

Reducing Energy Use in Transport: Taking Real Action

Modernising Urban Public Transport

Intermediate Public Transport – Investment in urban public transport is currently focused almost exclusively on either conventional Light Rail that is clean but expensive or on buses, which can be cheaper but have serious disadvantages. The diesel bus is the standard form of public transport used in urban areas, except where dense population and heavy traffic justify the use of conventional Light Rail. However, the urban diesel bus is incompatible with the latest governmental policies on environmentally friendly transport. Trams also have a better record than buses for encouraging a significant modal shift away from private cars to public transport.



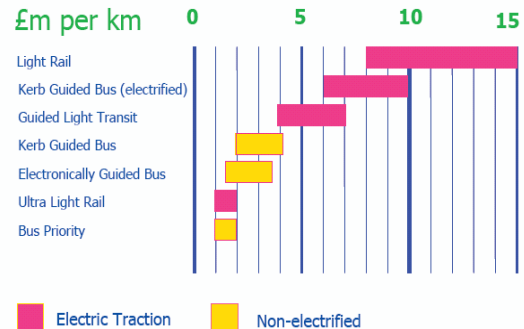
Seventy passenger tram designed by TDI

Ultra Light Rail provides an alternative approach, which is clean and cost-efficient – as well as having the ability to attract passengers. ULR trams look like LRT and perform just as well. Climate change and energy security are environmental imperatives that will require the introduction of clean, popular, energy efficient public transport in our cities as an alternative to private car use. The sooner this happens the better for the climate and for the economy. The change can be achieved quickly and economically by using already existing technology, in a novel form, to create a new, modern, public transport system: **Ultra Light Rail**

Benefits of a modern Ultra Light Rail system:

1. **Pollution** – toxic transport emissions cause 24,000 people to die prematurely in the UK every year. ULR trams have very low or zero emissions due to their high energy efficiency and use of alternative fuels such as hydrogen, biogas, or other biofuels.
2. **Carbon** – ULR trams emit little or no carbon dioxide (CO₂) and attract more passengers who would otherwise be using their cars, thus contributing to meeting overall CO₂ reduction targets.
3. **Energy security** – ULR trams can run economically on biofuels or hydrogen produced from renewable energy sources. This makes them free from dependency on fossil fuels, at a time when the cost and supply of fossil fuels is becoming increasingly volatile.
4. **Energy Efficiency** – Trams running on steel wheels on steel rails are at least **three times more energy efficient than buses** running on rubber tyres on tarmac. The hybrid drive system allows brake energy recovery, adding further to energy efficiency. If the trams carry more people per vehicle, then the energy saving per passenger carried becomes even greater. Trams also use less energy because they can run on traffic free routes and avoid congestion.
5. **Vehicle Costs** – light ULR trams with on-board power source and without continuous electrification are comparable to buses in cost. However, **trams normally have a life of over 30 years**, as compared with 8-13 years for buses, making them a more economical investment. This is due to their less demanding duty cycle and smooth running on rails.

6. **Operating Costs** – the relatively low power requirement of energy efficient light trams reduces fuel consumption, thereby decreasing operating costs. Regenerative braking further reduces energy consumption. Maintenance costs are also lower because of smooth running on rails.
7. **Infrastructure Costs** – lightweight trams with on-board power do not require heavy substructure or continuous electrification. This considerably reduces costs per kilometre. The diagram to the right gives an indication of comparative costs (illustration purposes only). LRT is normally at least six times more expensive than ULR.
8. **Market Appeal** – trams are significantly more popular than buses. This encourages modal shift, i.e., more people leave their cars at home and use public transport.
9. **Urban Regeneration** – trams play a vital part in urban regeneration by creating uplift in property values along the line of route. This can largely compensate for installation costs.
10. **Pedestrianisation** – ULR trams can operate safely within pedestrian areas, which is not possible with buses.
11. **Capacity** – ULR has flexible capacity, enabling it to meet demands for a frequent service with passenger flows ranging from a few hundred to around five thousand passengers per hour in each direction. A number of tram designs are available from several different manufacturers. Carrying capacity can range from thirty-five to two hundred passengers per tram.



PPM 35 passenger tram



UK Loco 150 passenger tram



TDI Mini Tram 50 passenger tram

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