

# TTM Carbon Net Zero Plan

# Category: TTM

## Carbon Net Zero Goals and Key Deliverables



### Phase I: (2021 – Q1 2023)

**Key goals:** Trial solutions with the use of increased working windows and digitalisation of TTM (more efficient solutions to TTM such as EMCC, shift-left thinking) Trials to understand the future technology of TTM

**Key deliverables:** Increase productivity, therefore reducing carbon impact in labour, more efficient equipment and vehicle usage

### Phase II: (2023 – 2025)

**Key goals:** Rollout of standardised TTM solutions harnessing latest technology including sustainable fuels for equipment/vehicles/signage

**Key deliverables:** Alternative fuel options for up to 20 tonne vehicles by 2030, further reduction in carbon impact on labour/vehicles. Reduce whole life embodied carbon in TM Products

### Phase III: (2025 and beyond)

**Key goals:** Adopt digital TTM approach across all programmes, i.e. smart digital systems and virtual construction methods such as Geo-Zoning, autonomous vehicles and equipment powered by solar. Future sustainable power sources

**Key deliverables:** TTM becomes part of the naked network, operated remotely and autonomously with minimal operatives required

# Category: TTM

## Initial Findings and Next Steps



### Phase I: (2021 – 2023)

#### Carbon Reduction initiatives

- Optimising working windows
- Use of Enhanced Mobile Carriageway Closure (EMCC)
- Telecone systems and digitalisation

#### Main Actions and next steps

- POG working group studies
- Trials and proof of concepts with digital equipment to understand carbon benefits
- Trial digital methods with the TM community groups



### Phase II: (2022 – 2025)

- Roll out of non fossil-fuel TM vehicles
- Recyclable and reusable equipment with lower embodied carbon
- Traffic Management modelling and digitalisation in scope at design phase

- Transition to electric, HVO or hydrogen fuel powered TM vehicles
- Understand future market of net zero TM products
- Departure from standards to enable technology
- Greater collaboration with ops tech roadside technology



### Phase III: 2025 and beyond

- Standardised non fossil fuel source powered TM vehicles
- Transition to naked network for TTM
- Digital options such as radars and GPS systems

- Collaborate with our supply chain to drive innovation for more sustainable future solutions.
- SES to amend standards to support naked network implementation

# Category: TTM

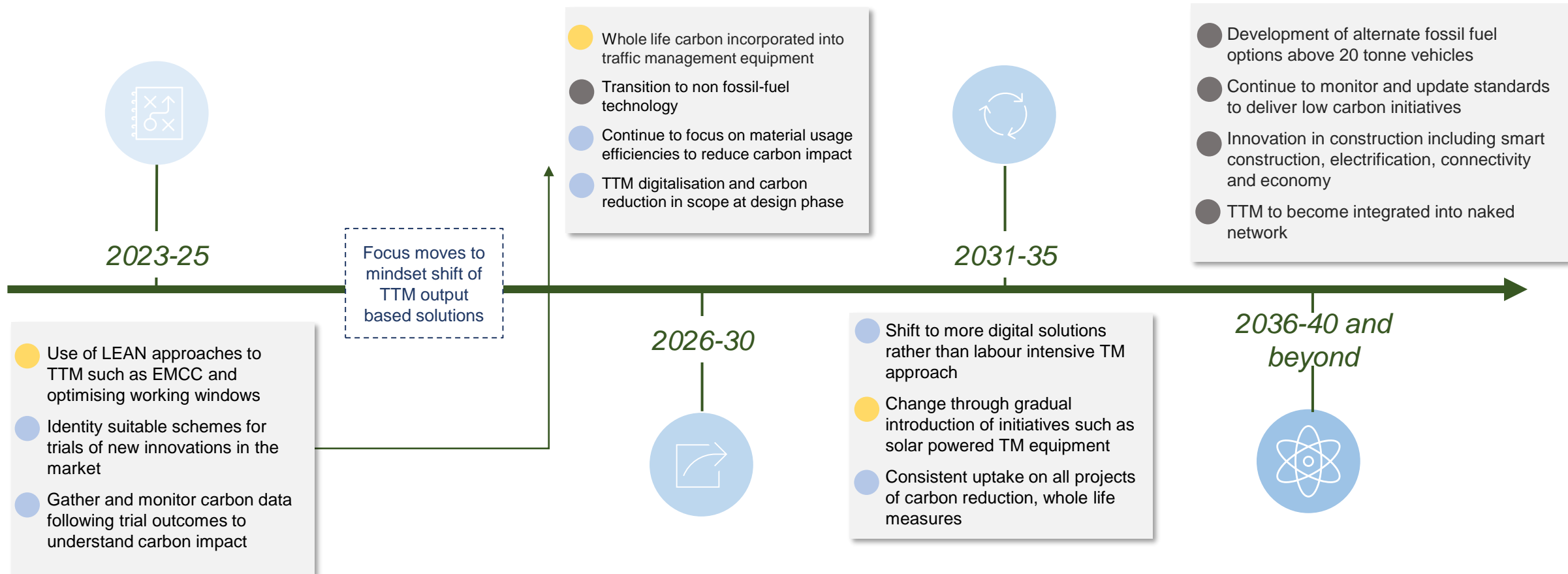
## Detailed Timing Plan

]

	2022				2023				2024				2025			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Phase I:</b> <i>Action a</i> Set requirements and incentivise suppliers for carbon reduction/data <i>Action b</i> Trial digital methods with the TTM supply base  <i>Action c</i> Rollout the use of EMCC as standard practice																
<b>Phase II:</b> <i>Action a</i> Increase uptake in alternate fuel options (HVO, Electric / Hybrid)  <i>Action b</i> Material management to increase reuse /recycle  <i>Action c</i> Use of TM Modelling																
<b>Phase III:</b> <i>Action a</i> Hydrogen fuel source alternatives  <i>Action b</i> Rollout of digitalisation methods  <i>Action c</i> Collaborate with our supply chain to drive innovation for more sustainable future solutions																

# Category: TTM

## Carbon Net Zero Initiatives Plan



In order for National Highways to achieve its carbon plan, it is essential that there is a cultural shift in the approach to TTM. This transition is to move away from conventional labour intensive TM approaches to an optimal event based strategy. Trialling new and current digital solutions on the SRN between 2023-2025 to gain knowledge of most optimal process for TTM including new technologies, fuel changes, and whole life carbon approaches to design will be key to meeting our ambitions.

**Legend:** ● Higher Impact ● Lower Impact ● Unknown Impact