



## Lower Thames Crossing: A pathfinder project for carbon neutral construction

*Matt Palmer, Executive Director, Lower Thames Crossing*

---

The Lower Thames Crossing (LTC) is a GBP 9 billion programme that will construct two 2.6-mile motorway tunnels beneath the river east of London—creating the U.K.'s longest road tunnels and the world's largest bored tunnels. The National Highways leadership team also set out, from day one, to ensure that the crossing is the greenest road ever built.

LTC is the first major infrastructure project in the U.K. to use its procurement phase to seek the lowest-carbon construction processes available. In the tender process, the project client set a minimum 30% carbon emission reduction target baseline, and then worked with the supply chain to secure this commitment. By the end of the tender process, the winning bid will reduce carbon by up to 50% through a low carbon design approach.

The project is central to National Highways' commitment to net-zero construction and maintenance by 2040. The timing, scale, and location of LTC make it an ideal pathfinder project for supporting this objective. It will build on the contractors' bid plans and showcase the commitment to driving further carbon reductions in the construction process by:

- ◆ Constructing the project with the lowest practicable carbon emissions.
- ◆ Driving low-carbon innovation and approaches.
- ◆ Creating a legacy of knowledge, skills, and a supply chain that enables future projects to achieve carbon-neutral construction.

## MEETING THE CONGESTION CHALLENGE

LTC will be the biggest road project since the M25 opened 30 years ago. The new tunnels will nearly double road capacity across the River Thames between Kent and Essex, while 14.5 miles of new road will connect the M25, A13, and A2/M2 to relieve congestion at the M25 Dartford Crossing, which is currently over capacity, by 20%. Dartford Crossing, which includes bridges and tunnels, is currently the worst-performing part of the U.K. motorway network. National Highways must undertake huge daily operations to manage congestion and keep the crossing moving. Traffic levels are now up to 100% of pre-pandemic levels.

This poor performance causes delays for tens of thousands of people each day and is a single point of failure for the U.K.'s internal and external trade flows, acting as a brake on the nation's economy.

## MEETING THE CARBON CHALLENGE

The development of LTC is crucial to reduce congestion. But there is also a pressing need for decarbonization across the whole of U.K. transport—not just in operations, but also in the construction phase. And despite recent announcements by the prime minister to slow down the U.K.'s journey towards net zero, there is still a very clear legal obligation for projects to meet the forthcoming carbon budgets and the 2050 net-zero target.

Since the LTC programme will take a decade to complete, it will straddle carbon budgets 4 and 5. When we reach the U.K.'s sixth carbon budget in 2035, it will require a huge 78% reduction in carbon from 1990 levels. Since the construction industry is currently behind the overall carbon reduction curve—the sector's emissions have actually increased since 1990—there is a clear urgency for changing construction practices.

As overall U.K. emissions fall, the construction industry can no longer hide from its carbon reduction responsibilities. Transport projects, such as LTC, must step up to play a pivotal role in achieving these overall national reduction goals.

## A CARBON PATHFINDER PROJECT

Initially aimed for a 30% carbon reduction, the LTC project has since secured commitment from contractors to achieve a 50% reduction. Now a carbon pathfinder project, LTC is working with the supply

chain and investing in innovative ideas and new technologies to increase this reduction further to 75% to 85%.

Integrating carbon considerations into leadership discussions must be central to the entire programme procurement and delivery plan—helping to drive progress and move the culture of the construction industry toward addressing carbon emissions.

The LTC has identified key steps the construction industry can adopt to reduce emissions:

- ◆ Know and track the carbon numbers with the PAS 2080 guidance
- ◆ Contract for low carbon
- ◆ Transition to diesel-free sites by using the CLC new route-map guidance
- ◆ Focus on specific carbon reduction areas such as the concrete route map and procuring green steel
- ◆ Establish a common leadership language

Through this approach, the LTC project has demonstrated the power of leadership, driving carbon reduction as core to overall project success from day one. The project has shown that a focus on cutting carbon can not only be financially viable, but also contribute to overall project cost and efficiency savings by challenging the industry to embrace change proactively and in collaboration.

