

Oxfordshire County Council
Local Transport Quantifiable Carbon Guidance
Implementation Plan.

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EXECUTIVE SUMMARY

Implementation plan key points

This implementation plan sets out how Oxfordshire County Council will respond to the Department for Transport’s requirement for Local Transport Authorities to quantify and report whole life carbon emissions as an outcome indicator of local transport policies, programmes and infrastructure interventions. It provides the practical route for embedding DfT’s Local Transport Quantifiable Carbon Guidance into OCC’s transport strategy, scheme development, business case, procurement, scheme delivery, monitoring and evaluation processes, while also aligning with the council’s Local Transport and Connectivity Plan commitment to a net zero transport network by 2040.

The plan is not intended to be a compliance exercise or a standalone technical task. Its implementation requires changes to governance, decision-making, analytical capability and procurement practice so that whole life carbon becomes a material consideration from the earliest stages of transport planning through to infrastructure delivery and post-delivery evaluation. This includes introducing proportionate quantitative carbon assessment at area and scheme level, monetising carbon impacts in business cases, applying carbon reduction requirements in procurement and contracts, and developing stronger monitoring and reporting arrangements.

The plan builds on previous OCC work on PAS2080 implementation, including the internal PAS2080 gaps assessment, the HIF1 Didcot Carbon Management Plan, the Highways Maintenance Carbon Reduction Plan, procurement best practice work and early work on translating national infrastructure carbon budgets to the local level. It also recognises that the DfT guidance, PAS2080 and UK’s National Infrastructure and Service Transformation Authority whole life carbon guidance are complementary and need to be streamlined into a coherent local approach.

Eight working packages provide the structure of the implementation. These cover carbon governance leadership; area-level emissions baselines; area-level intervention assessment; scheme-level assessment; integration of carbon into decision-making; whole life carbon in procurement; scheme delivery, monitoring and evaluation; and continuous improvement. Together, these work packages identify minimum requirements, OCC’s current position and gaps, key decisions, responsible teams and actions needed before formal quantitative reporting begins.

Working package	Working Package Description
WP1	Carbon governance leadership, approval of the LTQCG implementation plan, and establishment of the Transport Carbon Group.
WP2	Develop area-level whole life emissions forecasts without interventions, covering user emissions and infrastructure emissions.
WP3	Assess area-level intervention impacts as criteria for transport strategy
WP4	Assess scheme-level intervention emissions. Carbon in decision making and monetising carbon in Business Cases. Align carbon governance in procurement with business cases.
WP5	Integrate quantitative whole life carbon into decision-making, CIA, DE-IDMF, business cases, budget and Cabinet decisions.
WP6	Develop whole life carbon procurement strategy and PAS2080-aligned procurement guidance for the infrastructure sector.
WP7	Embed carbon management (PAS2080) during scheme delivery, contract management, monitoring, reporting and post-delivery evaluation.
WP8	Establish continuous improvement, lessons learned, carbon data library and future methodology improvements.

Table 1. Summary of Working Packages in Local Transport Quantifiable Carbon Guidance Implementation Plan

Financial requirements:

The implementation of this plan entails financial requirements that will be covered as follows:

DfT Consolidated Funding Settlement

- Implementation support £50k (2026/27), £70k (2027/28), £70 (2028/29) already included in DfT Consolidated Funding.
- Transport Modelling funding to be defined included in final DfT LTDP funding report.

OCC to invest in Carbon Management Plans.

- Investment in carbon management plans at scheme level delivers both carbon and net cost savings (Institute for Civil Engineers, 2025).

Key strategic decisions in working packages:

Strategic decisions are required to enable successful implementation of these working packages. These are summarised below:

- **Approve the Transport Carbon Group governance membership proposal.**
- **Consider the roles and responsibilities of this plan in team reorganisation.**
- **Decide on spatial level of carbon assessment:** Decide on what are level we will be conducting quantitative carbon assessment: Oxfordshire Level, District Level and MAPP. **Decision made:** District Level to build up to Oxfordshire level.
- **Enhance transport modelling capacity/capabilities.** On going business as usual non-carbon functions such as business cases require transport modelling. Carbon assessments at scheme level can use business as usual transport modelling outputs. There is a need at OCC to enhance transport modelling capacity/capabilities for BAU processes, independently of any carbon requirement. Carbon assessment at area level can also be done through transport modelling but also by readily available tools developed by DfT (STB Carbon Playbook). **A new Transport Modelling strategy is being developed streamlining carbon assessment requirements. OCC is asking support to DfT and/or external consultants to adopt carbon tools.**
- **Monitoring and Evaluation existing processes should be able to support user carbon emissions reporting. New processes will be required for infrastructure carbon.**
- **Define the level of in-house carbon analytical capacity vs capacity outsourced to contractors:** outsourced scheme level carbon management plans are an investment since reducing carbon also reduces cost. Consultant support may be needed in the implementation stages.
- **Introducing whole life carbon in decision making:** Introduce quantitative carbon assessments in Climate Impact Assessment of transport policies, plans and schemes and budget decision making processes. When CIA is replaced by Doughnut Economics Decision Making Framework, include whole life carbon quantitative assessments as part of transport policies, plans and schemes decision making processes.
- **Monetise carbon impacts in business cases:** methodology is provided in TAG Unit A3. Carbon assessment inputs depend on transport modelling capacity/capabilities in place.
- **Develop a centralised list of interventions** (policies and schemes) grouped and where will be implemented.
- **Implement new procurement practices:** introducing carbon reduction as a tender criterion in a similar way to cost reduction.
- **Develop and approve a sectoral strategic approach in procurement carbon management for the infrastructure sector.**

The immediate priority is to secure leadership approval and organisational commitment, establish the proposed Transport Carbon Group to oversee implementation, progress the required process changes, and prepare OCC to submit its implementation plan to DfT in October 2026. OCC's internal target is to be ready for quantitative carbon reporting in 2027/28 (See Gant Chart below).

Implementation Gant Chart

[illegible]

1. INTRODUCTION

1.1. Purpose of this plan

This document sets out how OCC will implement DfT's Local Transport Quantifiable Carbon Guidance (QCG) across the whole transport cycle: strategy and planning, scheme development, business cases, decision-making, procurement and evaluation processes. It does so in the form of defining working packages, each one identifying minimum requirements, proposed methods/tools, data and capability gaps, key decisions and actions needed before formal quantitative reporting begins. Given the complementarity and alignment with previous OCC's Local Transport and Connectivity Plan (LTCP), this plan also streamlines ongoing areas of work, particularly those related with LTCP's Policy 27 (whole life carbon) focused in improving the council's alignment with leading carbon governance standard PAS2080 as a vehicle for LTCP's target of achieving a net zero transport network by 2040.

DfT new requirement: Quantification of Whole Life Carbon

In December 2025 as part of Local Transport Authorities funding reform, DfT announced carbon emissions of transport and transport related infrastructure will become an outcome indicator of policies and interventions by Local Transport Authorities. This announcement comes after DfT signalling in its 2021 Transport Decarbonisation Plan for quantifiable carbon reduction and in 2024 for the need of the transport and transport infrastructure sector to adopt whole life carbon governance approaches for transport strategy, planning, infrastructure delivery and decision making, particularly through standard PAS2080¹.

The implementation of this plan is mandatory. The OCC-DfT memorandum of understanding of the Consolidated Transport Funding settlement establishes in its section 8.1 that Local Transport Authorities "are required to report on the forecast carbon emissions estimates of their Local Transport Delivery Plan as an outcome indicator. To achieve this, **places must use the Quantifiable Carbon Guidance (QCG)** to provide the Department with carbon metrics for their proposed portfolio of interventions". These DfT requirements are in alignment with OCC's Local Transport and Connectivity Plan, Policy 27 which establishes that the council must implement whole life carbon governance standard PAS2080 and consider carbon emissions of policies and interventions as a decision criterion in relation to a carbon budget that will allow OCC to achieve a net zero transport by 2040.

DfT is requiring LTQCG **implementation plans from all LAs in September 2026** and **carbon reporting as an outcome indicator will need to be reported to DfT by OCC, as a leading climate action authority, from 2027/28**². Implementation plans need to be submitted to Informal Cabinet and Cabinet by September 2026. OCC has established an internal target to be ready to report emissions quantitatively to DfT by October 2027.

All Transport Strategy, Planning, Capital, Procurement and Infrastructure delivery teams within Local Transport Authorities, need to adopt new carbon governance practices and behaviours into existing and new processes, particularly those related with planning, decision making processes, business cases, procurement practices/contracts, contract management and performance reporting.

1.2. Implications of this plan

Implementing the plan entails adopting **cathedral thinking**^[1]: a long-term approach that recognises the policies and infrastructure decisions made today will affect future generations. In this sense, the plan calls on us to be good ancestors, considering how future generations will view the legacy of our work, balancing immediate pressures with long-term outcomes.

It also requires **adapting and changing our processes so that carbon becomes a criterion in decision-making at both area and scheme level**, from transport strategy and intervention short-listing through to pipeline development and infrastructure delivery. This includes applying proportional quantitative carbon assessment at both area and scheme level through transport modelling and transport-specific carbon tools made available by DfT. Carbon impacts must also be reflected in policy and intervention business cases by assessing their economic value in line with DfT and National Infrastructure and Service Transformation Authority (NISTA) guidance. In procurement, carbon should be treated as a factor to reduce in tenders for strategic projects, while minimum contractual carbon governance requirements for reduction and reporting should be included across all infrastructure contracts. Overall, this means aligning carbon management across decision making, procurement and business case processes.

Implementing the plan further requires **strengthening our internal capabilities**. This includes providing leadership for organisational change in sustainability and carbon management, improving our ability to make informed decisions based on quantitative carbon assessment, and building confidence in carbon assessment through both existing practices such as transport modelling and newer approaches such as specialist carbon tools. It also requires developing stronger capability in carbon management within procurement.

The plan also provides an opportunity to **streamline previous OCC work on implementing PAS2080** and related carbon governance across infrastructure teams. This includes building on the Highways Maintenance Contract Carbon Reduction Plan, the HIF1 PAS2080 Carbon Management Plan and progress reporting, the integration of PAS2080 into procurement, and the translation of national carbon budgets for the infrastructure sector to the local level.

It should also leverage on OCC's past and ongoing participation in the Carbon Leadership Programme of the Association o, which can continue to offer useful tools and implementation support.

¹ The 2021 Transport Decarbonisation Plan included a commitment to 'quantifiable carbon reduction'. In 2024, DfT held a seminar on Carbon Analysis and Tools for Local Authorities. In 2025, the Secretary for Transport establish the planning requirement for OCC to adopt PAS2080 processes in the development of HIF1 Didcot project and the requirement to report progress on the project's delivery of carbon reduction targets every six months during the construction of the scheme.

² DfT is expecting for all LTAs in the UK (to allow time for LTA laggards adoption) to report emissions quantitatively by 2029/30, however it is expecting for leading LTAs to being reporting in 2027/28.

1.3. Previous related work at OCC

In 2024-25, OCC did an internal PAS2080 gaps assessment to understand where the council needs to improve its carbon governance, the outcome of this assessment established differences in carbon management capabilities, behaviours, practices and processes in OCC infrastructure related teams: Transport Infrastructure Delivery and Place Shaping, Highways Maintenance and Property and Facilities Management. Since then, OCC developed an PAS2080 improvement plan. During 2025, progress in this implementation plan has been achieved through:

- 1) Developing a Carbon Management Plan aligned with PAS2080 for HIF1 Didcot projects
- 2) PAS2080 Procurement Best Practices collection.
- 3) Highways Maintenance Carbon Reduction Plan based on Science Based Targets (work in progress)
- 4) Preliminary work on how to translate national infrastructure carbon budgets to the local level, for supporting decision making following policy 27 of Local Transport and Connectivity Plan.

2. SCOPE OF THE IMPLEMENTATION PLAN

The relevant stages covered by the LTQCG are shown below. We also highlight where PAS2080 can complement the scope of LTQCG.

- **Strategic planning stage** (e.g. Local Transport Plans, i.e. in OCC the Local Transport and Connectivity Plan and MAPPs) – development of transport strategies **at area level** that define a vision for local transport and identify projects for investment. Considering carbon at this stage should be strategic in nature, primarily considering the need for and influencing the types of interventions to be delivered, rather than how or what is delivered (for example material choices in design). It is at this early strategic stage that the opportunity to influence carbon outcome is greatest. Early consideration of carbon impacts of schemes can reduce risk and cost by informing decisions that avoid high-carbon schemes.
- **Scheme development** – option development, appraisal and design. Considering carbon in this process should influence the selection of options and design (for example application of PAS2080 carbon reduction hierarchy). It should also improve the consideration of carbon in business cases to inform funding decisions. In this stage the LTQCG overlaps with PAS2080 (although LTQCG is transport specific), therefore this guidance is complementary and do not supersede each other, therefore the need to be streamlined. In addition, the recently published National Infrastructure and Service Transformation Authority Whole Life Carbon guidance provides more detailed instructions on how to embed carbon impacts into business case developments and procurement cycle, therefore it is also part of this implementation plan. Finally, PAS2080 new procurement practices, where carbon is integrated along cost and quality as key procurement criteria, belong to this stage.
- **Evaluation** – evaluating predicted scheme impacts against observed data collected prior to and after scheme construction. While carbon evaluation may not influence the carbon impact of the scheme in question (if scheme is at advanced stages of development), evaluation can still improve understanding of carbon impacts that will help improve decision making in the future. The evaluation chapter in LTQCG is focused mostly on post-intervention user emissions evaluation and does not focus on infrastructure carbon monitoring and reporting at the scheme delivery stage. Nevertheless, this gap can be covered by PAS2080 clause 9 Monitoring and Reporting.
- **Monitoring and Reporting (PAS2080, clause 9)** - A carbon management process should have robust monitoring and transparent reporting at frequent intervals during the delivery of projects and/or programmes of work to highlight the progress of carbon reductions against targets. This is important as DfT Consolidated Funding MOU establishes that authorities need to report carbon as an outcome of DfT funding. Reports should inform decision-making in managing whole life carbon, as well as provide information for future continuous improvement.

The figure 1, below identifies the different stages of transport strategy planning at area level and the stages of transport infrastructure development at scheme level, monitoring and reporting along post-delivery evaluation. Based on the schematised relation of LTQCG chapters to different stages, the figure below allows us to develop working packages for the implementation of the guidance. Also figure 1, shows PAS2080 related clauses that complement the chapters of LTQCG and allow for the inclusion of additional working packages. Each working package outlines in which process(es) applies, what are the guidance(s) minimum requirements, what is OCC's current position and gaps, decisions that need to be taken and action points.

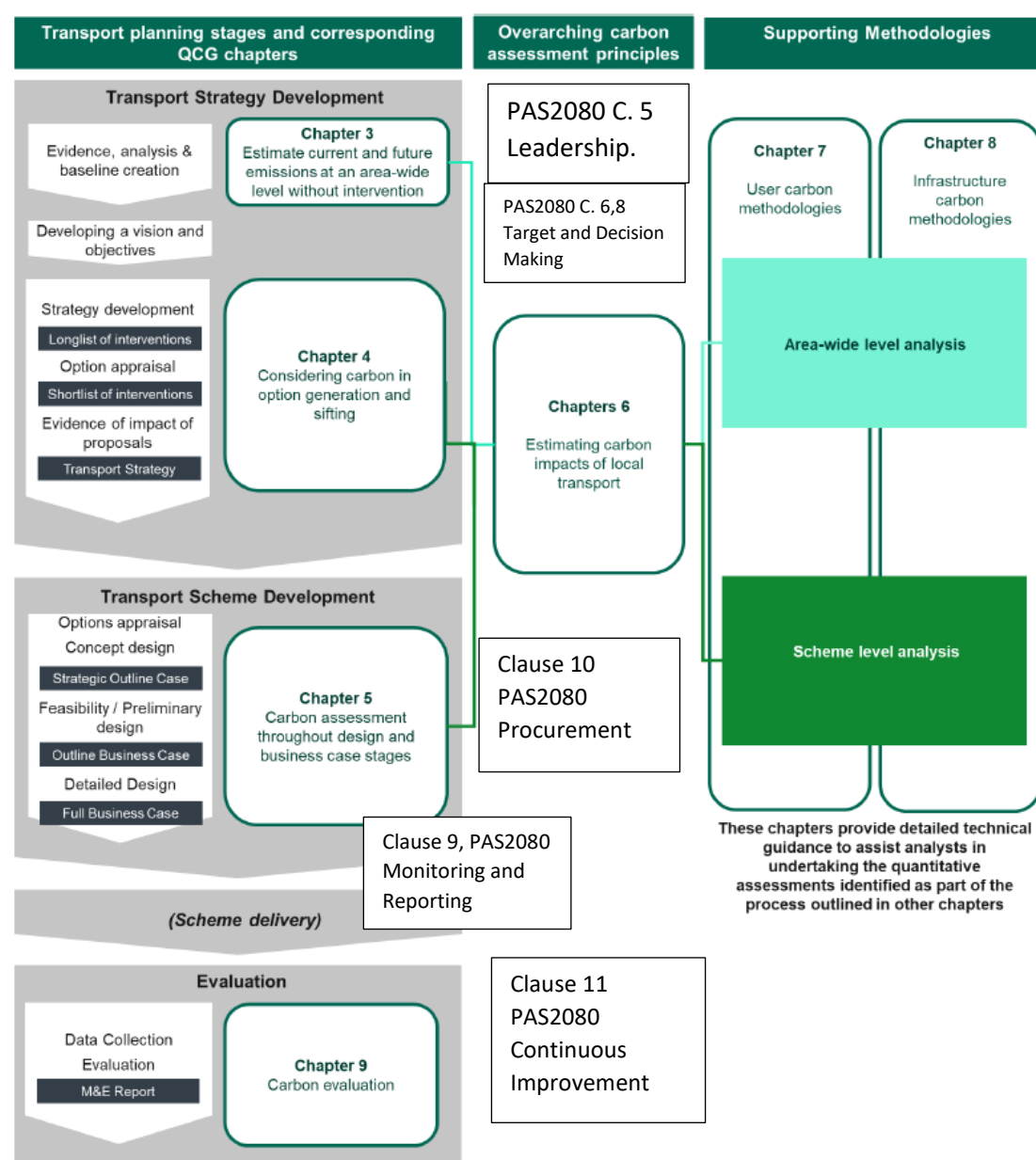


Figure 1: LTQCG chapters mapped in the Transport Strategy, Scheme Development & Delivery and Evaluation processes.

3. LTQCG RELATION TO OTHER WHOLE LIFE CARBON GUIDES:

3.1 LTQCG relation to PAS2080: complementary roles

The LTQCG is complementary to PAS2080, as it focuses on how to quantify carbon at different stages of intervention development from transport strategy level and the earlier stages of transport planning (area level) to scheme level and in which stages of decision-making quantitative carbon should be considered as one of many decision criteria. PAS2080 focuses more on the principles, behaviours, processes and practices that need to be in place in an organisation to conduct good carbon governance in infrastructure development from a whole life carbon perspective. PAS2080 also is more balanced towards the later stages (scheme level) of intervention development (LTQCG, p.10). The LTQCG is designed to help authorities to include carbon analysis in their transport planning/scheme development and post-delivery evaluation processes in a high-quality structured way. In turn, PAS2080 Clause 9 complements LTQCG as it focuses on carbon management during scheme delivery (construction).

3.2 LTQCG relation to NISTA: The principles and guidelines in this document are set out to support a project outcome in line with PAS2080:2023. This handbook also identifies the key outputs of the process and how these integrate with the HM Treasury Project Business Case decision making process.

3.3 Other relevant guidance:

- TAG Unit A3 – Chapter 4 of TAG Unit A3 provides guidance on how to consider carbon as part of a business case appraisal (for example how to monetise estimated carbon impacts and reporting requirements for a business case).
- GHG Protocol - Annex A.2 explains how WLC emissions relate to the GHG Protocol's scope 1, 2 and 3 emission categories.

4. KEY PRINCIPLES AND BOUNDARIES FOR CARBON ASSESSMENT.

- **Whole life carbon:** carbon assessments should be done from a whole life carbon perspective (see figure 2 below).
- **A flexible approach:** the guidance has sought to cater different levels of analytical capabilities present in Local Authorities.
- **Proportionality:** potential carbon impact of schemes will vary widely. For example, a carbon assessment for a new major road scheme is likely to be more extensive and detailed than carbon assessment for a minor junction improvement. Efforts however should be made to consider carbon in the development of all policies and interventions, even if this involves qualitative or less detailed quantitative assessment methodologies where appropriate for some schemes.
- **Stage of development level of detail:** the level of detail and data required in a carbon assessment should also be commensurate to the development stage of a project.

- Flexibility is selection of tools/methods but mandatory minimum standards:** the use of methodologies is not prescriptive, and authorities have the flexibility to use other data, methods and tools that may be suitable to their situation. However, in some instances, this guidance encourages that specific datasets or assumptions are used as a minimum standard to enable consistent comparison of results between authorities
- Transparency:** authorities should always clearly report the assumptions and methodology used in their analysis, particularly where the methods used are not covered by this or other guidance.

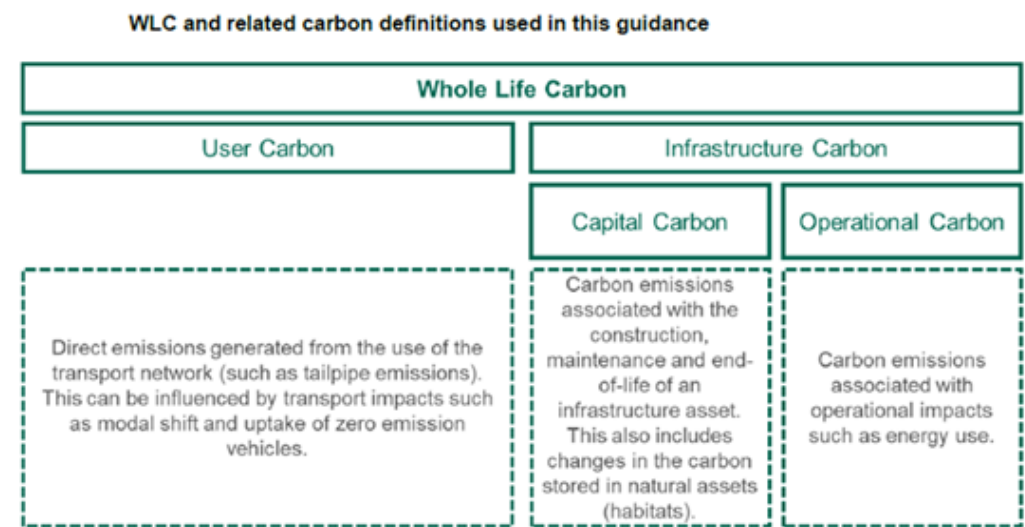


Figure 2 Whole Life carbon definitions

The figure 3, below identifies the different stages of transport intervention planning at area level and the stages of transport infrastructure development at scheme level. It also shows where PAS2080 clauses can complement LTQCG gaps. Based on the schematised relation of LTQCG chapters to different stages, the figure below allows us to develop working packages for the implementation of the guidance. Each working package has a process component and a methodological component.

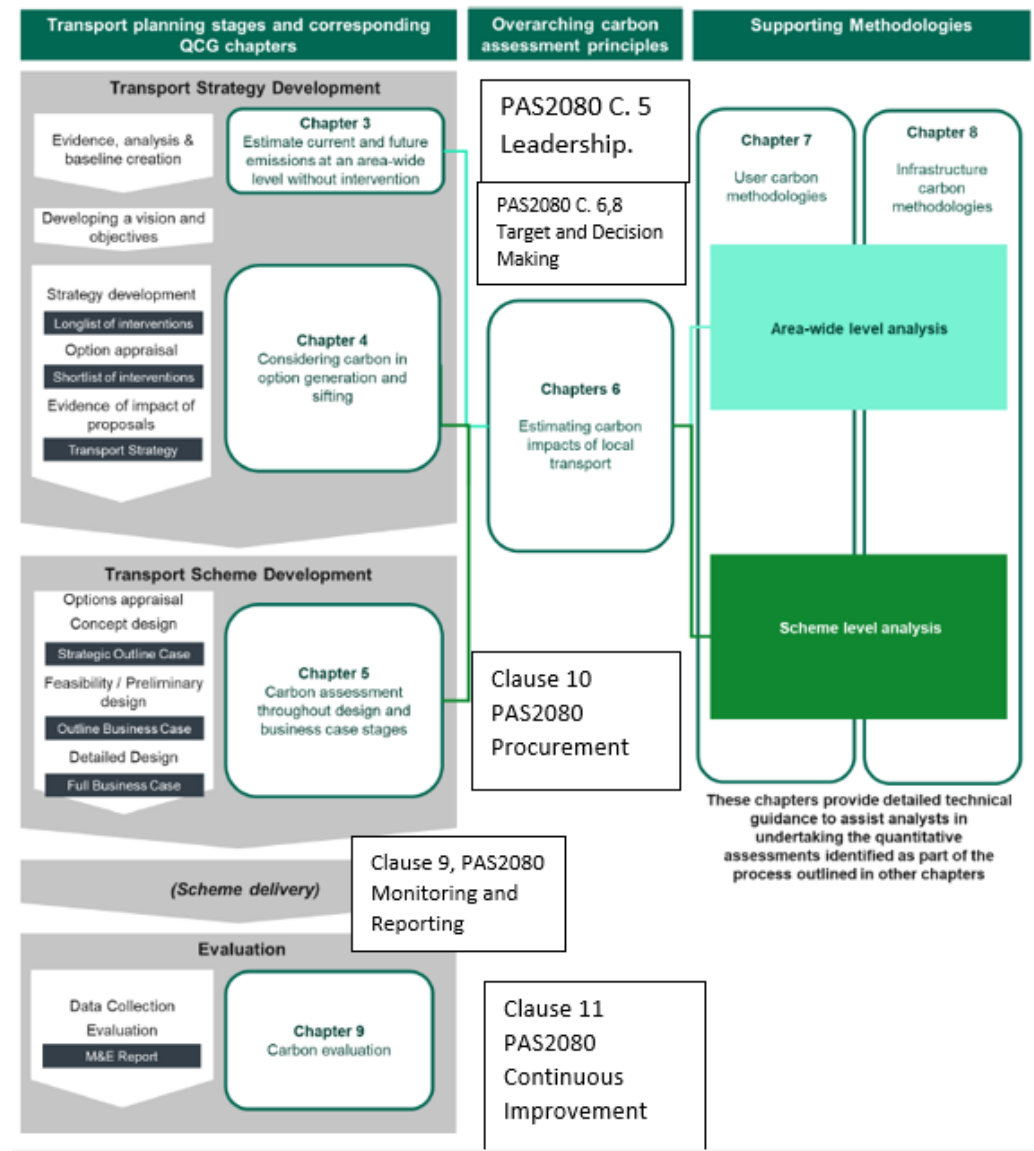


Figure 3. Transport Strategy, Scheme Development, Delivery and Evaluation Phases

5. KEY STRATEGIC DECISIONS IN WORKING PACKAGES:

- Approve the Transport Carbon Group governance membership proposal.**
- Consider the roles and responsibilities of this plan in team reorganisation.**

- **Decide on spatial level of carbon assessment:** Decide on what are level we will be conducting quantitative carbon assessment: Oxfordshire Level, District Level and MAPP. **Decision made: District Level to build up to Oxfordshire Level.**
- **Discuss if we can include the impact of OxRail Strategy.**
- **Enhance transport modelling capacity/capabilities.** Carbon assessments at area & scheme level along scheme level business cases require transport modelling - enhance transport modelling capacity/capabilities. Carbon assessment at area level can be done through the STB Carbon Playbook.
- **Define the level of in-house carbon analytical capacity vs capacity outsourced to contractors**
- **Introducing whole life carbon in decision making:** Introduce quantitative carbon assessments in Climate Impact Assessment of transport policies, plans and schemes (see CIA assessment points in Guidance for Delivery of Infrastructure Schemes), along with using this quantitative assessment in Budget decision making processes. When CIA is replaced by Doughnut Economics Decision Making Framework, include whole life carbon quantitative assessments as part of transport policies, plans and schemes decision making processes.
- **Monetise carbon impacts in business cases:** methodology is provided in TAG Unit A3. Carbon assessment inputs depend on transport modelling capacity/capabilities in place.
- **Develop a centralised list of interventions** (policies and schemes) grouped and where will be implemented.
- **Implement new procurement practices:** introducing carbon reduction as a tender criterion in a similar way to cost reduction.
- **Develop and approve a sectoral approach in procurement carbon management for the infrastructure sector.**

6. WORKING PACKAGES (including subpackages)

Working packages summarised table.

Working package	Working Package Description	Responsible people / teams
WP1	Carbon governance leadership, approval of the LTQCG implementation plan, and establishment of the Transport Carbon Group.	LTCP Board Directors: Director of Highways and Environment, Director of Economy and Place; Transport Carbon Group co-chairs: Head of Place Shaping, Head of Climate Action and Head of Transport Infrastructure Delivery. Support officers by team: a) Policy: Strategic Transport Manager, LTCP Programme Lead; b) Climate Action: Infrastructure Whole Life Carbon Lead, Corporate Climate Manager; c) Place Shaping: Place Planning Manager (South), Place Planning Manager (Central), Place Planning Manager (North), Senior Bid Coordinator; d) Transport Infrastructure Delivery: Infrastructure Portfolio Manager; e) Highways Maintenance: Highways Maintenance Policy and Performance; f) Monitoring and Evaluation: Innovation Delivery Manager; g) Capital Pipeline: Capital Programme Manager, Pipeline Programme Coordinator; h) Procurement: Procurement Commercial Excellence Lead; i) Cultural Change: Business Performance and Service Delivery Manager.
WP1a	Define organisational roles, responsibilities, resource needs and cultural change requirements for carbon governance.	SROs: Head of Place Shaping, Head of Transport Infrastructure Delivery, Head of Highway Maintenance and Road Safety, Head of Climate Action and Head of Commercial and Procurement. Support officers: Infrastructure Whole Life Carbon Lead, Place Engagement and Coordinator, LTCP Programme Lead and Business Performance and Service Delivery Manager.
WP1b	Update processes so carbon is embedded in GDIS, pipeline, area planning, business cases, budget decisions, procurement and reporting.	SROs: Strategic Transport Manager, Infrastructure Portfolio Manager, Highways Maintenance Ops & Assets Manager, Corporate Climate Manager, Capital Programme Manager and Commercial Excellence Lead. Support officers: Infrastructure Whole Life Carbon Lead, Transport Pipeline Programme Coordinator, Senior Bid Coordinator, Highways Maintenance Policy and Performance Lead.
WP1c	Define carbon boundaries, responsibilities, local carbon budgets and scheme-level targets.	SROs: Head of Place Shaping and Strategic Transport Manager. Support officers: Infrastructure Whole Life Carbon Lead, Place Engagement and Coordinator, LTCP Programme Lead and Climate Action and CE Senior Partnerships Lead.
WP2	Develop area-level whole life emissions forecasts without interventions, covering user emissions and infrastructure emissions.	SRO: Head of Place Shaping Delivery officers: Strategic Transport Manager, Place Planning Manager (South), Place Planning Manager (Central), Place Planning Manager (North), Integrated Transport Programme Lead, Support officers: Infrastructure Whole Life Carbon Lead.
WP2a	Forecast area-level user emissions to 2050, including cars, LGVs, HGVs and, where possible, buses.	SRO: Head of Place Shaping. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Strategic Transport Manager, Integrated Transport Programme Lead. Support: Infrastructure Whole Life Carbon Lead and EV Infrastructure Senior Project Manager.
WP2b	Forecast highways maintenance infrastructure emissions to 2050 and align MGroup/OCC reporting with DfT and APSE CLP expectations.	OCC SROs: Head of Highway Maintenance and Road Safety and Highways Maintenance Policy and Performance Lead. MGroup SRO: Carbon Lead. Internal support: Infrastructure Whole Life Carbon Lead. External support: ADEPT Carbon Leadership Program.
WP3	Assess area-level intervention impacts for transport strategy and MAPPs.	SRO: Head of Place Shaping/Strategic Transport Manager. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Integrated Transport Programme Lead. Support Officers: Infrastructure Whole Life Carbon Lead and Climate Action and CE Senior Partnerships Lead.
WP3a	Assess user-emission impacts of area-level policies and interventions.	SRO: Head of Place Shaping/Strategic Transport Manager. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Integrated Transport Programme Lead. Support Officers: Infrastructure Whole Life Carbon Lead and Climate Action and CE Senior Partnerships Lead.
WP3b	Assess area-level infrastructure carbon from construction-related interventions.	SROs: Head of Transport Infrastructure Delivery and Corporate Climate Manager. Delivery officers: Infrastructure Whole Life Carbon Lead.
WP3c	Assess maintenance-related embodied carbon interventions and define firm and funded carbon reduction opportunities.	OCC SRO: Highways Maintenance Policy and Performance Lead. Support officer: Infrastructure Whole Life Carbon Lead. External support: MGroup and ADEPT Carbon Leadership Group.
WP4	Assess scheme-level intervention emissions.	SRO: Head of Place Shaping. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Integrated Transport Programme Lead, Transport Pipeline Programme Coordinator, Senior Bid Coordinator and Capital Programme Manager. Support: Infrastructure Whole Life Carbon Lead/ Procurement Commercial Excellence Lead
WP4a	Assess scheme-level user emissions and integrate carbon assessment into business cases and decision making.	SRO: Head of Place Shaping. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Integrated Transport Programme Lead, Transport Pipeline Programme Coordinator, Senior Bid Coordinator and Capital Programme Manager.

		Support officer: Infrastructure Whole Life Carbon Lead/ Procurement Commercial Excellence Lead
WP4b	Assess scheme-level infrastructure emissions and align business case and procurement carbon management.	SROs: Head of Place Shaping, Head of Transport Infrastructure Delivery. Delivery officer: Infrastructure Whole Life Carbon Lead, Transport Pipeline Programme Coordinator, Senior Bid Coordinator and Capital Programme Manager. Support officer: Procurement Commercial Excellence Lead
WP4c	Assess land-use change and carbon sequestration impacts at scheme level.	SROs: Head of Climate Action Delivery officers: Climate Action and CE Senior Partnerships Lead., Team Lead Landscape and Nature Recovery. Support officer: Infrastructure Whole Life Carbon Lead
WP5	Integrate quantitative whole life carbon into decision-making, CIA, DE-IDMF, business cases, budget and Cabinet decisions.	SROs: Head of Place Shaping and Head of Climate Action. Delivery officer: Place Planning Manager (South), Transport Pipeline Programme Coordinator, Senior Bid Coordinator, Capital Programme Manager and Head of Corporate Finance. Support officer: Infrastructure Whole Life Carbon Lead and Climate Action and CE Senior Partnerships Lead.
WP6	Develop whole life carbon procurement strategy and PAS2080-aligned procurement guidance for the infrastructure sector.	SRO: Head of Commercial and Procurement and Head of Climate Action. Delivery officers: Procurement Commercial Excellence Lead and Infrastructure Whole Life Carbon Lead.
WP7	Embed carbon management during scheme delivery, contract management, monitoring, reporting and post-delivery evaluation.	User emissions SRO: Head of Place Shaping, Delivery officer: Innovation Delivery Manager and Integrated Transport Programme Lead Support officer: Infrastructure Whole Life Carbon Lead and Climate Action and CE Senior Partnerships Lead. Infrastructure emissions SRO: Head of Transport Infrastructure Delivery and Head of Climate Action. Delivery officers: Infrastructure Portfolio Manager and transport project managers. Support officers: Infrastructure Whole Life Carbon Lead and Corporate Climate Manager.
WP8	Establish continuous improvement, lessons learned, carbon data library and future methodology improvements.	SRO: Head of Place Shaping, Head of Transport Infrastructure Delivery, Head of Highway Maintenance and Road Safety, Head of Commercial and Procurement. Delivery officers: all teams. Support officer: Infrastructure Whole Life Carbon Lead

Working packages detailed table

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.	Decisions involved?	Actions and responsible teams.
WP1	Carbon Governance Leadership	PAS2080 Clause 4, 5	Organisational change	Minimum requirement 1)Vision requirement. Leadership should provide the vision and direction to drive carbon reductions across all levels of an organisation and ensure the right capability exists across the organisation and value chain. OCC Vision position: Our Local Transport and Connectivity Plan (2022) vision is for an inclusive and safe net-zero Oxfordshire transport system that enables all parts of the county to thrive. The LTCP establishes the target for a net zero transport network by 2040. OCC’s Climate Action Framework and Ethical Procurement Policies establish the minimum foundation for a Transport Infrastructure Sustainable Procurement Strategy. 2)Top-down commitment requirement. The commitment to decarbonisation should cascade from the board to the manager and practitioners at project or programme level and communicate expectations at all levels of the value chain (PAS Clause 5). OCC top-down commitment. LTCP Board monitors progress towards 2040 net zero transport network target among other local transport plan targets. In 2024/25 an internal PAS2080 gaps assessment was conducted. In 2025 the LTCP Board identified the lack of progress in implementing Policy 27.	Yes, approval of this Local Transport Quantifiable Carbon Guidance Implementation Plan.	The implementation of this guidance will address the lack of a “how to” operationalisation of LTCP Policy 27 and establish a governance process for achieving our 2040 net zero target. Pending leadership gaps are addressed in WP1a (organisation structure), WP1b (process structure), WP1c (boundaries, responsibilities and targets) and WP6 (Supply Chain Strategy). Strategic communication from HoS and Directors should support the development and implementation of this plan. A transport carbon group with champions of each team referenced in this guidance has been proposed to monitor the progress of implementation. Action: • LTCP board approval of this LTQCG implementation plan. • Leadership (HoS and Directors) communication of commitment to decarbonisation should cascade from LTCP board through expressing support for the development and participation in of this LTQCG implementation plan. • Establishing the Transport Carbon Group (Task group) to monitor progress of the implementation of this plan. This group will meet monthly and report to the LTCP board quarterly. Proposed Members of Transport Carbon Group: Rotating co-chairs: Head of Place Shaping, Head of Climate Action, Head of Transport Infrastructure Delivery; Policy: Strategic Transport Manager, LTCP Programme Lead; Climate Action: Infrastructure Whole Life Carbon Lead, Corporate Climate Manager; Place Shaping: Place Planning Manager (South), Place Planning Manager (Central), Place Planning Manager (North), Senior Bid Coordinator, Integrated Transport Programme Lead; Transport Infrastructure Delivery: Infrastructure Portfolio Manager, EV Infrastructure Delivery Lead; Highways Maintenance: Highways Maintenance Policy and Performance Lead; Monitoring and Evaluation: Innovation Delivery Manager; Capital Pipeline: Capital Programme Manager, Transport Pipeline Programme Coordinator; Procurement: Procurement Commercial Excellence Lead; Cultural Change: Business Performance and Service Delivery Manager.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.	Decisions involved?	Actions and responsible teams.
				3)Develop a consistent Carbon Management Strategy applicable across all transport teams to include: • A governance structure detailing how to systematically manage whole lifecycle carbon in all projects with clear roles and responsibilities at each work stage. (WP1b) • An organisational structure indicating where there is a resource need to upskill and support the delivery teams. (WP1a) • Mapping of project boundaries and emissions within control and influence (WP1c) • Set carbon reduction targets aligned with national and regional policies, carbon budgets and targets. (WP1c) • Determine how the carbon management strategy links with overall strategy and other business processes. (WP1b) • Define Supply Chain Strategy including engagement plan. (WP6)		SRO: LTCP Board; HoS and Directors;
WP1a	Carbon Governance Leadership: Organisation Roles and Responsibilities.	PAS208 Clause 4,5	Organisational and cultural change	Minimum requirement: Carbon Management Strategy document outlining: • Organisational structure indicating distribution of roles and responsibilities • Organisational structure indication where there is a resource need to upskill • Cultural change for implementing plan.	Yes, 1) distribution of roles and responsibilities 2) Addressing resource upskill needs. 3) Definition of level of inhouse vs outsourced analytical capacity for carbon governance	LTCP Board recognised the need for this implementation plan to be part of Transport and Infrastructure delivery teams transformations. Early on, the importance of enhanced transport modelling capacity/capabilities has been identified as a key gap in transport planning. Scheme level and infrastructure delivery carbon management plans can to remain outsourced to external contractors as in HIF1 Didcot. Actions/Responsible Officers: • Infrastructure Whole Life Carbon lead appointed in the Climate Action team with Matrix Reporting in Transport Teams to be defined. • Define the level of in-house carbon analytical capacity vs capacity outsourced to contractors. Engage and quote consultant support. • Defining of carbon governance roles and responsibilities in Transport Strategy, Planning, Infrastructure Delivery, Highways

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.	Decisions involved?	Actions and responsible teams.
					4) Cultural change strategy	Maintenance and Procurement teams. How they interact with Infrastructure Whole Life Carbon lead to be defined. Approach Business Performance and Service Delivery Manager for discussing organisational cultural change strategy. SROs: Head of Place Shaping, Head of Transport Infrastructure Delivery, Head of Highway Maintenance and Road Safety, Head of Climate Action and Head of Commercial and Procurement. Support officers: Infrastructure Whole Life Carbon Lead, Place Engagement and Coordinator Officer/LTCP Programme Lead and Business Performance and Service Delivery Manager.
WP1b	Carbon Governance Leadership: Process Restructure.	PAS2080 Clause 4,5	Process restructure	Minimum requirement: Carbon Governance structure detailing how to systematically manage whole life carbon in all transport planning stages and all projects by stage with clear roles and responsibilities OCC position: - Guidance for Delivery of Infrastructure Schemes needs update. - Pipeline process needs update. - Climate Impact Assessment embedded as place holder in decision stages in GDIS and pipeline processes. - Infrastructure emissions reported through expenditure in Scope 3 reporting (low accuracy). Process gaps identified include: - Low compliance with CIA - CIA only qualitative - No area level carbon assessment - Lack of centralised list of interventions with identified locations of implementation.	Yes, defining the new processes and have them approved by LTCP Board.	Actions: Key discussions: - What area level should we engage with quantitative carbon (County, District, MAPP)? Proposal is district level but we also need a centralised intervention list with locations of implementation. - How can we develop a centralised intervention list with potential locations of implementation? - Can we implement carbon governance in decentralised pipelines? Proposal is to centralise pipelines. - How LGR may affect the decisions taken in the above two questions? New (or amended) processes to produce: - Climate Impact Assessment in GDIS and Pipeline with quantified carbon - Area wide carbon budget monitoring and targets review in LTCP board (WP1 and WP7). - Area level transport planning with qualitative/quantitative carbon (WP2 and WP3) - Guidance for Delivery of Infrastructure Schemes and Pipeline processes revised with quantitative carbon in Climate Impact Assessments. (WP5)

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.	Decisions involved?	Actions and responsible teams.
				- Lack of centralised pipeline process (many local pipelines) - Business cases without quantitative carbon input. - Budget process without quantitative input		5) Pipeline process with monetised carbon in business cases (WP4) 6) Embed Quantified Carbon in Key Decision Processes: Business Cases and CIAs in Budget Process (WP5) 7) Alignment with procurement carbon reduction processes with Business Cases. (WP4b and WP5) 8) Scheme/Contract level Infrastructure delivery & highways maintenance carbon management monitoring, reporting and contract management. (WP7) 9) Continuous improvement process (WP8) 10) Transition from Climate Impact Assessment to Doughnut Economics Integrated Assessment Framework. SROs: Strategic Transport Manager, Infrastructure Portfolio Manager, Highways Maintenance Ops and Asset Manager, Corporate Climate Manager, Capital Programme Manager and Procurement Commercial Excellence Lead. Support officers: Infrastructure Whole Life Carbon Lead, Transport Pipeline Programme Coordinator, Senior Bid Coordinator, Highways Maintenance Policy and Performance Lead.
WP1c	Carbon Governance Leadership: Boundaries, Responsibilities and Targets.	PAS2080 Clause 4, 5 and 8.	Strategy	Minimum requirement: 1) establish boundaries of responsibility through analysis of influence and control. 2) Develop a local carbon budget based LTCP 2040 net zero transport network (LTCP Policy 27 requirement). 3) Establish carbon reduction targets in alignment with net zero target and local carbon budget. OCC Position: OCC does not have a local carbon budget for transport user and infrastructure carbon emissions against which (following policy 27 of LTCP) whole life carbon emissions of interventions (policies and infrastructures) can be assessed and carbon reduction targets established. In March 2026, OCC and Cambridge University delivered a preliminary study on a methodology for filling the above gap.	Yes, 1) Discussion and approval of boundaries of control and influence between OCC and other organisations (National Highways) and other levels of government (LG Devolution and	Discussions: Leadership needs to: - Be informed on the basis upon which boundaries of control and influence can be established. - Discuss the established requirement of a local whole life carbon budget in LTCP Policy 27 and be made aware of the lack of an official methodology for defining such budget. - Be informed on the ongoing initiatives for defining such methodology for local carbon budgets. (e.g. Cambridgeshire, ADEPT Live Labs) - Be informed on OCC's preliminary work on the topic conducted with Cambridge University collaboration. - Engage in discussions about carbon budget approaches with National Highways and DfT. - Consider the potential changes to OCC's control and influence boundaries as a result of Local Government Reorganisation and Devolution. - Leadership needs to approve OCC final methodology. - Actions: Polish OCC – Cambridge University methodology. - Discuss methodology with OCC HoS and Directors.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.	Decisions involved?	Actions and responsible teams.
					Central government) 1) Approve Local Carbon Budgets for user and infrastructure emissions (see WP1c). 3) Approve Scheme Target Methodology aligned with local and national carbon budgets (see WP1c)	10)Discuss methodology with other local authorities (Cambridgeshire County Council) and external organisations (DfT and LiveLabs case study) 11)Discuss methodology in the context of Local Government Devolution Actions: 12)Establish boundaries of control and influence of Oxfordshire emissions in relation to OCC powers with the aim of establishing proportional carbon reduction responsibilities with other organisations and levels of government. 13)Translate OCC's 2040 net zero transport network target into operational local carbon budgets (defined based on OCC responsibility in relation to other government levels) and project level targets that allow quantification of progress towards 2040 target. 14)Approve carbon budget and target setting methodologies. 15)Delegate to LTCP Board the monitoring carbon budget and reduction targets. SROs: Head of Place Shaping and Strategic Transport Manager. Support: Infrastructure Whole Life Carbon Lead, Place Engagement and Coordinator Officer/LTCP Programme Lead and Climate Action and CE Senior Partnerships Lead..
WP2	Area level transport whole life emissions forecast (without intervention)	LTQCG	LTCP Area Strategy and MAPP; OCC-MGroup	Minimum requirement: Oxfordshire level carbon forecast to 2050 without transport interventions but including highways maintenance. This will be the baseline against which interventions carbon impacts (see WP3) will be compared. Modelling of impacts of OCC EV charging and bus strategies.		Transport Strategy/ Transport Planning / Local Area Travel Plan/ Climate Action/Highways Maintenance Expected Outcome: Oxfordshire Area Transport Emissions Forecast to 2050 including Highways Maintenance Infrastructure Carbon Plan. Scenarios to include OCC EV Charger deployment plans and impacts of Bus Strategy. Decision to be made: including OxRail Strategy impacts.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				Desirable requirements: Rail strategy impacts.			
WP2a	Area level user emissions without interventions.	LTQCG ch 3,6,7	LTCP Area Strategy and MAPPs	Minimum requirement: Oxfordshire level user carbon forecast to 2050 without transport interventions. Authorities are only expected to quantify domestic surface transport emissions. As a minimum, emissions associated with cars, light good vehicles (LGVs) and heavy goods vehicles (HGVs) should be quantified. Assessment of current and future bus emissions is encouraged but not mandated. However bus interventions must be quantified in WP3a. Future user emissions baseline forecast up to 2050 without policy interventions based on the following scenarios. 1) BAU Scenario (firm and funded policies) that uses DfT/TAG datasets (p. 3.24) 2)	Method: - Area-wide GHG inventory-based forecasting - Area-wide traffic modelling -based analysis - Area-wide disaggregated traffic modelling based analysis - Bus specific forecast methodology (not included in guideline, ask DfT) Tools: - SBT Carbon Baseline - DESNZ LA GHG inventories - DfT TAG Modules 1 – 5 Data requirements - DESNZ Data and National Road Traffic Projections - Transport Modelling Data: Link flow by vehicle type, Link distance, Link average speed and DfT TAG Data Book	Yes, how to enhance transport modelling and tools capabilities without over reliance on external consultants. D1 and D2) method selection depends on transport modelling and tools capabilities/re sources. D3) area definition: area boundaries (district, county and/or MAPP)	STB Carbon Playbook Forecast Baseline can be used as a first assessment but capabilities need to be enhanced. 1) Need to Enhance STB Carbon Playbook Capabilities: This tool can avoid the need of transport modelling (initially) for area level 2050 forecast (this working package). It can also avoid the use of transport modelling at area strategic level for assessing the carbon impact of transport interventions (see WP3) OCC teams have received training on STB CP but regard the tool human resource intensive. In discussions with WSP they have received mixed feedback from LTA in relation to the relative easiness of adoption. Some LTA have managed to successfully use the tool. There is the need not only to train but for DfT to offer a workshop/webinar focused on how LTA are successfully using the tool. Alternative is to procure external consultancy to provide this expertise to our local place shaping teams. Strategic Recommendation D1: Approach DfT to facilitate exchange of how LTAs have successfully adopted the STB Carbon Playbook. Strategic Recommendation D2: Approach consultants to quote STB Carbon Playbook support. Need to Enhance Transport Modelling Capabilities: Transport modelling is not conducted at area level and no runs go as far as 2050 (but initially this can be covered by the STB Carbon Playbook is adoption at OCC is successful). Transport modelling is an input for Business Cases and is only produced at scheme level. Transport modelling capabilities are outsourced to consultants. At the moment no DfT budget is allocated for 2027/28 and 2028/29 for transport modelling. Funding needs to be secured to enhance transport modelling capabilities. Strategic recommendation D2: Enhance internal transport modelling capabilities for running models to reduce/eliminate external contractor dependency. Funding needs to be secured for enhancing transport modelling capabilities, very likely to represent value for money.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				“Accelerated ZEV uptake” with LA charging infrastructure strategy contribution. 3) Above scenarios includes Highways Maintenance emissions. 4) other CA scenarios for uncertainty. OCC position: OCC transport teams were trained on STB Carbon Playbook but have so far not been able to implement it, because they regard the tool resource intensive. Oxfordshire Strategic Transport model includes both private vehicles and bus transport but excludes active travel. Effects of active travel are estimated in the form of changes to private vehicle use. Emissions are not assessed at area level and forecasts are not run up to 2050. Transport modelling runs are outsourced to external contractors. Costs may increase largely if assessments	• Historical bus patronage per route, mileage per route and emissions data. • LA EV charger Strategy.		Strategic recommendations D3: Depending on data availability and method selection we should define the boundaries of assessment. Discussions need to take place on the space level at which carbon assessment will take place (Oxfordshire, District and MAPP) seeking adaptability for LGR. Decision reached (in discussion with Head of Place Shaping on 24/06/2026) to do the assessments starting at District Level and add up to Oxfordshire Level. 3) Bus emissions forecast methodology lacking. Ask DfT for tools. Actions: • Engagement with DfT on STB CP tool adoption experience sharing. (Infrastructure Whole Life Carbon Lead/Strategic Transport Manager) • Engagement with consultants to quote support. (Infrastructure Whole Life Carbon Lead/Corporate Climate Manager) • Transport Modelling Strategy in development needs to include DfT LTQCG requirements. (Julia Hawkings/Infrastructure Whole Life Carbon Lead) • Approach DfT for Bus Emissions Forecast Methodology/Tools. (Infrastructure Whole Life Carbon Lead/ Integrated Transport Programme Lead) • Assess whether OxRail Strategy should be included in modelling. SRO: Head of Place Shaping. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Strategic Transport Manager, Integrated Transport Programme Lead. Support: Infrastructure Whole Life Carbon Lead and EV Infrastructure Senior Project Manager.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				done entirely through consultants.			
WP2b	Area level Infrastructure carbon-Highways Maintenance (without interventions)	LTQCG ch 3,6,8	MGroup Carbon Meeting	Minimum requirement The baseline emissions forecast of WP2a should include the infrastructure emissions of highways maintenance up to 2050. We should include “firm and funded” carbon reduction opportunities. Minimum scenario: maintenance, replacement and operational energy consumption continues at current levels out to 2050. Minimum boundary: Quantification should include highway resurfacing as a minimum (p. 3.20), but generally it is expected to cover: The maintenance of existing assets e.g. carriageway surface dressing, pothole repairs, gully cleaning.	LTQCG proposed Methods: 1) High Level Benchmarks 2) APSE CLP (Top down/bottom up) APSE CLP Tool: 1) CLP Carbon Footprint Assessment Tool OCC position: - OCC has reported Highway Maintenance emissions since 2023/24 from a top down approach and currently negotiating a Science Based Carbon Reduction Plan. - OCC is a founder participant of APSE Carbon Leadership Program but APSE reporting has not been aligned with OCC top-down approach.	Yes, In the past the CLP approach was not considered a suitable basis for ongoing annual reporting (Proving Services input). But now DfT is including it as a recommended basis for reporting. OCC cannot have two reporting approaches in parallel. MGroup/OCC need to assess to what extent we can align our reporting approach as much as possible to CLP requirements,	Medium Level Carbon Management Capabilities: Carbon reduction planning in progress at OCC-MGroup Partnership. OCC part of ADEPT Carbon Leadership Programme. Need to define boundary of “firm and funded”. Misalignments with DfT requirements - Carbon baseline in MGroup Partnership is not aligned with DfT requirement (different year). - DfT recommends use of CLP tools, but this is a different approach to MGroup/OCC reporting agreements during mobilisation. Actions: - MGroup and OCC agreed to discuss how and to what extent we can streamline reporting process as much as possible to APSE CLP requirements. (Highways Maintenance Policy and Performance Lead/Carbon Lead/Paul Crisp/Infrastructure Whole Life Carbon Lead) - OCC to provide direct feedback to DfT about the differences between OCC/MGroup and ADEPT CLP approaches. We will ask to what extent DfT is expecting LA’s to use ADEPT CLP approach (Infrastructure Whole Life Carbon Lead/Highways Maintenance Policy and Performance Lead) - Engage ADEPT CLP and DfT to access and training for using programme new carbon tools. (Infrastructure Whole Life Carbon Lead/Simon Wilson) OCC SRO : Head of Highway Maintenance and Road Safety/Highways Maintenance Policy and Performance Lead, Highways Maintenance MGroup SRO: Carbon Lead, MGroup Internal support officer: Infrastructure Whole Life Carbon Lead, Climate Action External support: ADEPT CLP (Proving Services)

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				- The replacement of asset elements at the end of their service life e.g. full depth carriageway reconstruction. - The energy used to operate these assets e.g. energy for street lighting and traffic management systems. Desirable: 1) BaU (firm and funded) scenario in which material extraction, transportation and manufacturing processes will decarbonise. (RICS WLCA for BE 2023, 2nd Edition). (p.3.30) 2) “accelerated industrial decarbonisation scenario” (p. 3.31)	OCC proposed method: 2) MGroup/OCC approach increasingly aligned to APSE CLP. Data requirements: Benchmark approach: 1) Asset Inventory Data (m2 of carriageway, potholes filled annually). 2) Benchmark carbon factors APSE CLP approach: 3) CLP data template including Resurface scheme in sqm and thickness. (this requires additional work to be conducted by MGroup).	without giving motive for additional costs.	
WP3	Area level interventions assessment (Transport Strategy)	LTQCG	LTCP Area Strategy and MAPPs				Outcome of this WP is supporting longlisting, shortlisting and prioritisation decisions based on carbon assessments. SRO: Head of Place Shaping/Strategic Transport Manager. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Integrated Transport Programme Lead. Support: Infrastructure Whole Life Carbon Lead, Climate Action

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
							and CE Senior Partnerships Lead., Transport Pipeline Programme Coordinator
WP3a	User emissions area level interventions	LTQCG ch 4,6,7		Minimum requirement is quantification of carbon interventions. Methods: a) Scheme level benchmarking against area-wide user carbon analysis. b) Scheme level simple demand forecasting. c) Scheme level traffic modelling-based assessment. Tools: a) STB Carbon Assessment Playbook – (Benchmarking method) b) DfT's Active Mode Appraisal Toolkit. (scheme level simple demand forecasting) c) OCC Oxfordshire Strategic Model (does not account for active travelling,	Minimum data requirements: - Centralised list of place-based interventions: policies and infrastructure (not existing currently) - An estimate of carbon emissions can be made where an estimate of change in demand (e.g. traffic flows or vehicle kms), vehicle composition and speed is available (point 7.7, Table 7.3). This is usually an output of transport modelling. OCC position: - OCC tried STB Carbon Playbook and found it too resource intensive. - Transport modelling runs are done	Yes, how to enhance transport modelling and tools capabilities without reliance on external consultants. D1) Develop a centralised interventions strategic list that feeds into pipeline. D1) method selection depends on transport modelling and tools capabilities/re sources (budget) D2) area boundaries and method selected in WP1a affect	No centralised processes: Decentralized short listing /pipeline processes. No CIA compliance: Climate impact assessment (qualitative) not applied consistently in short listing/pipeline process (as required in GDIS) Decentralisation makes intervention list not easily accessible for area-based carbon assessment: - No centralised pipeline process, but many local area-based pipeline processes. - No centralised list of policies and interventions by place of implementation MAPPs do not currently assess carbon impact of interventions (see WP2a) STB Carbon Playbook (benchmarking method) not adopted. Local Area Travel Plan team tried to implement SBT Carbon Playbook without success. In discussion with the team we found that: - the tools underestimate the preparation work required to use the tool - intervention options do not cover all LTCP interventions - intensities of policy interventions not easy to assess - low value per effort: tools results are low value (uncertainty) for the effort required. Yet DfT claims that West of England Combined Authority have used the tool to quantify carbon. Transport modelling is needed as an input for both business cases and carbon assessment. Transport modelling capabilities outsourced (see also WP2a) Strategic recommendations: - Develop centralised list of interventions (policies and infrastructure) and where they will be implemented. Combines bottom up with top-down central process. - Enhance internal transport modelling capabilities/capacity (see point WP1a)

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				but does modal shift) d) DfT's Vehicle Emissions Carbon Tool VECAT can be used to calculate carbon emissions from traffic modelling data using process in LTQCG Table 7.3.	through consultants, so potential high expenses (long-list stage represent large number of potential interventions) if internal transport modelling capabilities are not enhanced.	the analysis here.	- Initially implement STB Carbon Playbook or similar benchmark-based alternative whilst transport modelling capabilities are enhanced. - Implement DfT Active Mode Appraisal Toolkit - Enhance transport modelling to implement the use of DfT VECAT tool. Actions: - Discuss how other LAs are using STB Carbon Playbook. - Discuss capacity/capability gap in Local Place Shaping teams to implement STB Carbon Playbook (AH/FG/) SRO: Head of Place Shaping/Strategic Transport Manager. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Integrated Transport Programme Lead. Support: Infrastructure Whole Life Carbon Lead, Climate Action and CE Senior Partnerships Lead., Transport Pipeline Programme Coordinator
WP3b	Infrastructure emissions area level intervention (construction)	LTQCG ch 4,6,8		Methods: - Infrastructure benchmarks – Low level of detail - Bill of quantities based assessment – High level of detail Tools: - DfT Local Transport Infrastructure Carbon Benchmarking (LTICBT) Tool - Atkins Carbon Reckoner tool (commercial)		Yes, choose which tool will be used to make area level infrastructure carbon assessment.	Low to Medium Level capabilities. Until recently there were not methodologies and/or tools to assess infrastructure carbon at strategy/area level. Action: Recruit Infrastructure Whole Life Carbon Lead (Done). Request access to LTICBT to DfT Request access to Pell Frischman tool to Live Labs Request access to ADEPT CLP HM tool Allocate FG time for training in tools. Implementation plan to follow a pilot approach, selecting projects through triage. SRO: Head of Transport Infrastructure Delivery/Corporate Climate Manager. Delivery Officer: Infrastructure Whole Life Carbon Lead

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				3) Pell Frischman Live Labs Tool (DfT funded) available to LAs. 4) ADEPT CLP Highways Maintenance tool.			
WP3c –	Embodied emissions area level intervention (maintenance)	LTQCG 4,6,8.		Minimum requirement: LTQCG requires quantification of infrastructure carbon of scheme interventions at area level. For complying with a whole life carbon approach these assessments required to include maintenance emissions. These are included in WP3b. WP2b requires carbon quantification of “firm and funded” carbon reduction opportunities. These are included in WP2b and not here. In this WP, we set out the remaining non firm and funded carbon reduction interventions outlined in MGroup-OCC Partnership Carbon Reduction Plan to 2030 and extrapolate residual	Data requirements: Carbon Reduction Plan with quantified carbon reduction opportunities and estimated timeline for implementation. Establishing a boundary between fix and funded carbon reduction opportunities.	Yes, establishing a boundary of “firm and funded” carbon reduction projects.	Medium to High Level Capabilities Highways Maintenance MGroup-OCC partnership. MGroup controls most data from the partnership, but new contract establishes data requirements. Actions: • Use Carbon Opportunity Matrix as carbon reduction interventions. Establish the boundary of “firm and funded” carbon reduction opportunities. • ADEPT CLP access to tool and training support. • MGroup-OCC collaboration for streamlining existing work into DfT requirements. OCC SRO: Highways Maintenance Policy and Performance Lead. Support: Infrastructure Whole Life Carbon Lead. External support: MGroup and ADEPT Carbon Leadership Group.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				emissions to 2040 and 2050.			
WP4 –	Scheme level intervention emission assessments.	LTQCG					Outcome of this WP is to produce carbon assessment of schemes moving forward the capital pipeline and for these assessments to be used in decision making. Initially a triage system will be implemented, but eventually all interventions will need to be assessed against carbon budget targets. SRO: Head of Place Shaping. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Integrated Transport Programme Lead, Transport Pipeline Programme Coordinator, Senior Bid Coordinator and Capital Programme Manager. Support: Infrastructure Whole Life Carbon Lead/ Procurement Commercial Excellence Lead
WP4a –	Scheme level intervention user emission assessments	Capital Pipeline, Business Case,		Methods: d) Scheme level benchmarking against area-wide user carbon analysis e) Scheme level simple demand forecasting f) Scheme level traffic modelling-based assessment Tools: e) STB Carbon Assessment Playbook – (Benchmarking method)	• An estimate of carbon emissions can be made where an estimate of demand (e.g. traffic flows or vehicle kms) and speed is available (point 7.7, Table 7.3). This is usually an output of transport modelling.	Yes, how to enhance transport modelling and tools capabilities without reliance on external consultants. D1) Develop a centralised interventions strategic list that feeds into pipeline	Transport modelling is needed as an input for carbon assessment. Transport modelling capabilities outsourced (see also WP1a) Strategic recommendations: • Enhance internal transport modelling capabilities/capacity (see point WP1a) • Enhance transport modelling to implement the use of DfT VECAT tool. • Implement DfT Active Mode Appraisal Toolkit • Standardise Business Case template process with NISTA Whole Life Carbon • Implement TAG UNiT A3 to monetise carbon in Business Case. (WP5) • Introduce Infrastructure Carbon Management Plan investment in Business Cases. • Streamline Doughnut Economics Decision Making Framework with LTQCG. Actions:

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				f) DfT's Active Mode Appraisal Toolkit. (scheme level simple demand forecasting) g) OCC Oxfordshire Strategic Model (does not account for active travelling, but does modal shift) Tools: h) DfT's Vehicle Emissions Carbon Tool VECAT can be used to calculate carbon emissions from traffic modelling data using process in Table 7.3.		D1) method selection depends on transport modelling and tools capabilities/re sources. D2) area boundaries and method selected in WP1a affect the analysis here.	• Understanding number of interventions in pipeline, capital pipeline, business cases and projects in delivery. • Triage of projects to introduce whole life carbon assessment contract requirements. • Enhance transport modelling capabilities • Implement carbon benchmark approach. SRO: Head of Place Shaping. Delivery: Place Planning Manager (South), Place Planning Manager (North), Place Planning Manager (Central), Integrated Transport Programme Lead, Transport Pipeline Programme Coordinator, Senior Bid Coordinator and Capital Programme Manager. Support: Infrastructure Whole Life Carbon Lead/ Procurement Commercial Excellence Lead
WP4b	Scheme level intervention infrastructure emission assessment/ Streamlining Business Case and	Capital Pipeline, Business Case, Procurement		Methods: • Scheme level benchmark based assessment – low level of detail		Yes, 1)Introducing Carbon Management requirements into business	Strategic recommendations: 1) Introduce Infrastructure Carbon Management Plan investment in Business Cases. 2) Introduce minimum PAS2080 requirements in all contracts. 3) Triage projects to implement Carbon Tendering in Procurement. (WP6)

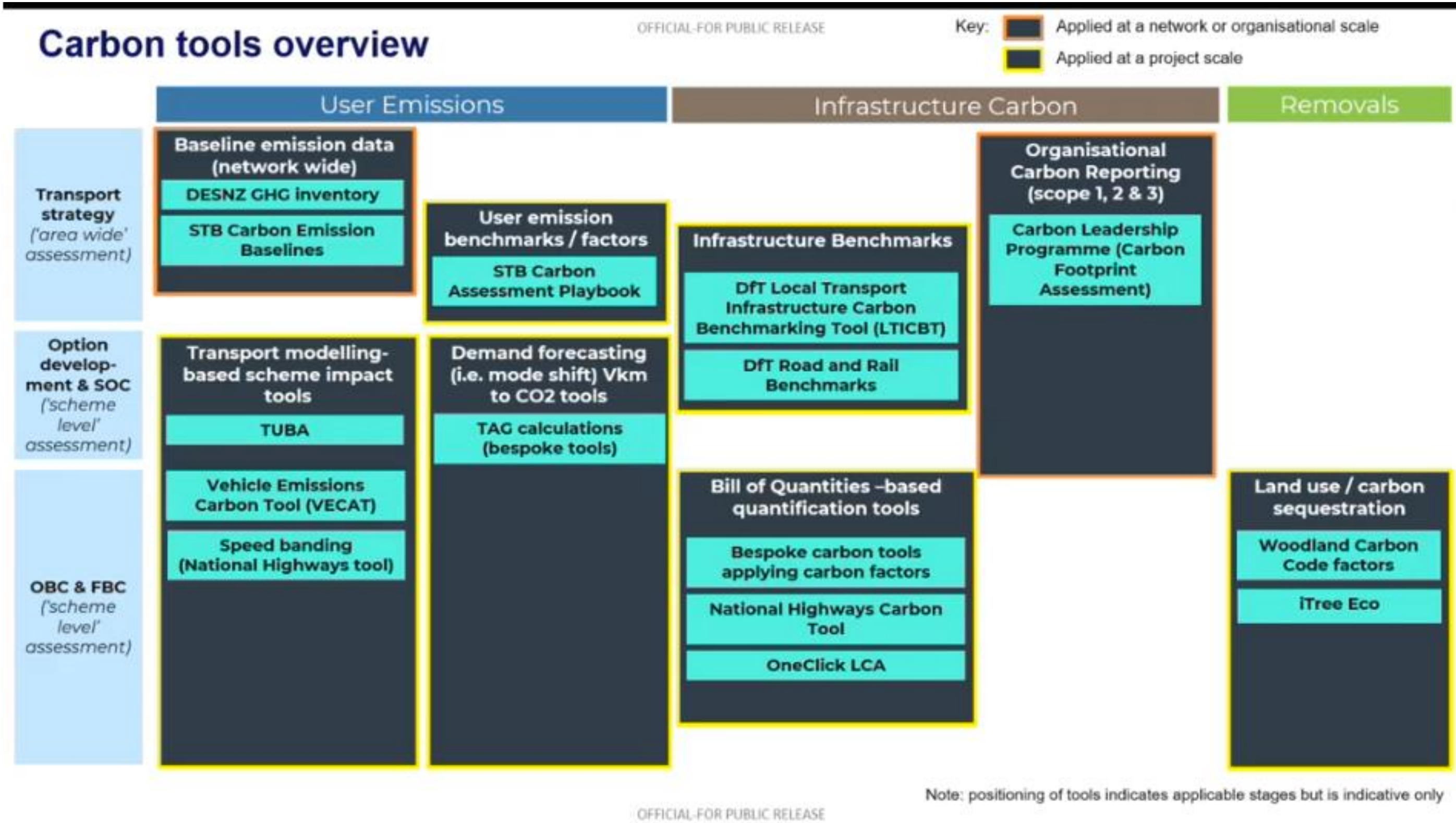
Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
	Procurement carbon management.			- Scheme level bill of quantities based assessment Tools: - National Highways Carbon Tool - External contractor Carbon Management Plans.		cases and contract emphasising cost reduction potential of climate action. 2)Setting carbon reduction targets in schemes. (based on WP1)	4) Standardise Business Case template process with NISTA Whole Life Carbon 5) Implement TAG UNIT A3 to monetise carbon in Business Case. (see WP5) Actions: Triage of projects to introduce CMP Select pilot projects for new procurement practices (see WP6) - Develop “Whole Life Carbon in Procurement” Best Practice Guide. (based on ICE PAS2080 Training and other case studies) SROs: Head of Place Shaping, Head of Transport Infrastructure Delivery. Delivery: Infrastructure Whole Life Carbon Lead, Transport Pipeline Programme Coordinator, Senior Bid Coordinator and Capital Programme Manager. Support: Procurement Commercial Excellence Lead
WP4c	Scheme Land use / Carbon Sequestration Assessment			Tools: - Woodland Carbon Code Factors. - iTree Eco	TBD	TBD	Ask DfT access to these tools. Support: Infrastructure Whole Life Carbon Lead, Climate Action and CE Senior Partnerships Lead., Team Lead Landscape and Nature Recovery,
WP5	Integrating Carbon in Decision Making	Strategy short-listing, Pipeline, Budget, Cabinet		Methods - Quantifying carbon: Methods described in LTQCG and in above WP1-4. - NISTA Whole Life Carbon –	Embedding LTQCG quantitative carbon assessment outputs into CIA and DE-IDMF.	YES, introducing quantitative whole life carbon as an assessment criterion in decision	Strategic recommendations: Introducing whole life carbon quantitative component in existing Climate Impact Assessment Process: Introduce quantitative carbon assessments in Climate Impact Assessment of transport policies, plans and schemes (see CIA assessment points in Guidance for Delivery of Infrastructure Schemes), along with using this quantitative assessment in Budget decision making processes.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				Business Case Guidance - DfT TAG Unit A3 Tools: - Quantitative carbon tools summarised in Annex 1.		making processes.	Transition to Doughnut Economics Framework. When CIA is replaced by Doughnut Economics Decision Making Framework, include whole life carbon quantitative assessments as part of transport policies, plans and schemes decision making processes. Monetise carbon impacts in business cases: methodology is provided in TAG Unit A3. Carbon assessment inputs depend on transport modelling capacity/capabilities in place. Actions: - High level Climate Impact Assessment of LTDP - Climate Impact Assessment adopts whole life carbon quantitative assessments. - Integrated Doughnut Economics Integrated Decision-Making Framework (DE-IDMF) integrates quantitative whole life carbon from LTQCG. - DE-IDMF replaces CIA. - Short listing process adopts DE-IDMF - Pipeline process adopts DE-IDMF and Business Cases with monetised carbon - Budget and Cabinet decisions are made with DE-IDMF and Business Cases with monetised carbon. SROs: Head of Place Shaping and Head of Climate Action. Delivery: Place Planning Manager (South), Transport Pipeline Programme Coordinator, Senior Bid Coordinator, Capital Programme Manager and Head of Corporate Finance. Support officers: Infrastructure Whole Life Carbon Lead and Climate Action and CE Senior Partnerships Lead..
WP6	Whole Life Carbon in Procurement – Infrastructure Sector Strategy and new PAS2080 procurement guidance.	PAS2080 Clause 10		Methods: Supply Chain Expenditure Based Carbon Emissions assessment can be used to develop Infrastructure	Supply chain emissions data and expenditure by supplier already available.	Yes, approval of Infrastructure Sector Carbon Management Strategy in Procurement.	Actions: Development of an Infrastructure Sector Carbon Strategy including: - OCC’s relative position in the infrastructure market - How we are currently allocating infrastructure projects.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
				Sector Carbon Strategy. ICE PAS2080 Procurement training as basis for procurement guideline.			- scope (which procurements / thresholds / project types), - analysis of PAS2080 procurement case studies and extract key practices to implement in OCC procurement (e.g. carbon tendering) - Evaluation approach review: how carbon will be assessed in contracts in new procurement practices? - Contract clauses and standard wording. - Strategy implementation. link to WP4b pilot projects. SRO: Head of Commercial and Procurement and Head of Climate Action. Delivery: Procurement Commercial Excellence Lead and Infrastructure Whole Life Carbon Lead.
WP7	Scheme Delivery and Evaluation	LTQCG Chapter 9, PAS2080 clause 9		- Establish PAS2080 minimum contractual requirements in all projects. - Contract management PAS2080 guidance. - Establish a library of carbon data.	Collect carbon data from all projects for future assessments.		Action: Scheme delivery carbon management. - Introduce minimum PAS2080 contractual requirements to all projects: reporting and carbon reduction. - Work with construction contractors on delivering HIF1 PAS2080 6-month progress report. - Develop PAS2080 delivery stage contract management guidance. - Implement carbon management guidance in triaged PAS2080 projects. Post-delivery reporting and evaluation - Develop Scope 3 Infrastructure Annual Reporting Process. - Establish a library of carbon data of OCC projects. - Annual review of carbon assessments at various stages: expenditure based, preliminary area level, detailed design scheme level and actual reported emissions. - LTCP Board high level reporting of progress with scheme level carbon reduction targets and carbon budget compliance (link with WP1). User emissions SRO: Head of Place Shaping, Delivery: Innovation Delivery Manager and Integrated Transport Programme Lead, Support: Infrastructure Whole Life Carbon Lead and Climate Action and CE Senior Partnerships Lead.

Working Package	Description	Guidance	Process	Standard Minimum Requirements vs OCC state of development/ capabilities.		Decisions involved?	Actions and responsible teams.
							Infrastructure emissions SRO: Head of Transport Infrastructure Delivery and Head of Climate Action, Delivery: Infrastructure Portfolio Manager and transport project managers. Support: Infrastructure Whole Life Carbon Lead and Corporate Climate Manager.
WP8	Continuous improvement	PAS2080, Clause 11		Establish process for continuous improvement from Transport Strategy to Infrastructure Delivery			Action: Reactive: - Organise PAS2080 continuous learning workshop with HIF1 contractors. - Translate lessons from HIF1 Didcot into triaged PAS2080 projects. Proactive: - Keep library of archived carbon reduction opportunities with reasons for not implementation. - Methodology improvements - Carbon factors improvements - Key project continuous improvement workshop (triaged projects). SRO: Head of Place Shaping, Head of Transport Infrastructure Delivery, Head of Highway Maintenance and Road Safety, Head of Commercial and Procurement. Delivery: all teams. Support: Infrastructure Whole Life Carbon Lead

ANNEX 1 CARBON TOOLS OVERVIEW



ANNEX 2 Transport Modelling Requirement Specification:

TECHNICAL SPECIFICATION TRANSPORT MODELLING INPUT REQUIREMENTS.

	Minimum Option	Detailed option
	STRATEGY – AREA LEVEL BASELINE TO 2050 – no modelling required, obtained from STB carbon playbook Longlist to shortlist. - It is recognised that this option generation and sifting process may involve large numbers of schemes, many of which might be less well defined and lack any of the data needed for detailed WLC assessments. - An appropriate approach is likely to involve quantitative benchmarking (such as STB Carbon Playbook) approaches described in Chapters 7 and 8 and/or qualitative methodologies (more likely with quantitative inputs when possible/available), drawing on available evidence and professional judgement. KEY QUESTIONS: - Which interventions will target the largest sources of carbon in our area? - Which interventions will have an impact appropriate to decarbonisation ambitions? - Which interventions will deliver the outcomes needed to decarbonise transport? - Which interventions will be most effective in different place types? Shortlist to Strategy - Benchmark approach (such as STB Carbon Playbook or others).	Strategy - Area level BASELINE TO 2050 - Transport Modelling output for all links in a given area UP TO 2050: + Link flow by vehicle type. + Link distance + Average link speed. Scenarios to be considered. 1) BAU Scenario up to 2050 (firm and funded policies) that uses DfT/TAG datasets (p. 3.24) 2) “Accelerated ZEV uptake” up to 2050 with LTA EV charging infrastructure strategy contribution. 3) Above scenarios includes Highways Maintenance emissions (this is being done by Highways Maintenance team, can use output of transport modelling in terms of road network growth). 4) other scenarios for uncertainty. Longlist to shortlist – Same as Minimum option. Shortlist to Strategy - Combination of STB Carbon Benchmark and Scheme Level Transport Modelling for selected potential high impact projects. - Scheme Level Transport Modelling specification required would be for all links in a given scheme: Do nothing: + Link flow by vehicle type. + Link distance + Average link speed. Do intervention: + Link flow by vehicle type. + Link distance + Average link speed.

Transport Scheme Development  Options appraisal Concept design Strategic Outline Case Feasibility / Preliminary design Outline Business Case Detailed Design Full Business Case (Scheme delivery) Evaluation	Scheme Level Transport Modelling Needs • Scheme Level Transport Modelling specification required would be for all links in a given scheme: Do nothing: + Link flow by vehicle type. + Link distance + Average link speed. Do intervention: + Link flow by vehicle type. + Link distance + Average link speed.	Scheme Level Transport Modelling Needs – Same as Minimum. • Scheme Level Transport Modelling specification required would be for all links in a given scheme: Do nothing: + Link flow by vehicle type. + Link distance + Average link speed. Do intervention: + Link flow by vehicle type. + Link distance + Average link speed.
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