken to reduce our emissions by 50.74% to 622.13 $kgCO_2e$. These alternatives all relate to long distance travel during setup and would have required access to EV rental vans which we have found to be either unavailable or cost prohibitive.

Conclusions:

We're really proud of some of the reductions we've been able to make. Statistics of 95% & 80% like-for-like reductions are undeniable and the environmental rewards from this process have really inspired us and our team to keep pursuing alternatives. This Case Study has shown us that with effort, we can achieve significant positive impact.

For future planning, it's clear that the reliance on existing infrastructure to enable these reductions is a critical factor in our ability to continue reducing our emissions. If the train link between London and Glasgow wasn't as effective our travel impact could have been significantly higher.

The availability of an appropriate EV for hire and sufficient city charging infrastructure were critical to our ability to use a relatively simple swap to make the large difference to the carbon footprint of a project. This decision took significant research and effort and required a large additional expense, but the fact that the EV was used daily made this worthwhile.

The more occasional decisions, for example a short period hire of an EV van for long distance travel, have taken almost as much research time but we've never been able to 'land' a result that has had significant impact due to costs or availability.

We're also left with a slight sense of caution. These headline levels of footprint reduction feel fantastic but we are really conscious impacts like this will be hard to replicate as soon as a project leaves UK soil and travel distances suggest flights might be necessary.