



WYCA Stage 1 (Activity 1) Carbon
Assessment Guidance
September 2021

Issue and Revision Record

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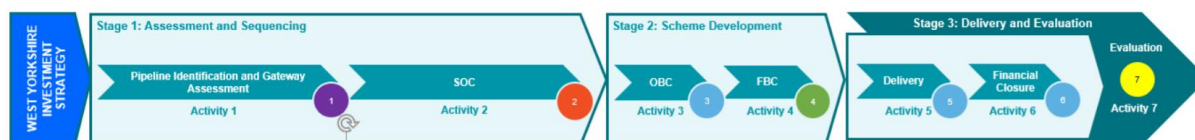
1 Introduction

1.1 What should this guidance be used for?

This document provides instructions on how to conduct an initial screening of the potential greenhouse gas (GHG) impact of schemes as part of the West Yorkshire Combined Authority (WYCA) Assurance Framework. The process, henceforth referred to as Activity 1, is part of a set of activities aimed at ensuring that there is a consistent approach to climate change impact assessment across the Combined Authority.

This guidance is intended for use by project promoters at the pipeline identification and gateway assessment within Stage 1 of the Assurance Framework, as shown in Figure 1 below.¹ At Stage 2 (OBC and FBC) separate guidance documents are provided which detail the requirements and assessment promoters must provide for a more detailed analysis of the carbon impacts the scheme will have, as it is developed and, moves through the assurance process.

Figure 1. Draft Assurance Process



1.2 What is the purpose of Activity 1?

WYCA and all seven local councils have declared a Climate Emergency and set a target for the region to become a net zero carbon economy by 2038. WYCA’s Climate and Environment Plan illustrates pathways towards achieving a radical decrease in emissions, with significant progress to be made by 2030.

Activity 1 helps project promoters assess whether a scheme is likely to contribute towards these important goals. It is essentially a compatibility checklist – that is, a **qualitative screening exercise** that involves reviewing WYCA’s Climate and Environment Plan and considering **whether the project is likely to be compatible with WYCA’s vision for a net zero future**. This will enable **early identification** of projects that are at risk of being non-compatible which, in turn, will help to embed climate change issues in the decision-making process.

Activity 1 – Terminology Used	
Presumed to be fully compatible	This description is used for schemes that directly contribute to a reduction in GHG emissions and therefore aligns with WYCA’s Climate and Environment Plan and net zero target. While it is not guaranteed to be compatible following further detailed assessment, it is considered likely.
Conditionally compatible	This term is used when it is not clear whether the scheme will have an overall positive effect (i.e. a decrease in GHG emissions) or a negative effect (i.e. an increase in GHG

¹ Figure 1 presented here refers to the draft update to the Assurance Process as presented to the West Yorkshire and York Investment Committee on the 5th November 2020.

	emissions). It may be compatible with the WYCA's Climate and Environment Plan only under certain conditions.
At risk of being non-compatible	This term is used for schemes that are at risk of increasing GHG emissions, and therefore conflict with WYCA's Climate and Environment Plan.

It is acknowledged that, for projects at an early stage, determining 'compatibility' will present challenges; this is discussed further in Section 2.3.

2 Process for undertaking Activity 1

2.1 Overview

The Activity 1 Compatibility Checklist is a simple Excel-based tool, shown in the screenshot below. Users must respond to a series of prompts that are intended to help them think holistically about how a project may link to WYCA's Climate and Environment Plan across a range of sectors and activities. This generates an 'Overall Compatibility' rating for the scheme which can then be used to inform decisions about what types of further assessments should be undertaken and ultimately whether to take the project forward.

These prompts describe key features of WYCA's vision for a net zero future.

Users select from drop-down menus to indicate whether the project is compatible with the prompt.

Users can add free text to these boxes to justify the response they have given.

Scheme Type	WYCA's emission reduction actions	Statement against WYCA's Climate and Environment Plan	Justification
Transport	Reduce private car use through mode shift away from car to walking, cycling and public transport, decreasing travel demand and increasing shared car use.	The scheme supports the Climate and Environment Plan directly	
	Reduce HGV and van use through implementing freight consolidation, cycle freight and shifting the transportation of goods to rail.	The scheme supports the Climate and Environment Plan directly	
	Increase the deployment of low emissions vehicles (cars, vans, HGVs, buses) and/or the electrification of trains and/or lines.	The scheme supports the Climate and Environment Plan directly	
Power & Industry	Increase industrial / manufacturing energy and resource efficiency and increase the adoption of circular economy principles.	N/A	
	Reduce industry carbon intensity through electrification, fuel switching and carbon capture and storage.	N/A	
	Increase the deployment of new flexible electricity infrastructure and services (battery storage, demand side response, EV smart charging).	The scheme supports the Climate and Environment Plan directly	
	Increase the deployment of low carbon electricity generation including, onshore wind, solar PV and hydrogen generation.	The scheme supports the Climate and Environment Plan directly	
Buildings	Improve the energy efficiency of buildings through the retrofit of public and private buildings (including homes), ensure high standards for new buildings, and increase the flexible use of energy to reduce emissions.	N/A	
	Increase the deployment of integrated low carbon heating and power systems (heat networks, heat pumps, hybrid heat pumps, hydrogen boilers, solar panels, battery storage, smart EV charging) within homes and businesses.	N/A	
Land use and agriculture	Deploy measures that sequester carbon (tree planting, peatland restoration, hedge planting and agroforestry).	The scheme supports the Climate and Environment Plan directly	
	Increase land available for carbon sequestration activity and reduce agricultural emissions (food waste reduction).	The scheme supports the Climate and Environment Plan directly	

This box auto-populates with a statement describing the project's 'Overall Compatibility'.

Overall Compatibility with WYCA'S net zero future	Next steps
Presumed to be fully compatible	This scheme can be taken to the next stage of the appraisal process. However, it should be kept under review in case of any major changes that could impact this result.

This box auto-populates with a statement indicating whether the scheme may proceed to the next stage, based on the 'Overall Compatibility' rating.

Because Activity 1 will be carried out at an early stage, it is assumed that there will be **limited data** on the schemes being assessed. Therefore, Activity 1 is designed to be simple and it is understood that project promoters may need to make qualitative judgments.

2.2 Step by step guidance

Before you begin: Project promoters should familiarise themselves with WYCA's Climate and Environment Plan, which provides more context and information about the vision for a net zero future. Additionally, project promoters may wish to review the Further Guidance set out in Section 3 of this document for information on the typical GHG sources from different scheme types.

Note: Activity 1 does not need to be completed in one sitting. Project promoters may wish to review the prompts and then gather more information before finalising their responses.

Step 1: Read through the list of prompts in the Activity 1 compatibility checklist and select a response to each prompt from the drop-down menus. Consider the following questions:

- Is this prompt relevant to the scheme?
 - If not, select N/A and move on. Note that some schemes could have indirect impacts – for example, a new development could indirectly affect the way people travel around a local area.
- Will the scheme actively support the Climate and Environment Plan goal or action described in this prompt?
 - If the **main goal or benefit** of the scheme is directly aligned with WYCA's net zero vision, select 'The scheme supports WYCA's Climate and Environment Plan directly'.
 - If the scheme is **consistent** with WYCA's net zero vision, select 'The scheme is consistent with WYCA's Climate and Environment Plan.'
- If the scheme has the **potential to contradict or undermine** the WYCA's Climate and Environment Plan action, or if it is incompatible with the action described, select 'The scheme is at risk of being in conflict with WYCA's Climate and Environment Plan'.

Step 2: Provide a written justification of how the scheme will or will not support/contribute to a net zero future. This should include more detail on the scheme in question such as what elements of the scheme will contribute to WYCA's net zero vision. Some examples based on hypothetical projects are provided below.

Example 1: Projects that directly support or promote actions within WYCA's Climate and Environment Plan are assumed to be consistent with the vision for a net zero future.

Scheme Type	WYCA's emission reduction actions	Statement against WYCA's Climate and Environment Plan	Justification
Transport	Reduce travel demand, discourage private car use, encourage walking, cycling and use of public transport or car sharing.	The scheme supports the Climate and Environment Plan directly	Public transport schemes will positively contribute to a modal shift in transportation, encouraging a reduction in private vehicles on roads and increasing the uptake of buses and train services. Such schemes would therefore be expected to reduce GHG emissions.

Example 2: Some projects might be compatible with elements of the Climate and Environment Plan without directly supporting it. For example, projects that are intended to reduce energy demands in one sector can indirectly support emission reduction activities for other sectors. These projects would be conditionally compatible, but consideration should be given to how they can avoid unintended consequences.

Scheme Type	WYCA's emission reduction actions	Statement against WYCA's Climate and Environment Plan	Justification
Power & Industry	Increase the deployment of low carbon electricity generation including, onshore wind, solar PV and hydrogen generation.	The scheme is conditionally consistent with the Climate and Environment Plan	This scheme is aimed at reducing travel demand through behaviour change initiatives. Although it does not directly increase the deployment of renewable electricity generation, reducing demand will help decrease pressures on the electricity grid and facilitate the transition to renewable technologies.

Example 3: Many projects will be compatible with the Climate and Environment Plan in some respects but not others. For instance, if there is a project aimed at supporting sustainable transport that

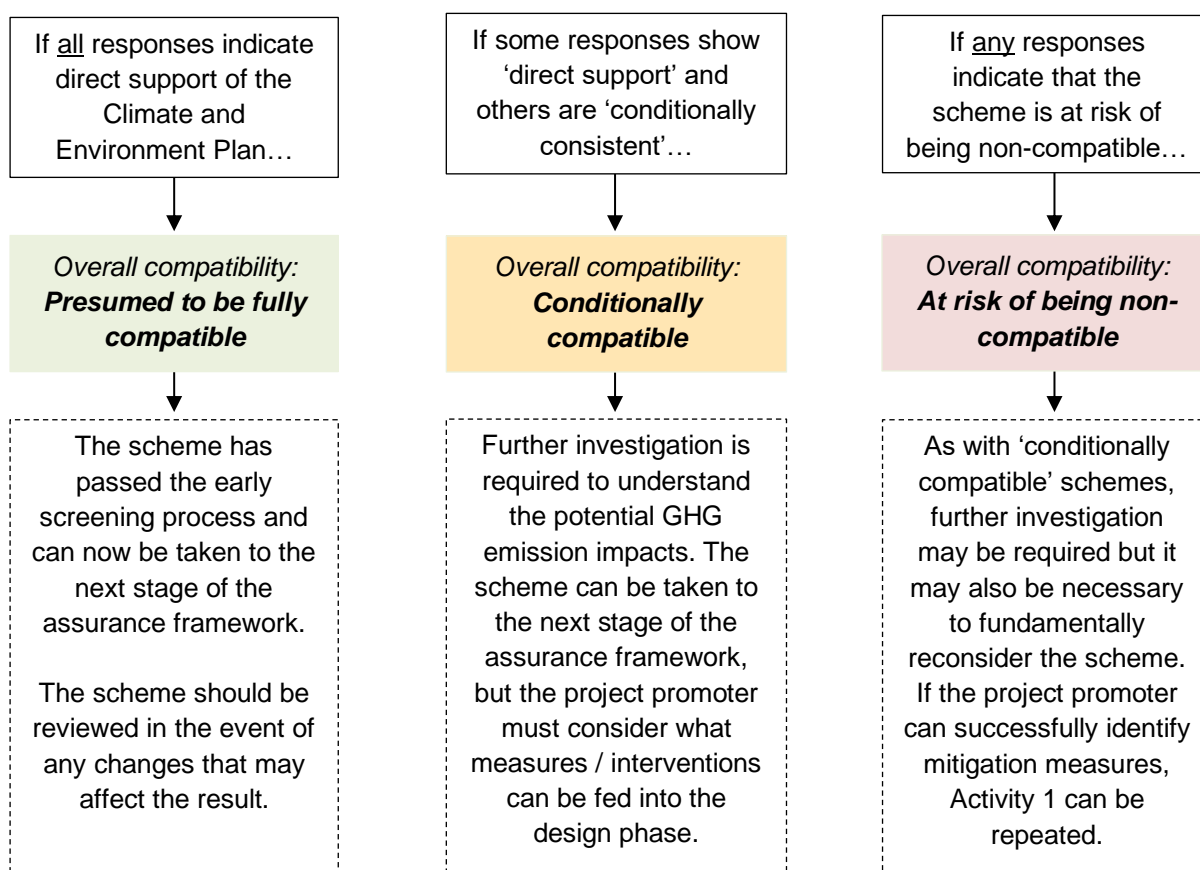
involves removing mature trees or building on previously undeveloped land, this will be flagged as being 'at risk' of non-compatibility unless the scheme is designed to include mitigation measures.

Scheme Type	WYCA's emission reduction actions	Statement against WYCA's Climate and Environment Plan	Justification
Land use and agriculture	Increase land available for carbon sequestration activity and reduce agricultural emissions (food waste reduction).	The scheme is at risk of being in conflict with the Climate and Environment Plan	This scheme involves the construction of a new train station and car parking. Although this supports other ambitions in the Climate and Environment Plan it also reduces the land available for carbon sequestration due to removal of trees. The scheme will need to identify opportunities to introduce greening in and around the station.

Not all schemes will be as straightforward as these examples; further information on how to handle complex schemes is provided in Section 2.3.

Step 3: Once the project promoter has completed the checklist and provided a clear justification for each selection, the spreadsheet will automatically populate a cell to indicate 'Overall compatibility with WYCA's Net Zero Future'. The spreadsheet assesses compatibility solely based on the project promoters' inputs, using the approach shown in Figure 2 below.

Figure 2: Diagram showing how the Activity 1 spreadsheet assesses overall compatibility



If the project promoter selects **N/A** against all emission reduction actions, then they are advised to review the scheme type and repeat Step 1.

WYCA's intention is that projects that are non-compatible with WYCA's Climate and Environment Plan should not be taken to the next stage. The aim of Activity 1 is not to provide a definitive answer as to whether the project is non-compatible with WYCA's Climate and Environment Plan, but merely to highlight the risk, and thereby inform a wider decision-making process about whether a project should go ahead. This is why any single response indicating that the project is 'at risk' will carry through to the overall compatibility rating.

It is important for all schemes to be assessed using a consistent approach as much as possible, recognising that projects will be at an early stage and that some of the prompts are inherently subjective. Therefore, each Activity 1 assessment will be audited. The primary aim will be to sense-check results and ascertain whether the same conclusions would be reached by others based on the same information. As part of the audit process, promoters may be required to provide further evidence to justify their selection.

2.3 Dealing with complex schemes and uncertainty

Although Activity 1 can help to indicate whether a project poses risks in terms of GHG emission targets, it is important to acknowledge that schemes can deliver a wide range of other environmental, economic and social co-benefits. Similarly, some projects may result in a small increase in GHG emissions but unlock future reductions. Other schemes may comprise multiple elements, some of which are compatible with WYCA's Climate and Environment Plan while others are not. In these cases, it can be difficult to determine how to respond to the prompts in Activity 1.

Project promoters may need to consult with colleagues, experts or other stakeholders, or research similar schemes prior to making a judgment. However, as a general principle:

If a project promoter is unsure whether the scheme aligns with WYCA's Climate and Environment Plan, it is best to err on the side of caution by indicating that the scheme (or portion of the scheme) is 'Conditionally compatible' or 'At risk of non-compatibility'.

The implication of this will be that the project will be subject to heightened scrutiny and more detailed assessment. Despite the potential challenges, this is crucial to ensure that WYCA meets its environmental commitments. It will not be possible to achieve net zero by 2038 unless climate change issues are fully embedded in the decision-making process.

3 Further guidance

To ensure that project promoters make their assessments based on consistent assumptions wherever possible, further guidance is provided below in Table 1. The table briefly describes the potential sources of GHG emissions for different project types, at different stages of the project lifecycle. It then gives a high-level assessment of the scheme's overall compatibility. In this way, Table 1 provides a starting point for a set of common parameters that can be used when responding to prompts in Activity 1.

Table 1 also outlines high-level mitigation measures that could help minimise GHG emissions for projects that are considered either conditionally compatible or at risk of being non-compatible. In such cases, these mitigation options may be considered by the project promoter to feed into the design plans for the scheme in question.

Table 1: Additional information to be used when assessing compatibility

Scheme Type	Overall Compatibility	GHG Source	Explanation	Considerations for aligning to decarbonisation pathways / WYCA priorities
Transport (Highways)	At risk of being non-compatible	Construction activities and materials (Capital/embodied)	The construction of highway systems usually requires large volumes of carbon-intensive construction materials (such as steel and concrete, which typically have high embodied carbon emissions due to existing manufacturing processes). Additionally, transportation of these materials to site and fuel used in construction plant also contribute to emissions during construction activities.	To minimise the embodied energy and carbon associated with key materials, consider alternative low-carbon materials such as cement replacements. Additionally, promoters can consider recycled materials or introducing circular economy principles (re-use) instead of using virgin materials. Minimise transport to site and within site (consider local procurement). Consider fuel efficient alternatives, vehicle loading, speed, traffic flows.
		Vehicle use (Operational / in-use)	Once completed, increased volumes of traffic will flow as a result of highways being developed.	Alternative fuels (consider integration of electric vehicle infrastructure within the design), speed limits, traffic flows and tax
		Additional vehicle use induced effects (Additional induced effects)	If the scheme brings benefits to the highway user (e.g. reduced travel times) then the risk of a behavioural response (e.g. additional journeys) needs to be considered.	
Transport (Public)	Fully compatible	Construction activities and materials (Capital/embodied)	The construction of transport systems usually requires large volumes of carbon-intensive construction materials (such as steel and concrete, which typically have high embodied carbon emissions due to existing manufacturing processes). Additionally, transportation of these materials to site and fuel used in construction plant also contribute to emissions during construction activities.	To minimise the embodied energy and carbon associated with key materials, consider alternative low-carbon materials. Alternative materials can include using hempcrete and mycelium all of which have a low energy manufacturing process. Additionally, promoters can consider recycled materials or introducing circular economy principles (re-use) instead of using virgin materials. Consider the potential to upgrade current transport systems.
		Vehicle use (Operational / in-use)	Improved public transport services will support the modal shift from private vehicles to public transport.	
		Additional vehicle use induced effects (Additional induced effects)	Depending on nature and scale of the scheme, consideration should be given as to whether it will lead to / support additional development.	
Transport (Park and Ride)	Fully compatible	Construction activities and materials (Capital/embodied)	The construction of transport systems usually requires large volumes of carbon-intensive construction materials (such as steel and concrete, which typically have high embodied carbon emissions due to existing manufacturing processes). Additionally, transportation of these	To minimise the embodied energy and carbon associated with key materials, consider alternative low-carbon materials. Alternative materials can include using hempcrete and mycelium all of which have a low energy manufacturing process. Additionally, promoters can consider recycled materials or introducing circular economy

Scheme Type	Overall Compatibility	GHG Source	Explanation	Considerations for aligning to decarbonisation pathways / WYCA priorities
			materials to site and fuel used in construction plant also contribute to emissions during construction activities.	principles (re-use) instead of using virgin materials. Consider the potential to upgrade current transport systems.
		Net reduction in vehicle use within the city centre (Operation of scheme) ²	Improved park and ride services will reduce the flow of traffic through the city centre by supporting the modal shift from private vehicles to public transport.	In order to ensure park and ride schemes decrease carbon emissions and not increase emissions several measures should be implemented alongside a P&R scheme. <ul style="list-style-type: none"> (1) Central area parking control, pedestrianisation, area-wide and traffic calming. (2) Increase use of bus lanes within city road networks. The provision of bus priority measures on major routes outside urban areas would enable buses to offer a more competitive overall journey time over the route to the edge of the city. (3) Improve the attractiveness of public transport outside the centre, so that it can compete on the long-haul part of the journey, not only the town centre part.
		Induced development	Depending on nature and scale of the scheme, consideration should be given as to whether it will lead to / support additional development. Consideration may also be given to whether the park and ride location will lead to induced traffic demand, through providing a new direct link into the city .	
Transport (Active Travel)	Fully compatible	Construction activities and materials (Capital/ embodied)	The construction of transport systems usually requires large volumes of carbon-intensive construction materials (such as steel and concrete, which typically have high embodied carbon emissions due to existing manufacturing processes). Additionally, transportation of these materials to site and fuel used in construction plant also contribute to emissions during construction activities.	To minimise the embodied energy and carbon associated with key materials, consider alternative low-carbon materials. Alternative materials can include using hempcrete and mycelium all of which have a low energy manufacturing process. Additionally, promoters can consider recycled materials or introducing circular economy principles (re-use) instead of using virgin materials. Consider the potential to upgrade current transport systems.
		Net reduction in vehicle use within the city	Improving active transport services (such as low emission zones, pedestrian zones and	

² Research by Graham Parkhurst 'Park and ride: could it lead to an increase in car traffic?' suggests bus park and ride schemes may increase carbon emissions as the park and ride system may attract more car trips from greater distances. This includes shifting commuters who originally would use public transport during a long-haul trip may shift to commuting by car to a P&R scheme. In summary, research suggests new car trips to the edge of the city can be encouraged subsequently, trips maybe taken via car which were previously made by other modes. Parkhurst.G, 1995, *Park and ride: could it lead to an increase in car traffic?* https://www.researchgate.net/publication/222276916_Park_and_ride_Could_it_lead_to_an_increase_in_car_traffic.

Scheme Type	Overall Compatibility	GHG Source	Explanation	Considerations for aligning to decarbonisation pathways / WYCA priorities
		centre (Operation of scheme)	introducing bike lanes) encourages more sustainable modes of travel away from roads.	
Woodland Creation	Fully compatible	Construction activities and materials (Capital/ embodied)	Capital carbon emissions from the creation of the woodland (e.g. tree planting/ fencing) is likely to be negligible compared to the operational carbon sequestration.	Consideration should be made to reducing carbon impacts from maintenance (e.g. low-carbon fleet or equipment)
		Sequestration (Operational / in-use)	Sequestration impacts (removal of atmospheric carbon dioxide through the biological processes of plants and trees) are likely to counteract the carbon impacts associated with ongoing maintenance of woodland.	
Built Environment (e.g. buildings)	Conditional	Construction activities and material (Capital/ embodied)	The construction of buildings usually requires large volumes of carbon-intensive construction materials (such as steel and concrete, which typically have high embodied carbon emissions due to existing manufacturing processes). Additionally, transportation of these materials to site and fuel used in construction plant also contribute to emissions during construction activities.	To minimise the embodied energy and carbon associated with key materials, consider alternative material (pozzolanic materials), re-use of brownfield land, renovating existing buildings and minimise the amount of steel and concrete, source local raw material.
		Operational energy (e.g. energy use, electricity / heating) (Operational / in-use)	Construction of buildings create a new energy demand, increasing fossil fuel demand and the associated carbon emissions. However, it may be possible that the refurbishment of existing buildings can increase energy efficiency and therefore reduce carbon.	Consider alternative energy sources i.e. renewable. Improve building codes & regs. Consider refurbishment of existing buildings.
Energy efficiency schemes	Fully compatible	Construction activities and material (Capital/ embodied)	Some energy efficiency schemes involve a greater degree of new construction and equipment than others. In general this capital carbon would be expected to be recovered during the operational phase of the scheme. Whole life carbon should therefore be considered in scheme design.	Right-sizing equipment, carbon management approaches in design and implementation.
		Operational energy (e.g. energy use, electricity / heating) (Operational / in-use)	An inherent objective of energy efficiency schemes is to reduce energy consumption and associated carbon emissions.	
Other	Conditional	Operational energy (e.g. energy use, electricity / heating) (Operational / in-use)	Schemes or programmes that result in deployment of human resource may result in operational emissions (e.g. travel, offices) although these are likely to be negligible.	

Scheme Type	Overall Compatibility	GHG Source	Explanation	Considerations for aligning to decarbonisation pathways / WYCA priorities
		Induced behaviours (Additional induced effects)	This type of programme would inherently be seeking to change behaviours and social outcomes. Whether the outcomes are relevant or material for future emissions will depend on the nature of the scheme.	