Planning

Provision of friction material for the brake blocks used across the London Underground fleet

Transport for London

UK2: Preliminary market engagement notice - Procurement Act 2023 - view information about notice types
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Scope

Description

All London Underground (LU) passenger rolling stock utilises a tread-brake actuator that applies a friction brake directly to the wheel tread via a brake block to solely provide both emergency and parking brake functions. The service brake function is predominantly fulfilled by the electrodynamic (ED) brake however the implementation and effectiveness of ED braking varies significantly across fleets due to differing braking architectures. In addition, some fleets have a Wheel Slide Protection system that will inhibit the ED to provide braking control via friction only.

The current brake block was originally developed in the 1980s and is used on all current LU fleets. This material is not optimised for newer fleets that feature high-capacity ED braking. In LU's modern rolling stock, the ED brake typically handles all the service braking effort above 15 kmph across all axles, below the ED blend out speed the friction brake takes over to bring the train to a stand. Some other trains include "trailer axles" where service braking is achieved solely through friction. Older trains feature lower-capacity ED braking systems, requiring frequent supplementation with friction braking.

Recent particulate monitoring studies conducted on the LU network have identified brake block dust as a contributor to airborne particle levels, in particular the PM2.5 particles. There is interest in developing an alternative brake block material that reduces airborne dust emissions. Additionally, brake squeal has been observed in newer stocks, and there is ongoing investigation into the degradation of the brake block coefficient of friction due to glazing and contamination. A new friction material should aim to mitigate these issues.

Given the significant engineering effort, high cost and certification requirements associated with altering the friction characteristics of the brake system, Transport for London (TfL) prefers any new brake block material to match the functional characteristics of the current standard material. For reference, the existing brake block material is the "697" material from KBRS

Transport for London is looking for the service provider to provide brake blocks for the LU passenger fleets. This includes:

1. 72TS used on the Bakerloo Line

2. 92TS used on the Central and Waterloo & City Line

3. 95TS used on the Northern Line

4. 96TS used on the Jubilee Line

5. 09TS used on the Victoria Line

6. S Stock used on the District, Hammersmith & City, Circle, and Metropolitan Lines

Contract dates (estimated)

- 5 October 2026 to 3 October 2031
- 4 years, 11 months, 30 days

Main procurement category

Goods

CPV classifications

- 34600000 - Railway and tramway locomotives and rolling stock and associated parts

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Engagement

Engagement deadline

11 August 2025

Engagement process description

All relevant information will be contained tin the EME document

To request please contact the Procurement Lead

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The completed EME return date is 29th July 2025 12.00 Noon GMT

Contracting authority

Transport for London

- Public Procurement Organisation Number: PHMT-6197-NWNZ

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Organisation type: Public authority - central government